

CROATIAN ROADS REHABILITATION II

JELSA-POLJICA SECTION  
NON TECHNICAL SUMMARY

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## SCHEME DESCRIPTION

The project section is the 1st sub-section of the Jelsa-Poljica Section (old road), which equals 4890 m in length. The sub-section will take a new route and leave the existing road that stretches along the coastal line. The proposed sub-section alignment runs at a distance of 500-1000 m from the coastal line and is shorter than the existing road by 1460 m.

The existing road has geometric design elements that do not meet the current traffic demands of the island, in particular during the summer season when volumes of tourist traffic are much higher than usual. The road is placed in continuous cut and has steep slopes in side cuts and embankments. The pavement is in poor condition. The carriageway has average width of 4.5 m while the verges and berms are not established. Almost the whole existing route length exhibits steep longitudinal gradient with numerous tight curves and poor forward visibility. There are no roadside ancillaries and safety features along the road and the existing traffic signs are not sufficient. There are no lay-bys on the section. Drivers stop at some areas that are large enough to accommodate a vehicle.

All the shortcomings mentioned above were the reason to select the alternative that proposes a new alignment to be built as a 1st Sub-section of the Jelsa-Poljica Section.

## DESCRIPTION OF THE ALIGNMENT

The new alignment will be adjusted to a very difficult topography and at the end it will merge with the existing alignment. There will be two link roads for the town of Jelsa, two rest areas and bus stops that will be located during further design development according to the needs expressed by the local community.

The width of new carriageway will be 6 m (2x3 m). The new sub-section will include open drainage system that will divert runoff into concrete gutters connected to pipe culverts. Adequate roadside furniture and traffic signs will be installed on the section.

## PROBABLE ENVIRONMENTAL IMPACTS

Probable environmental impacts are as follows:

- impact on vegetation and wildlife
- impact on soil and agricultural land
- impact on water quality
- impact on air quality
- impact on material goods (architectural and archaeological heritage)
- impact on landscape
- impact from the increase of noise levels
- impact on land patterns
- impact on utilities
- impacts from accidents.

The above mentioned probable impacts will be significantly reduced or eliminated through the implementation of mitigation measures and monitoring of environmental conditions, as described below.

## ENVIRONMENTAL MITIGATION MEASURES

Measure
<b>General Measures</b>
Materials, products and equipment to be used at the site shall be in conformance with the standards and technical regulations listed in design documents, or in the general and detailed design.
The condition of all roads that have access to the site shall be inspected and any damages that might be a risk for people or vehicles shall be removed at any time.
The supply of construction material from the registered quarries/borrow pits shall be established prior to obtaining of a construction permit.
A plan of disposal or reuse of materials in construction shall be prepared.
Materials shall be in conformance with manufacturer's recommendations and standard specifications. Any changes in physical or mechanical properties of the material due to storage are not permitted.
Areas for temporary location of disposal sites shall be determined in advance, for the disposal of material that might be used in later construction or rehabilitation, such as: <ul style="list-style-type: none"> <li>▪ vegetation,</li> <li>▪ topsoil,</li> <li>▪ earth material,</li> <li>▪ construction material delivered to the site.</li> </ul>
In the selection of an area to be used as temporary disposal site it is very important that the surface of such area is stabilized (to prevent erosion), that it fits into the surroundings and that the destruction of the existing vegetation is avoided (therefore bare grounds are more appropriate).
The closest permanent disposal site shall be established (in accordance with decisions of local authorities) for the disposal of construction and other waste that will not be reused in conformance with the Act on Waste.
<b>Flora and Fauna</b>
Passages for wild animals of the 1st category to cross the roadway if their habitat has been divided by a new road shall be provided.
During the construction, care needs to be taken to avoid destruction of the environment, while after construction any disturbed land shall be restored to the state it had prior to construction.
Any action to be taken in animal habitats in a period that is critical for their life cycles (nesting period of threatened birds and species protected according to Protection of Nature Act) shall be restricted.
Unnecessary vehicular/machinery activities shall be restricted in order to minimize disturbance of land in the habitat area adjacent to the construction site and to minimize disturbance to animals.
<b>Soil and Agricultural Land</b>
Parking lots and areas for maneuvers of construction machinery shall be established in order to minimize impacts to any habitats in the area adjacent to the construction site.
Any municipal and hazardous waste shall be disposed of in conformance with regulations. Any temporary or permanent disposal of waste material on the surrounding land is forbidden. Airtight waste containers shall be available at the site.
All excess construction material that will not be used in construction activities shall be disposed off at areas established for such disposal. The construction waste shall be hauled to the existing permanent dump sites (determined by local authority decisions) that serve for disposal of construction and other waste.
Agricultural land shall be protected efficiently from the imission of solid particles. For this purpose protection vegetation barriers shall be planted along the route of a national road (to serve also in noise abatement and dust control) in order to isolate the soil in the impact area of the road.
Any direct damages forests that might result from the construction of a national road shall be avoided by good practice and adherence to prescribed measures and procedures in construction. In particular, this applies to damages made to trees (trunk damage, root stress) growing in the area adjacent to road works. In order to avoid such damages, ensure that after roadway excavation the adjacent forest ground is cleared and all thumps grubbed. Such clearing shall allow that the remaining trees, especially those along the „new“ forest edge, regenerate quickly to provide a protective buffer against direct and indirect impacts.
In handling flammable materials and open flame, special care shall be taken to prevent forest fires. All regulations and procedures for prevention of forest from the fire shall be complied with.
<b>Water Quality</b>

All road works shall be carried out with caution greater than the usual.
The roadside panels shall be installed to warn of a risk of groundwater pollution in the zone being crossed.
Ensure the correct portable toilet containers at the worksite camp and provide for the maintenance/emptying to be carried out by authorized entities.
The area for parking of vehicles and construction machinery shall be established out of the groundwater protected zone. If the parking lot is to be established within the protected zone, the surface has to be impermeable and any water shall be discharged into oil and grease separators.
Ensure that during construction works it is forbidden to store potential contaminants and materials, oils, grease, lubricants and similar at the site. All works that involve vehicles/machines shall be carried out with utmost care. In case of accidental spills emergency measures shall be taken according to Emergency Management Plan for Accidental Spills.
Any replacing of oil in the zones of possible impacts on groundwater and aquifers shall be forbidden.
<b>Air Quality</b>
Conduct regular checkups of the quantity and quality (contents) of exhaust gasses generated by vehicles and construction machinery at the site and maintain the vehicles/machinery regularly.
Ensure that unpaved vehicular paths are watered during the dry season.
Use adequate trucks to transfer bulk material. Moist and cover the truck contents, especially during wintry days.
<b>Cultural Heritage</b>
It is recommended that the conservation records are prepared for a segment of a stream that is exposed to disturbance during construction (layouts, photographs etc.). Also, the stream bed shall be restored after the completion of the works. The stream does not overlap with the alignment, however, the construction works or the construction of vehicular paths for heavy machinery might result in disfiguration of the stream bed.
A conservation service shall be involved in the assessment of the condition of the church, because the road construction might have impacts on the statics of the church structure. It is mandatory that architectural documents are prepared and conservation monitoring conducted. If needed, the church shall be rehabilitated and conservation measures taken. Monitoring by a conservation service is mandatory also during the construction of the road.
Ensure permanent monitoring by the conservation service during preparatory works and the construction works Trim I and II.
<b>Landscape Values</b>
A landscaping design shall be prepared within the general design for the entire alignment.
Embankment slopes shall be revegetated by very low shrubs that will allow the scenic views if properly maintained.
Indigenous plants species shall be used in landscaping.
Ensure that the excavated fertile topsoil is stored within the project area and later used in landscaping of the roadsides.
Site management plan shall be prepared that will ensure placing of working areas at locations that have minimal exposure to view.
During construction works, vehicular activities shall be restricted to the existing roads or the existing network, in order to minimize disfiguration of the existing agricultural land, channels and paths.
Earthwork material shall be reused for landscaping of roadside areas or for other purposes. Any surplus of material shall be stored at sites established for such disposal.
Topsoil shall be preserved as active area and source of life in situ and reused for revegetation of the disturbed land along the road.
After completion of works all structures and materials that have not been used shall be removed to allow for revegetation and restoration of the land.
All land disturbed by the construction of the bypass road shall be restored into the previous condition, in conformance with the landscaping design.
<b>Land Patterns and Transport Flows</b>
Temporary traffic scheme shall be developed to cover the period of construction. The scheme shall identify

accesses to the existing network and secure all possible interference between the section in construction and the existing roads.
Direct access from the adjacent land plots to the road in construction shall be prevented. Such access shall be enabled by using the links established for that purpose, as follows: <ul style="list-style-type: none"> <li>▪ Access for Jelsa at km 0+200,00</li> <li>▪ Access for Jelsa at km 4+600,00</li> </ul>
Disturbed field and forest paths shall be substituted by field and forest paths that run parallel to a proposed road.
Rumble strips shall be made over a length of 50 m at crossings with the main road.
All existing roads and paths that had been disfigured while used for vehicular traffic with the construction site shall be repaired and restored into the previous condition.
No driveways shall be permitted from the adjacent land plots to the alignment of the national road. However, access openings will be permitted to local roads.
<b>Utilities</b>
In the stage of preparation and construction of a national road all measures shall be taken to protect utility lines and structures at places where the national road crosses, runs parallel or close to the utilities. This shall be done according to special regulations and requirements of the utility companies.
All overground transmission lines shall be cabled at all crossroads, and the pylons shall be installed at proper distance from a national road as prescribed by regulations.
All underground cable lines shall be protected from mechanical damages (due to overloading) by placing of protective pipes in the road formation of a national road at the crossroads locations.
If the corridor of overground transmission lines is not relocated, the pylons shall be placed at a proper distance from the national road and at the height sufficient for the required clearance between the conduit and the pavement surface.
The existing underground telecommunication lines shall be inserted in protective pipes in order to protect them from mechanical damages.
<b>Accidental Spills</b>
An Emergency Management Plan for Accidental Spills that cause water pollution. The plan shall establish measures to prevent spreading of pollution and to remove pollutants. The Plan shall be prepared in conformance with the provisions of the National Plan for Protection of Waters (OG 8/99) Clause VII- Accidental Spills Response Measures.

## CONCLUSION

The construction and operation of one sub-section of the Jelsa-Poljica Section of D116 National Road, in the non-built area is an active measure to protect the environment from the noise generated by road traffic. The new road section will avoid the residential zone (housing and tourist facilities), therefore the residual noise levels in these zones will be significantly reduced. This will also be achieved through the improvement of road conditions. In addition, the improvement will lower the risks of traffic and environmental accidents.

The analysis of possible environmental impacts during the construction and the operation of the first sub-section of the Jelsa-Poljice Section, D116, has shown that all adverse impacts will be eliminated or minimized if all proposed mitigation measures are taken. Therefore, it can be stated that the proposed project is **environmentally acceptable**, subject to the effective implementation of the environmental mitigation measures and the environmental monitoring plan.