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Document title: **BIODIVERSITY MANAGEMENT PLAN**

Document number: **1062-TGN-MNG-PLN-PJM-22-00006**

Project: **THE DEVELOPMENT OF THE ROMANIAN GAS TRANSMISSION SYSTEM ALONG BULGARIA-ROMANIA-HUNGARY-AUSTRIA ROUTE, PODISOR – GMS HORIA AND 3 NEW COMPRESSOR STATIONS (JUPA, BIBESTI AND PODISOR) (PHASE 1) (REFERENCE NUMBER IN EU LIST: 6.24.2)**

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ABBREVIATIONS

Abbreviations	Description
AoI	Area of Influence
BAP	Biodiversity Action Plan
BMP	Biodiversity Management Plan
BRUA	Bulgarian-Romanian-Hungarian-Austrian (Natural Gas Transmission Corridor Project)
BT	Bioteam
C	Constructor
CESMP	Construction Environmental and Social Management Plan
CH	Critical Habitat
EBRD	European Bank of Reconstruction and Development
EC	European Community
EIA	Environmental Impact Assessment
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plans
GCS	Gas Compressor Stations
GIP	Good International Practice
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
HSE MS	Health, Safety and Environmental Management System
KPI	Key Performance Indicator
mc	Meters cubed
PBF	Priority Biodiversity Feature
PRs	Performance Requirements
RMP	Restoration management plan
RoW	Right of Way
SEIA	Supplementary Environmental Impact Assessment
T	Transgaz
UV	Ultra- violet

1 Introduction

1.1 Overview

This is document is the Project Biodiversity Management Plan, document no 1062-BRUA-BMP-0004.

Project construction activities have the potential to generate a wide range of environmental impacts on ecologically valuable receptors including designated sites, sensitive habitats and protected species. Examples of such impacts include (but are not limited to)

- Vegetation loss and conversion including impacts to habitats supporting notable species;
- Felling of trees and effects on roosting bats and nesting birds;
- Loss of ponds and impacts to watercourses with associated amphibians and fish; and
- Disruption of large mammal movements.

The Project seeks to proactively address such impacts and proposes to use an adaptive management approach (plan-do-check-act-replan) to reduce their potential severity, based around the use of 'Biodiversity Specialists' to clear the route prior to removal of any vegetation.

1.2 Purpose of this Biodiversity CESMP

Project construction activities can create negative outcomes on the ecological environment through which the pipeline passes, with some of the areas such as the Natura 2000 sites being regarded as highly sensitive and highly valued ecological sites exhibiting a wide range of biodiversity. This CESMP therefore:

- Outlines actions and measures necessary for the effective management of biodiversity along the route;
- Covers identified impacts upon biodiversity;
- Details specific control measures to be implemented by Transgaz and its contractors (and subcontractors), to achieve this;
- Incorporates the requirements of the ESIA findings, international standards, Romanian legislation, Lenders requirements and Project-specific construction permits.

By doing this, the CESMP defines the actions and measures necessary for the overall management of biodiversity for both the Project beneficiary (TRANSGAZ S.A., represented by BRUA PMU) and contractors in line with the applicable law and other obligations.

1.3 Scope of the Biodiversity CESMP

This CESMP covers all construction activities and is applicable to all Transgaz staff, Contractors and Sub-contractors. Whilst this CESMP will act as a 'framework' to determine what the Contractors will be expected to produce, Contractors are required to ensure that all the CESMP requirements are adopted within their own management plans. Further information on Roles and Responsibilities is provided in Section 5 of this CESMP.

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1.4 Document Management

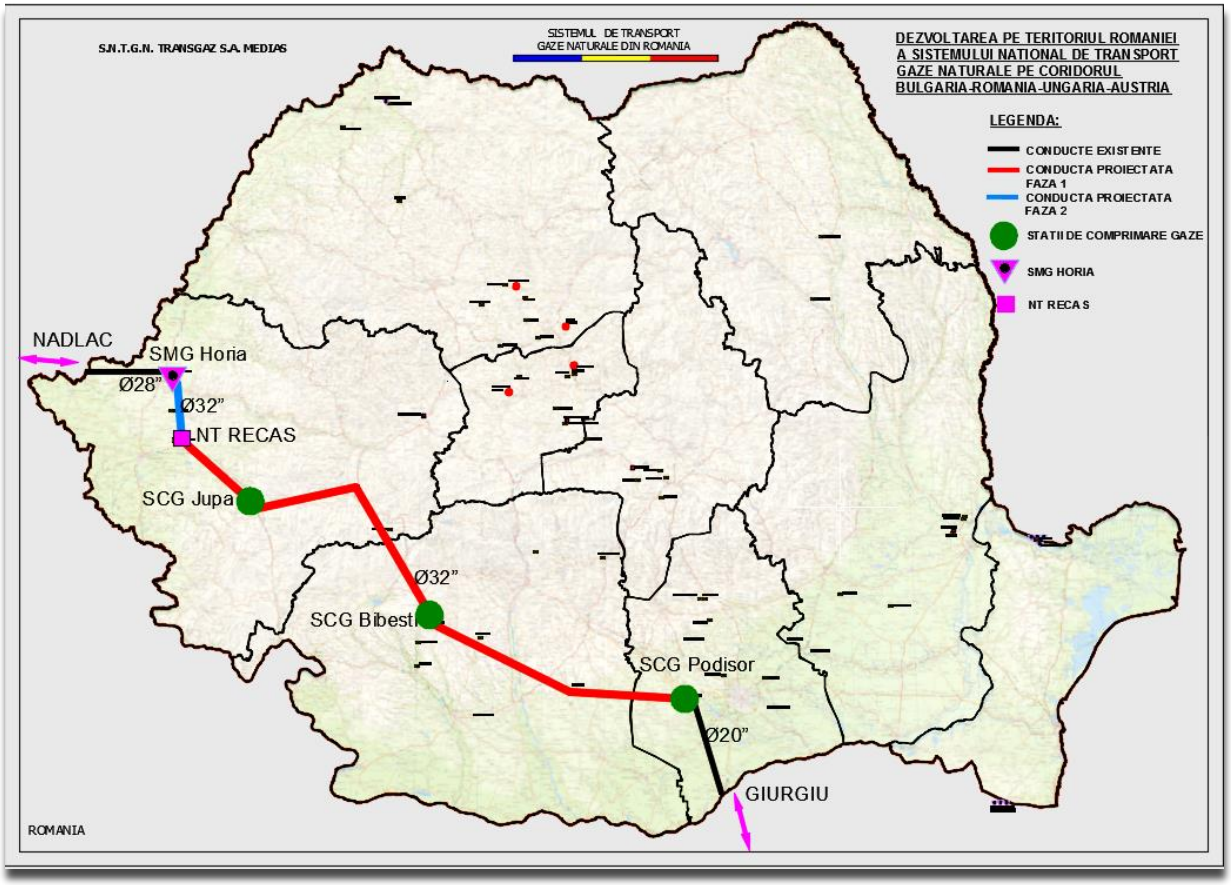
Document will be managed and controlled by the Document Control and Archiving Compartment within BRUA Project Management Unit. The methods for document management and improvement during the construction phase will be described in the Document Guide to be developed by BRUA PMU.

2 The BRUA Project

2.1 Project Overview

SNTGN Transgaz SA Medias ("Transgaz", "the Company" or "the Beneficiary"), the licensed operator of the Romanian National Gas Transmission System, is developing a 529km natural gas pipeline between Podisor in southern Romania and Horia in the west of the country (the "Project"). The pipeline, which for much of the route will be buried and will upgrade or run alongside existing pipelines, represents the Romanian section of the Bulgaria-Romania-Hungary-Austria Natural Gas Transmission Corridor. In addition to the pipeline itself, the Project will also require construction of three new Gas Compressor Stations (GCS) at Podisor, Bibesti and Jupa, as well as a range of supporting infrastructure including block valve stations, construction camps, pipe storage areas, watercourses and infrastructure crossings and access roads.

Figure 2.1 BRUA Route



Whilst the majority of the route is on land currently used for farming, it does pass through a number of specifically sensitive areas, including seven Natura 2000 Sites, and the nationally important Dinosaurs Geo-Park. It also passes close to a number of sites of archaeological value including the ancient city of Tibiscum near Jupa. In some of these areas, as well as near major roads and railways and for the 8 major rivers, this will involve the use of horizontal directional drilling. In other areas in the mountains special "hammering techniques" may also be applied.

2.2 Environmental and Social Commitments

The Project is subject to various environmental and social requirements that are managed by the Company through the implementation of its Health, Safety and Environmental Management System (HSE-MS)[1]. This HSE-MS includes a specific Project Framework Construction Environmental and Social Management Plan (F-CESMP) as well as associated topic/activity specific Construction Environmental and Social Management Plan (CESMPs). Operational phase ESMPs will be developed at a later stage prior to BRUA operation. The overall approach to integration of the above documents is described in the F-CESMP document itself.

2.3 Project Approach to Biodiversity Management

Project construction activities have the potential to generate a wide range of environmental impacts on ecologically valuable receptors including sensitive habitats and protected species.

The Project seeks to proactively address such impacts and proposes to use an adaptive management approach (plan-do-check-act-replan) to reduce their potential severity, based around the use of Biodiversity Specialists to clear the route prior to removal of any vegetation.

Role of the Biodiversity Specialist

The overarching goal of a Biodiversity Specialist is to translate mitigation requirements written in CESMPs and other management plans into practical measures on the ground and be able to be responsive to changeable and less predictable situations. A key challenge for the Biodiversity Specialist is to ensure that all staff are fully aware of the environmental sensitivities of the site and their responsibilities, as outlined in the BMPs. This would be conducted via practical toolbox talks ahead of the construction.

Since construction through multiple habitat types provide environmental challenges, key concerns are likely to be around sensitive habitats (including effective control of works near water) and effective avoidance and minimization of impacts during works in sensitive sites (e.g. the Natura 2000 sites – see below) and where protected or notable species may be present in the working corridor.

To coordinate responses to environmental concerns, a number of technical reporting mechanisms should be set up to allow for issues to be raised and resolved in an efficient manner. These can be integrated with the projects own proposed HSE-MS. They should form pre-enabling surveys ahead of the work teams by the Biodiversity Specialists and the production of hazard maps regarding the location of particularly sensitive habitats and species. These should be used by the Biodiversity Specialists to update the contractor BMPs, including timing of works, and amendments to construction methods statements for sensitive areas, as required. Demonstration of compliance of the BMPs via daily field notes and photographs will also be part of their responsibility.

In addition to the daily field notes, a weekly or fortnightly report on issues and/or the status of the construction, with regards to protected habitats and species, will be presented at an environmental construction group meeting, attended by the client, selected environmental specialists (including an Biodiversity Specialist), the individual in charge of overall Environmental Protection and any other regulators/monitors. Regular meetings will assist with rapid solutions to ecological issues, by gathering all interested parties together in one room at one time and agreeing BMPs amendments as required.

[1] Integrated Management Manual Quality-Environment-Occupational Health and Safety, code MSMI-CMSSO Ed. 03/Rev.

The Biodiversity Specialists may be appointed and managed by the contractor (contracting party for biodiversity services), but monitored by a Biodiversity Expert appointed by the Beneficiary. This individual may also require additional support when multiple contractors are included within the overall project work fronts. At least one Biodiversity Specialists shall be employed per lot / spread, however in some locations additional Biodiversity Specialists may be required, for example at times of high construction activity and works in sensitive areas, two Biodiversity specialists should be present on site at any one time to manage the workloads and to ensure effective communication.

Biodiversity Specialists should be well trained in the practical elements of protected species including handling of species that they may have to move and the recognition of sensitive habitats; they should also have a working understanding of wider environmental issues and the construction/engineering process. If these skills are difficult to obtain in the country of implementation, training exercises to 'upskill' Biodiversity Specialists may be required.

Key responsibilities of the Biodiversity Specialist

- Ensuring that the pre-works data collection surveys are completed sufficiently to allow:
    - Location of habitats within the Natura 2000 sites to be mapped and areas to be impacted quantified;
    - Locations of sensitive habitats, critical habitats and PBF features outwith the Natura 2000 sites to be mapped. These habitats might include:
        - Forests
        - Riparian areas;
        - Ponds (and areas holding water ephemerally);
        - Wetlands;
        - Notable grasslands and areas of scrub;
        - Invasive plant species.
    - Key locations for valuable, notable and PBF species to be identified.
- Drawing up bespoke method statements for all works within Natura 2000 sites and sensitive habitats, (including sensitive riparian areas);
- Conducting walkthrough (rapid assessment) surveys immediately prior to works commencing in an area. The purpose of this survey will be to identify features such as:
    - Birds nests;
    - Evidence of bat roosting;
    - Plants to receive specific restoration etc.
- Providing tool box talks to contractors to ensure compliance.
- Supervising the works and moving any species discovered away from the works;
- Conducting day-to-day checks such as checking trenches for fauna and ensuring the other components of the CESMP are followed;

- Mapping and reporting the findings from the field for reporting back to relevant stakeholders at regular intervals (at least every two weeks);
- Ensuring restoration of areas is as per the Restoration Management Plan (RMP) and restoration prescriptions of the BMP;
- Updating species data in the field to ensure that the receptors selected for BAP monitoring are appropriate.
- Ensuring adequate data is captured to inform the monitoring within the BAP (Biodiversity Action Plan);

Protection of Designated Sites

Table 2.1 below lists the designated sites that the RoW will pass through and where specific working method statements must be applied. The RoW also passes close to another 6 designated sites, as outlined in the Supplementary Environmental Assessment, and specific careful must be taken in these areas. The location of these sites is shown in Appendix 5 of this CESMP.

Site / habitat specific method statements

Sensitive habitats along the route (to be identified in line with the SEIA by the Biodiversity Specialist in the pre-works surveys), both within the Natura 2000 sites and outwith these areas may require specific method statements to limit impacts.

The method statements to be drawn up for works within the Natura 2000 sites and sensitive habitats should contain the following information as a minimum:

- Location of the designated site / sensitive habitat and the chainages within which the prescriptions of the method statement should be applied;
- Specific habitats within the area, their locations and any specific floral or faunal associations;
- Any details obtained in the pre-works services;
- Any special input required from the Biodiversity Specialist;
- Explicit details of GIP mitigation which should be applied in the area;
- Details of any specific construction practices which should be applied in the area;
- Details of any timing restrictions which apply to works in the area;
- Restoration details for the habitats within the area where the method statement applies.

Table 2.1 Designated sites that the ROW will pass through

Site Name	Approx Chainage	Distance	Site Description / Habitats
Pădurea Bolintin (ROSCI0138)	2-4	2km	*The route pass through approximately 2km of this site which is designated for groves with white willow (Salix alba) and white poplar (Populus alba); and oak (Quercus sp.) species and hornbeam (Carpinus sp.). European pond turtle (Emys orbicularis), otter (Lutra lutra) and fire bellied toad (Bombina bombina) are also present within this site*
Valea Oltului Inferior (ROSPA0106)	119	1.3km	*The route passes through some 1.3 km of this site including across the Olt River and its surroundings are an important area for resident and migratory birds. During the migration season, around 20,000 water birds inhabit the region. Abundant species are: white stork (Ciconia ciconia), great cormorant (Phalacrocorax carbo), Little bittern (Ixobrychus minutus), Stone curlew (Burhinus oedicnemus), European roller (Coracias garrulous), Smew (Mergus albellus), Whooper (Cygnus cygnus) Mute swan (Cygnus olor), Caspian gull (Larus ribidundus), Seagull (Larus michaelis), Black-headed gull (Larus ribidundus).*
Nordul Gorjului de Vest (ROSCI0129)	270-284	13.7km	*The route passes for 13.7 km along the edge of this site which supports beech forest, alpine meadows, cliffs, caves, steep slopes, alpine scrub and gorges. Also, designated for numerous species including large carnivores: bear (Ursus arctos), wolf (Canis lupus) and lynx (Lynx lynx), bats, amphibians, invertebrates and alpine plants. It also supports 873 ha of natural, sweet chestnut (Castanea sativa) forest - one of only two such areas in Romania.*
Defileul Jiului (ROSCI0063)	282-284	740m	*The route passes through for some 740m along the edge of this site (which is adjacent to the previous site) The site supports mostly virgin stands of beech (Fagus sylvatica) and oak (Quercus petraea) forests with areas of hornbeam (Carpinus betula) and lime within the gorge associated with cliffs and caves. There are also areas of smaller tree and shrub species such as wild cherry (Prunus sp.), rowan (Sorbus sp.), elder (Sambucus nigra), juniper (Juniperus sp.) and dogwood (Cornus sp.) species. Also, designated for bats, amphibians, invertebrates and the Carpathian tozzia plant (Tozzia carpathica).*
Strei – Haţeg (ROSCI0236)	314-318	3.6km	*The route passes along the edge of this site (and slightly inland for engineering purposes) for some 3.6 km. The site supports notable habitats including steppe grasslands, caves and beech (Fagus sylvatica), oak (Quercus sp.) and hornbeam (Carpinus sp.) forests. The site is also important for the golden eagle (Aquila chrysaetos), collared flycatcher (Ficedula albicolis), red-breasted flycatcher (Ficedula parva), and the European honey buzzard (Pernis apivorus) as well as bear (Ursus arctos), otter (Lutra lutra), wolf (Canis lupus), bats, amphibians, invertebrates and plants.*
Coridorul Rusca	360-363	2.9km	*The route crosses this site at the narrowest point where it follows a road for some 2.9km through the site which includes beech (Fagus sylvatica), oak (Quercus sp.) and hornbeam (Carpinus betula)*

Site Name	Approx Chainage	Distance	Site Description / Habitats
Montană - Ţarcu – Retezat (ROSCI0292)			*forests and spruce (Picea sp.) forests, but also present are juniper (Juniperus sp.) shrubs and rhododendron (Rhododendron sp.). It is also important for large carnivores, namely wolf (Canis lupus), bear (Ursus arctos) and lynx (Lynx lynx). Otter (Lutra lutra) and the fire-bellied toad (Bombina bombina) are also present.*
Râul Timis între Rusca şi Prisaca (ROSCI0385)	406	740m	*Where the route crosses the Timis River it passes through an area of riparian habitat designated for otter (Lutra lutra), bats, amphibians and reptiles including the Hermann's tortoise (Testudo hermanni) and fish.*

Working in Sensitive Habitats

Table 2.2 below shows particularly sensitive habitats that have been identified along the route where specific mitigation will be required (detailed further in Appendix 2 of this CESMP and to be further detailed in the Biodiversity Action Plan- BAP). The approximate locations of these habitats are shown in Appendix 6 of this CESMP, but will need to be mapped in detail by the Biodiversity Specialist before work commences. Specific mitigation is presented in Appendix 2A. For some sensitive habitats (all areas in Natura 2000 sites and some of the most sensitive riparian areas for example) a bespoke method statement should be followed.

Table 2.2 Particularly sensitive habitats that have been identified along the route

Habitat Type and location (approximate – these habitats may occur outwith these areas)
Erosion/Scree Slopes
Thlaspietea rotundifolii which is a class of vegetation developed on unstable, mobile screes formed of small to mid-sized rock fragments
8120 Grohotişuri calcaroase şi de şisturi calcaroase din etajul montan până în cel alpin (Thlaspietea rotundifolii)
Present within ROSCI0129 Nordul Gorjului de Vest
Grasslands (within Natura 2000 sites)
6170 “Pajişti calcifile alpine şi subalpine”
Alpine and sub-alpine calcareous grasslands
6430 Comunități de lizieră cu ierburi înalte higrofile de la nivelul câmpiilor, până la cel montan și alpin
Tall herb fringe communities on wetland lowlands up to alpine environments
6520 Fânețe montane
alpine meadow
All located within ROSCI0129 Nordul Gorjului de Vest
Alpine shrubs
4060 Tufărişuri alpine și boreale
Alpine shrubs
ROSCI0129 Nordul Gorjului de Vest
Forests – Within Natura 2000 sites
Beech and Oak / Hornbeam forests
• 9110 beech forests of Luzulo-Fagetum
• 9130 beech forests of Asperulo-Fagetum
• 9150 Medio-European beech forests from Cephalanthero-Fagion
• 9170 Oak forests with hornbeam of Galio-Carpinetum

Habitat Type and location (approximate – these habitats may occur outwith these areas)
• 91L0 Illyrian oak forests with hornbeam(Erythronio-Carpiniori) • 91M0 Balkan-Pannonian forests of oak and sky • 91V0 Dacian Beech forests (Symphyto-Fagion) • 91Y0 Dacian forests of oak and hornbeam • 9410 Picea abies acidophilous forests of the mountainous region (Vaccinio-Piceetea) Within Natura Sites: ROSCI0129 Nordul Gorjului de Vest ROSCI0138 Bolintin forest ROSCI0292 Rusca Montană Corridor -Țarcu-Retezat
Forests outwith the Natura 2000 sites
Potential to be present in numerous locations along the route.
Ponds / flooded areas and small wetlands (within Natura 2000 sites and outwith these areas)
These habitats should be identified and mapped by the biodiversity specialist.
Riparian areas
All riparian areas along the route must be assessed by the Biodiversity specialist to determine if they are sensitive habitats. All riparian areas within Natura 2000 sites are likely to be sensitive habitats.

Conservation of Notable Species

Table 2.3 below outlines a subset of the notable species that are likely to be encountered in the route and will require specific mitigation and a rough identification of where they are expected to be found. As explained before, this will be further detailed following the detailed mapping to be produced by the Biodiversity experts before work commences. This is further detailed in Appendix 2B of this CESMP and Chapter 9 of the . These species have been selected to drive appropriate mitigation and restoration.

Table 2.3 Notable and protected species that may be encountered in the route

Species
Plants
Carpathian Tozzia (Tozzia carpathica)
Greater Pasque Flower (Pulsatilla grandis)
Blue Bell (Campanula serrata)
Steppe Iris (Iris aphylla ssp. hungarica)
Amphibians

Species
Fire-Bellied Toad (Bombina bombina)
Yellow -Bellied Toad (Bombina variegata)
Great Crested Newt (Triturus cristatus)
Birds
Eurasian Oystercatcher (Hematopus ostralegus) and other riparian area nesting birds including Coracias garrulus
Red footed falcon (Falco vespertinus) and other raptors and storks including Ciconia nigra
European Turtle Dove (Streptopelia turtur) and other woodland nesting species.
Fish, bivalves and crustaceans
Carpathian Brook Lamprey (Eudontomyzon danfordi)
Danubian Brook Lamprey (Eudontomyzon vladykovi)
Golden Spined Loach (Sabanejewia aurata)
Broad-Clawed Crayfish (Astacus astacus)
Thick Shelled River Mussel (Unio crassus)
Invertebrates
Scarce Fritillary (Euphydrias maturna)
Fisher's Estuarine Moth (Gortyna borelii lunata)
Scarce Large Blue (Maculinea teleius)
Hermit Beetle and other dead wood invertebrates (Osmoderma eremita, Cerambyx cerdo, Rosalia alpina)
Danube Clouded Yellow (Colias myrmidone)
Steppe Grasshopper (Isophya costata)
Bush Grasshopper (Isophya stysi)
Mammals
Otter (Lutra lutra)
Bats: multiple species - including
- Mediterranean Horseshoe Bat (Rhinolophus euryale)
- Greater Horseshoe Bat (Rhinolophus ferrumequinum)
- Lesser Horseshoe Bat (Rhinolopus hipposideros)
- Barbastelle (Barbastella barbastellus)
- Long fingered bat (Myotis capaccinii)
Brown Bear (Ursus arctos)
Wolf (Canis lupus)
Eurasian Lynx (Lynx lynx)
Forest Dormouse (Dryomys nitedula)
European ground squirrel (Spermophilus citellus)
Balkan mole rat (Spalax graecus)
Reptiles
European Pond Turtle (Emys orbicularis)
Hermann's Tortoise (Testudo hermanni)
Snakes and lizards (including Lacerta agilis, Lacerta trilineata and Lacerta praticolam, Natrix tessellata, Coronella austriaca)

3 Key Policies, Legislation and Standards

3.1 Overview

The Project is subject to a range of policies, legal & regulatory requirements and other applicable standards of relevance to this CESMP. Where two or more of the identified standards are inconsistent or contradictory, unless otherwise justified, the Project will adopt the most stringent.

3.2 Company Policies

Transgaz' *HSE policy* (as outlined in the Integrated Management Manual Quality-Environment-Occupational Health and Safety, code MSMI-CMSSO Ed. 03/Rev.) and *Corporate Social Responsibility policy* apply to all activities carried out by, or on behalf of, the Company as part of this Project. Details of these policies are provided in the F-CESMP Document.

3.3 National Legislation and Permits

All contractors are also required to comply with all relevant national regulatory requirements. Whilst contractors are required to verify the latest regulatory requirements themselves an indicative list of Romanian national legislation is provided in Appendix 4 to this CESMP. Contactors must also ensure that relevant requirements of the various construction-related permits for the Project issued by national (and local) regulators are addressed. Any requirements arising from the revision/amendment of those permits will also be applied. Key permits are summarised in the F-CESMP Framework Document.

3.4 International Standards and commitments

A range of international standards and commitments are applicable to this CESMP as described in the F-CESMP Document. These include the EBRD Environmental and Social Performance Requirements (PRs), most specifically PR6 for this CESMP[2]. All contractors are required to comply with all such requirements as they apply to their activities

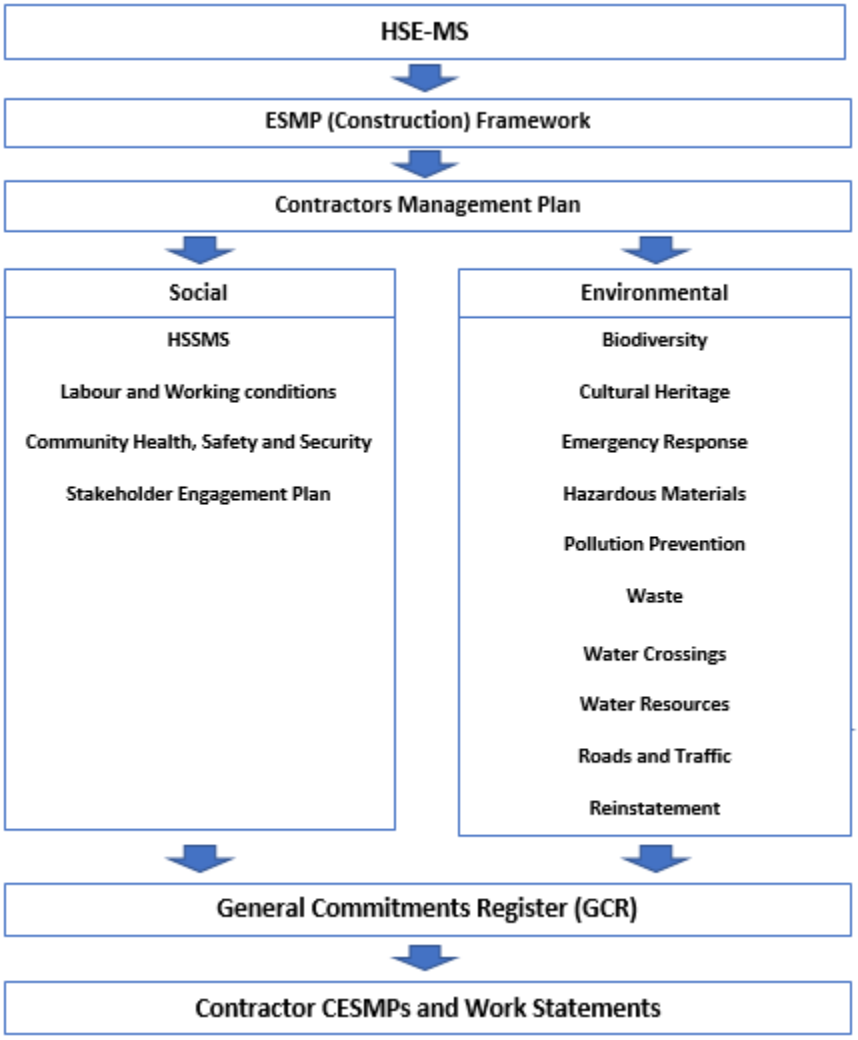
[2] http://www.ebrd.com/environment/pdf-guidance-note-ebrd-performance-requirement-6.pdf
http://www.ebrd.com/documents/environment/performance-requirement-6.pdf

4 Linkages to Other Elements of Transgaz HSE-MS

4.1 Overview

This CESMPs forms part of the Project HSE-MS as described in the F-CESMP. Where relevant the CESMP should be read in conjunction with other HSES-MS elements including the ESMP source documentation, control documentation and the key HSE-MS documentation. These are described further in the F-CESMP and illustrated in Figure 4.1 below:

Table 4.1 Links to other HSE-MS Documentation



4.2 Linkages to Other CESMPs

A listing of the CESMPs and their document numbers is presented in the F-CESMP Document. The other CESMPs considered to be of particular relevance to the Biodiversity CESMP, and which should be read alongside this CESMP for completeness, are as follows in Table 4.2:

Table 4.2 Other Relevant CESMPs

Management Plan	Document Reference
Reinstatement Management Plan	1062-TGN-MNG-PLN-PJM-22-00014
Pollution Prevention Management Plan	1062-TGN-MNG-PLN-PJM-22-00003
Waste Management Plan	1062-TGN-MNG-PLN-PJM-22-00005
Hazardous Materials Management Plan	1062-TGN-MNG-PLN-PJM-22-00004
Water Management Plan	1062-TGN-MNG-PLN-PJM-22-00007
River/Water Crossing Plan	1062-TGN-MNG-PLN-PJM-22-00008

5 Roles and Responsibilities

5.1 Overview

An integrated approach to biodiversity management involves a range of stakeholders, including the Company, the Contractors (and subcontractors), local authorities, regulatory agencies and the general public. Such a system therefore requires robust processes regarding information dissemination, training, designation of responsibility, management actions, monitoring, control, and corrective actions. Generic roles and responsibilities for the Company and Contractors are detailed below. An initial RACI matrix (defining who is Responsible, Accountable, Consulted and Informed) and split of activities between key stakeholders is shown in Table 5.1 below with further information on specific responsibilities for CESMP actions outlined in Appendices 1 and 2 to this CESMP. A detailed RACI matrix should be developed by the EPC contractor prior to work on site commencing.

Table 5.1 Initial split of activities

(R=responsible, A= accountable, I= Informed, C= Consulted M= monitoring role).

Activities	Beneficiary PMU	Benficiary's Biodiversity Specialist	Contractors (constructor)	Contractor Biodiversity Specialist
Initial Ecological Surveys	R	A	I	I
Creation of EIA / SLIP / CESMP	R	A	I	I
Pre Construction Surveys	R	A	I	I
Development of Tactical construction biodiversity management plan	I	M	R	A
Dissemination of information and training to workforce	I	M	R	A
Training of Transgaz staff	R	A	I	I
Management and monitoring of day to day ecological impacts	I	M	R	A
Ecological mitigation implementation	I	M	R	A
Audit of contractor performance	A	R	C	C
Corrective actions	I	M	R	A
Management of cooperation	A	I	A	I

The operational cooperation procedures in the construction site will be set in the Statement of Works that will be Appendix to the Commercial Contract to be signed between the Beneficiary and the Contractor. The Contact Point Unit for each construction site, as defined in the Contractor Management Plan, is the structure responsible for the implementation and monitoring of the provisions in the Statement of Works.

5.2 Company Roles & Responsibilities

Transgaz HSE management roles and responsibilities during Project construction are detailed in the BRUA PMU "Regulation of organization and functioning". Further information is also provided in other documents listed in the F-CESMP document.

With regards to this CESMP, Transgaz S.A. is responsible for key management activities including:

- Development of bidding conditions regarding biodiversity management;
- Professional training of its representative on site;

- Surveillance and control;
- Management cooperation in case of environmental accident
- Management of pollution from its own operations

Specifically within the organization the following roles and responsibilities will apply:

Table 5.2 Roles and responsibilities within the organization:

Responsible persons	Activities
Transgaz General Director	Approves Biodiversity Management Plan and the resources for implementation
BRUA Manager	Ensures the Project compliance with the Plan requirements Has overall responsibility for implementation of this Plan, including main contractors Ensure that this plan is available to all employees and key contractors for PMU BRUA Develops, revises and monitors this Plan
HSSE - Manager	Provide necessary support for main contractors to ensure compliance with the requirements of the Biodiversity Management Plan Performs audits and regular inspections of the main contractors for monitoring performance compared to the requirements of this Management Plan Report all hazards, incidents and non-conformities Prepares an annual environmental report that includes details on biodiversity issues Centralises the reports issued by the Contracting parties of the biodiversity services Assures communication between Transgaz Contracting parties of the biodiversity services and the constructor Makes periodical field inspections
Transgaz Biodiversity Specialist	Ensuring that the pre-works data collection surveys are completed sufficiently Drawing up bespoke method statements for all works within Natura 2000 sites and sensitive habitats, (including sensitive riparian areas); Ensures that walkthrough (rapid assessment) surveys are being undertaken by qualified personnel immediately prior to works commencing in an area. The purpose of this survey will be to identify features such as sensitive locations, bird nesting areas, bat roots, presence of other rare or endangered species etc Providing tool box talks to contractors to ensure compliance. Monitoring the works and ensuring that any species discovered are moved away from the works; Monitoring that day-to-day checks are occurring such as checking trenches for fauna and ensuring the other components of the CESMP are followed; Ensuring that mapping and findings from the field are reported back to relevant stakeholders at regular intervals (at least every two weeks) Ensuring restoration of areas is as per the Restoration Management Plan (RMP) and restoration prescriptions of the BMP; Reviewing species data in the field to ensure that the receptors selected for BAP monitoring are appropriate. Ensuring adequate data is captured to inform the monitoring within the BAP (Biodiversity Action Plan).

5.3 Contractor Roles & Responsibilities

Overarching Contractor HSSE requirements are defined in the relevant articles of their contracts and associated mandatory annexes - Work of statement document. Each contractor must also implement all relevant requirements of the CESMPs, including this Biodiversity CESMP. Contactors are also responsible for ensuring that any subcontracted work also meets these requirements. Contractors will therefore be required to present to the Beneficiary, represented in the project by PMU BRUA in accordance with the requirements, their proposed approaches to:

- Prevention and management of ecological impacts on site
- Any other conditions outlined in this CESMP or its appendices.

In addition, Contractors will present the Beneficiary with details of:

- their proposed team responsible for implementing requirements management and monitoring for biodiversity protection
- Contracts / agreements' pre staff team responsible for implementing requirements management and monitoring for the protection of biodiversity and their CVs,
- Records any ecological impacts.

Further specific responsibilities of both the operator and the contractors/sub-contractors are outlined in the Appendices this CESMP.

Table 5.3 Contractor Roles and Responsibilities

Roles	Responsibilities
Contracting parties / Constructor	• Develop their own plans for Biodiversity Management in accordance with the requirements of this Plan and in accordance with criteria established by The Contracting Parties of Biodiversity Services • Compliance with the legislation and the management procedures for the Biodiversity; • Application of the biodiversity protection management techniques within the works as required by The Contracting Parties of Biodiversity Services • Providing information / training of all personnel engaged in BRUA with particular focus on works in sensitive areas • Designates by decision the person / persons responsible for implementing the requirements of this Plan (constructor) • Any biodiversity impact will be reported directly to Transgaz and to the Biodiversity team. • Assures the necessary resources and the means to implement the biodiversity protection measures. • Within the Project, the responsibility for managing the biodiversity aspects lies with the contractor in line with the „polluter pays" principle
The Contracting parties for biodiversity services	• Ensure that all activities are carried out in accordance with the requirements of this Plan

Roles	Responsibilities
	• Develop Biodiversity Monitoring Plan in compliance with the requirements of this Management Plan and with the Environmental Agreement; • Develop Biodiversity Management Plan in compliance with the requirements of this Management Plan and with the Environmental Agreement • Ensure that constructor activities are conducted in accordance with the requirements of this Biodiversity Management Plan • It is committed to provide a sufficient number of biology / ecology experts (fauna specialists, flora and habitats specialists, etc) to implement management and monitoring requirements for biodiversity protection under the law and according to good practices • Ensure that the biodiversity team of specialists involved are trained on the practices and biodiversity conservation requirements • Ensures compliance with all environmental requirements required by the agreement, opinions / views issued by the custodians / administrators of protected areas to project • Provides notification and consultation to custodians / administrators of protected natural areas for the conduct of work within the protected natural areas • Notifies the Biodiversity specialist from Transgaz before the start of works in sensitive areas; • Ensures compliance with the measures proposed in the report on the environmental impact assessment study made for the project including implementation of biodiversity protection management requirements as detailed in the Annexes to environmental assessments, respectively • Establishes the necessary staff training on the management of biodiversity indicators • Ensures necessary training for all staff constructor involved in this project regarding the management of biodiversity aspects and indicators • Coordinates and supervises all activities related to the implementation of this plan • Before start of the working phase, realizes a new map of the areas within the project's range • Establishes actions and applies all necessary measures to protect biodiversity, according to the law • Carries out the monitoring of biodiversity in the field by teams of experts; Centralizes weekly information provided by teams of

Roles	Responsibilities
	biodiversity experts in the field and integrates them into a unified report that it is sent monthly to TRANSGAZ • Provides communication with contractors' decision makers in applying the requirements of the Plan • Prepares and submits to the environmental authority and TRANSGAZ an annual report that will include the results of biodiversity monitoring and actions / measures taken to protect biodiversity • Reports on all hazards, incidents and non-conformities. • In the event of accidental damage affecting species and habitats for which the area was designated a protected area, the accident will be announced in the shortest time to the custodian / protected area manager and County Agency for Environmental Protection and the National Environmental Guard - commissariat in that county, in order to establish corrective measures to be implemented by the one who caused the damage. Transgaz SA will also be notified in writing on such statements • Performs routine inspection on work sites to ensure that all activities are carried out in accordance with this Plan • Undertake walkthrough (rapid assessment) surveys immediately prior to works commencing in an area (to identify features such as sensitive locations, bird nesting areas, bat roots, presence of other rare or endangered species etc.) in line with requirements of Transgaz Biodiversity Specialist and this BMP. • Monitoring the works and moving any sensitive species discovered away from the works in line with requirements of Transgaz Biodiversity Specialist and this BMP. • Undertaking day-to-day checks such as checking trenches for fauna and ensuring the other components of the CESMP are followed in line with requirements of Transgaz Biodiversity Specialist.

6 Management, Mitigation, Monitoring and Verification

6.1 Management Actions

A range of management actions (and other mitigation measures) are required to be implemented in respect of biodiversity management. The specific management actions and measures required of Transgaz staff and its contractors are described in Appendix 1 to this CESMP.

Management actions and other mitigation measures that Transgaz staff and its contractors are required to implement that are:

- specific for particular habitats: are described in Appendix 2A to this CESMP;
- specific for particular species: are described in Appendix 2B to this CESMP.

6.2 General Monitoring Activities

Monitoring provisions for this Biodiversity CESMP have been developed through the following process:

Table 6.1Monitoring provisions for this Biodiversity CESMP

Objective	Approach
1: Risk Based	Monitoring programmes to address material issues based on the use of the 'source-pathway-receptor' approach in the ESIA. These are commensurate with: • the scale and nature of the activity, • the assessed potential level of impact (and uncertainty thereof), and • the sensitivity of the local environment within the activity area of influence
2: Compliance Based	Additional monitoring programmes to meet specific regulatory needs.

Following this approach the proposed monitoring plans should meet the requirements of both Transgaz' to understand and manage the Project's potential impacts for each construction activity/ location and any specific requirements of the Romanian authorities. The specific monitoring requirements for this Biodiversity CESMP are presented in Appendix 3.

6.3 Management System Verification Monitoring

Management System verification monitoring requirements, as detailed in the F-CESMP Document, are divided into three levels as shown in Table 6.2 below.

Table 6.2 Management System verification monitoring requirements

Tier	Objective	Responsible	Description
Tier 1:	Transgaz management system audits	Transgaz	These audits are aimed at assessing the Transgaz HSES management system elements and assessing their continued suitability throughout the project life cycle.
Tier 2:	Transgaz CESMP audits	Transgaz	These audits are undertaken by the Transgaz BRUA team to confirm compliance by the Company and its contractors with the CESMPs.
Tier 3:	Contractor self-audits	Contractor	These audits are to be undertaken by contractors to confirm compliance by themselves and their sub-contractors with the CESMPs and their own HSE management systems. The managing contractors shall ensure that audit reports are provided to Transgaz

In addition to the above, there are also expected to be regulatory audits and lender compliance monitoring visits. The nature and structure of these will be confirmed with regulators and lenders.

6.4 Key Performance Indicators

Both the General Monitoring and the Management System Verification Processes require robust Key Performance Indicators (KPI) to be developed. These are quantitative or qualitative measurements used to gauge performance over time and can be used to assess the effectiveness of control measures. The initial KPIs considered relevant to this Biodiversity CESMP (and to be developed further and supplemented by the EPC contractor as part of the detailed contractor management plans) for the construction phase are shown in Table 6.3 below.

Table 6.3 Biodiversity KPIs

ID	KPI	Target/Action Threshold	Monitoring Measure	Associated mitigation controls	KPI Threshold
KPI-01	Instances of non-compliance with the requirements of this CMP.	Minimise and continued improvement	See verification column of Appendix 1	All measures in Appendix 1	Target for no non-compliance issues
KPI-02	Instances of non-compliance with project standards identified during monitoring for specific species and valuable habitats	Minimise and continued improvement	See Appendix 2	See Appendix 2	Target for no non-compliance issues
KPI-03	Timely reporting of biodiversity information to prevent unnecessary mortally	Weekly to fortnightly reporting with sufficient information to inform the construction team i.e. to change working area or to move species ahead of the construction team	To be recorded the weekly compliance report	All measures in Appendix 1	Reports of quality biodiversity data during construction.
KPI-04	Timely reporting of biodiversity information to feed into the BAP	Weekly to fortnightly reporting with sufficient information to inform the BAP	To be recorded in BAP	All measures in Appendix 1	Reports of quality biodiversity data during construction.

The specific auditing requirements for the verification of each management and mitigation controls measure described within this Biodiversity CESMP are identified in Appendices 1 and 2. This includes identification of the relevant audit tier level (1 to 3) to be undertaken.

6.5 Training

The contractor is required to ensure that all employees receive appropriate training in relation to biodiversity issues, so that the activities do not generate impacts on biodiversity.

Transgaz must develop an internal biodiversity training protocol to train internal staff to enable these staff members to provide support to the contractors.

7 Appendices

7.1 Appendix 1: General Mitigation Measures & Management Actions

T- Transgaz; BT- Contracted Biodiversity Specialists; C-Constructor

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
B001	Biodiversity - General	Interaction with other plans	All	This Biodiversity CESMP will be applied in conjunction with all other relevant management plans, including, but not necessarily limited to those outlined in Section 4.2 of this CESMP.	T, BT, C	Internal audit program and record
B002	Biodiversity - General	Use of Biodiversity Specialists	All	The Project will seek to minimize impacts on notable species and loss, fragmentation, alteration, disturbance and disruption of sensitive habitats. The approach to be taken is outlined throughout this CESMP. A principal management tool in this will be the use of Biodiversity Specialists. A minimum of one Biodiversity Specialist will be employed for every lot / spread of pipeline construction. All Biodiversity Specialists will be appropriately skilled for undertaking site supervision and species relocations where required.	T, BT	Monitoring report, Maps
B003	Biodiversity - General	Mapping of sensitive habitats and species.	Sensitive Habitats (Class 3-5)	The Biodiversity Specialists contracted will identify and map potentially sensitive habitats (including potential notable species habitat) along the spread ahead of any works. Habitats will be mapped in sufficient detail that the locations of notable plant (and where practical animal) species (including Romania Red Book species) are clearly marked. Bespoke mitigation will be applied in all areas where sensitive habitats are identified (see specific below). The maps will be used to monitor mitigation effectiveness.	BT	Monitoring report, Maps
B004	Biodiversity - General	Mitigation for sensitive habitats and species.	Sensitive Habitats (Class 3-5)	Where any such habitats or species is present impacts will be mitigated as outlined in the SEIA for example by scheduling works to a less sensitive time of year or the use of appropriate species translocation to nearby suitable habitats. The resultant "hazard" mapping will be updated weekly with reports on any critical receptors.	BT, C	Monitoring report, Maps

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
B005	Biodiversity – General	Pre-construction checks	Sensitive Habitats (Class 3-5)	Before commencement of vegetation stripping the Biodiversity Specialists will conduct pre-construction checks, to help avoid accidental injury or death to sensitive species such as ground nesting birds, reptiles, amphibians and bats. Checks will include within hollow trees and other places of shelter. The Biodiversity Specialists will prepare a weekly monitoring report and hazard map showing sensitive locations. This will be shared with workers in an appropriate manner (e.g. Toolbox talks) so that sensitive areas can be avoided or bespoke mitigation implemented.	BT, C	Monitoring report, Maps
B006	Biodiversity – General	Training	All	Transgaz should train internal staff to be able to provide advice to contractors with input and advice if required and enable an informed overview of the biodiversity input from the contractors. Workers will be made aware of the ecological sensitivities of the areas and will be trained in mitigation for unforeseen events, including the presence of uncommon habitats and species. Health and safety recommendations regarding poisonous or otherwise dangerous plants or animals will also be provided by the e.g. through toolbox talks Biodiversity Specialists. Emergency numbers will be provided for Ecologists should protected species be found on site in the absence of site supervision.	BT, C	Field verification, monitoring reports, record
B007	Biodiversity - General	Road signs	Roads	Areas of high wildlife use will be indicated through appropriate signage along access roads where potential exists for vehicle/wildlife collision.	BT, C	Field verification
B008	Biodiversity - General	Biodiversity Specialist	Forests, riparian habitats	Where works in forests, riparian habitats or in water are unavoidable, at least one Biodiversity Specialists should be deployed to work with the workforce during clearance to identify sensitive habitats and species present on site, in particular nests with eggs/chicks, dens, burrows, hibernacula and other places of shelter to prevent direct mortality. **In many locations two Biodiversity Specialists will be required.**	BT, C	Field verification, monitoring reports, record

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
B009	Biodiversity - General	Escape ramps	All	Pits and excavations will be filled in as soon as possible following works. Any that need to remain open for longer than 48h periods will have appropriate ramps (soil and not more than 45^{o}) to allow fauna to escape should they fall in. Morning checks for fauna will be conducted for excavations left open overnight.	BT, C	Field verification, monitoring reports, record
B010	Biodiversity - General	Nesting birds	All	Active bird nests will not be damaged. As far as possible tree and scrub clearance will not be undertaken during the breeding bird season (March to August inclusive). Should clearance during this time be necessary a pre-clearance nesting bird check of the vegetation to be cleared will be undertaken by the Biodiversity Specialists and a decision on whether to move the nest or defer the clearance will be made by the Biodiversity Specialists.	BT, C	Field verification, monitoring reports, photo record
B011	Biodiversity - General	Translocation	All	Potential habitats for translocation will be identified in close proximity to project footprint (but outside of the works corridor) if required. Translocation location will vary depending on the species but should be located according to target habitat.	BT, C	Field verification, monitoring reports, photo record
B012	Biodiversity - General	Tree conservation	All	Wherever possible the felling of significant/mature trees will be avoided and connectivity between areas of forest habitats will be maintained. No trees over 100mm in diameter will be felled without a pre-felling check by a Biodiversity Specialist.	BT, C	Field verification, monitoring reports, photo record
B013	Biodiversity - General	Laydown areas	All	Laydown areas and compounds will be sited to avoid unnecessary clearance of vegetation.	BT, C	Field verification, monitoring reports, photo record
B015	Biodiversity - General	Barriers and crossing points	All	Regular wildlife crossing points will be installed to enable wildlife to cross excavations, berms and drainage channels. Fencing will be minimized and no areas vital for wildlife will be isolated by the workforce activities but temporary barriers will be used to prevent wildlife from accessing waste disposal areas.	BT, C	Field verification, monitoring reports, photo record

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
B016	Biodiversity - General	monitoring and management regimes	All	Restored areas will be monitored mowing regimes used to control growth of invasive species. The success of ecological restoration measures will be observed for a period of minimum 36 months so that they can validate the effectiveness of the solutions adopted, however 5 years monitoring is recommended.	BT	Field verification, monitoring reports, photo record
B017	Biodiversity - General		All	Careful management of networks of ditches and polders so as to provide alternative habitats for species; in order to bring the land to its original state	BT, C	Field verification, monitoring reports, photo record
B018	Biodiversity - General		All	Where necessary conditions will be created for recolonization of notable species in the affected habitat by providing a microhabitat that replies the initial state (pre-project). The success of the measures to restore the environment in areas affected will be evaluated according to the data collected by the Biodiversity Specialist and specified within the BAP.	BT	Field verification, monitoring reports, photo record
B019	Biodiversity - General		Entire Project	Maintain vegetated buffers wherever possible along known wildlife travel corridors (i.e., watercourses).	BT, C	Field verification, monitoring reports, photo record
B020	Biodiversity - General	Lighting	All	The site will not be lit except in exceptional circumstances. Where lighting is required it will be directional and the lighting strategy will be designed with the input of a Biodiversity Specialist. Only non-UV lighting sources will be employed. The use of lighting sources with low intensity, with vapors of sodium (from whose wavelength the UV radiation is missing) in order to avoid the attraction of insects and bats which come to follow them. This way, the potential impact on the species of bats is reduced. Also, strong lighting sources shall be avoided, since they may disturb migration of certain species.	BT, C	Field verification, monitoring reports, photo record
B021	Biodiversity - General	Areas for turfing	Specific habitats: (Alpine and Boreal Scrub pastures; Subalpine and alpine calcified meadows; Tall herb fringe communities with hydrophilic species, Mountain Meadow; Scree Limestone and calcereous shale) Gorj Nord West	Mapping target areas that support habitat (including transition/degraded state); From the area to be directly impacted where these characteristic herbaceous flora assemblages are identified, soil/substrate sections will be removed (1x1m x 30cm deep) and will be stored in alignment to the route; Create the appropriate conditions for temporary storage of furrows in the ground in close proximity (placing on pallets or on foil and nylon), water the turfs as required; On completion of work, the turfs will be replaced on impacted areas. It may be necessary to water the turfs during periods of rain-deficiency (May to September);	BT, C	Field verification, monitoring reports, photo record

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
B022	Biodiversity - General	dead wood, boulders	forested areas	Structures will be created at the level of BRUA working strip at a density of about 3-5 (stacks)/km, 3-5 mc material. These structures will ensure no net loss for amphibian and reptiles species which utilize these features.	BT, C	Field verification, monitoring reports, photo record
B023	Biodiversity - General	Nest boxes	forested areas	In forest areas 150 shelter-cottages and nest boxes will be installed for different adapted species (target) birds (notably insectivorous).	BT	Field verification, monitoring reports, photo record
B024	Biodiversity - General	replanting	forested areas	During the ecological restoration phase, a series of measures will be taken along the 14m working strip in order to mitigate the impact of fragmentation by regenerating the impacted structure as follows: 8m will be planted with trees and understory vegetation. A strip of 6m which will follow BRUA route will remain free to allow monitoring during operation;	BT, **C**	Field verification, monitoring reports, photo record
B025	Biodiversity - General	Replanting	all	Replanting will be conducted according to the SEIA and restoration CSEMP within the Natura 2000 areas and outwith these areas.	BT, **C**	Field verification, monitoring reports, photo record
B026	Biodiversity - General		Access Roads	Access areas roads will be constructed in such a way that rain-water run-off is effective and puddles which could attract amphibians are avoided.	BT, C	
B027	Biodiversity - General	Vehicles	Sensitive Habitats (Class 3-5)	Use of low-impact vehicles (in terms of emissions and load bearing) where applicable.	C	Field verification, monitoring reports
B028	invasive species		All	A site wide ban on workers bringing vegetation or soil from outside the site area to prevent dispersion of non-native invasive species. All vehicles and equipment will be washed down before entering the sensitive sites (see specific mitigation with regards to Japanese Knotweed).	BT, C	Field verification, monitoring reports
B029	invasive species	mapping	All	At least four non-native invasive species are known to be present along the route. Prior to any enabling works site survey, mapping and/or demarcation	BT, C	Field verification, monitoring reports, maps

Ref	Topic	Sub Topic	Location	Requirement (Collecting mode/treatment/evacuation/final disposal)	Owner (c/t)	Verification Process
				will be required, particularly for Japanese knotweed (see non-native species section and specific mitigation).		
B030	invasive species	Acacia (*Robinia pseudoacacia*)	All	This species should be avoided. In order to remove this species and allow native habitats to develop, cut stands of acacia. The method of control / eliminate invasive species can also be decided by the Biodiversity Specialists involved, according to best practices.	BT, C	Field verification, monitoring reports
B031	invasive species	Jerusalem artichoke (*Helianthus tuberosus*)	All	This species should be avoided and measures to avoid it's spread should be implemented.	BT, C	Field verification, monitoring reports
B032	invasive species	Japanese knotweed (Fallopia japonica)	All	Control of this species should commence prior to the BRUA construction works starting and should be conducted according to the prescriptions of a specific method statement (see specific mitigation). Live untreated stands should not be impacted by excavation as transfer of root material will facilitate further regrowth causing impacts to the biodiversity of the area and potential financial impacts. Identify and demarcate all BRUA areas ahead of works which support Japanese knotweed (*Fallopia japonica*) (see specific mitigation). Treat all areas according to best practice methodology to prevent spread. When works are completed in areas where Japanese knotweed is present, machinery must be washed down prior to moving into non infested areas, preferably with a jet wash.	BT, C	Field verification, monitoring reports, photo record
B033	invasive species	Bracken (*Pteridium aquilinum*) (native but a weed species that spreads rapidly)	All	Particularly within ROSCI0236 Strei-Haţeg, Bracken should be controlled within working areas as a component of the management of impacted areas after the construction of BRUA (to ensure that this species does not colonise / spread within the impacted corridor). Post construction, bracken should be control within impacted areas according to the management plan (see specific mitigation).	BT, C	Field verification, monitoring reports, photo record
B034	Biodiversity - General	Bats	Within forested areas	200 bat boxes to be erected within forested areas. These will be monitored as a component of the BAP.	BT, C	Field verification, monitoring reports, photo record
B035	Biodiversity - General	Restoration	All	Ephemeral water bodies to be created along the route in line with the Environmental permit at a density of 1 per 3 – 5km.	BT, C	Field verification, monitoring reports, photo record

7.2 Appendix 2: Specific Mitigation Measures & Management Actions for Sensitive Habitats and Notable Species

2A

Habitat Type and location	Mitigation Method Description
Erosion/Scree Slopes	
8120 Calcareous and calcashist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)*Thlaspietea rotundifolii* which is a class of vegetation developed on unstable, mobile screes formed of small to mid-sized rock fragments Present within ROSCI0129 Nordul Gorjului de Vest	Seed will be collected from the target habitat community prior to works commencing, if is absolutely necessary. From the area to be directly impacted where these characteristic herbaceous flora assemblages are identified, soil/substrate sections will be removed (1x1m x 30cm deep) and will be stored in alignment to the route. During ecological restoration phase these soil/substrate sections will be reintroduced in the impacted area and properly watered if required during rain-deficient periods (May to September);
Grasslands (within Natura 2000 sites)	
6170 Alpine and subalpine calcareous grasslands 6430 Tall herb fringe communities on wetland lowlands up to alpine environments 6520 Alpine meadow All located within ROSCI0129 Nordul Gorjului de Vest	From the area to be directly impacted where these characteristic herbaceous flora assemblages are identified, soil/substrate sections will be removed (1x1m x 30cm deep) and will be stored in alignment to the route; Create the appropriate conditions for temporary storage of furrows in the ground in close proximity (placing on pallets or on foil and nylon), water the turfs as required. On completion of work, the turfs will be replaced on impacted areas. It may be necessary to water the turfs during periods of rain-deficiency (May to September);
Alpine shrubs	
4060 Alpine and Boreal heaths - Alpine shrubs ROSCI0129 Nordul Gorjului de Vest	Where appropriate, substrate will be stripped with vegetation attached, this will be completed by stripping 1sm at a thickness of about 10 - 30 cm; create the appropriate conditions for temporary storage of furrows in the ground in close proximity (placing on pallets or on foil and nylon), water the turfs as required; On completion of work, the turfs will be replaced on impacted areas. It may be necessary to water the turfs during periods of rain-deficiency (May to September);
Forests – Within Natura 2000 sites and semi-natural forests outwith Natura 2000 sites	

Habitat Type and location	Mitigation Method Description
Beech and Oak / Hornbeam forests · 9110 beech forests of *Luzulo-Fagetum* · 9130 beech forests of *Asperulo-Fagetum* · 9150 Medio-European beech forests from *Cephalanthero-Fagion* · 9170 Oak forests with hornbeam of *Galio-Carpinetum* · 91L0 Illyrian oak forests with hornbeam (*Erythronio-Carpiniori*) · 91M0 Balkan-Pannonian forests of oak and sky · 91V0 Dacian Beech forests (*Symphyto-Fagion*) · 91Y0 Dacian forests of oak and hornbeam · Spruce Forests · 9410 Picea abies acidophilous forests of the mountainous region (*Vaccinio-Piceetea*) Within Natura Sites: ROSCI0129 Nordul Gorjului de Vest ROSCI0138 Pădurea Bolintin ROSCI0292 Rusca Montană Corridor -Țarcu-Retezat	Felling of trees will be undertaken between September and February inclusive, felling of trees during the breeding bird season (March to August inclusive) is to be avoided. If required a check by the Biodiversity Specialist will be required. Noisy work (i.e. hammering is not permitted in these areas from March to August inclusive) Dead wood should be retained on site. Forest should be reinstated/ replanted as specified within the SEIA and impacts should be addressed within the offsetting strategy.
Ponds / ephemeral water bodies	
Ponds / ephemeral water bodies	Ponds along the route are vital biodiversity features. These should be mapped prior to enabling or construction. If the ponds are to be destroyed, drainage should be conducted via pumping with a suitable pump filter (to prevent animals and debris being drawn into the pump). All animals present within the pond should be moved to appropriate habitats away from the works. If possible, pond drainage should be avoided April – September. Replacement of these ponds is required on a minimum of a 1 to 1 replacement, dug to mimic the size and location of the ponds lost and using liners to retain water where hydrologically required.

Habitat Type and location	Mitigation Method Description
Riparian Areas	
Riparian Areas	There are areas of riparian habitat that qualify as priority biodiversity features and may qualify as CH. The method of crossing has been determined by considering the width of the river, the composition of the river bed and the volume and the flow of the river. Crossings will either be directionally drilled avoiding the need to dig up the river bed or open cut (wet or dry depending on the status of the watercourse). Silt fences would be used in areas of wet open cut, strategically positioned to prevent sedimentation down stream. Banks would be restored using either gabion cages or wooden revetments to ensure soil/integrity before vegetation matures to provide soil stability. There would be re-planting of scrub in some areas or vegetation would be allowed to colonise naturally as appropriate. All riparian works and river crossing should follow the prescriptions of the water chapter of this SEIA.

2B Notable Species

Species	Mitigation Method Description	Advance works required
Plants		
Carpathian Tozzia (*Tozzia carpathica*) Greater Pasque Flower (P*ulsatilla grandi*s) Blue Bell (*Campanula serrata*) Steppe Iris *(Iris aphylla ssp. hungarica)*	Investigate the areas to be affected prior to the start of the works in order to identify the presence of these species during April-July; Mapping of local distribution of the species and the local conditions of microhabitat; Cutting of turfs 1 by 1m and 30cm deep containing the species; Appropriate storage of the turfs; Restoration of the turfs post construction. Monitor the success of the restoration measures will be undertaken for a minimum period of 3 years however 5 years is recommended. The translocation of this habitat for this species will be formalized by a bespoke method statement.	Mapping of locations
Carpathian Tozzia (*Tozzia carpathica*) Additional	Creating conditions suitable for the species during ecological restoration works by planting (propagating) the host plant species: *Petasites, Adenostyles* and *Cicerbita*; Evaluation of the success of environmental remediation measures in areas affected by counting the number of newly established individuals.	Ensuring plant seed for *Petasites, Adenostyles* and *Cicerbita*; is available, if is necessary
Amphibians		
Species including Fire-Bellied Toad *(Bombina bombina)*	Identification and mapping of areas occupied by species (i.e. ponds) prior to the commencement of clearance.	

Species	Mitigation Method Description	Advance works required
Yellow Bellied Toad (Bombina variegata))	If the ponds are to be destroyed, drainage should be conducted via pumping with a suitable pump filter (to prevent animals and debris being drawn into the pump). All animals present within the pond should be moved to appropriate habitats away from the works. If possible pond drainage should be avoided April – September. The translocation of specimens identified in work zone into favorable habitat areas identified adjacent to the works. Checks to be conducted by Biodiversity Specialists ahead of the excavation. Routes will be maintained properly in order to avoid creation of puddles capable of attracting amphibians; Conduct standard measures to limit water pollution and soil.	Mapping of all ponds. Translocation of amphibians away from works area.
Birds		
Waterfowl including Eurasian Oystercatcher *(Hematopus ostralegus)*	Ensure that checks are made for nests of this species ahead of the clearance. The nest location is usually a bare scrape on pebbles or bare earth, on the coast or on inland gravelly islands. 2–4 eggs are laid. Both eggs and chicks are highly cryptic. Once works are complete, ensure that the used habitat (i.e. bare scrape etc.) is reinstated.	Check for nests in occupied sections. Mapping of suitable nesting habitat for post construction replication.
Raptors and gliding birds including Red footed falcon *(Falco vespertinus)*	Specific checks for nests of this species must be conducted if tree removal is required in the bird nesting season. Nests can be identified as this species largely nests in colonies, using abandoned corvid nests. If this species is identified to be nesting within the works areas, the trees within which they are nesting must not be removed until the young have fledged and noisy works will be avoided.	Check for nests in occupied sections.
Nesting notable birds including European Turtle Dove *(Streptopelia turtur)*	Specific checks for nests of this species must be conducted if tree removal is required in the bird nesting season.	Check for nests in occupied sections.
Fish		

Species	Mitigation Method Description	Advance works required
Carpathian Brook Lamprey *(Eudontomyzon danfordi)* Danubian brook Lamprey *(Eudontomyzon vladykovi)* Golden Spined Loach *(Sabanejewia aurata)*	Works will follow general mitigation for riparian crossings specified in the water chapter of the CSEMP and the SEIA. Any specimens found within coffer dams and dewatered areas will be translocated into the river flow. Avoid crossing works during periods of maximum sensitivity of the species in river located at 313 – 314km (i.e. no works April – August).	N/A
Invertebrates		
Scarce Fritillary *(Euphydrias maturna)*	Should these species be found they will be moved by carefully cutting the branches of ash or leaf litter filled with larvae or pupae of the colonies of this species and their translocation to proximal ashes in similar habitats; In the long term, planting of hazel (*Corylus avellana*) and management of hazel through coppicing may have a positive impact upon this species. The searches and movement of this species will be formalized by a bespoke method statement.	Identification of larvae on ash trees. Movement of ash cuttings away from works.
Fisher's Estuarine Moth *(Gortyna borelii lunata)*	Identify potential areas containing the species of host plant (*Peucedanum officinale*); Transplanting plants of *Peucedanum officinale* together with a deep section of surrounding earth (up to 70 - 80 cm), into areas adjacent to the BRUA pipeline which are suitable to support this species. When replanting the impacted corridor through areas where this plant was present, reseed the area with a seed mix containing *Peucedanum officinale, if is necessary*. Monitor the success of the establishment of *Peucedanum officinale* will be undertaken for a minimum period of 3 years. The searches and movement of this species will be formalised by a bespoke method statement.	Excavating and moving *Peucedanum officinale* from the works corridor to adjacent habitats when within kms 311 – 321.

Species	Mitigation Method Description	Advance works required
Scarce Large Blue *(Maculinea teleius)*	Prior to works commencing in areas suitable to support *Maculinea teleius,* a thorough investigation will be made in order to spot the presence of host-plants (*Sanguisorba officinalis*) and to verify the presence of, *Myrmica scabrinodis* heaps (an ant species with which the lifecyle of *Maculinea teleius* is linked). Where habitat conditions are met, translocation of plants with soil, in the areas to be impacted into nearby suitable habitat will be conducted, in the vicinity of *Myrmica scabrinodis* heaps. Monitor the success of the restoration measures will be undertaken for a minimum period of 3 years. The translocation of this habitat for this species will be formalized by a bespoke method statement.	Translocation with soil of *Sanguisorba officinalis plants when on the route to adjacent retained habitats in* *Primarily in sections* 272 to 285 and 313 to 318, see Table 82.
Hermit Beetle and other dead wood invertebrates *(Osmoderma eremita)*	Dead, decaying or veteran trees/wood will be preserved where possible or retained as cut timber on site; i.e. all trees with hollows offering potential habitat conditions for this species will be cut and laid in front of some trees with similar hollows thus facilitating individuals of the species switching from one micro-site to the other. The translocation of this habitat for this species will be formalized by a bespoke method statement.	Identification and inspection of all dead or hollow trees within section 311 to 316. These should be cut and placed adjacent to retained hollow trees.
Danube Clouded Yellow *(Colias myrmidone)*	A thorough investigation will be made within the BRUA construction area in order to verify the presence of this invertebrates food-plant, belonging to the genus *Chamaecytysus*. Where such plants are identified, translocation of the plants and plantlets with soil (turfs up to 1 by 1m and 30cm deep), to nearby areas supporting similar conditions will be conducted. During ecological restoration works, seeds of *Chamaecytisus* will be used in order to restore the vegetal cover and to contribute to the multiplication of food-sources. This is a shrubby species which will translocate or can be spread by brash cutting and spreading. Monitor the success of the restoration measures will be undertaken for a minimum period of 3 years. The translocation of this habitat for this species will be formalized by a bespoke method statement.	Identification and excavation / translocation of *Chamaecytysus plants . Collection of Chamaecytisus seeds ahead of the works. This is a shrubby species which will translocate or can be spread by brash cutting and spreading.*
Steppe Grasshopper (*Isophya costata)*	In meadows containing long grass that might support this species, the grass sward should be cut / strimmed ahead of the works and piled to dry away from the works corridor.	Strimming / cutting of tall meadow to be traversed by the route.

Species	Mitigation Method Description	Advance works required
Bush Grasshopper *(Isophya stysi)*	Once the works are complete, this hay should be scattered across the impacted area to facilitate ground stabilization and to encourage regrowth of the meadow species.	
Mammals	-	-
Otter *(Lutra lutra)*	For every river crossing there will be a pre enabling dedicated survey to confirm absence of holts or other resting features within the direct zone of impact of the works. If features are found, exclusion of the features will be ensured prior to works commencing. During works within rivers, movement through the works area by Otters will be permitted over the banks.	Searching for holts within areas to be impacted by river crossings.
Bats ALL - including Mediterranean Horseshoe Bat (*Rhinolopus euryale*) Greater Horseshoe Bat (*Rhinolophus ferrumequinum*) Lesser Horseshoe Bat (*Rhinolophus hipposideros*) Barbastelle (*Barbastella barbastellus*)	Any tree above 100mm in diameter to be checked by the Biodiversity Specialist for the potential of roosting bats prior to removal (i.e the presence of potential roosting features). If bats are found, the roost will be left undisturbed until vacated by bats. All felled trees with evidence of roosting bats (i.e. with suitable cavities showing signs of occupation (droppings, feeding remains, grease markings), including those which could not be inspected by the Biodiversity Specialist will be left in situ (on the ground) for 24 hours to allow any bats to move. If possible no trees will be felled in the period March to August. Non-UV sources of lighting will be used for working sites, deposits and permanent facilities (SCG) not to attract the nocturnal insects and thus the bats that feed on them in order to avoid the risk of predation competition. Installation of bat boxes within forests to mitigate for loss of roosting sites.	Investigation of all trees over 100mm with suitable hollow ahead of works.
Brown Bear *(Ursus arctos)* Wolf (*Canis lupus*)	Identification and mapping of areas occupied by these large mammal species prior to the commencement of the work. A 500m wide buffer should be surveyed by the Biodiversity	Planning of works to ensure complete severance of areas utilized by these species does not occur.

Species	Mitigation Method Description	Advance works required
Eurasian Lynx *(Lynx lynx)*	Specialist for tracks and dens. If tracks & dens are found and litter presence confirmed, a case by case solution will be considered. Sections that overlap with the territory of lynx, in the period from March to May, the works will be carried out only during the day in order to limit disturbance. Sections that overlap the territory of bears during March-June, will work only during the day in order to limit disturbance. Where hammering is required within areas which support these species, works should be avoided in the period March – June. Work within sectors which contain bears, wolf or lynx will be staged in that the entire section will not be severed at any one time (so that bears can traverse the working area). All staff will receive a tool box talk identifying the potential presence of these species and advising upon the correct actions to take should these species be encountered. The need for good housekeeping (i.e. no litter, food stored appropriately will also be communicated).	
Forest Dormouse *(Dryomys nitedula)*	Restore forest as within general mitigation. Within woodlands, when BRUA pipeline completed create crossing points between retained trees to allow species dispersal.	N/A
European ground squirrel *(Spermophilus citellus)*	Prior to works commencing Biodiversity Specialist to identify any burrows of these species present and limit impacts within these areas insofar as possible. In such areas soil will be stripped using hand tools and any individuals of these species found will be moved / allowed to move to unaffected habitat. Ramps should be installed within open trenches to allow these species to escape should they become trapped and in areas where this species is present a morning trench check should be performed. All works must be informed of the threatened status of these species to prevent persecution.	Identifying areas where these species are present.
Balkan mole rat *(Spalax graecus)*		
Reptiles		
European Pond Turtle *(Emys orbicularis)*	The working areas will be carefully searched by the Biodiversity Specialists prior to the commencement of the work; any individuals found will be carefully transported outside risk areas in habitats matching their ecological requirements; Any individuals found on site will be relocated to favorable habitats.	

Species	Mitigation Method Description	Advance works required
Hermann's Tortoise *(Testudo hermanni)*	The sectors overlapping ROSCI0385 will be searched by Biodiversity Specialists immediately prior to start of works; Nearby locations fulfilling ecological requirements of the species will be identified in nearby areas and any individuals within the works area will be moved to these sites; No dogs will be allowed within working area in the vicinity of ROSCI0385.	

7.3 Appendix 3: Monitoring Requirements During Construction

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-01	This Biodiversity CESMP will be applied in conjunction with all other relevant management plans, including, but not necessarily limited to those outlined in Section 4.2 of this CESMP.	Internal audit program and record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-02	The Project will seek to minimize impacts on notable species and loss, fragmentation, alteration, disturbance and disruption of sensitive habitats. The approach to be taken is outlined throughout this CESMP A principal management tool in this will be the Contractor use of Biodiversity Specialists (overseen by Project Ecologists). A minimum of two Biodiversity Specialists will be employed for every working camp with one associated Biodiversity Specialists with every active spread. All Biodiversity Specialists will be appropriately skilled for undertaking site supervision and species relocations where required. Biodiversity experts will be supported by additional biodiversity experts within the contractor team, these personnel will be briefed by the Biodiversity Specialists and will be allocated specific monitoring and compliance duties to ensure that habitat degradation is minimized.	Monitoring report, Maps	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-03	The Biodiversity Specialists will identify and map potentially sensitive habitats (including potential notable species habitat) along the spread ahead of any works. Habitats will be mapped in sufficient detail that the locations of notable plant (and where practical animal) species (including Romania Red Book species) are clearly marked. Bespoke mitigation will be applied in all areas where sensitive habitats are identified (see specific below). The maps will be used to monitor mitigation effectiveness.	Monitoring report, Maps	N/A	Sensitive Habitats (Class 3-5)	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-04	Where any such habitats or species is present impacts will be mitigated as outlined in the biodiversity action plan for example by scheduling works to a less sensitive time of year or the use of appropriate species translocation to nearby suitable habitats. The resultant "hazard" mapping will be updated weekly with reports on any critical receptors.	Monitoring report, Maps	N/A	Sensitive Habitats (Class 3-5)	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-05	Before commencement of vegetation stripping the Biodiversity Specialists will conduct pre-construction checks, to help avoid accidental injury or death to sensitive species such as ground nesting birds, reptiles, amphibians and bats. Checks will include within hollow trees and other places of shelter. The Biodiversity Specialists will prepare a weekly monitoring report and hazard map showing sensitive locations. This will be shared with workers in an appropriate manner (eg toolbox talks) so that sensitive areas can be avoided or bespoke mitigation implemented.	Monitoring report, Maps	N/A	Sensitive Habitats (Class 3-5)	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-06	Workers will be made aware of the ecological sensitivities of the areas and will be trained in mitigation for unforeseen events, including the presence of uncommon habitats and species. Health and safety recommendations regarding poisonous or otherwise dangerous plants or animals will also be provided by the eg through toolbox talks Biodiversity Specialists. Emergency numbers will provided for Ecologists should protected species be found on site in the absence of site supervision.	Field verification, monitoring reports, record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-07	Areas of high wildlife use will be indicated through appropriate signage along access roads where potential exists for vehicle/wildlife collision.	Field verification	N/A	Roads	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-08	Where works in forests, riparian habitats or in water are unavoidable, at least two Biodiversity Specialists should be deployed to work with the workforce during clearance to identify sensitive habitats and species present on site, in particular nests with eggs/chicks, dens, burrows, hibernacula and other places of shelter to prevent direct mortality.	Field verification, monitoring reports, record	N/A	Forests, riparian habitats	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-09	Pits and excavations will be filled in as soon as possible following works. Any that need to remain open for longer than 48h periods will have appropriate ramps (soil and not more than 45^{o}) to allow fauna to escape should they fall in.	Field verification, monitoring reports, record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-10	Active bird nests will not be damaged. As far as possible tree and scrub clearance will not be undertaken during the breeding bird season (March to August inclusive). Should clearance during this time be necessary a pre-clearance nesting bird check of the vegetation to be cleared will be undertaken by the Biodiversity Specialists and a decision on whether to move the nest or defer the clearance will be made by the Biodiversity Specialists.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-11	Potential habitats for translocation will be identified in close proximity to project footprint (but outside of the area of influence) if required.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-12	Wherever possible the felling of significant/mature trees will be avoided and connectivity between areas of forest habitats will be maintained. No trees over 100mm in diameter will be felled without a pre-felling check by a Biodiversity Specialist.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-13	Laydown areas and compounds will be sited to avoid unnecessary clearance of vegetation.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-14	Re seeding or replanting of selected areas will use locally collected seed mixes and saplings as outlined in the restoration plan (also see specific mitigation). Local sources of indigenous saplings suitable for replanting programs will be identified in advance to facilitate restoration (working with forestry authority).	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-15	Regular wildlife crossing points will be installed to enable wildlife to cross excavations, berms and drainage channels. Fencing will be minimized and no areas vital for wildlife will be isolated by the workforce activities but temporary barriers will be used to prevent wildlife from crossing heavily used working areas and from accessing to waste disposal areas.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-16	Restored areas will be monitored and spraying, mowing regimes used to control growth of invasive species. The success of ecological restoration measures will be observed for a period of minimum 36 months so that they can validate the effectiveness of the solutions adopted	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-17	Careful management of networks of ditches and polders so as to provide alternative habitats of the species; translocation of any specimens of these structures before bringing the land to its original state	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-18	Where necessary conditions will be created for recolonization of notable species in the affected habitat by providing a microhabitat that replies the initial state (pre-project). The success of the measures to restore the environment in areas affected will be evaluated by quantifying the number of individuals of the species which were newly colonized.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-19	Maintain vegetated buffers wherever possible along known wildlife travel corridors (i.e., watercourses).	Field verification, monitoring reports, photo record	N/A	Entire Project	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-20	The site will not be lit except in exceptional circumstances. Where lighting is required it will be directional and the lighting strategy will be designed with the input of an ecologist. Only non-UV lighting sources will be employed. The use of lighting sources with low intensity, with vapors of sodium (from whose wavelength the UV radiation is missing) in order to avoid the attraction of insects and implicitly of species of chiropters which come to follow them. This way, the potential impact on the species of bats is reduced. Also, strong lightning sources shall be avoided, since they may disturb migration or night movement of certain species.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-21	Mapping target areas that support habitat (including transition/degraded state); From the area to be directly impacted where these characteristic herbaceous flora assemblages are identified, soil/substrate sections will be removed (1x1m x 30cm deep) and will be stored in alignment to the route; Create the appropriate conditions for temporary storage of furrows in the ground in close proximity (placing on pallets or on foil and nylon), water the turfs as required; On completion of work, the turfs will be replaced on impacted areas. It may be necessary to water the turfs during periods of rain-deficiency (May to September);	Field verification, monitoring reports, photo record	N/A	Specific habitats: (Alpine and Boreal Scrub pastures; Subalpine and alpine calcified meadows; Tall herb fringe communities with hydrophilic species, Mountain Meadow; Scree Limestone and calcereous shale) Gorj Nord West	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-22	Such structures will be created at the level of BRUA working strip at a density of about 3-5 (stacks)/km, 3-5 mc material.	Field verification, monitoring reports, photo record	N/A	forested areas	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-23	Such structures will be created at the level of BRUA working strip, in particular in forest areas where approximately 150 shelter-cottages and nests will be installed for different adapted species (target) birds (notably insectivorous).	Field verification, monitoring reports, photo record	N/A	forested areas	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-24	During the ecological restoration phase, a series of measures will be taken along the 14m working strip in order to mitigate the impact of fragmentation by regenerating the impacted structure as follows: Forest saplings will be planted on a width of 2m (1 + 1) of forest species in accordance with the vegetation and forest composition; Shrub species and wood medium and large species will be planted on a width of 4m (2 + 2, 3+1) (root system to be developed on a footprint of maximum 4 meters (and thus not affecting BRHA pipeline; thus the hazelnut tree (*Corylus avellana*) must be planted, which is known to strengthen the selvedges and to be a trophic source (and valuable secondary forest resource). In addition to hazelnut tree species of high-eco value (depending on the resort) can be planted, such as hornbeam (*Carpinus betulus*), alder (*Alnus* sp.), hawthorn (*Crataegus monogyna*), downy oak (*Quercus pubescens*), etc.; Shrub species that develop moderate root systems will be planted on a width of 6m (3 + 3) which will not have an impact on BRUA pipeline. We propose in this regard the planting of briar (*Rosa canina, Rosa* sp.), Blackthorn (*Prunus spinosa*). It is expected that species such as blackberry and raspberry will enter free after installation of natural succession of vegetation, contributing to the consolidation of selvedges and restricting the opening of fragmentation; A strip of about 2 m which will follow BRUA route will remain free to allow monitoring during operation;	Field verification, monitoring reports, photo record	N/A	forested areas	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-25	Of the total area, about 14% (6,2 ha) will be restored to its initial use by replanting of seedlings of forest species (afforested areas); 29% (12,4 ha) will regain functions very similar to those of (superimposable) forest type, by restoring a structure close to that of nemoral type; 43% (18,49 %) will receive close to those functions of forest type by creating a system of shrubbery often associated with forest massifs or they represent the primary phases (early) of forest regeneration; 14% (6,2 ha) of the area will remain open (with grass vegetation) with the role of monitoring technological strip.	Field verification, monitoring reports, photo record	N/A	all	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-26	Access areas roads will be constructed in such a way that rain-water run-off is effective and puddles which could attract amphibians are avoided.		N/A	Access Roads	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-27	Use of low-impact vehicles (in terms of emissions and load bearing) where applicable.	Field verification, monitoring reports	N/A	Sensitive Habitats (Class 3-5)	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-28	A site wide ban on workers bringing vegetation or soil from outside the site area to prevent dispersion of non-native invasive species. All vehicles and equipment will be washed down before entering the sensitive sites (see specific mitigation with regards to Japanese Knotweed).	Field verification, monitoring reports	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-29	At least four non-native invasive species are known to be present along the route. Prior to any enabling works site survey, mapping and/or demarcation will be required, particularly for Japanese knotweed (see non-native species section and specific mitigation).	Field verification, monitoring reports, maps	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-30	In order to remove this species and allow native habitats to develop, cut stands of acacia and apply a glyphosate based weed killer unless in proximity to water. The method of removal / control of such invasive species may also be decided upon by the Biodiversity Specialists involved, based on the best practice.	Field verification, monitoring reports	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02

ID	Activity	Description	Parameters	Location	Standards	Periodicity	Management KPI
BMP-31	Where present this species should be treated with glyphosate based weed killer unless in proximity to water and removed and buried within the excavations of the pipe.	Field verification, monitoring reports	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-32	Control of this species should commence prior to the BRUA construction works starting and should be conducted according to the prescriptions of a specific method statement (see specific mitigation). Control will likely be via be via application of glyphosate weedkiller (either directly through stem injection or spraying). Live untreated stands should not be impacted by excavation as transfer of root material will facilitate further regrowth causing impacts to the biodiversity of the area and potential financial impacts. Identify and demarcate all BRUA areas ahead of works which support Japanese knotweed (*Fallopia japonica*) (see specific mitigation). Treat all areas according to best practice methodology to prevent spread. When works are completed in areas where Japanese knotweed is present, machinery must be washed down prior to moving into non infested areas, preferably with a jet wash.	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02
BMP-33	Particularly within ROSCI0236 Strei-Haţeg, Bracken should be controlled within working areas as a component of the management of impacted areas after the construction of BRUA (to ensure that this species does not colonize / spread within the impacted corridor). Post construction, bracken should be control within impacted areas according to the management plan (see specific mitigation).	Field verification, monitoring reports, photo record	N/A	All	Best Practice	entire project	KPI-WM01 KPI-WM02

Post Construction Monitoring

Monitoring of habitat restoration and impacts to species will be conducted for a minimum of 36 months. The protocol for this will be determined within a BAP. KPI's for the resotratiion and compliance with the prescriptions of PR6 will be listed witin the BAP.

7.4 Appendix 4: Regulatory Requirements

Biodiversity: Romanian laws regarding the environmental protection:

- Law no. 5 of 6 March 2000 on the approval of the National Landscaping Plan - Section III - protected areas
- Government Decision no. 230 dated 04 March 2003 concerning the delimitation of biosphere reserves, national parks and nature parks and setting up their administrations
- Government Decision no. 2151 of 30 November 2004 on the creation of the protected area for new areas
- Government Decision no. 1581 of 08 December 2005 on the creation of the protected area for new areas
- Order of the Minister of Environment and Water Management no. 207 dated 03 March 2006 on the approval of the content of the Natura 2000 Standard Form and of the manual of its completion
- Government Decision no. 1529 from 1 November 2006 for the modification of Annex. 1 to Government Decision no. 230/2003 concerning the delimitation of biosphere reserves, national parks and nature parks and setting up their administrations
- Government Decision no. 1586 of 08 November 2006 concerning the framing of the protected areas in the category of wetlands of International Importance
- Government Decision no. 1143 of 18 September 2007 on the establishment of new protected areas
- Government Decision no. 1284 of 24 October 2007 declaring Special Protection avifaunistic Areas as part of the European ecological network Natura 2000 in Romania
- Order of the Minister of Environment and Sustainable Development no. 1710 of 01 November 2007 on the approval of the necessary documentation to establish the system of protected area of national interest
- Order of the Minister of Environment and Sustainable Development no. 1964 of 13 December 2007 on the creation of the regime of the protected natural area of sites of Community importance as part of the European ecological network Natura 2000 in Romania
- Government Decision no. 1066 of 20 October 2010 on the creation of the regime of the protected natural area on the areas from Danube Delta Biosphere Reserve and their classification in the category of scientific reservations
- Government Decision no. 1217 02 December 2010 on the creation of the regime of the protected natural area for Cefa Natural Park
- Order of the Minister Environment and Forests no. 2387 of 29 September 2011 amending the Order of Minister of environment and sustainable development no. 1964/2007 on the creation of

the regime of protected natural area of sites of Community importance as part of the European ecological network Natura 2000 in Romania

- Government Decision no. 971 from October 5, 2011 amending and supplementing the Government Decision no. 1284/2007 regarding the declaration of the avifaunistic Special Protection Areas as part of the European ecological network Natura 2000 in Romania

- Decree no. 187 of 30 March 1990 in respect of accepting the Convention on the Protection of World Heritage cultural and natural, adopted by the General Conference of the United Nations Organization for Education, Science and Culture on 16 November 1972

- Law no. 5 of 25 January 1991 for Romania's accession to the Convention on Wetlands of International Importance especially as habitat for water birds

- Law no. 13 of 11 March 1993 Romania's accession to the Convention on the conservation of wildlife and natural habitats in Europe, adopted in Bern on 19 September 1979

- Law no. 58 of 13 July 1994 ratifying the Convention on Biological Diversity, signed in Rio de Janeiro on 5 June 1992
- Law no. 69 of 15 July 1994 Romania's accession to the Convention on International Trade in Endangered Species of Wild Fauna and Flora Endangered, adopted in Washington on March 3, 1973
- Law no. 13 of 8 January 1998 for Romania's accession to the Convention on the Conservation of Migratory Species of Wild Animals, Bonn, June 23, 1979

- Law no. 89 of 10 May 2000 agreement on the Conservation of African-Eurasian Migratory Waterbirds, adopted at The Hague on June 16, 1995

- Law no. 90 of 10 May 2000 on the accession of Romania to the Agreement on the Conservation of Bats in Europe, adopted in London on December 4, 1991

- Law no. 91 of 10 May 2000 agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, adopted in Monaco on November 24, 1996

- Law no. 389 of 19 October 2006 to ratify the Framework Convention on the Protection and Sustainable Development of the Carpathians, adopted in Kiev on 22 May 2003

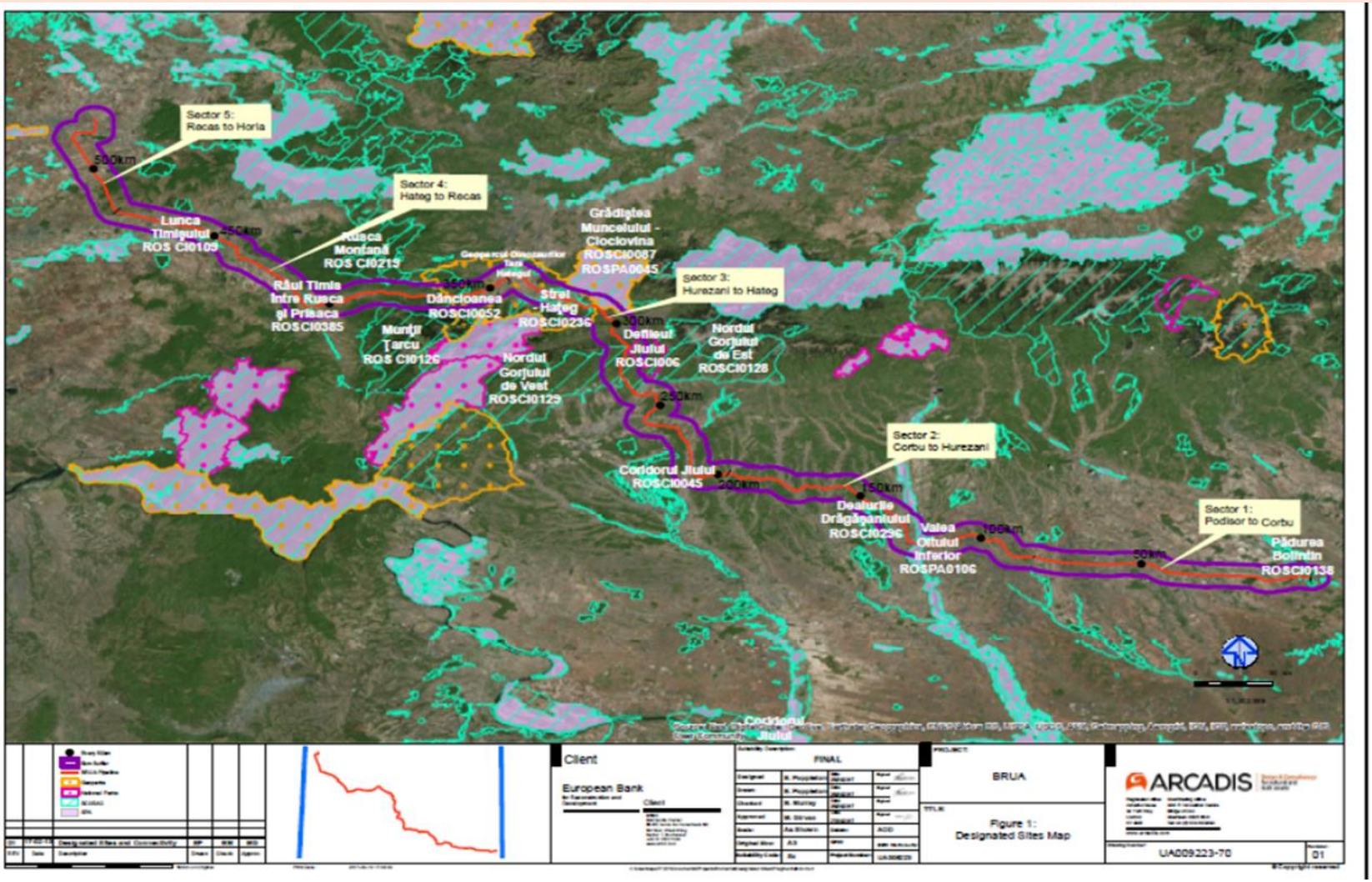
- Law no. 137 of July 1, 2010 to ratify the Protocol on the conservation and sustainable use of biodiversity and landscape diversity, adopted and signed in Bucharest on 19 June 2008, the Framework Convention for the Protection and Sustainable Development of the Carpathians, adopted in Kiev on 22 May 2003
- Minister of Environment and Climate Change Order no. 1470/2013 approving the Methodology for awarding custody and administration of protected natural areas

- Order no. 338/2013 on the approval of regulations for SCIs and / or protected areas of national interest
- MMP Order no. 3836/2012 approving the Methodology for approval of tariffs imposed by administrators / custodians of protected areas to visit protected natural areas, to analyze the documentation and issue opinions under the law for photographing and filming for commercial purposes
- Order of the Minister Agriculture, Forests, Waters and Environment no. 552 of 26 August 2003 on the approval of the internal zoning of national parks and natural parks, from terms of the need for conservation of biological diversity
- Law no. 347 of 14 July 2004 - Law of the mountain, republished
- Order of the Minister of Environment and Water Management no. 604 dated 04 July 2005 for approval Classification caves and cave sectors - natural protected areas
- Government Emergency Ordinance no. 195 of 22 December 2005 on environmental protection
- Law no. 407 of 09 November 2006 - Law of hunting and protection of hunting
- Order of the Minister of Environment and Water Management no. 255 of 1 March 2007 on measures to implement EU regulations on trade in wild fauna and flora species
- Government Emergency Ordinance no. 57 of 20 June 2007 on the regime of natural protected areas, conservation of natural habitats, flora and fauna, approved with amendments by Law no. 49 of 16 April 2011
- Order of the Minister Environment and Sustainable Development no. 1798 of 19 November 2007 approving the procedure for issuing environmental permit
- Government Emergency Ordinance no. 23 of 05 March 2008 on fisheries and aquaculture
- Law no. 46 of 19 March 2008 - Forest Code, with amendments and additions
- Order of the Minister Environment and Sustainable Development no. 410 of 11 April 2008 approving the procedure for authorizing the activities of harvesting, capture and / or acquisition and / or marketing, territory or export of flowers mine, plant fossils and fossil vertebrates and invertebrates, and plants and animals and flora and, respectively, wildlife and their import
- Order of the Minister Environment and Sustainable Development no. 1338 of 23 October 2008 on the procedure for issuing the Natura 2000
- Government Decision no. 1679 of 10 December 2008 on the manner of granting compensation provided for by the Law of hunting and protection of hunting no. 407/2006 and obligations of funds managers and owners of agricultural crops hunting, forestry and livestock to prevent damage

- Ministerial Order no. 203 of 05 March 2009 and Order of the Minister of Agriculture and Rural Development no. 14 of 26 January 2009 on the procedure for establishing exemptions from measures to protect flora and fauna
- Ministerial Order no. 979 of 10 July 2009 on the introduction of alien species, interventions invasive species and reintroducing native species listed in Annexes. 4A and 4B to Government Emergency Ordinance no. 57/2007 on the regime of natural protected areas, conservation of natural habitats, flora and fauna, national territory
- Order of the Minister Environment and Forests no. 19 of 13 January 2010 approving the Methodological Guide for the proper assessment of the potential effects of plans or projects on protected natural areas of Community interest
- Order of the Minister Environment and Forests no. 135 of 10 February 2010, Order of the Minister Administration and Interior no. 76 of 24 March 2010, Order of the Minister Agriculture and Rural Development no. 84 06 April 2010 and Order of the Minister Regional Development and Tourism no. 1284 of 14 April 2010 on the approval of the methodology for the application of environmental impact assessment for public and private projects
- Government Decision no. 323 of 31 March 2010 on the establishment of monitoring system capture and killing of all bird species and strictly protected species listed in Appendices. 4A and 4B to Government Emergency Ordinance no. 57/2007 on the regime of natural protected areas, conservation of natural habitats and of wild fauna and flora

- Order of the Minister Environment and Forests no. 1948 of 17 November 2010 on the approval of the Methodology for the award of management of protected natural areas that require setting up a management structure and methodology of awarding custody of protected natural areas that do not require the institution of administration

7.5 Appendix 5: Locations of Designated Sites



7.6 Appendix 6: Approximate Locations of Sensitive Habitats

Found in the figures document of the Supplemental Environmental Assessment (Figure 12.3)