

# **TA to Connectivity in the Western Balkans**

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## **Sub Project**

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*Area: Transport Infrastructure*

**Technical Assistance for preparatory studies for Project:  
Motorway on Corridor Vc – from Interchange Johovac to  
Interchange Vukosavlje (36km)**

## **Environmental and Social Management Plan**

**March 2022**



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## Information Class: EU Standard

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## List of Abbreviations

ARS	Autoputevi Republike Srpske (Motorways of Republika Srpska)
BiH	Bosnia and Herzegovina
CESMP	Construction Environmental and Social Management Plan
CHS	Community Health & Safety
CONNECTA	Technical Assistance to Connectivity in the Western Balkans
D&B Contractor	Design and Build Contractor
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ESHS	Environmental, Social, Health & Safety
EPRP	Emergency Preparedness and Response Plan
ESAP	Environmental and Social Action Plan
ESMP	Environmental and Social Management Plan
ESMS	Environmental & Social Management System
E&S	Environmental & Social
ESDD	Environmental and Social Due Diligence
ESIA	Environmental and Social Impact Assessment
ESP	Environmental & Social Policy
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
GHG	Greenhouse Gas
ha	Hectare
H&S	Health & Safety
NTS	Non-Technical Summary
OESMP	Operational Environmental and Social Management Plan
OHS	Occupational Health & Safety
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RBRP	River Bosnia Regulation Project
RS	Republika Srpska
RSA	Road Safety Audit
SEP	Stakeholder Engagement Plan
TMP	Traffic Management Plan

# 1 Introduction

## 1.1 Context of the ESMP

The “JP Autoputevi Republike Srpske” (ARS) is a public company from Bosnia and Herzegovina (BiH) entity Republika Srpska in charge of management of motorway construction and management, maintenance and protection of motorway operation. ARS intends to select future design & build contractor (Yellow FIDIC book) to construct the 36-km road section from Interchange Johovac to Interchange Vukosavlje (the Project), which is part of the Trans-European Corridor Vc. The European Investment Bank (EIB) is considering providing finance for this section as part of the loan agreement signed with Bosnia and Herzegovina.

This document is the Environmental and Social Management Plan (“ESMP”) which sets out a number of basic standards and arrangements that must be applied to the project. These requirements include ESHS policies, management controls, key roles and responsibilities and reporting. The primary purpose of the ESMP is to ensure that the construction and operation of the Vukosavlje-Johovac motorway complies with national (RS) law and international best practice.

It is essential that the future design & build contractor, and their sub-contractors, understand the ESMP Requirements and to ensure that they are fully aware of the obligations placed upon them by the ESMP.

The ESMP is based upon the findings and requirements of the following basic documents:

- National Environmental Impact Assessment (“EIA”) completed in 2011 (LOT2, Projekt Banja Luka (RS)) and 2014 (LOT 1, Technical Institute from Bijeljina (RS));
- Requirements set in the Environmental Permit (called “Ecological Permit” in RS) issued by the Ministry of Physical and Spatial Planning initially in March 2015, renewed in March 2020 (valid until March 2025);
- Environmental and Social Assessment of the Project (done by EU-funded technical assistance Connecta, 2021) which aimed to fill up any gaps in the safeguard documentation to ensure the project’s compliance to national and EIB standards, which among others included the Biodiversity Assessment Report, the Resettlement Action Plan and the Stakeholder Engagement Plan.

## 1.2 Scope and Purpose of the ESMP

This ESMP is intended for use primarily by the future design & build Contractor during the preparation of the Detailed Design and construction phase of the project, as a framework environmental and social document, and will also be a reference document in the legal agreements with the financiers.

The ESMP is structured as follows:

- Section 1 - Introduction
- Section 2 - Description of the Contractor’s CESMP and how it must be delivered;
- Section 3 - Short project overview - a general description of the motorway section Vukosavlje - Johovac;
- Section 4 - Summary of the main environmental and social issues that were identified by the ESIA process;
- Section 5 - Overview of the main national environmental and social legal requirements;
- Section 6 - ESMP table - the list of the basic operational controls that should be applied by future Contractor to ensure that identified environmental and social impacts are managed, monitored and reported;
- Appendices:
  - Appendix A: Ecological Permit
  - Appendix B: Biodiversity Assessment Report (2021, Connecta)

## 2 Project Overview

The Project area is situated in the north-east part of BiH, between the towns of Modriča and Doboj, and about 100 km east of the capital Banja Luka. It is a rural area with a number of linear villages formed along the two regional roads: The M-17 (single lane in each direction) passing along the left bank of the River Bosna and the R-465 (single lane in each direction) along the right bank, parallel to the railway road Doboj – Modriča.

The 36 km long proposed alignment is called Johovac - Vukosavlje and consists of two adjacent sub-sections: Northern Odžak-Vukosavlje Section which formally belongs to LOT 1 and Vukosavlje - Johovac Section belonging to LOT 2.

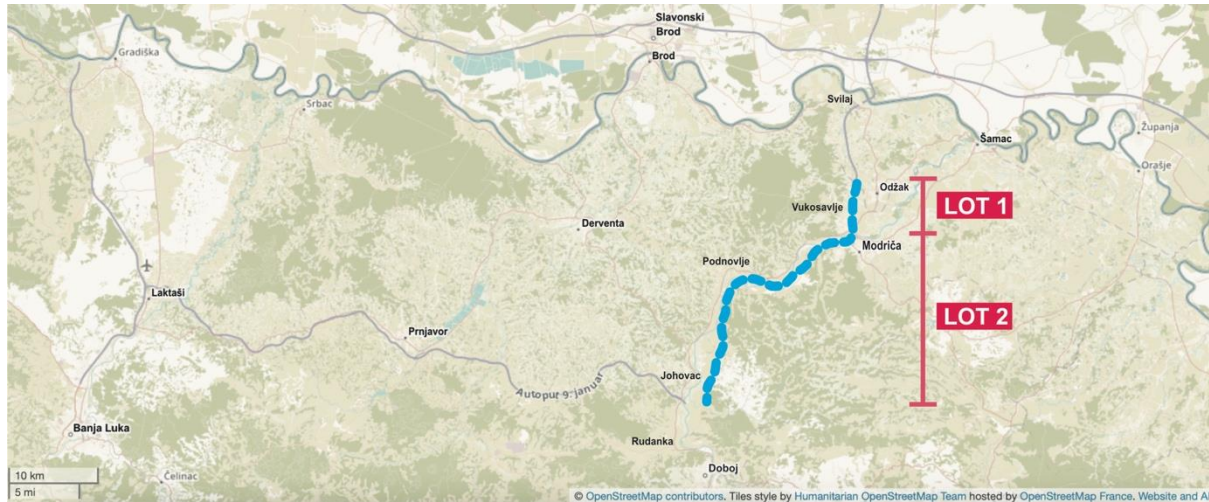


Figure 1: The Project location

The total length of the Project alignment is 36 km. The northern part of the alignment starts in the Municipality of Vukosavlje, about 6 km north of the town of Modriča. The alignment passes through a wide plain of predominantly cultivated land. After the trumped-shaped interchange Vukosavlje (the main connection with the planned motorway to Serbia), the alignment enters the alluvial plain of the Bosna River and remains in the plain until the end, passing through the territories of two more municipalities – Modriča and Doboj. The cultivated land is characterized by small to medium plots with monocultures, intersected by the diffuse network of dirt roads. There are several small linear villages along the local roads. The alluvial plain is often flooded by the Bosna River.

The most important structures proposed along the alignment are the cut-and-cover tunnel Dobor (approx. 1 km) and four bridges over the Bosna River (up to 600 m each).

The cut-and-cover tunnel Dobor will be built along the existing regional road M-17, which will be diverted on top of the tunnel.

Besides four bridges across the Bosna River, a number of small water courses will be crossed by culverts. The local agricultural roads will be intersected by 23 underpasses.

The proposed alignment will intersect the existing regional roads by 5 over passes.

The entire alignment is proposed on the embankment with an average height of 4.25 m.

The road will have a design speed of 120 km/h and be approximately 28 m wide and accommodate 2 running lanes of 3.75 m and a hard shoulder of 2x1.5 m and a central reserve of 4 m.

The layout of the Project is shown in Figure 2



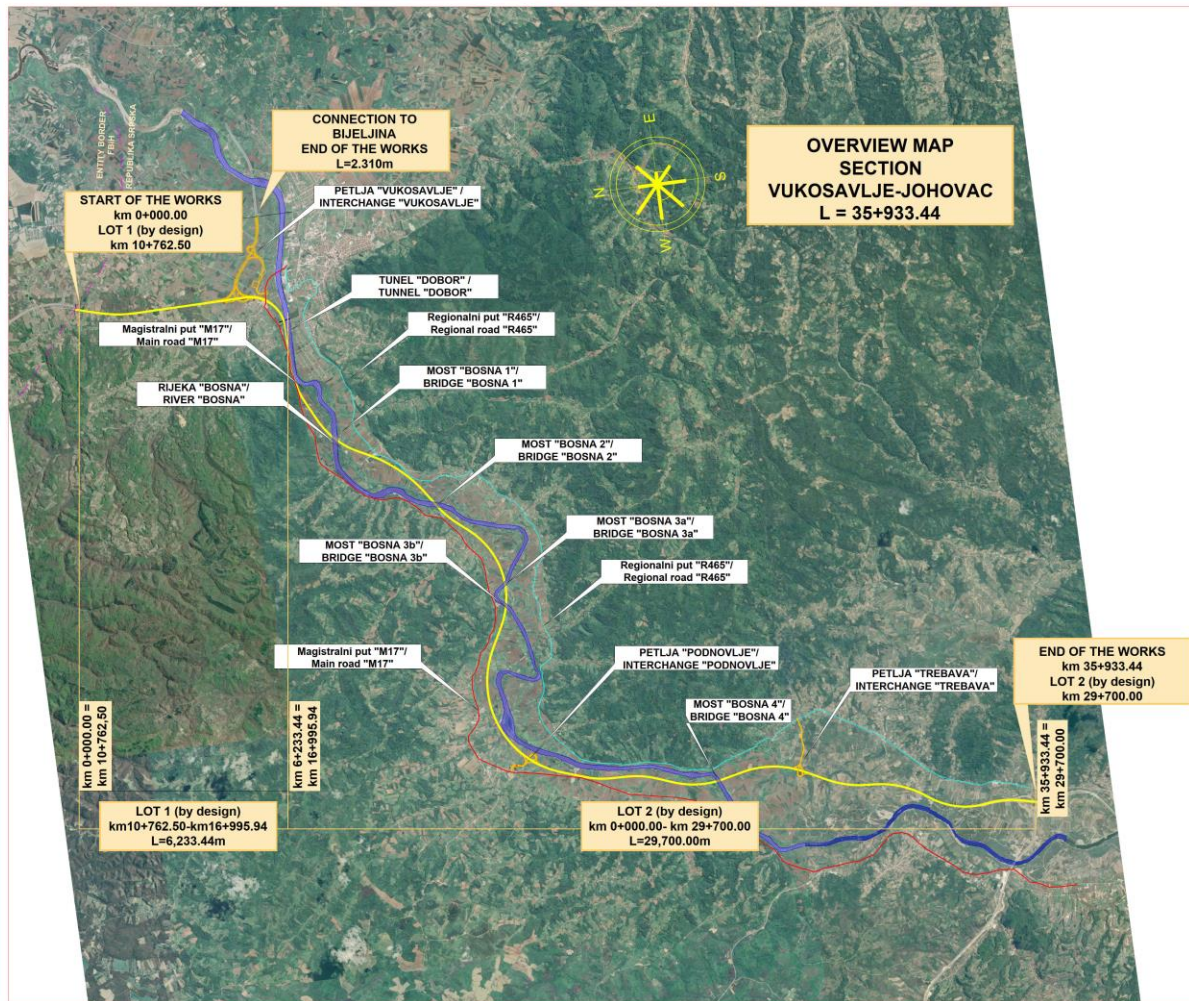


Figure 2: The overview map of the Project alignment



### 3 Summary of the Main Environmental and Social Impacts

Table 1 below provides a high-level summary of the opportunities, impacts and risks, and how they can be managed. This is based on the work done in the EIA reports, and the ESAP exercise. The table provides a simple rating system which summarises the residual significance of each impact, assuming that the management control is applied as stated.

Table 1: Summary of environmental and social impacts and mitigation

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<b>Improvements &amp; Opportunities</b>				
<b>1. Improved Connectivity and Economic Development:</b> The Project (including the adjacent sections of Corridor Vc and the wider Motorway network including the Banja Luka – Doboj road) is expected to be beneficial to the local Project area, regional and national economy. It will improve transport links within this part of the western Balkans, and address both BiH and EU objectives on the improvement of roads connectivity, including the establishment of Corridor Vc. The Motorway will reduce the length of north-south travel, remove through traffic from local roads, and may encourage new investments in the area. There will be some savings in vehicle operating costs for through traffic, and some savings in travel times mostly from increases in vehicle speed and easier overtaking conditions. <b>(Phase – During Operation)</b>	Local communities & economy. Regional economy. National economy. National and international traffic in the western Balkans.	Corridor Vc. Wider transport network in RS and Bosnia & Herzegovina.	None.	Positive
<b>2. Short-term Local Employment</b> The Project will create short term employment opportunities during the construction period.	Local communities, active workforce	Settlements along the Project footprint and other settlements	Contractor to implement an equal opportunities employment policy, announce vacancies in local communities and employ local	Positive

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<b>(Phase – During Construction)</b>		in the three affected municipalities (Doboj, Modriča and Vukosavlje).	workforce wherever possible, if their professional education and work experience meet the requirements of the announced position.	
<b>3. Road &amp; Community Safety Improvements:</b> The Motorway network, of which this Project is a part, will deliver road safety improvements by the removal of through traffic (including trucks) from local roads and by providing safer driving conditions in general. <b>(Phase – During Operation)</b>	Users of local road network. Local communities. Local emergency services.	All areas along R-465 corridor.	Road Safety Audit(s) of Project road. Community Road Safety awareness raising initiatives.	Positive
<b>4. Local Development Opportunities</b> The motorway will pass near the medieval Dobor Tower, which is currently in poor condition and not an attractive visitors' site. The vicinity of the motorway will increase the visibility of this national monument, which could serve as an incentive for the authorities to initiate the revival of the monument, thereby increasing its cultural value and tourism potential. <b>(Phase – During Operation)</b> Note: see item 20. in this table for protection measures during construction	Local communities, municipality Modriča Motorway users (general population in BiH and wider)	Dobor Tower, off the M-17 road near Modriča.	ARS and the Contractor to discuss and agree with local stakeholders, i.e. the Modriča municipality and Tourist Organisation (as well as Republic Institute for Cultural Heritage, if needed) on how to use the opportunity of nearby construction activities (machinery, equipment, workforce, etc.), to improve access to the monument.	Positive
<b>Environmental and Social Risks &amp; Impacts</b>				
<b>5. Air Quality Effects:</b> Emissions of dust from working areas, access roads, stockpiles and during loading/unloading activities; emissions from concrete and asphalt plants; exhaust emissions from construction machinery; emissions due to peaks in traffic	Airshed, local flora and fauna, local communities.	Along entire road corridor.	Good maintenance of plant to reduce unnecessary emissions, and to remove and replace any heavily polluting plant. Standard construction measures to reduce	During construction - Negative impacts of <b>medium significance</b> reduced to low <b>significance</b> with

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<p>movements, will result in temporary air emissions.</p> <p><b>(Phase – During Construction)</b></p> <p>Emissions of particulates, exhaust gases and volatile organic compounds, including Greenhouse Gas (GHG) emissions, will result from road traffic on the Motorway.</p> <p><b>(Phase – During Operation)</b></p>			<p>dust (wetting down dusty areas, covering vehicles, etc.).</p> <p>Emissions levels from traffic on the road will increase over time as traffic levels increase. Air quality along the Motorway should be monitored.</p>	<p>effective contractor management.</p> <p>During operation - Negative impacts will be of <b>low significance</b>.</p>
<p><b>6. Noise and Vibration Effects</b></p> <p>Noise will be generated by construction plant and activities, especially if blasting and rock breaking is required.</p> <p><b>(Phase – During Construction)</b></p> <p>Traffic noise levels will increase gradually over time with increased traffic flows, which will particularly affect communities close to the road.</p> <p><b>(Phase – During Operation)</b></p>	Local communities.	All settlements close to the road.	<p>Management controls typical for construction work include: restriction to daytime working hours and informing local communities on the construction schedule.</p> <p>Where residential areas are identified as at risk from high noise levels noise barriers may be erected. Noise levels will be monitored during construction and road operation, at specific nearby settlements and potential introduction of sound barriers needs to be iteratively dimensioned, and over time extended and reconstructed according to real needs. Affected receptors (households) will be consulted in this process.</p> <p>Vibrations will be monitored by a licensed third party in accordance with RS regulations and blasting/consent decisions to prevent unacceptable loading. In case that harmful effect is</p>	<p>During construction - negative impacts of <b>low significance</b> reduced further with effective contractor management.</p> <p>During operation – negative impacts of <b>medium significance</b> at specific locations will be reduced to <b>low significance</b> by noise barriers.</p>

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
			identified, mitigation measures need to be applied.	
<p><b>7. Soil and agricultural land:</b> Any spillages – e.g. of oil or fuel - during construction or operation of the road could cause contamination of the soil in the area, and affect the adjacent agricultural lands. There may also be a small effect from vehicle exhaust particulates which settle in the surrounding fields. Contaminated road runoff could also pollute the soil, if discharged untreated.</p> <p><b>(Phase - During Construction and Operation)</b></p>	Soil and agricultural land close to road scheme.	Agricultural lands are found along most of the route.	<p>Various construction management control measures to reduce spillage will be addressed in CESMP.</p> <p>Road run off will be sealed and treated in oil separators and sediment tanks before discharge.</p> <p>Emergency Response Plan.</p>	Negative impacts of <b>low significance</b> reduced to <b>not significant</b> with contractor management controls.
<p><b>8. Water and Water Resources, including Groundwater:</b> There is a risk to the River Bosna from increased sedimentation and pollution during construction works in the watercourses, particularly for bridge works. Additionally, any major spillages – e.g. of oil or fuel - during construction could cause contamination of the river and groundwater in alluvial and river terrace sediments. The risk of significant effects is low, and any effects would likely be confined to the local area, except in the event of a major spill which carried downstream.</p> <p><b>(Phase – During Construction)</b></p> <p>There is a risk of pollution to the River Bosna and the groundwater if contaminated road runoff were to enter the River or alluvial sediments where groundwater level is close to the surface, or in the result of a major oil or chemical spill close to one of the river crossings. The Main Design envisages</p>	River Bosna and nearby groundwater resources for water supply of the villages Srnava (Odžak) and Osječani.	All along the route where it runs close to the River Bosna.	<p>Various construction management control measures which place restrictions on the Contractor working in watercourses to reduce spillage. Including development of and adherence to a method statement for working on and close to the river, as outlined in the CESMP.</p> <p>Emergency Response Plan.</p>	<p>Negative impacts of <b>medium significance</b> reduced to <b>low significance</b> with contractor management controls.</p> <p>Negative impacts during operation are of <b>low significance</b>.</p>

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<p>stormwater from the road under operation to be captured and treated in a sediment tank and separator before discharge, with oil and sediments being removed from the tanks and separators, The risk of significant effects is low, and any effects would likely be confined to the local area, except in the event of a major spill which carried downstream.</p> <p><b>(Phase – During Operation)</b></p>				
<p><b>9. Biodiversity:</b></p> <p><b>Permanent loss of the Alder wood;</b></p> <p>Construction of the interchange "Trebava" near the village of Kožuhe, will lead to permanent loss of about 2.5 ha (or 15%) of isolated alder wood stand (Annex I of the Habitat Directive, Code 91E0*).</p> <p><b>Phase – During Construction</b></p>	<p>Alder wood stand, part of the riparian forest near the Bosna River (Annex I of the Habitat Directive, Code 91E0*)</p>	<p>Area of Kožuhe village</p>	<p>Biodiversity Management Plan (BMP) to be developed to address all biodiversity risks.</p> <p>Various construction management control measures to prevent destruction or damage to the alder wood trees outside of the narrowest construction zone;</p> <p>Restrict access to workers and machinery by fencing; Carry out afforestation in accordance to the Biodiversity Assessment Report (BAR).</p>	<p>Negative impacts of <b>medium to high significance</b> expectedly reduced to <b>low significance</b> with implementation of BMP and effective contractor management.</p>
<p><b>Damage of the muddy and gravel river banks;</b></p> <p>Construction works in the vicinity of the Bosna River and its tributaries could lead to damage of their muddy and gravel river banks (Annex I of the Habitats Directive (code 3270, 3130)</p> <p><b>Phase – During Construction</b></p>	<p>Muddy and Gravel river banks of the Bosna River and its tributaries (Annex I of the Habitats Directive (code 3270, 3130)</p>	<p>Near the watercourses</p>	<p>Various construction management control measures to avoid river bank areas and to reinstate it once the works are completed.</p>	
<p><b>Disturbance of protected and important medium and large mammals;</b></p> <p>Construction works may disrupt mammals' access to the river, and lead to their collision with traffic;</p>	<p>10 species of medium and large mammals as specified in the Biodiversity</p>	<p>Three areas where large and medium mammals may</p>	<p>Various construction management control measures to avoid disturbance of mammals;</p> <p>Wildlife underpasses, designed and constructed (at least at one,</p>	

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<p><b>Phase –during construction</b></p> <p>Three areas have been identified along the alignment where large and medium mammals may cross the road corridor.</p> <p><b>Phase –during operation</b></p>	Assessment Report, 2021	<p>cross the road corridor:</p> <p>(1) Kožuhe ("Dijelovi" locality), (2) Dugo Polje ("Kutlovac" locality), and (3) Botajica ("Botajičke luke" locality);</p>	<p>or all three proposed locations). Box culverts and tunnels, land passage designed and constructed in line with recommendations provided in BAR, 2021. Motorway equipped with eco-protective devices for repelling the game away;</p>	
<p><b>Disturbance of protected aquatic and semi-aquatic animal species;</b></p> <p>There are eight small streams which flowing into the Bosna River which host certain protected species of fauna. Construction (8 fish species, European pond turtle, otter and beaver). Construction works could temporarily affect the functioning of the watercourses (e.g. changes to their hydrological regime) which are used by protected species;</p> <p><b>Phase – both during construction and operation</b></p>	<p>Otters, beavers (listed on Annex IV of the EU Habitats Directive) and European pond turtle (EN according to IUCN; Annex II of Habitat Directive, and Strictly Protected by National Regulations of RS) as specified in the Biodiversity Assessment Report, 2021)</p>	<p>Eight small watercourses along the alignment (see Annex 12, Maps 10 and 11 of BAR, 2021);</p>	<p>Adequately sized culverts designed and constructed, land passages provided under bridges over the small watercourses;</p> <p>Various design/construction measures in order to maintain the diversity of hydraulic and morphological elements of the creeks and channels, to provide natural passages for fish and semi-aquatic animals, and to prevent and control water pollution;</p>	
<p><b>Risk of spreading of invasive plant species;</b></p> <p><b>Phase – During Construction</b></p>	<p>Natural vegetation, mostly willow-poplar, alder forests, river banks, soil and gravel exploration pits;</p>	<p>Project footprint</p>	<p>Various construction management control measures to prevent intrusion of any invasive flora species. Borrow pits and disposal sites needs to be recultivated and horticultural landscaped, using only autochthonous species.</p>	
<p><b>Disturbance of protected and other bird species;</b></p> <p><b>Phase –during construction</b></p>		<p>Zone of Dobor hill (as specified in the BAR 2021, Annex 12, Map 11)</p>	<p>Various construction management control measures to limit disturbance of birds. Construction work in the vicinity of nesting</p>	



Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<b>Collision of birds with transparent noise barriers;</b> <b>Phase – During Operation</b>		Possible nesting places in areas with natural vegetation and riverbanks;	places to be performed out of the nesting period;  Design of non-transparent noise barriers (as recommended in BAR, 2021);	
<b>10. Landscape Effects:</b> Construction works could lead to the temporary impacts on landscape, including the movement of construction vehicles, machinery, removal of vegetation specifically for construction, installation of temporary works compounds, material depots, temporary road access/traffic control, road works, turning areas, signing, lighting, etc;  <b>Phase – During Construction</b> The formation of the Motorway and bridges along the river valley will alter the landscape in this area, and the road embankments will be landscaped to minimise this. The elevated sections will create additional opportunities for road users to enjoy the views of the valley and surrounding land from a new perspective. The visual contact between the river and the nearby settlements will be disrupted by the road but will be compensated by landscaping of the river valley and rehabilitation of the areas with abandoned gravel extraction facilities. <b>(Phase – During Operation)</b>	Landscape in the Bosna valley	Along the whole scheme in the river valley.	Various construction management control measures to limit visual/landscape effects during construction.  Bridge design to take account of landscape context, and include landscape engineer as part of design team. Limit land clearance to areas where strictly necessary. Landscaping and planting for embankments, and rehabilitation of all construction areas, with input from horticultural experts.	Negative impacts of <b>medium significance</b> further reduced to <b>low significance</b> after landscaping.
<b>11. Effect on Utilities:</b> The scheme construction may interfere with existing utilities in the area, including electricity transmission	Existing utility infrastructure	Along the route in the vicinity of settlements.	Consultations with utility stakeholders already held during the design process. Contractor to	With appropriate management by contractor, risks

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
and distribution lines and telecoms cables, as well as water supply pipelines and wastewater pipelines. <i>(Phase – During Construction)</i>			<p>verify the presence and position of any suspected cables or pipes, with the local utility provider before construction.</p> <p>In case of any accidental impacts on utilities, causing disruptions of the supply for local communities, promptly repair the utility and inform impacted local communities when supply will be established.</p>	reduced to <b>low significance</b> .
<b>12. Nuisance During Construction:</b> The local communities along the route and the existing road will be subject to nuisance effects from the construction, including noise, dust and a general reduction in amenity of the local area during the construction period. <i>(Phase – During Construction)</i>	Local communities	All along the route, particularly where the works areas are close to inhabited areas.	<p>Nuisance effects will be short-term and readily manageable by good construction management and controls, and careful engagement with the local communities by the Contractor.</p> <p>In case of significant nuisance caused by increased transport and traffic through local communities, consider options for community compensation by investing in small development projects (repairs of community infrastructure, construction of a playground, etc.) to be discussed and agreed with affected communities.</p>	Negative risk of <b>medium significance</b> of a short-term nature would reduce to low significance with adequate management controls.
<b>13. Land Acquisition, Potential Economic Displacement and Limited Physical Displacement, Impacts on Vulnerable Individuals:</b> the Project requires acquisition of predominantly arable land and is expected to require acquisition of only two residential properties, of which only one is inhabited, reportedly. Evidence from site visits suggests that economic displacement is not likely to	Land owners and land users, including any identified vulnerable individuals.	Within the expropriation area along the route	Implementation of the Resettlement Action Plan, which is aligned both with national legislation of Republika Srpska and EIB requirements in relation to land acquisition, physical and economic displacement, as well as assistance for vulnerable individuals and/or groups.	Negative risk of <b>medium significance</b> would reduce to <b>not significant</b> assuming implementation of all requirements from

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<p>occur (or will be minimal) as compensation being provided is far above full replacement cost. There is a possibility that some individuals affected by land acquisition are vulnerable and therefore can be more adversely affected by land acquisition, requiring provision of additional assistance. Remaining land acquisition and potential economic and physical displacement, as well as any impacts on vulnerable individuals, have to be managed in accordance with national legislation and EIB requirements.</p> <p><b>(Phase – Prior to and During Construction)</b></p>			<p>In case of additionally needed land (based on the updated design), a RAP Appendix or a new RAP will be developed and implemented</p>	<p>the RAP and RAP Appendix.</p>
<p><b>14. Access and Severance Effects to Communities During Construction:</b> The construction of the motorway may cause temporary disruptions of access of local land users to their fields or access of local residents to other community resources / facilities.</p> <p><b>(Phase – During Construction)</b></p>	Local residents and land users	Along the Project footprint	<p>The Contractor will develop a Traffic Management Plan (before construction) which will be presented to local residents and land users and implemented to ensure that sufficient access to fields and any other community resources is retained at all times.</p>	<p>Negative risk of <b>medium significance</b> of a short-term nature would reduce to <b>low significance</b> with adequate management controls.</p>
<p><b>15. Access and Severance Effects to Communities During Operation:</b> Some stretches of the Motorway will cut across farmland, and access from houses to fields and between different fields will be disrupted. The proposed underpasses and overpasses have to ensure that journey times from one side of the road to the other are not significantly longer than before the project.</p> <p><b>(Phase – During Operation)</b></p>	Local residents and land users	Along the Project footprint	<p>Underpasses, and local service roads have been defined within the preliminary design, however, it will be necessary to confirm the location of all underpasses and local service roads in the detailed design and present them to affected communities for comments and suggestions before completing the design, as detailed in the Project SEP.</p>	<p>Negative risk of <b>medium significance</b> of a long-term nature would reduce to <b>low significance</b> with adequate consultation and management controls</p>
<p><b>16. Damages to Crops or Other Assets, Including Local Roads:</b> Construction sites</p>	Local land users	Along the Project footprint	<p>Contractor to ensure that all work areas are clearly marked and</p>	<p>Negative risk of <b>low significance</b></p>

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
will be surrounded by agricultural land in certain locations and there is potential for workers to cause damages to nearby crops or other assets, including local roads used during construction, with construction machines or in other ways.			workers instructed to never cross these boundaries into unacquired, privately owned land  In case of damages, the Contractor will promptly compensate affected people at full replacement cost  Restore all disturbed land / roads / any other assets to prior condition	reduced further with effective contractor management.
<b>17. Increased Accident Risk in Communities Near Construction Sites or Construction Traffic Routes:</b> Depending on the final selection of routes for construction traffic, if some of them pass through or near inhabited areas, on roads that are used by the local population, there will be an increased risk of accidents, that requires mitigation. <b>(Phase – During Construction)</b>	Local residents, road users	Along roads used for construction traffic	Contractor to inform local communities of planned transport routes which may affect them, enforce a strict code of conduct for safe driving among workers, implement a safety awareness campaign for local receptors, particularly vulnerable ones (e.g. school children).	Negative risk of <b>medium significance</b> of a short-term nature would reduce to <b>low significance</b> with adequate consultation and management controls
<b>18. Impacts on Community Health &amp; Safety (CHS) during Construction:</b> The construction process may increase the risk of accidents to the public, near or in the works sites. There is also a (minor) risk of influx of non local workers, possibly accommodated in a workers camp, which may give rise to certain risks to the communities. The Contractor will need to implement measures to address this. <b>(Phase – During Construction)</b>	Local residents	Work sites along the Project footprint	Contractor to implement good site management, security, health and safety measures, warning signs etc. to minimise risks to an acceptable level.  Fencing and signage to discourage public from entering the works area.  Contractor to make appropriate arrangements and select appropriate location for workforce accommodation (if any) and engage with local communities, including through grievance management.	Negative impacts of <b>medium significance</b> of a short-term nature reduced to <b>low significance</b> with contractor management controls.

Impact	Receptor	Location	Mitigation/Control/Enhancement	Rating
<p><b>19. Risks to Worker Health &amp; Safety during Construction:</b> The works will give rise to occupational, health and safety risks to workers, including Covid-19, those related to working with plant and machinery, formation of asphalt, use of cement, working at height, working near utilities, and working over water for the bridge sections. In case of non local workers, there is a possibility that worker accommodation camps may need to be established.</p> <p><b>(Phase – During Construction)</b></p>	Workforce (Construction)	All along the route, especially in proximity to residential areas of roads, paths and crossing points.	Contractor's CESMP, including Health and Safety provisions, in accordance with the Employer's Requirements and the Law on Occupational Safety. Good workforce management, implementation & enforcement of code of conduct, provision of health surveillance & healthcare access for workers, appropriate worker accommodation.	Negative impacts of <b>medium significance</b> of a short-term nature reduced to <b>low significance</b> with contractor management controls.
<p><b>20. Cultural Heritage:</b> Risks of damage to the medieval Dobor Tower during the construction of the proposed cut and cover tunnel. Other risks to hitherto unknown cultural heritage sites from excavations along the road corridor.</p> <p><b>(Phase – During Construction)</b></p>	Cultural heritage sites.	Tunnel below Dobor Tower; All along route.	Contractor's CESMP Chance Finds Procedure. Coordination with local authorities and the Institute for Cultural and Natural Heritage of RS.	Risk is of <b>medium to low significance</b> with contractor management controls

## 4 Review of the Environmental and Social Legal Requirements

Republika Srpska (RS) is one of two administrative entities in Bosnia and Herzegovina (BiH) (the other being the Federation of Bosnia and Herzegovina). Together with the District of Brčko the entities form the State of Bosnia and Herzegovina. BiH is a potential candidate country to the EU and has been in the process of harmonisation with the EU acquis. Given the complex institutional organisation of the country with environmental responsibility primarily assigned to the entities, the regulatory compliance of the project has been reviewed against the regulations of Republika Srpska.

### Competent Authorities Related to Environmental & Social Protection

The authority competent for environmental protection in Republika Srpska is the Ministry of Physical Planning, Construction and Ecology (Competent Ministry). The Environmental Department at the Ministry is responsible for air protection, nature heritage areas, waste management, noise and vibration, transboundary air and water pollution, protection from chemical accidents and granting of an Environmental Permit. The Urbanism and Spatial Planning Department at the Ministry is responsible for preparation of spatial plans and granting a Location permit and a Construction permit. In terms of nature conservation, the Ministry is supported by the Institute of Cultural and Natural Heritage, an expert institution operating under the Ministry of Education and Culture. The Institute provides approvals and conditions for nature conservation, investigates the potential nature conservation sites and prepares expert studies.

The Inter-Entity Coordination Body for Environment is competent for environmental issues that require harmonisation between the entities, including the transboundary issues. The Inter-Entity Body operates under the State Ministry of Foreign Trade and Economic Relations of BiH which is authorised for signing the international environmental conventions and agreements.

Currently there is no Environmental Protection Agency within Republika Srpska; however, there is an Environmental Protection Fund to ensure Government funds are available for environmental related projects and activities.

The Ministry of Agriculture, Forestry and Water Resources is responsible for protection of water resources (including wastewater discharges), forests and forestland and agricultural land. It sets standards and regulations, issues approvals and permits, and oversees compliance with laws and regulations through licensing and inspections.

The Government of Republika Srpska prepares 10-year road development strategies and determines priorities in road improvements and maintenance. The Government establishes public companies for road management (e.g. ARS) or gives concession rights to private companies.

The Agency for Traffic Safety (under the Ministry of Traffic and Communications) is the main authority for roads and traffic safety planning and improvement. Besides the Agency, road safety issues are also dealt with by the Ministry of Internal Affairs and local municipalities.

The Ministry of Education and Culture is competent for protection of cultural heritage, including archaeological resources. The Institute of Cultural and Natural Heritage is an expert institution under the Ministry responsible for investigations of potential heritage, conservation designs, issuing approvals and conditions, and declaration of protected cultural heritage.

The Ministry of Labour and Veteran Affairs (the Department of Health and Safety) is the principal authority for health and safety issues of workers, including construction works.

The Government of Republika Srpska is the main authority in charge of land acquisition and expropriation for infrastructure projects of public interest. The expropriation proposal is submitted by the Public Attorney's Office, representing Republika Srpska. The Republic Administration for Geodetic and Property Affairs (RAGPA) and its branch offices in municipalities (property administrations) are responsible for maintaining the Cadastre and Land Registry, notifying owners of affected properties and other interested third parties about the expropriation proposal, the organisation of expropriation and compensation hearings. If the owners and/or users do not agree with the offered compensation amount, the case is referred to the court to decide.

The Ministry of Internal Affairs is the competent authority for emergency response including chemical accidents in road transport and unexploded ordnance issues. The Republic Directorate for Civil Protection is an independent governmental body in charge for organisation and training of 5 regional civil protection units (including one in Doboj). Besides the civil protection teams, emergency response involves municipal firefighting units and medical services.



Engagement with stakeholders, including disclosure of information and public consultations, for infrastructure projects, is under the jurisdiction of the Competent Ministry, primarily during spatial planning and the EIA procedure. The process is supported by local municipal authorities on whose territory the project is located and local community councils.

## Environmental Assessment and Management

The current environmental legal framework within Republika Srpska contains overarching laws covering areas such as Environmental Protection, Nature Conservation, Air Protection, Waste and Water. These overarching laws have implementing Decrees and Regulations. It is understood that the Law on Environmental Protection (O.G. RS 28/07, 41/08, 29/10, 71/12, 79/15) is aligned with a number of European and international regulations and conventions including the following:

- Aarhus Convention: Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters: UNECE: (Aarhus, Denmark 1998);
- Espoo Convention: Environmental Impact Assessment in a Transboundary Context: UNECE: (Espoo, Finland 1991);
- EIA Directive 85/337/EEC (amended by Directive 97/11/EC);
- SEA Directive 2001/42/EC
- IPPC Directive 96/61/EC (Integrated Pollution Prevention & Control); and,
- Seveso II Directive: 96/82/EC control of major-accidents.

## Legal Framework for Environmental Assessment

The Law of Environmental Protection of RS (Official Gazette (O.G.) RS No. 71/12, 79/15) sets out the procedure for Environmental Impact Assessments and related environmental approvals. In accordance with this Law, an EIA is undertaken in two stages:

Stage I: Previous Evaluation of Environmental Impact (sometimes referred to as the Preliminary EIA)

Stage II: Assessment of Environmental Impact (EIA) (the stage when the EIS is prepared)

Between Stages I and II there is a screening decision and scoping process under the 'Decree on Projects for which Environmental Impact Assessment is carried out and EIA Screening and Scoping Criteria (O.G. RS 124/12)'. The required content of EISs is set out in the 'Instruction on Content of Environmental Impacts Assessment Study (O.G. RS 118/05)'. The EIA and Environmental Permit process, including the public disclosure and consultation requirements in Republika Srpska are summarised below in Table 2. This also maps out the national EIA process against the key EIA stages outlined in the EU Guidance on EIA<sup>1</sup>.

Table 2: Republika Srpska EIA and Environmental Permit process

Key EIA stages: EU Guidance on EIS Review	Republika Srpska EIA Procedure	Notes
<b>Stage I: Previous Evaluation of Environmental Impact</b>		
Project preparation	1.Preliminary EIA	The preliminary EIA is prepared to inform the early stages of the design of a project (for example corridor and alternative route evaluation and selection). It is also used to inform the screening and scoping process under the Decree O.G. RS 07/06.
Notification to competent authority	2.Screening & Scoping Decision	Under Decree O.G. RS 124/12 the Competent Ministry screens the Project to determine the obligation to undertake an impact assessment and the scope of that study. In the process of making the decision the opinion is sought of the following entities along with their opinion on the Preliminary EIA:
Screening *		
Scoping		
		<ul style="list-style-type: none"> <li>• Ministry of Agriculture, Forest &amp; Water Supply</li> </ul>

<sup>1</sup> <http://ec.europa.eu/environment/eia/eia-guidelines/g-review-full-text.pdf>

Key EIA stages: EU Guidance on EIS Review	Republika Srpska EIA Procedure	Notes
		<ul style="list-style-type: none"> <li>Ministry of Health and Social Care</li> <li>Institute for the Preservation of Cultural, Historical and Natural Heritage</li> </ul> <p>The Decision has to be disclosed on the Competent Ministry's or Government's website.</p>
<b>Stage II: Assessment of the Environmental Impact (EIA)</b>		
Environmental studies	3. Draft Environmental Impact Study	Prepared by Developer and submitted to the Competent Ministry.
Submission of environmental info to competent authority *		
Review of adequacy of information		
Consultation with statutory environmental authorities, other interested parties & the public *	4. Request for Opinions on the Environmental Impact Study	Competent Ministry must submit Environmental Impact Study to entities listed under Article 60 Law on Environmental Protection.
	5. Public Announcement	Competent Ministry must inform public via a notice in the daily newspaper.
	6. Public Hearings in All Related Municipalities	Public Hearings must be no later than 60 days from the application date. They may be attended by all interested parties, competent authorities, organisations, NGOs and others. After the Public Hearing the documents have to be available for review for another 30 days and subject to written comments from interested parties. The Developer/Project Manager must submit their preliminary expert opinions on the comments within 15 days. The Competent Ministry must then within 15 days provide their opinion and recommended amendments to the Environmental Impact Study.
	7. Supplement to the Environmental Impact Study	The draft Environmental Impact Study is then amended by the Developer.
Consideration of environmental information by competent authority before development consent decision*	8. Technical Review of Environmental Impact Study (Audit Report)	Competent Ministry arrange for technical review of amended EIA and prepare audit report.
	9. Final Version of the Environmental Impact Study	Final version of the Environmental Impact Study is submitted to the Competent Ministry for approval.
Announcement of decision *	10. Decision on the Approval of the	Competent Ministry has to issue a decision on approval of the Environmental Impact Study within 60 days of submission of the final version. There is no legal

Key EIA stages: EU Guidance on EIS Review	Republika Srpska EIA Procedure	Notes
	Environmental Impact Study	requirement to disclose the Decision on the Approval of the Environmental Impact Study.
<b>Environmental Permit</b>		
	11. Request for Environmental Permit (i.e. Environmental Approval)	Under Article 80 Law on Environmental Protection an application must be made by the Developer for an Environmental Permit on basis of an approved Environmental Impact Study.
	12. Public Announcement	The request for the Environmental Permit has to be announced in a daily newspaper in Republika Srpska and documents available for review for 30 days.
	13. Environmental Permit	Competent Ministry must provide decision on Environmental Permit within 60 days.
	14. Public Announcement	Public announcement on Environmental Permit.

(\*: EU EIA Directive Mandatory Stage)

### Law on Environmental Protection, 2015

The Law is the framework national environmental law. It governs protection of air, water and land, public participation and access to environmental information, strategic environmental planning, strategic environmental impact assessment of plans and programmes, environmental impact assessment, environmental permits and Seveso facilities, eco-labelling and environmental management, financing of environmental protection and economic instruments, environmental liabilities, and cooperation between the entities. A set of by-laws more closely regulate each of the specified areas.

### Law on Nature Protection, 2014

The Law is an overarching legislation and includes provision for implementing regulations on the establishment of NATURA 2000 sites<sup>2</sup> and other regulations on Protected Areas. However these implementing regulations are still under development and level of harmonisation of Republika Srpska with the Bird and Habitats Directive is still relatively low. The percentage of nationally protected areas in Republika Srpska is understood to be in the region very low by percentage of area, and as yet, there are no Emerald Sites in Bosnia and Herzegovina. Bosnia and Herzegovina conducted a Pilot Project on establishment of the Emerald Network<sup>3</sup> from 2005 to 2008 and officially nominated 29 candidate Emerald sites. The country took steps to identify an initial list of potential NATURA 2000 ecological areas that account for approximately 20% of its territory but further work is needed on establishment of Ecological Network and finalisation of potential NATURA 2000 candidate sites.

### Law on Water, 2012

The Law adopted in 2012 presented the initial step towards transposition of the EU Water Framework Directive. It regulates the legal status of waters, integrated water management, the management of water infrastructure and status of floodplain zones, and financing of water sector activities. It covers surface water and groundwater, including water supply, thermal and mineral waters, and transboundary waters. Wastewater discharge into natural recipients is regulated by the Rulebook on conditions of

<sup>2</sup> NATURA 2000 sites: European protected network of sites throughout EU Member States under the Bird Directive (79/409/EEC) and the Habitats Directive (92/43/EEC).

<sup>3</sup> The Emerald network is a network of Areas of Special Conservation Interest (ASCIs), which is to be established in the territory of the contracting parties and observer States to the Bern Convention, including, among others, central and east European countries and the EU Member States. For EU Member States, Emerald network sites are those of the Natura 2000 network.

wastewater discharge into surface water (O.G. of RS, No. 44/2001). The stipulated limit values relevant for the project are provided in Table 3. These meet with the relevant EU requirements (e.g. from the Urban Wastewater Directive).

Table 3: Selected RS effluent limit values for wastewater discharge into surface water

Parameter	Unit	Limit Value
pH		6.5-9.0
BOD <sub>5</sub>	gO <sub>2</sub> /m <sup>3</sup>	25
COD (dichromate)	gO <sub>2</sub> /m <sup>3</sup>	125
Total suspended solids	g/m <sup>3</sup>	35
Mineral oil	mg/m <sup>3</sup>	500
Cd	mg/m <sup>3</sup>	10
Ni	mg/m <sup>3</sup>	10
Cr (total)	mg/m <sup>3</sup>	100
Zn	mg/m <sup>3</sup>	1000
Pb	mg/m <sup>3</sup>	10

\*Average daily concentrations

### Law on Air Protection, 2011

Republika Srpska has started harmonising the legislation on air quality with the EU requirements by adopting the Law on Air Protection (O.G. of RS, No. 124/11). The Law defines measures for the protection and improvement of air quality. It regulates air quality monitoring, responsibilities and financing of air quality protection and requires the adoption of air quality plans for zones and agglomerations where the air is excessively polluted. The ambient air quality standards are defined within the by-law Decree on Ambient Air Quality Values (O.G. of RS, No. 124/12). The stipulated limit values relevant for the project are provided in Table 4 and Table 5. These meet the relevant EU guidelines for ambient air.

Table 4: Ambient air quality limit values in RS

Averaging Period	Limit value	Margin tolerance	of	Tolerance value
<b>Sulphur dioxide</b>				
<b>1 hour</b>	350 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>		500 µg/m <sup>3</sup>
<b>1 day</b>	125 µg/m <sup>3</sup>	-		125 µg/m <sup>3</sup>
<b>Calendar year</b>	50 µg/m <sup>3</sup>	-		50 µg/m <sup>3</sup>
<b>Nitrogen dioxide</b>				
<b>1 hour</b>	150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>		225 µg/m <sup>3</sup>
<b>1 day</b>	85 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>		125 µg/m <sup>3</sup>
<b>Calendar year</b>	40 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>		60 µg/m <sup>3</sup>
<b>PM<sub>10</sub></b>				
<b>1 hour</b>	50 µg/m <sup>3</sup>	25 µg/m <sup>3</sup>		75 µg/m <sup>3</sup>
<b>Calendar year</b>	40 µg/m <sup>3</sup>	8 µg/m <sup>3</sup>		48 µg/m <sup>3</sup>
<b>PM<sub>2.5</sub> – first stage</b>				

Averaging Period	Limit value	Margin of tolerance	Tolerance value
Calendar year	25 µg/m <sup>3</sup>	5 µg/m <sup>3</sup>	30 µg/m <sup>3</sup>
<b>PM<sub>2.5</sub> – second stage</b>			
Calendar year	20 µg/m <sup>3</sup>	-	20 µg/m <sup>3</sup>
<b>Lead</b>			
1 day	1 µg/m <sup>3</sup>	-	1 µg/m <sup>3</sup>
Calendar year	0.5 µg/m <sup>3</sup>	0.5 µg/m <sup>3</sup>	1 µg/m <sup>3</sup>

Table 5: Ozone limit values in RS

Objective	Averaging period	Target value
Protection of human health	Maximum daily eight-hour mean	120 µg/m <sup>3</sup> not to be exceeded on more than 25 days per calendar year averaged over three years
Protection of vegetation	May to July	AOT40 (calculated from 1 h values)  18 000 µg/m <sup>3</sup> · h averaged over five years

### Rulebook on allowed sound intensity and noise limits, 1989

The environmental noise regulation has not been aligned with the EU requirements. The main legislation on environmental noise is the Rulebook on allowed sound intensity and noise limits (O.G. of SRBiH, No. 46/1989) inherited from ex-Yugoslavia. The Rulebook stipulated noise values are provided in Table 6. These generally are not in compliance with the limits set in the EU, so the ESAP contains a specific requirement to meet the EU levels.

Table 6: Noise limits in open spaces as defined in RS legislation

Zone	Purpose of the area	Noise level [dB(A)]			
		Equivalent noise level		Peak noise level	
		Daytime	Night-time	L <sub>10</sub>	L <sub>1</sub>
1	Hospital, health institution area	45	40	55	60
2	Tourist and recreational area	50	40	60	65
3	Residential, educational institution area, public green area, public recreation area	55	45	65	70

4	Commercial and residential area, business area, areas along transport corridors, warehouses without heavy vehicle traffic	60	50	70	75
5	Business area, workshop area, commercial area, communal services	65	60	75	80
6	Industrial area, warehouse and service area, transport terminals with no residential buildings	70	70	80	85

### **Planning, traffic planning and road planning**

The Law on Public Roads (O.G. of RS, No. 40/2013, 106/2015) regulates the types of public roads in Republika Srpska, their management, planning, financing, reconstruction, maintenance and protection. It also provides regulatory requirements for concessions and public-private partnerships for road projects.

The Law on Planning and Construction (O.G. of RS, No. 40/2013, 106/2015, 84/2019) is a principal regulation for the spatial planning system in Republika Srpska, preparation of spatial plans, including disclosure of information and public consultations, granting of a Location Permit and a Construction Permit, types and content of technical designs, requirements for construction works and relations between the participants in construction, requirements for operation and demolishing of buildings and legalisation of buildings. The Law determines the level of spatial planning documentation for road projects and stipulates that a Location Permit for road projects is granted by the Competent Ministry.

### **Protection of Forestry and Agricultural Land**

The Law on Forests (O.G. of RS, No. 75/2008) defines forests and forestlands as commons which are under special protection, given their economic, social and ecological function (protection of biodiversity, soil and water). The Law defines three types of forests: (1) economic forests which are primarily used for forest products and services, (2) protective forests with primary function of protection of soil, water, settlements and properties and (3) special purpose forests which present the notable nature conservation areas important for biodiversity. Public company Forests of Republika Srpska is authorised by The Ministry of Agriculture, Forestry and Water Resources to manage the forests and forestlands and grant relevant approvals and conditions.

The Law on Agricultural Land (O.G. of RS, No. 93/2006, 86/07, 14/10, 5/12) regulates planning, protection, usage and availability of agricultural land. It defines the agricultural land as cultivated land, gardens, fruit growing plots, vineyards, meadows, pastures, fishponds and swamps. The Law prescribes measures for environmental protection of agricultural land in respect to soil contamination, inadequate use of fertilisers, testing of soil and irrigation water on contamination, and remediation of contaminated agricultural land.

### **Law on Cultural Heritage, 2008**

The Law regulates the system of the protection and use of cultural property and defines conditions for the implementation of activities relating to the protection of cultural property. Cultural property can be of exceptional or great importance in which case it is subject to the provisions of the Law. The Law provides that if archaeological sites or archaeological artefacts are found in the course of construction and other works, the executor of works shall immediately and without delay suspend works and inform the competent institute for the protection of cultural monuments, and take measures so that the finding is not destroyed and damaged, and that it is preserved in the place and position where it was found.

### **The Labour Law, 2016**

The Labour Law (O.G. of RS, No. 1/2016, 66/2018, 119/2021) is harmonised with the EU acquis. It regulates labour relations, employment, working time, wages, social protection, retrenchment, workers organisations, collective agreements and trainings. Employers with more than 15 employees are obliged to have either a collective bargaining agreement or unilaterally enacted Work Rules. Overtime



cannot last more than four hours a day and 10 hours a week. The minimum duration of annual vacation is 20 working days. The statute of limitation for claims against the employer is six months from the day when the employee became aware of the violation. The period of validity of collective agreements is limited to three years, with the possibility of extension.

### **Law on Occupational Safety, 2010**

The Law adopted in 2008 and amended in 2010 is the main legislative document regulating occupational health and safety issues in Republika Srpska. The Law incorporates the principles of the EU Workplace Health and Safety Directive (89/391/EEC). It is based on general principles of prevention and requires: avoidance of risks, assessment of unavoidable risks, risk elimination at source, adjustment of working activities and workplace to employees, changing hazardous technological processes to safe or less hazardous ones, giving priority to collective and not individual operational health and safety measures, and appropriate training of employees. The Law requires preparation of an Elaborate on management of construction sites for all construction works with duration longer than 7 days. The content of the Elaborate is similar to a Construction Health and Safety Management Plan.

### **Law on Traffic Safety on Roads, 2011**

The Law governs the traffic safety and related strategic planning, financing and monitoring of traffic safety, road signalisation and equipment, procedures of independent safety review of road designs, road safety audits, inspections and related licences, detailed analyses of traffic accidents, road traffic rules, special safety measures and obligations in case of traffic accidents.

### **Law on Transport of Hazardous Substances, 2016**

The Law sets requirements for road, rail and river transport of hazardous substances, including packaging and vehicle equipment, issuing transport approvals, and training for the transport of hazardous substances. The Law requires a specific by-law that would regulate the road transport of hazardous materials. It is understood that the by-law has not been adopted yet.

### **Law on Protection and Rescue in Emergency Situations, 2012**

The Law governs the system of protection and rescue in emergency situations, planning and financing of the system, sets the main participants in the process and their responsibilities and defines obligations of the municipal authorities, civil protection units, and citizens. The Law is primarily focused on natural disasters but contains provisions related to "the other emergencies" including the road transport accidents.

### **Law on Proprietary Rights, 2008**

The Law on Proprietary Rights (O.G. of RS, No. 124/208, 03/2009, 58/2009... 107/2019) regulates the general issues of acquiring, using, disposing of, protecting and terminating ownership rights and other proprietary rights and possession rights, including the issues of restricting such rights, the right of servitude, co-ownership and joint ownership rights, etc. The law prescribes that any damages caused to an owner of a property by a third party, must be compensated, in accordance with general rules for damage liability (Law on Obligations of the RS, last change 74/2004).

### **Law on Free Access to Information, 2001**

In Republika Srpska, the right to be informed accurately, fully and timely about issues of public importance, is guaranteed under the constitution. This right is further elaborated in the Law on Free Access to Information (O.G. of RS, No. 20/2001), which requires representatives of the public sector to provide information and respond to any queries in relation to their activities, including planning documents, permits, audits, etc.

As mentioned in other sections, the development and adoption of planning documents (spatial and urban plans), as well as the EIA process, are subject to a public disclosure and consultation process, in accordance with the relevant laws.

### **Transboundary consultation requirements**

The Law on Environmental Protection (O.G. of RS, No. 71/2012, 79/2015) sets the consultation requirements in the case of transboundary effects of the projects. The Competent Ministry is obliged to involve the competent authority in the respective country, the Federation BiH entity or the Brčko District and to provide the relevant information on the project and its potential transboundary effects. The Competent Ministry is required to consider the opinions and comments received from the affected country/entity/district at the Preliminary Environmental Impact Study stage and to enable the respective

stakeholders and authorities to participate in the EIA public hearing. Opinions and comments from the public hearing are incorporated in recommended amendments to the Environmental Impact Study.

## 5 Contractor's CESMP

### 5.1 Purpose and Scope of the CESMP

Employers Requirements, prepared by ARS as part of the tender document for this Project, set a clear requirement for the future design and build contractor ("Contractor") to develop a full Construction Environmental and Social Management Plan ("CESMP").

The purpose of the CESMP is to establish how the mitigation commitments made through the ESIA process will be implemented, monitored and sustained. The content of the CESMP is essential to bridge the findings of the ESIA, requirements set in the Environmental Permit ("Ecological Permit" in RS) and this ESMP with the implementation of the mitigation measures. The CESMP needs to provide instructions how environmental, social and health commitments will be managed from preparation of the Detailed Design, through pre-construction (preparatory) phase to the construction of the motorway project.

The CESMP is a living document which:

- Incorporates the environmental and social mitigation measures identified through the ESIA process into a comprehensive framework to facilitate and ensure appropriate management throughout the construction phase of the project;
- Present the commitments (including relevant national regulations and legal requirements and EIB's requirements);
- Provides a framework to incorporate commitments into the plans and procedures for construction activities;
- Present the division of responsibilities for achieving the CESMP requirements including the provision of training;
- Presents the specific management plans (CESMP Sub-Plans) that will meet the requirements of the national legislation and EIB Environmental and Social standards;
- Provide the monitoring and reporting program (including corrective actions);

### 5.2 Roles and Responsibilities

The roles and responsibilities of the future Contractor's construction team are determined by the ARS' Employers requirements and FIDIC Yellow Book General Requirements. As a minimum, the future Contractor must appoint an ESHS Manager/ Officer ("Environmental, Social, Health and Safety") whose responsibilities include:

- To prepare and maintain the Construction Environmental and Social Management Plan (CESMP) and the associated sub-plans;
- To manage implementation of the CESMP and the associated sub-plans;
- To assist the ARS's Project Manager (ARS PM) to manage, update and maintain this ESMP to ensure compliance with RS laws, permits, licences and agreements;
- To ensure that all sub-contractors engaged for this project have ESHS training to ensure that the workforce is competent to deliver the CESMP;
- To maintain site ESHS records related to the monitoring programme and KPIs, accidents and incidents, corrective actions, worker training, and OHS data and statistics;
- To submit monthly reports to the ARS's PM;
- To report on environmental incidents and accidents;
- To identify and review the environmental and safety risks associated with the construction works;
- To implement Contractor's obligations from the Stakeholder Engagement Plan ("SEP"), including grievance management and to report on grievance management;
- To maintain a good relationship with the local community;

It is essential that the Contractor's ESHS Manager/ Officer is fluent in English/local language and is able to communicate effectively with all of the construction workforce. The Contractor should provide translators if the ESHS Manager/ Officer is unable to communicate directly in languages/ dialects used by the workers.

The ESHS Manager will also have a role to engage with stakeholders, particularly local communities and manage grievances, as described in the SEP. In this case, that person will have to be fluent in the local language and if not, the Contractor has to appoint another individual with appropriate skills for this role.

### 5.3 Worker Training and Awareness

The CESMP should form part of the mandatory site induction for all employees, contractors and visitors attending the site. All employees and contractors should familiarise themselves with the contents of this document.

The Health & Safety of all the individuals working on the construction of the Project is of paramount concern to ARS. It is essential that the Contractors provide a safe workplace and develop a culture that means that each member of staff looks out for their own safety and that of others. This includes being prepared to challenge a process or even stop work if necessary, with the help of the following trainings:

- Safety training for all personnel in their language, covering the hazards and safety protocols of their jobs.
- Special training for specific hazards, e.g. working at heights, working in confined spaces in excavations, working with electricity.

The future Contractor, and the Sub-Contractors working for them, must provide levels of training to ensure that the workforce is competent to deliver the CESMP. The objectives of the Contractors' training program should be to:

- Inform the employees of their ESHS responsibilities during construction.
- Explain methods and techniques that can be used to reduce environmental impact and increase worker safety.
- Inform all employees about the ESHS policies, the Code of Conduct, management of workers accommodation (including welfare facilities) and the Workers Grievance Mechanism.
- Enable employees to respond to emergency situations in a safe and effective manner.
- Improve communication between all parties engaged in construction work related to the environmental and safety aspects of the Project.

It is the responsibility of the Contractor and their Sub-Contractors to ensure that the individuals employed by them, or sub-contracted to them, are sufficiently qualified and trained to undertake the tasks allocated them. Worker certification and legal compliance will be monitored by the ARS's PM.

The Contractor must ensure that each worker has the necessary ESHS training so that they understand risks associated with the construction of the motorway.

The Contractor and their Sub-Contractors must maintain a formal record of the training provided to each worker.

Each worker must be provided with a site induction briefing on their first visit to site. It is essential that each worker understands the ESHS protocols described in this CESMP, the Contractor's ESHS Management Plan and the detailed sub-plans.

The CESMP forms the basis of the site induction and includes consideration of:

- General risks with working across the construction site including vehicle speed and work-related accidents and incidents.
- PPE requirements (relating to the work being undertaken).
- Location of muster points.
- Location of hazardous material and waste storage facilities.
- Workers Grievance Mechanism.
- Potential emergencies and initial actions.
- Emergency contact numbers.

These topics are described in the site safety booklet to be produced by the Contractor. A copy of the Safety Booklet is to be provided to each individual during the induction briefing.

Should the CESMP be updated as a consequence of a change in the ESHS Risk Assessment, then the induction training must be modified and all existing workers must be notified of the changes. Induction briefings may be repeated if considered necessary.

### 5.4 The Workers Grievance Mechanism ("WGM")

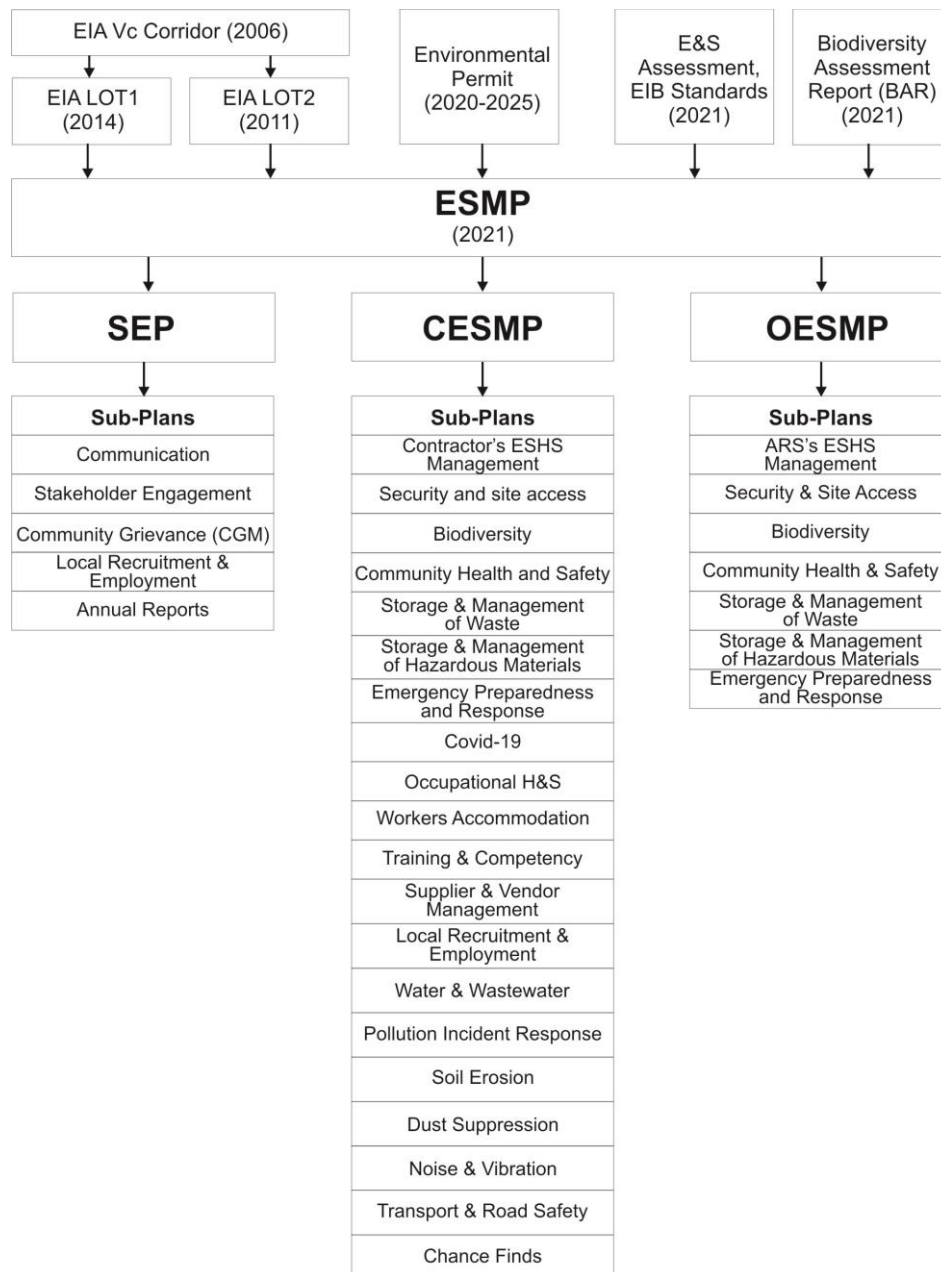
The Workers Grievance Mechanism ("WGM") applies to matters of concern, individual or collective, that may be raised by any worker engaged on the construction of the motorway, i.e. employees of ARS, the ARS's PM, Contractor and their Sub-Contractors. These concerns could relate to terms and conditions of employment, the working environment, working relationships, working practices and any perceived breach of their contractual or statutory rights.

The WGM is operated by the ARS's PM on the behalf of ARS.

## 5.5 CESMP Sub-Plans

Whilst ARS retains overall responsibility for the overall environmental and social management system for the project, the responsibility for the delivery of the sub-plans is shared between the Contractor (during construction phase) and ARS (during the operation phase). A route map for the ESMS Documentation is provided in Figure 3.

Figure 3: ESMS documentation route map



This ESMP are intended to provide the Contractors with a framework to manage the ESHS risks associated with the construction activities.

## 5.6 Monitoring, Audit and Reporting

A programme of ESHS monitoring will be undertaken in order to verify the effectiveness of the CESMP and its' sub-plans. More specifically, the objectives of the monitoring program are to:

- Meet the applicable standards.
- Evaluate the effectiveness of the management plans and mitigation measures and to identify any shortcomings.

- Allow refinement and enhancement of management plans and mitigation measures to further reduce impacts.
- Allow identification of unforeseen issues or changes in operations and provide information for development of mitigation measures to deal with those issues or changes.

The following monitoring will be undertaken:

- Daily and weekly inspections by the Contractor to identify any key issues
- Period inspections and audits by the ARS's PM and the ARS ESHS Manager

The Contractor, and their sub-contractors, should maintain sufficient records to provide data and information to be included within the monthly reports to the ARS's PM. The basis of the auditing activities should be undertaken by the ARS's PM and their representatives. ARS retains the right to undertake environmental, social and health & safety inspections and audits at any time during the construction phase.

FIDIC Supervising Engineer, as an independent third-party consultant, will supervise the implementation of the CESMP.

## 5.7 Accidents and Incidents

The future Contractor will be responsible for the management, monitoring and reporting of all incidents, accidents and emergencies. The Contractor must report these events, their potential consequence and the proposed resolution to the ARS.

Any major accidents and/ or fatalities must be reported to the ARS Project Director and the ARS's PM within 2 hours.

Any ESHS incidents or accidents must be reported to the ARS Project Director and the ARS's PM within 24 hours.

The Contractor should report any "Significant Environmental and Social Non-Compliance" within 24 hours. These events are defined as:

- an intentional or reckless disregard of any specific prohibition, commitment or obligation set out in the CESMP; or
- any incident that has, or is likely to, result in significant, severe or irreversible damage or impact on the environment or damage, impact or harm to the lives, livelihood, quality of life, health, safety, security, property or cultural heritage of affected people; or
- has or is likely to have a material and adverse impact on the reputation or business of ARS or EIB.

The Contractor should report any "Significant Environmental and Social Reporting Event" within 24 hours. These events are defined as:

- the release of any Hazardous Substance on or from any property associated with the Project;
- any unanticipated incident, accident or circumstance which has resulted in or is likely to result in significant, severe or irreversible damage or impact on the environment, or damage, impact or harm to the lives, livelihood, quality of life, health, safety, security, property or cultural heritage of affected people;
- any incident or accident in connection with the Project resulting in death or significant injury; and/or
- any material explosion or fire at or on any property associated with the Project.

## 5.8 Review of the CESMP

The CESMP should be updated and maintained by the ARS's PM to ensure the effective management of the ESHS impacts of the Project. Specifically, the Contractor should assist the ARS's PM with the update to ensure compliance with RS laws, permits, licences and agreements. The CESMP, and the sub-plans that form part of the CESMP, will be reviewed at least three months by the Contractor to:

- ensure compliance with any changes to construction or temporary works permits;
- ensure it reflects the findings of any internal audits or major non-conformances/ incidents;
- ensure it reflects good international practice;



- ensure it incorporates the findings of pre-construction site investigations or chance finds; and
- take account of Stakeholder views or Grievances raised by them.

Any suggested changes to the CESMP will be discussed and agreed with the ARS's ESHS Manager before a formal revision of the CESMP is put in place.

## 6 Environmental and Social Management and Monitoring Plan

This chapter presents the Environmental and Social Management Plan ("ESMP"). The ESMP summarize a set of environmental and social mitigation measures identified through the ESIA process, and sets out a number of basic standards and arrangements with aim to facilitate the future Contractor to ensure that construction of the Vukosavlje-Johovac motorway complies with national (RS) law and EIB E&S standards.

### 6.1 Noise Emissions

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Noise Emissions</b>	<p><b>Design stage</b></p> <ul style="list-style-type: none"> <li>The Contractor will be required to conduct the Noise Study and to incorporate the results into the Noise Protection Design (which is part of the Detailed Design and subject to approval by the State Review Commission). The Noise Study must include the appropriate day-time and night-time noise measurement near representative receptors, and noise modelling along the alignment. Based on the results of the Noise Study, the need for the noise barriers, their location and technical details (height, parameters, etc) should be determined.</li> <li>Communities close to where noise barriers will be installed will be consulted in advance (as per the SEP).</li> </ul> <p><b>Pre-construction</b></p> <ul style="list-style-type: none"> <li>Contractor should establish The Noise and Vibration Management Plan ("NVMP") to ensure that the quietest available plant and</li> </ul>	Settlements and other sensitive noise receptors near the construction site	Contractor	Noise Study (as part of Detailed Design); CESMP - The Noise and Vibration Management Plan ("NVMP"); Traffic Management Plan (TMP); Stakeholder Engagement Plan (SEP)	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>Baseline noise measurements near sensitive receptors</li> <li>Minutes of consultations with affected community members</li> </ul> <p><b>Pre-construction and Construction</b></p> <ul style="list-style-type: none"> <li>Proactive measurements when noisy activities are being undertaken with portable noise meter at the nearest noise sensitive receptor locations.</li> </ul>	<ul style="list-style-type: none"> <li>Number of exceedances at the noise sensitive receptors</li> <li>Number of noise related grievances at sensitive receptors</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>construction techniques are used to limit noise output during construction works;</p> <ul style="list-style-type: none"> <li>Contractor should establish the Project Traffic Management Plan (TMP) that will include any agreed noise mitigation measure;</li> <li>Contractor should adopt and follow best practicable means to ensure that the quietest available plant and construction techniques are used.</li> <li>Where appropriate, micro-siting is to be undertaken to ensure construction noise impacts are minimised and equipment is located as far as possible from noise sensitive receptors (NSRs). NSRs include on-site accommodation.</li> <li>Routing of project construction traffic should be through the main roads and short section of unmarked road to site. Planning of transport routes including temporary access roads, haul roads and construction work sites should be determined to avoid populated areas, sensitive receptors and villages as much as possible.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Restrict all construction activities to daytime (06-22) during normal working hours</li> <li>Conduct construction activities complying with the maximum permitted noise levels. Noise levels should not exceed EU and national environmental noise limits (stated in the Ecological Permit). Where there is a difference between the national and international limit values, the stricter one should be applied.</li> </ul>				<p>Noise monitoring results to be compared with EU criteria, and RS regulations.</p> <ul style="list-style-type: none"> <li>Regular inspection of vehicle/machinery/equipment maintenance records.</li> <li>Third Party noise monitoring at nearest noise sensitive receptors if significant complaints received or noise levels are significantly exceeded (as agreed by ARS (Engineer)).</li> <li>Evaluate the effectiveness of corrective actions taken when noise monitoring exceedances, or high audible</li> </ul>	

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>Provide prior information to the community of any planned noisy activity</li> <li>Strictly ensure the use of protective personal equipment at all times while on site and noise reduction techniques such as silencers and ear mufflers to employees</li> <li>Regularly monitor noise levels to comply with permitted maximum levels, including all vehicles and machineries on site</li> <li>Should there be a noise complaint then the Contractor should report this to the ARS's PM (Engineer). The Contractor and the ARS's PM will jointly consider appropriate mitigation measures.</li> </ul>				complaints are noted.	

## 6.2 Vibrations

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Vibrations</b>	<b>Pre-construction</b> <ul style="list-style-type: none"> <li>The Noise and Vibration Management Plan ("NVMP") should be developed as part of CESMP, and should include vibration mitigation measures and procedures.</li> <li>Houses and other sensitive receptors near vibration sources (e.g. blasting, pile-driving and operating heavy earth-moving equipment) should be identified prior to construction.</li> <li>Houses and occupants near the vibration sources should be evaluated for vibration, and if vibration</li> </ul>	Settlements nearest to construction site	Contractor	CESMP – CESMP - The Noise and Vibration Management Plan ("NVMP");	<ul style="list-style-type: none"> <li>Monitoring of vibrations performed by a licensed third party in accordance with RS regulations, and as agreed with ARS.</li> </ul>	<ul style="list-style-type: none"> <li>Number of exceedances of vibration limits at the sensitive receptors</li> <li>Number of vibration related complaints at sensitive receptors</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>estimates show potential for building damage, alternative construction method should be developed to prevent damage.</p> <ul style="list-style-type: none"> <li>Material procured from quarries and suppliers (not directly licensed by Developer) will be evaluated to verify that the operations of these facilities are in compliance with permitted activities and relevant operating conditions.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Conduct construction activities within the maximum permitted vibration levels. If vibration standards are exceeded, additional measures should be taken to reduce vibration effects, and, if necessary, to change operating methods to use equipment that generates lower vibration levels.</li> <li>When required by Engineer or National Inspection, monitoring of ground vibration should be performed by a licensed third party in accordance with RS standards. If vibration criteria are exceeded in proximity to the closest buildings, other control methods will be considered to reduce vibration levels as far as is practicable.</li> <li>Complaints arising from excessive vibrations will be managed through the Community Grievance Mechanism.</li> </ul>				<ul style="list-style-type: none"> <li>Evaluate the effectiveness of the control measures to reduce vibration impacts.</li> <li>Monitoring of compliance with blasting permit/consent conditions (in case of blasting on the construction site or in quarries)</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with permit/consent conditions</li> <li>Continued improvements in number of reported vibration incidents</li> </ul>

### 6.3 Air Quality and Dust Suppression

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Air pollution and Dust</b>	<p><b>Pre-construction</b></p> <ul style="list-style-type: none"> <li>Air quality and Dust suppression management plan should be developed as part of CESMP</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Contractor should identify strategies to manage dust on the road during the execution of the Project.</li> <li>Contractor should provide a designated wash down area to spray and wash vehicles and equipment.</li> <li>Contractor should use properly maintained vehicles and construction equipment with emission controls.</li> <li>20 km/h speed limit should be applied on unsealed/unpaved surfaces close to settlements and sensitive receptors.</li> <li>Trucks carrying aggregates should have covered loads.</li> <li>If necessary, water should be used to dampen down on-site roads and excavations to reduce dust.</li> <li>Stockpiling of stripped surface material, e.g. rock, sand and soil, stockpiling of unwashed materials, should be limited. Stockpiles should be kept as enclosed as possible or covered.</li> <li>Stockpiles should be placed as far away from receptors as possible. Wind breaks or dust protection systems (including sprinklers) should be built around the main construction activities where necessary and, if possible, near potentially dusty</li> </ul>	Settlements nearest to construction site	Contractor	CESMP – Air quality and Dust suppression management plan	<ul style="list-style-type: none"> <li>Daily visual check that dust is not leaving the construction site.</li> <li>Dust monitoring result compliant to national/international standards if requested by ARS/Engineer. Visual monitoring of dust may be acceptable, as agreed with ARS/Engineer.</li> <li>Evaluate the effectiveness of the control measures to reduce dust generation.</li> <li>Complaints managed through the Community</li> </ul>	<ul style="list-style-type: none"> <li>Number of air quality complaints at sensitive receptors</li> <li>Continued improvements in number of reported air quality incidents</li> </ul>



Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>works to minimize the impact of nearby residential receptors.</p> <ul style="list-style-type: none"> <li>• Good practice should be applied for selection of project vehicles that meet the latest emission standards (e.g. EURO 3 or US EPA Tier 2 emission standards) and maintained in a reasonable working order.</li> <li>• When not in use, vehicles should be shut down unless it is due to health and safety reasons (e.g. maintenance of the air conditioner, emissions).</li> <li>• Air pollution control equipment (e.g. baghouse) should be installed and operated for the asphalt plants.</li> <li>• Communicate project risk to local communities and address concerns accordingly. Monitor any complaints filed (via grievance mechanism) from local stakeholders as an additional tool to monitor dust management measures.</li> </ul>				Grievance Mechanism.	

#### 6.4 Surface Water (the Bosna River and its Tributaries)

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Working in the Riverbed; River Regulation Works; Spillage / Leakage to</b>	<p><b>Design and Pre-Construction</b></p> <ul style="list-style-type: none"> <li>• A Biodiversity Management Plan should be developed. Plan should set the environmental requirements and control measures during the construction works near the waterways including the in-water works;</li> <li>• In accordance with Ecological Permit (Chapter 3.2.3): hydro-technical facilities at the intersections</li> </ul>	The Bosna River and its tributaries	Contractor	<p>CESMP –</p> <ul style="list-style-type: none"> <li>• Biodiversity Management;</li> <li>• Water and Wastewater Management;</li> <li>• Pollution Incidents Response,</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring during construction as specified in Ecological Permit</li> <li>• Monitor the clarity/turbidity of each</li> </ul>	<ul style="list-style-type: none"> <li>• Any increase of flood risk on site (upstream or downstream of the site) resulting</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>surface water;</b> <b>Wastewater and Stormwater generation;</b> <b>Flood Risk during construction works;</b>	<p>of highways with watercourses should be dimensioned at the maximum flows of the 100-year return period for bridges and 50-year return period for culverts.</p> <ul style="list-style-type: none"> <li>• The major part of the alignment is located in the alluvial area prone to flooding. The contractors should consult the relevant water management authorities and fulfil any site-specific requirements for works within areas at risk of flooding;</li> <li>• Suitable access and safe refuges will be identified for use in the event of a flood. Appropriate maintenance access will be made available to watercourses, if required.</li> <li>• Works in the riverbeds should be planned not to cause changes in the hydrological regime of the River Bosna and its tributaries.</li> <li>• Removal of the river islands and their vegetation is not prohibited.</li> <li>• Emergency Preparedness and Response plan and Pollution Incident Response Plan (including spill management) should be implemented, addressing any common risks or impacts, defining response, responsibilities, equipment, training needs for staff at the site, etc;</li> <li>• Size of the working area in the Bosna River riverbed (and any other stream) should be reduced and limited as much as practicable.</li> <li>• The removal of trees in the riverbank zone should be kept to a minimum.</li> <li>• Construction activities will be planned and undertaken to avoid any significant increase of flood risk, including measures such as keeping watercourses clear of obstructions and debris to reduce blockage risk.</li> </ul>			<ul style="list-style-type: none"> <li>• Storage and Management of Hazardous Material;</li> </ul>	<p>discharge to watercourse .</p> <ul style="list-style-type: none"> <li>• Ditches and culverts should be periodically monitored for blockage to ensure unrestricted water flow.</li> <li>• All effluents discharge should be monitored in compliance with national regulations and Water Permit.</li> </ul>	<p>from Project activities</p> <ul style="list-style-type: none"> <li>• All effluent discharged in compliance with the Water Permit issued by local authority.</li> <li>• Any erosion of riverbanks</li> <li>• Number of accidental spillages reaching surface water.</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<b>Construction</b> <ul style="list-style-type: none"> <li>Construction works should be scheduled to low-rainfall season/low-flow periods, whenever possible;</li> <li>Creation of steep slopes and large exposed areas in proximity to rivers should be minimised;</li> <li>Measures to contain and manage surface water run-off from the construction site should be implemented and requirements of the relevant authorities fulfilled;</li> <li>Suitable construction site drainage system should be provided including cut-off valves, ditches or drains and sustainable drainage systems, or equivalent, with suitably sized treatment facilities such as settlement or detention basins;</li> <li>Oil separators should be used, if required by the relevant authority at site offices and works compounds;</li> <li>Necessary approvals should be obtained for discharge of dewatering, surface water run-off and wastewater from the construction site to watercourses or disposal off-site;</li> <li>Watercourses and associated land drainage within or adjacent to construction sites should be protected in accordance with requirements set out by the relevant authority; This will include appropriate precautions when working in the watercourses or adjacent to watercourses, diversion of streams, construction of new culverts;</li> <li>Where appropriate, works near watercourses should involve installation of the discharge point for the pumped water (depending on the quantities of pumped water erosion protection measures may be required);</li> <li>Storage of major earthwork stockpiles, hazardous materials (oil, paints), parking of machinery, disposal</li> </ul>					

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>of waste should be away from watercourses and flood prone areas;</p> <ul style="list-style-type: none"> <li>• In the areas where hazardous materials and waste will be stored, secondary containment should be provided to retain any leakage and emptied at regular intervals to prevent overflow; Spillage kits should be stored at key locations on site and in particular at refuelling areas; staff will be trained in their use;</li> <li>• Any spill incidents should be immediately remediated, reported, and need to be subject of investigations.</li> <li>• Contaminated materials including soils, should be removed from the site for suitable treatment and disposal in compliance with the local regulations.</li> <li>• Refuelling of all plant, vehicles and machinery should be carried out at minimum 50 m of any water course, drain or channel leading to a water course.</li> <li>• Sanitary wastewater from workers facilities will be contained by temporary sewer facilities and disposed off-site by licensed contractors or connected to local sewer system where present;</li> <li>• Establishing and operation of concrete batching plants will be compliant to requirements set by the relevant authorities. Wash water from batching plants will not be discharged to watercourses unless approved by the relevant authority.</li> <li>• Water turbidity upstream and downstream of the working area should be visually monitored and compared. In case of elevated turbidity downstream from the construction site, works should be stopped and corrective action implemented.</li> <li>• Herbicide should not be used near water courses.</li> <li>• Restoration and re-vegetation of work site areas or gradual re-vegetation as construction proceeds should be implemented</li> </ul>					

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>Training should be provided to machine operators with attention to inspection to leaks, safe storage, and handling of fuels/oils/hydrocarbons near the watercourses and/or precautionary measures to prevent contamination.</li> </ul>					

## 6.5 Groundwater

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Private Water Supplies (PWS)</b> Impact on private water supplies due to disturbance of the groundwater regime during excavation/de watering;	<b>Design and Pre-Construction</b> As part of Water and Wastewater management Plan – the procedure for private water supplies (PWS) should be developed to include: <ul style="list-style-type: none"> <li>Identification of PWS down-gradient of the excavation/dewatering areas including the source of their water feeding, its catchment, distribution infrastructure and supply;</li> <li>Risk Assessment: Potential of excavation (or dewatering) to affect the quantity, quality or continuity of water at the receptor and appropriate mitigation to avoid or reduce the risk;</li> <li>Provision of temporary or permanent alternative water supplies, if necessary. A permanent alternative source should be comparable to or better than the current source and may include a groundwater borehole, or an alternative water spring/source with pipe infrastructure;</li> </ul>	Private water supplies in the vicinity of the construction works	Contractor	CESMP – Water and Wastewater Management Plan – procedure for the private water supplies (PWS);	<ul style="list-style-type: none"> <li>Monitoring of PWS should be undertaken during and after the excavation/de watering phase to ensure that the baseline water quality and quantity in PWS is reinstated.</li> <li>The monitoring should last at least 6 months with monthly sampling from the water</li> </ul>	<ul style="list-style-type: none"> <li>Number of PWS affected</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Groundwater Contamination due to Leakage and Spills;</b>	<b>Construction</b> <ul style="list-style-type: none"> <li>Safe fuelling and gasoline handling should be practiced in the construction areas in accordance with Fuel Supply, Handling and Distribution procedure and Spill Prevention and Response procedure (as a part of CESMP).</li> <li>Temporary fuel storage areas should be planned and designed with secondary containment to prevent releases to ground.</li> <li>Accidental spills should be avoided through good practice and restriction of refuelling near all watercourses and close to groundwater protection zones.</li> <li>Where the construction equipment cannot be moved to fuelling points, an impervious surface (such as drip-trays) and spill response kits will be used during refuelling of construction equipment to prevent accidental leakage to groundwater.</li> <li>Hazardous materials should not be stored in excavated areas.</li> <li>Storage of hazardous materials in open areas should be kept to a minimum in size and time.</li> <li>Stormwater runoff (including any surface runoff and flows resulting from precipitation, drainage or other sources) should be passed through an interceptor/settlement system prior to discharge to the natural recipient.</li> <li>Any use of groundwater resources should be approved by the competent water authority</li> </ul>	Shallow alluvial aquifer formed within a Bosna River floodplain	Contractor	CESMP – <ul style="list-style-type: none"> <li>Water and Wastewater Management;</li> <li>Pollution Incident Response;</li> <li>Storage and Management of Hazardous Materials;</li> </ul>	source and point of supply. <ul style="list-style-type: none"> <li>Daily visual check of the wastewater leaving the construction site.</li> <li>Ditches and culverts should be monitored for blockage to ensure unrestricted water flow.</li> <li>Water Permit that will be issued by the national water authority may require monitoring of the groundwater level in the domestic wells in the vicinity of the construction sites (if necessary).</li> </ul>	<ul style="list-style-type: none"> <li>Number of groundwater quality complaints</li> <li>Number of accidental spillages to reaching subsurface zone and groundwater</li> <li>Number of incidents caused by dewatering operations</li> </ul>



Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>Concrete and asphalt mixing facilities should be located to avoid flooding areas, and areas with shallow groundwater levels.</li> <li>In case of dewatering, significant alterations of groundwater regime should be avoided as much as possible.</li> <li>Any discharge to land and water courses should be inspected to ensure that the rate of flow does not causing erosion or scouring.</li> </ul>				<ul style="list-style-type: none"> <li>Complaints managed through the Community Grievance Mechanism.</li> </ul>	

## 6.6 Soil and Erosion

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Destabilisation or erosion of soil and sediment build up during the earthworks</b>	<b>Design</b> <ul style="list-style-type: none"> <li>The Soil Erosion Plan should be developed and implemented (including sediment control) to ensure that best management practice principles are applied during the construction;</li> <li>Erosion protection should be rechecked and designed so that it is able to cope with accelerated and increased flows. It is especially important at the outlet of cross drainage structures and where the major surface run-off is expected along the embankments.</li> <li>Slope protection should include bio-engineering and/or additional engineered solutions (anchoring, retaining walls or improved drainage), both within and beyond the motorway corridor.</li> <li>Contractor should design and install a robust geotechnical monitoring system (piezometers,</li> </ul>	Motorway corridor, construction sites	Contractor	CESMP – Soil Erosion Plan;	<ul style="list-style-type: none"> <li>Daily visual inspections</li> <li>Evaluate the effectiveness of the control measures</li> <li>Geotechnical monitoring system (piezometers, inclinometers) for slope movement control</li> </ul>	<ul style="list-style-type: none"> <li>Reports on any soil erosion</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>inclinometers) for slope movement control, during both construction and operation.</p> <p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>A Soil Erosion and Sediment Control Plan should be developed and implemented to ensure that best management practice principles are applied during the construction;</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Earthworks should be staged and sequenced in order to limit the area of exposed soil;</li> <li>Open earthworks should be progressively and rapidly stabilised (e.g. use of mulch, aggregate, geotextile);</li> <li>Sediment control measures should be employed. Run-off should be controlled by interception, diverting or conveying to stabilised areas, across slopes at a minimum gradient;</li> <li>Major earthworks should be scheduled to low-rainfall season;</li> <li>All slopes and areas of bare soil should be stabilised before the beginning of snow season;</li> <li>Upon completion of the construction, the original slope and drainage pattern should be re-established, to the extent possible.</li> </ul>					
<b>Loss, compaction or degradation</b>	<ul style="list-style-type: none"> <li>Removed topsoil should be stored adjacent to the excavated area and later used to cover backfilled areas;</li> <li>Topsoil removal and stockpiling should be halted if topsoil is saturated with water; soil compaction</li> </ul>	Agricultural soil along in the vicinity of the	Contractor	CESMP – Topsoil management procedures	<ul style="list-style-type: none"> <li>Visual inspection</li> </ul>	<ul style="list-style-type: none"> <li>Number of soil degradation grievances</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>of agricultural soil during construction.</b>	<p>and long-term damage to soil structure will be avoided by handling soils that are in a suitably dry condition and not during wet weather;</p> <ul style="list-style-type: none"> <li>Removed topsoil should be preserved for re-use;</li> <li>Topsoil stockpiles should have adequate height and slope gradient and their erosion should be prevented by controlled compacting to the level that presents no threat of development of anaerobic processes;</li> <li>Excavations and areas of exposed soils should be reinstated as soon as practicable once construction works are complete at a certain area.</li> </ul>	construction site				
<b>Contamination of soil due to accidental release of hazardous materials or waste.</b>	<p><b>Pre-construction</b></p> <ul style="list-style-type: none"> <li>Emergency response plan (including spill management) should be implemented, addressing risks or impacts, defining response, responsibilities, equipment, training needs for staff at the site, etc.</li> <li>Appropriate working procedures should be implemented to minimise the risk of accidental release during storage and handling of hazardous materials, washing down of plant and equipment and fuelling and maintenance of machinery and vehicles;</li> </ul> <p><b>Construction</b></p>	Construction site including all Project facilities	Contractor	CESMP – Spill Response and Prevention; Hazardous Material Management;	<ul style="list-style-type: none"> <li>Visual inspection</li> <li>Soil sampling and analysis</li> </ul>	<ul style="list-style-type: none"> <li>Soil control measures in place</li> <li>Number of soil pollutions</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>• Surface run-off from construction sites (including topsoil stockpiles) will be facilitated by adequate drainage;</li> <li>• Storage of fuels, oils, chemicals, and liquid waste materials should be carried out in designated, dedicated areas, equipped with spillage protection;</li> <li>• Fuelling and maintenance of machinery and vehicles should be carried out in a designated area with available spill kits and drip trays;</li> <li>• Pollution control measures should be implemented at construction sites (concrete batch plant, storage areas, workshops, fuelling facilities, parking areas), including provision of sealed surfaces and oil separators, according to the RS regulatory requirements and international best practice;</li> </ul>					

## 6.7 Excavated Materials and Waste Management

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Disposal of excavated soil;</b>  <b>Generation of waste during construction;</b>	<b>Construction</b> <ul style="list-style-type: none"> <li>• A Construction Waste Management Plan (CWMP) and Borrow Management Plan (BMP) should be prepared and maintained by the lead Contractor. The Plan will identify the specific types and quantities of waste likely to arise during the construction process, including: excavated</li> </ul>	Construction sites and Project facilities	Contractor	CESMP – Construction Waste Management Plan (CWMP) Borrow Management Plan (BMP)	<ul style="list-style-type: none"> <li>• Visual inspections</li> <li>• Waste records, documents on waste handover</li> </ul>	<ul style="list-style-type: none"> <li>• Number of incidents related to construction waste disposal and management</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>materials, construction, demolition and excavation waste;</p> <ul style="list-style-type: none"> <li>• The majority of excavated material that will be generated should be reused, if suitable, either as engineering fill material or in the environmental mitigation earthworks of the project;</li> <li>• If excavated material is not suitable as engineering fill, the opportunities should be searched to find the appropriate utilisation (regional construction projects, flood protection, etc.);</li> <li>• Where generated, waste will be classified in accordance with the RS regulatory requirements on inert, non-hazardous and hazardous waste;</li> <li>• Mixing of inert, hazardous and non-hazardous waste, either during collection or storage will not be permitted;</li> <li>• Waste should be segregated and stored in containers (skips) and other storage vessels, clearly labelled, sheeted or closed when waste is not disposed in them;</li> <li>• Plastic sheeting will be used to prevent leaching from waste soils and aggregates where these are not contained within skips or other storage vessels;</li> <li>• Liquid wastes will be stored on hard-surfaced areas with secondary containment to prevent spillages;</li> <li>• Any removal of waste from site will be done by licensed sub-contractors in compliance to the RS regulatory requirements on transfer, treatment and disposal of waste and accompanied with appropriate documentation;</li> </ul>				<ul style="list-style-type: none"> <li>• Complaints managed through the Community Grievance Mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• Number of pollutions related to construction waste disposal and borrow management</li> </ul>

## 6.8 Biodiversity

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Permanent loss of the Alder wood;</b> Construction of the interchange "Trebava" near the village of Kožuhe, will lead to permanent loss of about 2.5 ha (or 15%) of isolated alder wood stand (Annex I of the Habitat Directive, Code 91E0*).	<b>Pre-Construction</b> <ul style="list-style-type: none"> <li>A Biodiversity Management Plan (BMP) should be developed</li> </ul> <b>Construction</b> <ul style="list-style-type: none"> <li>Contractor should prevent and avoid any removal, destruction or damage to the alder wood trees outside of the narrowest construction zone.</li> <li>Contractor should fence and install the sign to prevent the damage of remaining part of the wood.</li> <li>Contractor should provide a stable groundwater regime and permanent run-off of surface water from the coastal part by constructing two tubular culverts.</li> <li>Excavate and transplant all young alder and ash trees from the area to be devastated and afforest the remaining part of the expropriated land around the Trebava interchange according to the instructions in the Biodiversity Assessment Report, 2021.</li> </ul>	Intersection "Trebava" construction site near Kožuhe village	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>Visual inspection to secure that there is no unnecessary damage of the wood outside of the narrowest construction zone.</li> <li>Visual inspection whether the surface water inflow is allowed</li> <li>Checking of the groundwater level in the nearest groundwater well or monitoring well (if any)</li> </ul>	<ul style="list-style-type: none"> <li>Minimized damage to alder wood stand</li> <li>Any damage of the alder wood outside of the construction zone</li> </ul>
<b>Damage of the muddy and gravel river banks;</b> Construction works in the vicinity of the	<b>Construction</b> <ul style="list-style-type: none"> <li>River bank areas should be avoided whenever is possible, except for limited extent to perform necessary works;</li> </ul>	Riverbanks of the Bosna river and its tributaries;	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>Visual inspection</li> </ul>	<ul style="list-style-type: none"> <li>Any damage of the river banks</li> <li>Reinstated river banks after the</li> </ul>



Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<p>Bosna River and its tributaries could lead to damage of their muddy and gravel river banks (Annex I of the Habitats Directive (code 3270, 3130))</p> <p><b>Risk of spreading of invasive plant species</b></p>	<ul style="list-style-type: none"> <li>Contractor should ensure that the river banks are properly reinstated once the works are completed.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Intrusion of any invasive flora species into the project area and its surrounding should be prevented.</li> <li>Borrow pits and disposal sites should be recultivated and horticultural landscaped using only autochthonous species.</li> <li>Appropriate horticultural landscaping by using only autochthonous species.</li> </ul>	<p>Natural vegetation - mostly willow - poplar and alder forests and river banks near the project footprint.</p> <p>Soil and gravel exploration pits</p>	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>Regular botanist inspection for presence and spreading of the invasive species</li> <li>Twice a year botanist inspection to determine original vegetation renewal progress</li> </ul>	<p>works are done</p> <ul style="list-style-type: none"> <li>Borrow pits and disposal sites recultivated and horticultural landscaped</li> </ul>
<p><b>Disturbance of protected and important medium and large mammals;</b></p> <p>Construction works may disrupt mammals' access to the river, and lead</p>	<p><b>Design and Pre-Construction</b></p> <ul style="list-style-type: none"> <li>A wildlife underpass (under the level of the motorway) should be design and constructed at all three proposed locations.</li> <li>Box culverts and tunnels should be designed and constructed to be partly dry on the inside, or to have the berm for badgers and otters (BAR 2021, Annex 12, Map 10).</li> <li>Terrestrial land passages should be provided under all bridges over the Bosna River.</li> </ul>	<p>Three zones of an increased presence of these species:</p> <ol style="list-style-type: none"> <li>Kožuhe, locality "Dijelovi"</li> <li>Dugo polje, locality "Kutlovac"</li> </ol>	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>One year before construction, camera trap monitoring to determine the species types and crossing frequency at the three proposed section of the motorway alignment</li> </ul>	<ul style="list-style-type: none"> <li>Number of accidents related to medium and large mammals</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<p>to their collision with traffic; Three areas have been identified along the alignment where large and medium mammals may cross the road corridor.</p> <p><b>Disturbance of protected aquatic and semi-aquatic animal species;</b> There are eight small streams flowing into the Bosna River which host certain protected species of fauna. Construction (8 fish species, European pond turtle, otter and beaver). Construction works could temporarily</p>	<ul style="list-style-type: none"> <li>Eco-protective devices should be included in the equipment of the motorway, for repelling the game away.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>The construction site should be fenced and secured from animal access.</li> </ul> <p><b>Design and Pre-Construction</b></p> <ul style="list-style-type: none"> <li>Adequately sized culverts should be designed and constructed (BAR 2021, Annex 12, Map 10).</li> <li>Provide land passages under bridges on small watercourses.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>It is desirable to maintain the diversity of hydraulic and morphological elements of the regulated creeks and cutoff channels that is present in unregulated watercourses (natural sediment, meandering, banks covered in vegetation, where necessary etc.).</li> <li>Provide the natural passage for fish and semi-aquatic animals in riverbed during construction.</li> <li>Prevention and control of water pollution during construction.</li> </ul>	<p>3.Botajica locality, "Botajičke luke"</p> <p>Lovnica creek in Majevac,</p> <ul style="list-style-type: none"> <li>Ljuteš creek in Trnjani,</li> <li>Glogovica creek in Božinci,</li> <li>Bosnica cutoff channel in Dugo Polje,</li> <li>Ljubioča creek in Dugo Polje,</li> <li>Rijeka creek, in Vranjak</li> <li>Savići creek, in Brijestovo (Vranjak)</li> <li>unnamed cutoff channel in Botajica</li> </ul>	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>Terrain search and relocation of possible found European pond turtle out of the construction works zone.</li> </ul>	<ul style="list-style-type: none"> <li>Eight watercourses preserved by culverts designed and adequate hydro regulation works to allow passage of protected aquatic and semi-aquatic animals.</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<p>affect the functioning of the watercourses (e.g. changes to their hydrological regime) which are used by protected species;</p> <p><b>Disturbance of protected and other bird species;</b></p> <p><b>Collision of birds with transparent noise barriers;</b></p>	<p><b>Design and Pre-Construction</b></p> <ul style="list-style-type: none"> <li>Design of non-transparent noise barriers.</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Removal of vegetation should be performed out of the nesting period.</li> <li>Limiting and control of construction works.</li> </ul>	<ul style="list-style-type: none"> <li>Area of bridges over the Bosna River.</li> </ul> <p>(see Annex 12, Maps 10 and 11 of BAR, 2021)</p> <p>Zone of Dobor hill (for construction of non-transparent noise barrier, as specified in the Biodiversity Assessment Report, 2021, Annex 12, Map 11).</p> <p>Possible nesting places in areas with natural vegetation and riverbanks in the zone of construction works.</p>	Contractor	CESMP – Biodiversity Management Plan	<ul style="list-style-type: none"> <li>Search the target vegetation for nesting birds before construction.</li> <li>Visual inspection of white-tailed see eagle nest site without disturbing the nest and birds (January-March, Before and during construction works).</li> </ul>	<ul style="list-style-type: none"> <li>Number of birds killed by traffic along the motorway construction and operation zone.</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI

## 6.9 Landscape and Visual Amenity

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<p><b>Landscape alteration</b> due to introduction of the new visual elements (road embankment, bridges, interchanges);</p> <p><b>Visual impact</b> on local residents, road users, people working in the area and people involved in recreation during construction;</p>	<p><b>Design, Pre-Construction</b></p> <ul style="list-style-type: none"> <li>The motorway embankments should be landscaped to mitigate landscape alteration caused by introduction of the new visual elements (motorway embankment, associated bridges and interchanges) into the cultivated river valley;</li> <li>Disruption of visual contact between the river and nearby settlements should be compensated by landscaping of the river valley and rehabilitation of the areas with abandoned gravel extraction facilities;</li> <li>Existing vegetation should be preserved as much as possible;</li> <li>Relevant local authorities and other stakeholders should be consulted, as appropriate, regarding the planting proposals;</li> <li>Planting and seeding works should follow recommendations listed in BAR, and should be approved by the relevant authority.</li> </ul> <p><b>Construction</b></p>	Along the motorway alignment and nearby settlements;	Contractor	<p>CESMP – Construction Waste Management Plan (CWMP)</p> <p>Biodiversity Management Plan (BMP)</p>	<ul style="list-style-type: none"> <li>Visual inspection from the nearby visual receptors (settlements and regional roads);</li> </ul>	<ul style="list-style-type: none"> <li>Landscape character insignificantly affected</li> <li>Number of complaints on visual impacts</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>All ground disturbances should be confined (where possible) to the construction compound and access tracks.</li> <li>Existing vegetation should be suitably protected; land clearance/vegetation removal should be minimized as far as possible;</li> <li>Planting and other landscape measures will be implemented as early as reasonably practicable where there is no conflict with construction;</li> <li>Good site management should be implemented with reinstatement of temporary elements and successive removal of features that are no longer required;</li> <li>Stockpiling of excavated material or construction debris should be avoided; the construction site should be maintained in good condition;</li> <li>The areas disturbed during the construction should be successively restored and reinstated.</li> </ul>					

## 6.10 Cultural Heritage

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Risks of damage to the medieval</b>	<b>Pre-Construction</b>	Cut-and-cover tunnel below Dobor Tower;	Contractor and ARS	CESMP – Protection of Dobor Tower	<ul style="list-style-type: none"> <li>Visual inspections</li> </ul>	<ul style="list-style-type: none"> <li>Any damage to the Dobor Tower</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Dobor Tower during the construction of the proposed cut and cover tunnel;</b> <b>Opportunity to improve access to Dobor Tower</b>	<ul style="list-style-type: none"> <li>ARS and the Contractor to engage with local stakeholders, i.e. municipality Modriča and Tourist Organisation (as well as the Republic Institute for Cultural Heritage, if needed) to agree on how to use the opportunity of construction activities (machinery, equipment, workforce, etc.), to improve access to the monument;</li> <li>Contractor's CESMP should include a section on protective measures, procedures, and all other actions related to protection and rehabilitation of Dobor Tower cultural heritage, in accordance with the requirements of the Ecological Permit;</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Contractor to apply various site-specific measures to avoid any damages on Dobor Tower cultural heritage;</li> </ul>			cultural heritage and improvement of access Stakeholder Engagement Plan	<ul style="list-style-type: none"> <li>Monitoring measures detailed in 6.2 (Vibrations) above</li> <li>Monitoring done by cultural heritage authorities on accordance with the Law.</li> </ul>	<ul style="list-style-type: none"> <li>Local stakeholders satisfied with improvement measures (potential initiatives from the authorities for rehabilitation)</li> </ul>
<b>Chance find procedure;</b>	<p><b>Pre-Construction</b></p> <ul style="list-style-type: none"> <li>Contractor's CESMP should include a section on the procedures to be taken to ensure the protection of any known cultural heritage resources in the Project area, and implement a Chance Find Procedure, in accordance with the requirements of the Ecological Permit. This will include notification of the RS cultural heritage authority of found objects, alerting project personnel to the possibility of chance finds</li> </ul>	All along route	Contractor	CESMP – Chance Find Procedure	<ul style="list-style-type: none"> <li>Visual inspections</li> </ul>	<ul style="list-style-type: none"> <li>Chance find procedure implemented</li> </ul>



Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>being discovered and preventing any disturbance or destruction;</p> <ul style="list-style-type: none"> <li>Contractor to ensure that appropriate management systems and training are in place to implement the procedure. Ensure that those workers who supervise excavations are trained to recognize any item or artefact that may have archaeological value.</li> <li>Ensure that the supervisor has the authority to stop the excavation works.</li> <li>Should any artefact be found then the supervisor must immediately notify the ARS's PM.</li> </ul>					

## 6.11 Community Health and Safety and Security

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Disturbance to environmental health, quality of life and wellbeing during construction phase;</b> <b>Increased traffic and traffic safety risk;</b> <b>Effect on Utilities</b>	<b>Pre-Construction</b> <ul style="list-style-type: none"> <li>Community Health &amp; Safety Management Plan should be prepared and implemented in consultation with representatives of local municipalities. The plan will include measures for managing impacts associated with influx of workers and/or worker accommodation (if applicable).</li> <li>Construction Traffic Management Plan (CTMP) should be prepared (taking into account opinions from local communities) and implemented in consultation with road and traffic authorities and emergency services; The</li> </ul>	All villages in the project' area of impact	Contractor	CESMP – Community Health & Safety Management Plan Construction Traffic Management Plan (CWMP) Community Compensation Plan	<ul style="list-style-type: none"> <li>Consultation records</li> <li>Grievance records</li> <li>E&amp;S monitoring – air, dust, noise, vibrations, traffic</li> </ul>	<ul style="list-style-type: none"> <li>Number of grievances related to noise, dust, vibration, traffic, disruption of utilities, etc.</li> <li>Community improvements implemented, if relevant</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Access and severance effects to communities during construction</b>	<p>Plan will include haul routes, access to the construction site, traffic diversions and bypasses (crossings for local road users), exceptional loads, speed limit controls on and off-site, and driver training. The Plan will cover transport of all types of construction materials to be brought or removed from the site.</p> <ul style="list-style-type: none"> <li>Community Compensation Plan to be prepared in case of significant nuisance planned and / or caused by increased transport and traffic through local communities or other impacts, in consultation and with agreement of local communities (e.g. repairs of community infrastructure, construction of a playground, etc.).</li> </ul> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Local community should be timely informed on temporary and permanent closures of roads and alternative roads and crossings which can be used;</li> <li>Affected roads should be cleared and cleaned from mud and other debris once the work affecting them is completed;</li> <li>A detailed programme of works related to the intersection points of the existing road and the proposed motorway alignment should be developed and implemented. The programme should involve planning of works in the limited time period, traffic safety measures during works, etc.</li> <li>Workers Code of Conduct should be enforced, including guidelines on safe driving;</li> </ul>			Stakeholder Engagement Plan		

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>• If needed, implement a safety awareness campaign for local receptors, particularly vulnerable ones (e.g. school children).</li> <li>• Properties with restricted access should be provided with temporary access;</li> <li>• Affected population and stakeholders should be consulted in a timely manner and grievance mechanism implemented;</li> <li>• Construction compounds, work sites and other contractors' offices should be marked, fenced and secured from an unauthorised access;</li> <li>• In case of any accidental impacts on utilities, causing disruptions of the supply for local communities, promptly repair the utility and inform impacted local communities when supply will be established.</li> </ul>					

## 6.12 Occupational Health and Safety and Security

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Risks to Worker Health &amp; Safety during Construction</b>	<b>Pre-Construction</b> <ul style="list-style-type: none"> <li>• Contractor should establish a Health and Safety Management Plan with special focus on (but not limited to): movement of vehicles and traffic management, working at heights, working in confined spaces, working with hazardous material (e.g. explosives), management of electrical hazards, prevention of unintended ground movements and collapse, and biological hazards (poisonous snakes), worker</li> </ul>	All construction areas and project facilities	Contractor	CESMP – Occupational Health and Safety Management Plan (OHSMP)	<ul style="list-style-type: none"> <li>• Monthly audits.</li> <li>• Monthly ESHS reports prepared by Contractor</li> <li>• Record of accidents and near misses</li> <li>• Corrective Action Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Number of accidents</li> <li>• Number of grievances related to OHS conditions</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>accommodation standards (if applicable). Contractual conditions will ensure that all sub-contractors follow the OHS Construction Plan.</p> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>• Individuals must register upon arrival and sign out when departing from site;</li> <li>• Individuals must be site inducted before commencing work;</li> <li>• Alcoholic beverages and prohibited drugs are strictly forbidden. Operatives taking prescribed drugs are required to notify the site manager / H&amp;S officer;</li> <li>• The wearing of safety helmets, safety glasses, gloves, high visibility coats / vests and safety boots which provide ankle support will be mandatory while on site. Ear defenders must be carried at all times. Additional PPE shall be worn as deemed appropriate by risk assessment. Suitable work wear must be worn at all times;</li> <li>• All accidents, incidents, injuries and near misses must be reported to the HSE officer. All injuries (however small) must receive medical treatment from a qualified first aider;</li> <li>• The instruction or command depicted on safety signs must be complied with at all times;</li> <li>• Individuals may only carry out tasks for which they are competent and authorised to do. Individuals may only operate and use plant or equipment for which they are trained and authorised. Copies of all operators' certificates will be retained;</li> </ul>				<ul style="list-style-type: none"> <li>• Grievance mechanism forms.</li> </ul>	

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>Smoking will only be allowed in the designated smoking areas. Smoking inside the site establishment cabins will be strictly forbidden;</li> <li>Weapons and explosives will be strictly forbidden;</li> <li>Fighting, gambling, horseplay, and practical jokes will be strictly forbidden;</li> <li>Any query from the general public must be politely referred to the site manager / HSE officer.</li> <li>No food is to be consumed at the work area. Welfare facilities are to be provided on site for the consumption of food and for personal hygiene. These will be kept clean and hygienic;</li> <li>No person under the age of 18 years will be engaged for work activities on site without the prior approval of the site manager;</li> <li>Defective or suspect plant will be tagged and withdrawn from use and not used until repaired or replaced; and</li> <li>Waste and debris will be cleared up as work progresses.</li> <li>Construction plant and equipment used on the project will be inspected by the contractor for condition and suitability and be subject to verification of maintenance certificates or records, statutory or otherwise, prior to being put to use. All equipment will carry a suitable and valid examination certificate. Operations using heavy plant and equipment will be undertaken and supervised by a suitably competent person;</li> <li>Site-specific factors which may contribute to excavation slope instability will be controlled (including the use of excavation dewatering,</li> </ul>					

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>side-walls support, and slope gradient adjustments that eliminate or minimize the risk of collapse, entrapment, or drowning);</p> <ul style="list-style-type: none"> <li>• During blasting operations, work areas will be evacuated, and blast mats or other means of deflection will be used to minimise fly rock or ejection of demolition debris (if work is conducted in proximity to people or structures);</li> <li>• During tunnelling fresh air will be supplied to all underground work areas in sufficient amounts to prevent any dangerous or harmful accumulation of dusts, fumes, mists, vapours, or gases;</li> <li>• Safe means of access and egress from excavations will be provided, such as graded slopes, graded access route, or stairs and ladders;</li> <li>• Workers undertaking hazardous tasks will be certified to do so;</li> <li>• Specific safety rules will be set up to be followed when working near live electrical equipment. A specific permit to work system will be in place for such work;</li> <li>• Slips and falls will be avoided where possible through good housekeeping, spill prevention and clean up, avoiding uncontrolled use of ropes and cords, proper storage of construction materials and the use of slip resistant footwear;</li> <li>• The use of hazardous substances should be in compliance with various EU Directives regulating protection of workers from the risks related to exposure to chemical, physical and biological agents at work, and Directive 1907/2006 on the registration, evaluation, authorisation and restriction of chemicals (REACH). Appropriate health and safety</li> </ul>					

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<p>assessments will be undertaken, including handling, storage, transfer and use. A register and site inventory of hazardous materials will be kept;</p> <ul style="list-style-type: none"> <li>Emergency contact numbers will be made available at the work sites. This will include the fire and rescue service and the environmental inspection. A 24-hour spill response contract will also be in place.</li> </ul>					

### 6.13 Employment and Labour

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Short term local employment</b>	<p><b>Pre-construction and Construction</b></p> <ul style="list-style-type: none"> <li>Contractor to develop and implement an HR Policy which will set out his approach to managing the workforce consistent with national labour and employment laws and the fundamental principles and standards from ILO conventions;</li> <li>Contractor to Develop Local Recruitment and Employment Plan to foster equal opportunities and encourage and maximize hiring of local workers;</li> <li>Contractor to communicate employment estimates, timeframes and vacancies clearly to local communities.</li> </ul>	N/A	Contractor	<p>HR Policy</p> <p>Local Recruitment and Employment Plan</p> <p>Stakeholder Engagement Plan</p>	<ul style="list-style-type: none"> <li>Monthly HR audits and employment statistics</li> <li>Records of permanent place of residence of hired workers (communities)</li> <li>Records of disclosure of information to local communities on employment estimates, timeframes and vacancies</li> </ul>	<ul style="list-style-type: none"> <li>HR policy available and familiar to workers</li> <li>Number and type of worker grievances</li> <li>Number of employees hired from local communities</li> <li>Number of applicants for vacancies from local communities</li> </ul>



Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI

## 6.14 Severance and Livelihood Impacts

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Access and severance effects to communities during operation</b> <b>Damages to crops or other assets</b>	<b>Design stage</b> <ul style="list-style-type: none"> <li>Confirm the location of all underpasses and local service roads in the detailed design and present them to affected communities for comments and suggestions before completing the design.</li> </ul> <b>Construction</b> <ul style="list-style-type: none"> <li>Contractor to ensure that all work areas are clearly marked and workers instructed to never cross these boundaries into unacquired, privately owned land</li> <li>In case of damages, contractor to promptly compensate affected people at full replacement cost</li> <li>Contractor to restore all disturbed land, roads or other assets to prior condition</li> </ul>	Along the Project footprint	Contractor	Detailed Design CESMP Stakeholder Engagement Plan	<ul style="list-style-type: none"> <li>Consultation reports</li> <li>Damages and payment of compensation records</li> <li>Grievance management</li> </ul>	<ul style="list-style-type: none"> <li>Consideration of feedback received from local communities on proposed locations of motorway crossings</li> <li>Satisfaction of local communities with final solutions</li> <li>Number of grievances in relation to damages and compensation and their resolution</li> </ul>
<b>Additional land acquisition causing physical and/or economic displacement</b>	<b>Design stage</b> <ul style="list-style-type: none"> <li>Identify if additional land needs to be acquired as a result of the updated design</li> <li>Develop and implement a RAP (or RAP Appendix) addressing all additional land acquisition and associated displacement</li> </ul>	Along the Project footprint	Contractor and ARS	Resettlement Action Plan	<ul style="list-style-type: none"> <li>RAP implementation reports</li> <li>Grievance management</li> </ul>	<ul style="list-style-type: none"> <li>Land acquired in line with RAP and available for construction.</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	impacts, in accordance with the principles included in the current Project RAP (Vukosavlje municipality).					<ul style="list-style-type: none"> <li>Grievance management outcomes (number of grievances received and their resolution)</li> </ul>

## 6.15 Covid-19

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
<b>Potential spread of the coronavirus</b>	<b>Pre-Construction</b> <ul style="list-style-type: none"> <li>Contractor's CESMP – Occupational Health and Safety Management Plan (OHSMP) should include a procedure (management plan) related to Covid-19 which must take in to account the potential impact of Covid 19 on the construction workforce and on local communities;</li> <li>Contractor should take an active approach to managing the potential spread of the virus.</li> <li>Health screening and quarantine, if necessary, should be carried out in accordance with Covid-19 MP.</li> <li>Contractor should ensure that regular health screening is being conducted for employees and contractors before contracting workers and on an ongoing basis throughout their employment/ contract.</li> </ul>	Workers accommodation facilities, construction sites	Contractor	CESMP – Occupational Health and Safety Management Plan (OHSMP) Covid-19 Management Plan	<ul style="list-style-type: none"> <li>Regular Covid-19 testing</li> <li>Daily inspections of the accommodation facilities and construction sites to ensure that all services are provided</li> </ul>	<ul style="list-style-type: none"> <li>Number of infected workers by Covid-19</li> </ul>

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	<ul style="list-style-type: none"> <li>• All workers should be provided with daily temperature checks before and after entering the workplace.</li> <li>• Routine Covid-19 testing should be undertaken throughout the construction period.</li> <li>• As part of health and safety induction for workers, Contractor should provide awareness training on communicable disease prevention. Provide this training on an ongoing basis.</li> <li>• Consider one-way systems in the buildings, with one entrance and one exit. Hand sanitizing stations available throughout. Safe distance markers should be provided inside buildings, kitchen areas etc. Face masks to be worn at all times.</li> <li>• Medical staff should be provided with additional PPE as they may be in contact with a far larger number of people both within and outside the camp. Medical staff should be tested more frequently than the general workers.</li> <li>• Sufficient number of cleaners should be provided so that the whole of the accommodation block and site offices can be cleaned at least once per day; all surfaces must be sterilised.</li> <li>• The accommodation block and site offices must be provided with adequate ventilation or air conditioning.</li> <li>• Ensure that the workers are provided with information about Covid-19 symptoms and the need to self-isolate if they consider that they may have the infection. Consideration must then be given to notification of the medical team, testing,</li> </ul>					

Impact	Mitigation Measures	Location	Responsible Party	Management Plan Reference	Monitoring Means	KPI
	patient isolation and subsequent track and trace.					

## **ANNEX 1 – Ecological Permit**

## **ANNEX 2 – Biodiversity Assessment Report**