



REPUBLIKA E SHQIPËRISË
ALBANIAN ROAD AUTHORITY

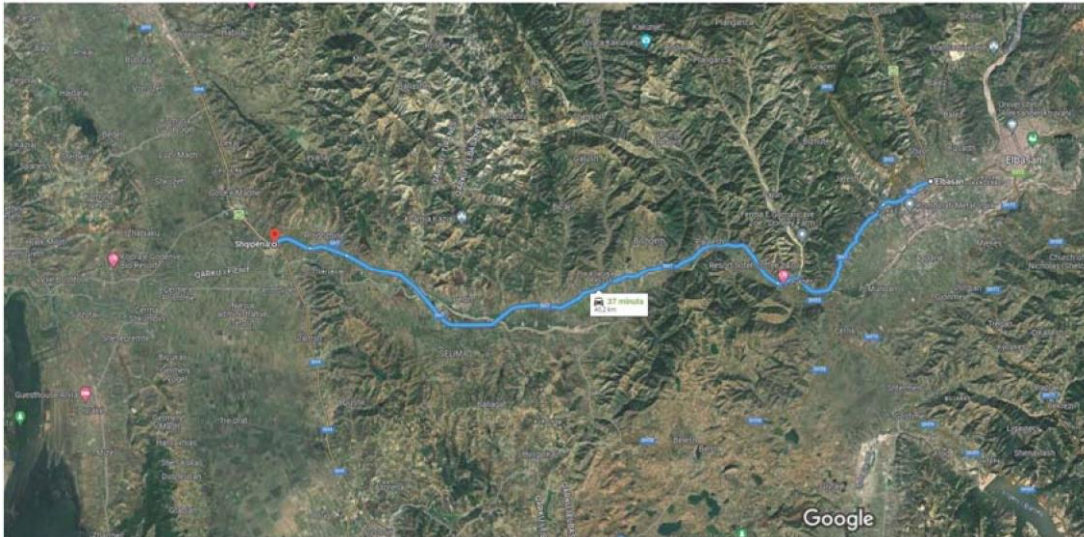
TERMA REFERENCE

FOR THE OBJECT:

“Design Study for the road axis Elbasan – Lekaj Corridor 8”

TIRANË 2023

further in the plain part in the direction of the city of Rrogozhina, where the connection with the North-South corridor is made in the place called Bishti i Zhuri. This road crosses many residential centers with numerous constructions in its vicinity. The width of this road as well as the numerous intersections do not meet the modern technical and safety standards for coping with the increasing flow of vehicles.



Orthophoto of the existing axis

1.4. Legal and Institutional Framework

The Ministry of Infrastructure and Energy (MIE) is the main supervisor for Road Transport in Albania. The Albanian Government and the Ministry are undertaking legislative actions to reform the various transport sectors to adapt to the European ones. MIE, through ARA, manages the Road Transport sector for the national road network.

The consultant is obliged to cooperate closely with the Central & Local Government Structures in whose territory this road segment belonging to several municipalities, Elbasan, Peqin and Rrogozhin Municipality, will pass, with the National Environment Agency, the Agency of Protected Areas, The Regional Directorates of the Environment, the Albanian Railway, OSSH.E, the Directorates of Water and Sewerage, as well as with other entities that are interested in solving the project.

The consultant will cooperate with these bodies to ensure the current exact updates for the presentation of the most suitable variants, for the completion of the necessary infrastructure elements, for the completion of the expropriation documentation and legal approvals in the relevant bodies, etc.

Road safety is a responsibility that is distributed to several ministries through the Inter-ministerial Committee chaired by the Prime Minister.

The current legislative system on which the consultant should be based, but not limited, as well as the main legal acts and bylaws, are mentioned below: □ *Law No. 10164/2009; "For ARRRSH";*

- *Law No. 8378/1998; "On the Road Code of the Republic of Albania" which defines road categories, the institutions responsible for road control, the maximum allowed dimensions and weight of the vehicle, the necessary vertical-horizontal signage and road safety.*
- *Law No. 8308/1998 (updated); " For Road Transport" which regulates the conditions and the way in which the transport of passengers and goods will carry out activities in domestic and international transport; □ Approval of the Regulation on the organization of the working time of persons who carry out mobile road transport, for the hours of vehicle drivers and recording equipment, which is attached to decision No. 1243/10.09.2008; □ Law No. 10431 dt 09.06.2011: "On environmental protection"; □ Law No. 10440 dt 07.07.2011 (updated with Law No. 128/2020); "On environmental impact assessment" and bylaws derived from this law; □ Law No. 8405, dated 17.9.1998; "On urban planning" (updated); □ Law No. 10119, dated 23.4.2009: "On territorial planning of the Republic of Albania"; (updated); □ VKM No. 722 dt 19.11.1998: "On the approval of the urban planning regulation" (updated); □ VKM No. 1214, dated 03.09.2008 "On the approval of the Transport Sectoral Strategy"; □ VKM No. 153/2000 for the Approval of the Regulations for the Implementation of the Road Code of the Republic of Albania; □ VKM No. 354, dated 11.05.2016;" On the approval of the manual of fees for services for territorial planning, design, supervision and approval"; □ VKM No. 628, dt 15.07.2015: "On the approval of the Technical Rules for the Design and Construction of Roads."*
- *VKM No. 629, dated 15.07.2015 (updated); "For the approval of the technical manuals of the prices of the construction works and their technical analysis".*
- *VKM No. 1055, dated 22.12.2010: "On establishing the technical opposition for building construction projects"; □ VKM No. 312, dated 5.5.2010: For the approval of the regulation "On safety at the construction site"; □ VKM No. 2, dated 8.5.2003: "On the classification and cost structure of construction works"; □ Instruction of MPPT No. 9, dated 3.07.2012 "On road safety audit and inspection" and "Road safety Audit Guide"; □ LAW No. 9142 dated 16.10.2003 ON THE ACCESSION OF THE REPUBLIC OF ALBANIA TO THE CONVENTION "ON ROAD SIGNS AND SIGNALS, NOVEMBER 8, 1968" AND THE PROTOCOL "ON ROAD SIGNS, MARCH 1, 1973";*
- *European agreement on the main arteries of international traffic (AGR). The Republic of Albania has approved the accession to this Agreement with Law No. 9511, dated 10.04.2006.*

From the technical side, the consultant must refer to the Albanian Standards in force, the Standards of the countries that are part of the European Union, as well as valid documents for the realization of the study of this object. Among which are:

- General Local Plan of Elbasan, Peqin and Rrogozhin Municipality.
- National Transport Master Plan defined by the Albanian Government;
- Albanian road design and implementation standards,
- EuroCodes for issues not covered by Albanian Standards,
- Different maps that will help for the study,

- Various studies carried out by the Municipality of Elbasan, Peqin and Rrogozhinë for urban development,
- The North-South Corridor Project (Lekaj-Konjat).
- Tirana - Elbasan project,
- Coordination with the ongoing Elbasan Bypass project.

2. ASSUMPTIONS & RISKS

The complete and reliable realization of the project is affected but not limited by:

- Timely cooperation of the Contractual Authority with the Central and Local Authorities , with the National Environment Agency as well as with other subjects that present interest, for the solution of the problems that arise during the implementation of the project;
- The standards used for the realization of the project;
- Selection of sufficient staff for project management by the Albanian Road Authority.

□ The Risks

- Qualification of design staff;
- Specifying the surfaces to be expropriated;
- Quality of reference information for traffic data, geotechnical data, hydrological data;
- Quality of reference maps;
- Fair and accurate implementation of reference standards; - Quality of previous studies; etc.

3. PROJECT DESCRIPTION

After the construction of the existing road axis from the roundabout of the Rrogozhina bypass to the entrance of Elbasan, Bradashesh, the rapid and in some cases uncontrolled evolution of constructions and the urbanization of the areas along it took place. For this reason, the project will require the study of alternative variants for the track that will be proposed. Also, this more detailed study will take into consideration the hydrological, geological problems or even the relief of the area where it passes. The solutions proposed in the project-idea must be consulted and approved in cooperation with the local government, the Municipality of Elbasan, Peqin and Rrogozhin.

The new road axis Elbasan - Lekaj, part of Corridor 8, will start at a suitable point with the bypass of Elbasan, which is in the project-idea stage.

The road is expected to have an approximate length of about 40km with the starting point at the connection with the bypass of Elbasan and the end point at the junction at the dislevel in Bishtin e Zhur where it will intersect with the North - South corridor (Adriatic - Ionian Corridor, segment Lekaj - Cognacs).

- The start of the project will take place somewhere near the Metallurgical Plant or Lanfill, where it will be completed by bypassing Elbasan. With approximate coordinates according to the KRRGJSH system, X=504535, Y=4550434. (correction will be made in coordination with the Elbasan Bypass project). Currently:

- At km 10+800, in Papër, there is a T-shaped level crossing.
- At km 26+800, there is a bridge with a length of about 500 ml.
- At km 33+000, we have the western entrance junction of the city of Beijing.
- At km 38+500, the junction of the southern entrance of the city of Rrogozhinë and the intersection with the Rrogozhinë - Fier Railway.
- At km 40+000 is the end of the project, the connection with the segment Lekaj - Konjat (Adriatic - Ionian Corridor), and approximate coordinates according to the KRRGJSH system, X=469501, Y=4548673.

The road crosses the plain area in the Shkumbin river valley.





Photos from the field, road condition

4. PURPOSE OF THE WORK

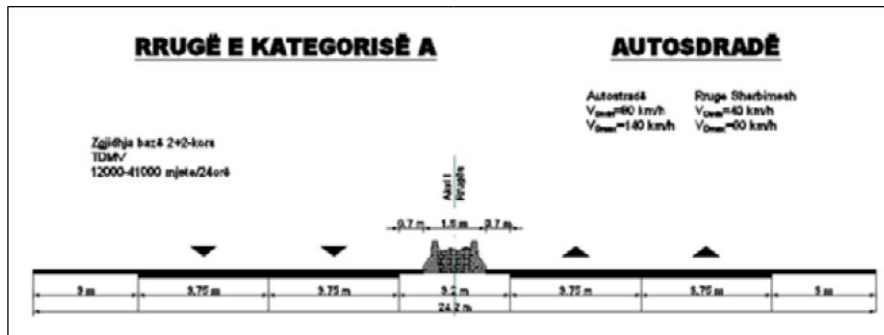


4.1. Job Description

What is required in these Terms of Reference is precisely the study and drafting of a detailed project based on and applying the standards approved by VKM No. 628 dated 15.07.2015 "Technical Regulation of Road Design and Construction", for the Elbasan - Lekaj road axis. The road segment will be classified as **category A "Interurban highway", main road**.

The carriage will consist of:

- **passing lane** **2x3.75m** for each direction of movement,
- **emergency lane** **1x3m** for each direction of movement,
- **asphalted quay** **0.7m** to the left, for each direction of movement,
- **unpaved bank** $\geq 0.75\text{m}$ to the right, for each direction of movement,
- **1.8m dividing traffic island** in the middle of the carriageway for dividing the direction of movement.



The consulting service will include but not be limited to:

- Defining and identifying the concerns and demands of the residents of the area;
- Defining and identifying the concerns and requirements of different operators;
- Identification of economic and environmental consequences;
- Saving the time of preparing drafts by dealing with the main issues in the right way and as a consequence, avoiding the need to rewrite or complete them;
- Conceptual exploration of alternatives;
- Review and evaluation of existing data, information, aerial photographs, maps and knowledge on the main areas which are obtained during the work in the office as well as during the mandatory site visits by the design group;
- Analyzing the information collected for all the main areas (urban planning, environment, geology, archeology, topography, road safety, traffic volume, etc.);
- Conducting supplemental observations needed to fill gaps in information required to make accurate decisions;
- Handling the project from a technical point of view (urban planning, environmental, engineering, geotechnical, economic, traffic planning, road safety, etc.);
- Evaluation and presentation of different variants;
- Designing the analysis of costs and benefits for each option;
- Presentation of a program for the realization of the project-idea (conceptual), detailed technical project, tendering (of works) and construction (of the work);
- Giving recommendations;

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Analyzing the risks that may occur from its realization;
Analyzing the positive and negative impacts of the terrain;
Realization as accurate as possible and with the lowest economic value.
Preparation of a technical description of the project;

The consultant according to the phases of the project defined below will analyze and provide detailed data on the expropriations of land or buildings, giving clear limits of expropriations and calculations of surfaces according to owners, supporting and cooperating with ASHK and the Local Government .

In accordance with the studies carried out on the safety of the road infrastructure, the consultant must provide a road safety impact assessment at the preliminary design stage and a road safety audit at the final design stage.

4.2. Work Objectives

4.2.1. The general objective of this study is the realization of the detailed project of the road axis Elbasan - Lekaj. This road segment aims to:

- Facilitate traffic movement in this part of corridor VIII;
- Create the appropriate infrastructure for the movement of vehicles in the direction of the city of Elbasan and further to the border customs point with North Macedonia;
- Create traffic relief in the residential areas where this axis will be built, between connecting roads and junctions with this road segment.

4.2.2. The main objective of this study will be:

- Construction of an interurban category A road segment connecting the Adriatic - Ionian Corridor with Corridor 8.
- Construction of entrance and exit ramps, at the nodes provided by the project;
- Construction of service roads of this road segment;
- Construction of connecting roads with this road segment;
- The forecasting of the nodes in the dislevel as well as the bridges over the river Shkumbin; - Provision of pedestrian overpasses in residential areas.
- Planning and construction of parking areas.

4.2.3. Specific objectives:

The starting point is in the bypass of Elbasan and the end point is the junction at the dislevel at the Bishti t Zhuri roundabout where it will intersect with the North - South corridor

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(Adriatic - Ionian Corridor , Lekaj - Konjat segment). There should be a close cooperation with the local government for the determination of the track as well as the junctions at the level, which will make it possible to connect the cities of Elbasan, Cërriku (at the junction of Papri), Peqin and Rrogozhina with this road axis.

For the realization of this study, it is necessary to prepare an idea project and an implementation project. Project documents should include:

- Providing the correct traffic relief solution to the above cities;
- The study of the urban development of the area;
- Geological / geotechnical investigation;
- Hydrological investigation;
- Correct solution of road geometry;
- Drainage system;
- The design of road layers;
- Determination of the spaces occupied by the realization of this road segment (spaces for expropriation); - Determination of urban elements necessary for this road segment;
- Identification and rehabilitation of existing engineering networks affected by road construction;
- Lighting project of this road segment (economical lighting);
- Greenery design (in accordance with the local plan of the Municipality of Elbasan, Peqin and Rrogozhinë)
- Determination of supporting structures;
- Design for the rehabilitation of existing networks (water supply, KUZ, telephone, electricity, etc.)
- Designing the necessary signage and road safety elements; - Construction cost calculation; - Environmental and social impact.

5. REQUIREMENTS FOR THE CONSULTANT AND SUBMISSION OF DOCUMENTATION

5.1. Project - Idea

In the study of this object, the Consultant must consider no less than three variants. In order to foresee that in the design phase, a high quality of implementation of the construction works, during the design of the project, technical specifications and estimate of the work, the special requirements listed below must be taken into account:

For the main road segment, the project must comply with the necessary technical parameters of a **category A road segment - interurban**.

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- Determining the spaces occupied by the realization of this road segment;
- Determination of road layers;
- Definition of works of art;
- Determination of the drainage system;
- Determination of vertical and horizontal signage;
- Defining the project with elements of road safety (prediction);
- Lighting project for the junctions of this road segment (economical lighting);
- Greenery design (in accordance with the local plan of the Municipality of Elbasan, Peqin and Rrogozhinë)
- Determination of supporting structures;
- Taking engineering measures to stabilize the slopes in filling or digging;
- Design for the rehabilitation of existing networks (water supply, KUZ, telephone, electricity, etc.)
- Determination of reserve lines;
- Construction cost calculation;

Environmental and social impact;

Consultations with the public;

Traffic management during the implementation of works.

The entry and exit ramps of the junctions at the dislevel will be treated with the necessary technical parameters that are defined in the standard for this category of road. To use the existing roads, making it possible to connect them with the local road network. Secondary, connecting and parallel roads should be designed according to category, service roads, etc.

All the requirements mentioned above should be developed in sufficient detail, in accordance with the study phase (project-idea) to derive real cost estimates. Regarding the above, the consultant will prepare and present the following studies before this stage:

5.1.1. Preliminary topographic survey

For this purpose, a complete survey will be carried out, which will be carried out by the Consultant, as well as be signed and sealed. The study should also be extended to the Shkumbin river basin for all hydrotechnical works of this road axis.

All material must be signed with an electronic seal.

5.1.2. Preliminary geological and geotechnical study

For the realization of this project, the Consultant will carefully examine all existing data on geological conditions as well as study the results of previous geotechnical studies. The study to be carried out will clearly identify the geotechnical conditions of the area, giving the necessary parameters for the physical-mechanical properties of the soils and rocks.

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In particular, a detailed study will be carried out in areas that present a loss of stability to find out the causes of the loss of stability and the depth of the phenomenon, as well as near works of art and residential areas.

In the project-idea phase, the investigation will be carried out until the stage where the geological conditions of the area where this project will be located are accurately reflected for all the variants given in order to select the most accurate variant from the geological point of view . geotechnical.

The study will be accompanied by photographs, which together with the maps and tests performed will serve to confirm the results included in the geotechnical study. It must be carried out by experts in the field of geology and geotechnics.

All material must be signed with an electronic seal.

5.1.3. Preliminary hydrological and hydrotechnical study

It must evaluate the hydrological conditions for the entire Shkumbin river basin as well as for the basins of each hydrotechnical work in particular. It should include accurate hydrological calculations with the certainty provided by the standard, for maximum water flows, for their duration and for their maximum level.

Also, the hydrological study will include the calculation of water flows on the road, proposing the way to remove them.

This study should be prepared by experts in the field of hydrology and hydrotechnics.

All material must be signed with an electronic seal.

5.1.4. Traffic study and design of road layers

In this study, the Consultant will rely on the prospective development plan of the area, addressing the design of the road layers for each variant presented. This study will extend over a period of 20 years for road layers with flexible materials. The study will fully address both the existing route and the new route that may serve the road expansion, as well as connecting roads, ramps, etc. The traffic data will be made available to the consultant and based on this data, the consultant will carry out the study and forecast of the traffic for the next 20 years. This report should be prepared by infrastructure engineers and experts in the field of traffic study and management.

All material must be signed with an electronic seal.

5.1.5. Study and preliminary design of works of art

For all works of art, preliminary calculations must be made and types must be filled in with various details. All calculations for the stability of the works must be done by experts in the field, structural engineer. While the hydraulic or geotechnical calculations (for the stability of the foundation or the slopes) must be done by a geotechnical engineer. The stability of the slopes in excavations and high fills will be calculated in a special way.

All material must be signed with an electronic seal.

5.1.6. The use of existing supporting structures.

If the consultant plans to retain any existing retaining structure or existing drainage structure, a full assessment should be undertaken to assess the bearing capacity of the structure. However, there may be structures of insufficient width for the final design that are in good structural condition, and their replacement or improvement cannot be economically justified. These may be retained after corrective action (maintenance, repair, expansion or replacement) is taken.

5.1.7. Study and preliminary design of secondary roads

Due attention should be paid to the design of intersections (at or below grade) with all secondary roads parallel to the main road. Residents of the areas where the road passes must have secondary roads and safe access to the main road, without compromising the standards and category of the main road.

5.1.8. Study and preliminary design of road signs and safety

Horizontal and vertical road signs will be identified by the Consultant and will be designed, in accordance with the document "Regulations for the implementation of the road code" (Implementation of the Road Code) Chapter II (Signs and standard signs on the road), as well as VKM no. 628, dated 15.07.2015, "On the approval of the Technical Rules for the Design and Construction of Roads"

The project should also provide for the placement of road safety barriers where necessary, to meet the standards required in accordance with the type of road in the project.

All material must be signed with an electronic seal.

5.1.9. Report of expropriations

This report must be drawn up on the basis of the expropriation track that occupies the entire road route, as well as present a list of possible expropriations (objects or plots) for all variants of the main road and for secondary roads.

5.1.10. Application for permits or licenses

In this report, the consultant will present the permits or requirements that the Contracting Authority must obtain during the design and construction phases of the facility.

5.1.11. EIA report and public consultation

According to Law No. 10440, dated 07.07.2011 "*On Environmental Impact Assessment*", the environmental impact procedure includes:

- a) The preliminary process of Environmental Impact Assessment;
- b) The in-depth process of Environmental Impact Assessment.

Drafting of the EIA report should be based on the Decision of the Council of Ministers no. 686, dated 29.07.2015 " *On the approval of the rules, responsibilities and deadlines for the development of the Environmental Impact Assessment (EIA) procedure and the procedure for the transfer of the Environmental Declaration Decision*", amended, based on which the Consultant , for the Project - Idea Phase, the following material will be submitted:

- i. The technical report of the proposed project*
- ii. Information on interaction with the project environment.*

Each of the aforementioned materials will be formulated in full compliance and without ignoring any of the points or requirements provided for in VKM No. 686, dated 29.07.15.

The opinions and requests given by the public are taken into consideration during the drafting of the in-depth EIA report.

All material must be electronically signed and stamped by the field specialist.

5.1.12. Availability of existing documentation

ARRSH will make available to the Consultant all the existing studies it has for this area where this project will be located and the standard specifications and contract conditions used by ARRSH for its related projects.

5.1.13. Engineering design and Drawings

The idea project for the construction of a new road axis (giving the possible variants) should be developed in sufficient detail to derive the most realistic cost for each variant studied. Each alternative presented must be well-studied and safe, if chosen. The consultant must submit the following drawings for each alternative (at least 3 variants), organizing the basic part of the contract documents for the implementation of the works.

Horography	SH 1:5000, or 1:2000.
Road plan	SH 1: 1000; 1:500; 1:200
Longitudinal profile	SH 1: 1000 V 1: 100.
Transverse profile	SH 1: 100; 1:50
Transverse profile type	SH 1:25; 1:50
Topographic survey map	SH 1;1000; 1:500; 1:200
Hydrological map	SH 1:1 000
Geological map and sections	SH 1:1 000; 1:500; 1:200
Different maps for EIA	SH 1:1 000
Details of works of art	SH 1:100; 1:50

To be presented together with other engineering details that have an impact on determining the cost of the facility, the measures to solve the phenomenon of loss of slope stability, the drainage system, the relocation of existing lines (water supply, sewerage, electricity, telecom, etc.), signage vertical&horizontal and road safety elements, planned works of art such as overpasses, underpasses, bridges, etc., which have a great impact on the cost.

For works of art such as bridges, overpasses, underpasses, at least 2 solution variants should be provided.

To give the prediction of road layers.

To present the forecasts from the local Plans approved by the Municipalities or the Agency National Territorial Planning

All material must be signed and sealed with an electronic seal.

5.1.14. Report on Public Consultation

This report should summarize all the proposals of the consultation with the public, with other interested actors, Central & Local Government Structures in whose territory this road segment will pass that belongs to several municipalities, Elbasan Municipality, Peqin and Rrogozhin, with state entities such as the Drainage Board, KESH, OSSh.E, Water and Sewer Enterprises,

Cultural Monuments and the Albanian Railway, etc. This report summarizes the entire thinking process that has served as the basis of work for the design of the Project-Idea. It includes plans and other important information such as special studies, photos from meetings with the public, etc.

5.1.15. Volumes of works and preliminary estimate of the object

The consultant must prepare respective volumes of work for all categories of works presented in the project. The volumes will be calculated based on the project drawings. The unit prices for all relevant works will be calculated taking into account the average prices approved by VKM and for the works not found in the manuals they will be accompanied by technical analysis.

5.1.16. Technical Opposition

After the drafting of this phase (project - idea), the documentation will be subject to technical opposition, based on VKM No. 363, dt 18.7.2002: "On the establishment of technical opposition for building construction projects"

5.1.17. Approval of the Project-Idea

Within this study phase, all alternatives will be developed at the conceptual design level.

The project alternatives will be developed in detail until they make a realistic estimate of the construction cost. For each alternative, the consultant must present a technical and economic analysis.

If the alternative solutions are the same in terms of construction cost and benefits, the best alternative will be selected based on technical and socioeconomic development criteria.

If the different alternatives have special changes for each alternative, the criteria of social-economic development and the cost assessment will be done based on the concept of value for quantity.

After the review of the project based on the findings and comments of the technical opposition, the project idea will be reviewed and approved at the meeting of the Technical Council of ARRSB to continue with the project implementation phase.

5.2. IMPLEMENTATION PROJECT

At this stage, on the basis of the final version of the project idea, approved by the Technical Council of the Albanian Road Authority, the Consulate must draft the implementation project, which includes the preparation of all the necessary documentation for the construction of the work. It is necessary for the Consultant to maintain contact with all Central and Local Institutions (mainly Elbasan, Peqin and Rrogozhin Municipalities) that have an influence on

the design of the project. The consultant prepares the final project, detailed drawings and the final estimate. The final project, technical specifications, estimate and drawings must include complete civil works, architectural, structural, mechanical and electrical design details and drawings for all phases of the works in sufficient detail that construction can be carried out without the need for further modifications or modifications to the drawings. The project must include the technical specifications of all the materials that will be placed in the work as well as the final cost estimate.

The consultant will program and organize the work for the realization of design tasks in cooperation with Central & Local Institutions and in close cooperation with ARRSB.

The engineering assessment will be a detailed development of the project idea where the development of the project will include but not limited to planning.

The engineering project generally requires the fulfillment of the requirements for the construction of the new road segment category A-interurban (RRTZPRR_2015), connecting roads, parallel roads as well as entrance and exit ramps in the road segment that is developed in an urban area, including:

- Accurate determination of the existing condition and the areas where construction will take place;

- Project lifetime, traffic volumes and road capacity requirements; □ Geometric parameters of the main road, connecting roads, parallel entrance and exit ramps based on the relevant categories of roads defined in RRTZPRR – 2015 □ The design speed for the main road, connecting roads, parallel entrance and exit ramps

- Existing hydrological considerations as well as water catchment areas that are around the facility;

- Geometric criteria for road alignment, intersections and access for land adjacent to the road

- Systematization of existing roads related to this road segment;

- Determination of new works of art as well as rehabilitation of existing ones if they will be part of this project;

- Treatment of the project in residential areas with the standards of an urban road, providing sidewalks, bicycle lanes, lighting, road safety elements, etc.

- Land acquisition for building the object (expropriations); .

- The ultimate solution to glitches and glitches that may appear;

- Postings of various lines affecting the project

- Construction of various underground networks (water supply, sewerage, electricity, telephone, fire protection);

- Junction road lighting;

- Vertical and horizontal road signage as well as road safety elements □

Traffic management system and road safety.

- Designing the placement of reserve lines on the side of the road (bank);

- Geotechnical calculations including the validity of suitable construction materials as well as the possibility of recycling existing materials;

- Design of road layers and slopes;

□ Designing the installation of new services or Designing and protection of existing ones such as electricity, telecommunications, white and black water networks (if any);

□ Environmental assessment; □

Cost estimate.

If the Consultant plans to include parts of the existing layers in the connecting and parallel road, he will carry out a complete study of the condition of these existing layers to assess their bearing capacity. Drilling and deformation surveys at selected locations should be supported by field and laboratory tests. The consultant will prepare a simple diagram which will fully illustrate all relevant data related to the rehabilitation or reconstruction of the existing strata. If the Consultant plans to retain any existing retaining structure or existing drainage structure, a full assessment should be undertaken to assess the bearing capacity of the structure. However, there may be structures of insufficient width for the final design that are in good structural condition, and their replacement or improvement cannot be economically justified. These may be retained after corrective action (maintenance, repair, expansion or replacement) is taken.

5.2.1. Topographic survey final report

For this purpose, a detailed survey will be carried out of the entire area in which the axis of the road selected by the project - idea passes. The final report of the Topographic Survey must contain all the important topographical information that is needed during the design phase of the implementation project as well as during the implementation phase of the works. The final and approved version of the planning solution already defined and fixed on digital maps must be fixed on the ground for this phase through fixed points of the coordinate network, which must have the corresponding coordinates and quotas. The placement of the final variant will be checked using GPS, triangulation, traversing and precision leveling or a suitable combination of these methods.

Coordinate system. The survey should be done with the international system with the UTM projection with the WGS84 ellipsoid. With this system, geodetic coordinates can be easily determined for any point on the earth's surface through the use of GPS.si and the Albanian National Network System.

These points will serve the builder for the final staking of the axis in the field. The coordinate system for drawing topographic maps will be the approved state system. At this stage, the Consultant will present an accurate report of the location of the main milestones set by him for the implementation of the works.

The topographical report should also include a table for all control points and permanent markers showing the final coordinates. A separate topographical report will be prepared for works of art and especially for viaducts and tunnels, if they are foreseen by the implementation project. All road quotas will be absolute and fixed in fixed concrete benchmarks.

reporting



- A technical report,
- A table of all checkpoints and permanent markers showing the final coordinates.
- GPS and triangulation diagrams (1: 10,000) and traverse diagrams (1: 5000),
- Location outline for all permanent signs,
- Calculations and adjustments for GPS, triangulation, traversing and accurate leveling,
- All field notes,
- All the necessary information in digital form (CD), - Completion of the complete topographic map in digital CD form.
- Placing photos on paper and CD.

All material must be signed with an electronic seal.

5.2.2. Geological and geotechnical survey final report

For the preparation of the final report, the Consultant must review, complete and improve the preliminary Geotechnical and Geological report. This study must be carried out according to category I and II of the geotechnical investigation defined in Eurocode.

The geotechnical study will include the investigation of the terrain, as well as other investigations related to the assessment of the stability of the slopes and escarpments. For the determination of the distances and depths of the investigations, the recommendations given in the "Eurocode" standard will be used as guidance, but due to the problems in the field, it may be necessary to make changes. The geological survey must be detailed, including all occurrences, axis, angle and accurate geomorphological analysis of watersheds and wetlands, if any. For the geotechnical investigation, it is recommended to use the following documents:

- Topographic maps;
- Geological maps and descriptions;
- Hydrogeological maps and descriptions;
- Aerial photos;
- Previous geotechnical investigations on the site and the area around it; - Local climatic conditions.

Investigations should be planned in such a way that the data obtained from their study serve to assess the general stability of problematic areas, assess the appropriate positioning of the structure of works of art, etc. These investigations will provide geological formations data related to:

- Soil or rock type;
- Groundwater level;
- Preliminary strength and features of soil and rock deformations.

The Geotechnical Study Report must be compiled for each physical-geological phenomenon treated and for each sub-object of the work, including construction materials. The report will present the results of laboratory tests obtained from samples of materials taken during and after the project-idea phase. A separate report must be completed for works of art such as Viaducts and Bridges (if provided for in the implementation project).

The Geotechnical Study Report will have the following content:

- A description of the location of the site together with the proposed structures;
- An information about the investigation area and surrounding areas;
- Geology;
- Hydrogeology;
- Groundwater monitoring;
- The behavior of neighboring structures;
- Unstabilized areas or difficulties during excavations;
- Aerial photographs;
- Seismicity information;
- Documentation for field investigations (probe, study pit) where the place, date, methods, standards and results are given;
- Detailed descriptions of all layers giving their physicommechanical properties;
- Identification of weak areas (difference in geotechnical parameters, location) as well as relevant recommendations;
- Stability analysis of embankments and excavations;
- For each structure, a separate geotechnical study must be provided (calculations, standards, tests, photos, etc.)
- Comments and recommendations will be given in the report; - The literature used will be stated in the report.

All material must be signed with an electronic seal.

5.2.3. Final hydrological and hydrotechnical study report

In this study, the hydrological conditions of the area where the facility is located will be evaluated, including issues related to surface and underground water drainage.

The study of the climatic conditions of the area will include but will not be limited to:

- Air temperature, which is one of the main climatic elements that serves to characterize the climate of a country or a region. With the average regime, with its annual and daily progress as well as with extreme values, it affects construction structures. One of the most important air temperature parameters is its average temperature. In the study, the distribution of this parameter during a year is given, as well as the average temperatures of the meteorological station of the nearest point of the area. Data on temperature are given in tabular form.
- Fog is an atmospheric event that makes road transport difficult, especially when it is of great intensity. To analyze the fog, we will focus on two aspects, the number of days with fog and its duration in hours. The data on fog should be tabulated.
- Atmospheric precipitation Atmospheric precipitation is one of the most important climatic elements that determine the climatic features of an area.

In the case of the design of a road, the characteristics of atmospheric precipitation have an important role because they are related to the design of the drainage system that is directly

related to the maintenance of the road and, on the other hand, is also related to the conditions of transportation of vehicles. The data of are given on monthly and annual rainfall in tabular form.

- Snow is a natural phenomenon in the cold period of the year, a significant amount of precipitation comes from snow. This feature is more pronounced in the mountainous area where snow is a common occurrence. Data are given on monthly and annual precipitation.
- Air humidity - relative air humidity serves as an important indicator of air humidity, which has a direct impact on human activity. In the annual performance of this indicator, there are changes that are conditioned by seasonal circulation and relief.

Data should be provided on monthly and annual air humidity.

- Wind - During the design of the roads, an important aspect is also the assessment of the characteristics of the winds in the area under study. The main parameters of the wind also include data on its direction (speed according to different directions) as well as its speed according to different directions. Data should be given on monthly and annual air humidity.
- Storms - Storms, which for our country are numerous and occur in all seasons of the year, are often accompanied by hail. There are more days with hail in the winter months and half of autumn and in the first half of spring.

The study of hydrological conditions is of particular importance in the design of the drainage system.

The study will provide:

- Surface Water Drainage System . Gutters or covered channels can be used for the drainage of surface water.
- Deep Drainage Systems that serve to improve the hydrological conditions within the road space. Through them, the passage of water over the road is prevented, the water level is lowered, and the drainage of underground water is ensured. It also improves consolidation, stabilization and increasing the bearing capacity of soils with high degree of cohesion, low water permeability and low bearing capacity. The deep drainage system enables the placement of drains as well as their respective structures. The deep drainage system must be implemented in accordance with the design and reference standards. For the realization of the drainage system, the following will be recommended:
 - Wells for (water) entry;
 - Revision wells;
 - Tombinos (with circular section, square, parabolic, flat, with rectangular section (larger sizes);
 - Sources, Wells, Siphons and Funnel Shaped Pits;

- Protective linings (filter layers, gravel backfills of drains, linings with heavy unbound stones, linings with light unbound stones, hand made linings and bag linings); - Gabions.

All material must be signed with an electronic seal.

5.2.4. Final traffic study report and design of road layers

In this study, the consultant will rely on the prospective development plan of the area, addressing the design of the road layers for each variant presented. This study will extend over a period of 20 years for road layers with flexible materials. The study will fully address both the existing track and the new track that can serve the road expansion. The traffic data will be made available to the consultant and based on this data, the consultant will carry out the study and forecast of the traffic for the next 20 years. This report should be prepared by infrastructure engineer and experts in the field of traffic study and management. (For the traffic study, data processing and modeling should be done with computer programs) All material must be signed with an electronic seal.

5.2.5. The study and design of works of art

As far as possible, the bearing structures should be designed in such a way that they clearly show the limit state, they should be designed against sudden destruction without first giving deformations.

Design methods and values to be considered for design should prevent destruction of adjacent structures. The design of the bearing structures must take into account the criteria of strength, service, construction, economic, including the provision of temporary supports by means of excavations, Changes in pressure and ground movements caused by the structure (excavation and construction).

Disruption of the soil structure due to operational works (probe in-situ tests);

Necessary requirements for the removal of water near the finished structure;

The applicability of the construction of the structure taking into account, water pressures, collapse of the created escarpments, etc.

Durability of structural components;

Characteristics of the materials to be used;

Access for maintenance of structures and drainage system;

For backfills, the nature of the fill materials and the means used to compact them should be clear.

For drainage structures, the general criterion for the design and construction of surface and deep drainage systems is the removal of water, its accumulation in the body of the road. For this, it is important to clearly define their location, topographical data, hydrological data, hydrogeological data, physical-mechanical parameters of the soil, geometric dimensions,

minimum longitudinal slopes, characteristics of the materials to be built, their bearing capacity. .

The bearing capacity of the end layers of the road which are more exposed to water. All material must be signed with an electronic seal.

5.2.6. Study and design of secondary roads

Due attention should be paid to the design of intersections (at or below grade) with all secondary roads parallel to the main road. Residents of the areas where the road passes must have secondary roads and safe access to the main road, without compromising the standards and category of the main road.

5.2.7. Study and design of signage and road safety

Horizontal and vertical road signs will be identified by the Consultant and will be designed, in accordance with the " Road Code of the Republic of Albania ", " Regulation of the Implementation of the Road Code of the Republic of Albania ", " Road Signaling Manual ", VKM no. 628, dated 15.07.2015, " For the approval of the Technical Rules for the Design and Construction of Roads ", as well as the EN1317 standard regarding Protective Barriers. The project must be accompanied by all the appropriate technical details that help in the correct implementation and work safety during construction.

All material must be signed and sealed with an electronic seal.

5.2.8. The final methodology of construction works

After project development and during the design of the final implementation project, the Consultant should conduct a review of the construction methodology. The construction methodology, among others, must also refer to various environmental issues. Here the Consultant will give his proposal for the places of obtaining the materials that will serve as raw materials in the construction of the facility, their quality and specifications. In this phase also, the Consultant will describe the auxiliary works, must clarify the construction phases and traffic management schemes since the works must be carried out without interrupting the traffic of the existing road. The Consultant will also describe in particular the measures taken for safety road including temporary signage.

5.2.9. Final report of expropriations

At this stage, the consultant will present in a clear and detailed manner the list of expropriated owners, their areas, calculations of the areas and the full value of the expropriation. Specifically, at this stage, the consultant must present:

- a) Expropriation plan (on A3 sheet as well as in AutoCAD format) on the cadastral map stamped by the designer, in which the data of the property to be expropriated.

- b) Expropriation plan (on A3 sheet as well as in AutoCAD format) on the aerial photography of 2015 (from Asig Geoportal), in which the data of the property to be expropriated. *For points a) and b), it must be a closed line (closed polygon), in which all the surfaces that are excavated are contoured and easier to "hatch".*
- c) The list of assets to be expropriated (on A4 sheet as well as in Excel format) which must contain:
- Name Father Surname;
 - Asset number;
 - Cadastral Zone;
 - Total area of the property;
 - Expropriation area;
 - Type of property;

5.2.10. Final Environmental Impact Assessment Report

For the project implementation phase, the consultant will submit:

The technical report of the project, the non-technical summary of the in-depth EIA report, the in-depth report of the Environmental Impact Assessment, the summary of the consultations with the public and other interested parties, carried out during the drafting of the in-depth EIA report. All material must be compiled in compliance and without overlooking any of the points of VKM No. 686, dated 29.07.2015.

The in-depth EIA report and the Technical Report must be electronically signed by the licensed natural/legal person. The certificate of the specialist/s who drafted the in-depth EIA report and the act of registration of the natural/legal person must be submitted, according to the legislation in force.

Documentation to be completed by the consultant for Permits:

- The opinion from the National Agency of Protected Areas before the adoption of the implementation project by the Technical Council of the ARrSh.
- Determining the storage location of the waste by the Local Self-Government Unit (LGU)

Preparation of archaeological survey based on Law No. 9048, dated 04.07.2003 "FOR CULTURAL HERITAGE" as amended.

- The consultant must prepare the necessary documentation for the application of the Infrastructure Permit from Arrsh, based on Law No. 107/2014 dated 31.07.2014 "On Planning and Development of the Territory" as amended and in Decision No. 408, dated 13.05.2015.

Documentation to be completed by the consultant for Permits:

- The opinion from the National Agency of Protected Areas before the adoption of the implementation project by the Technical Council of the ARrSh.
- Determining the storage location of the waste by the Local Self-Government Unit (LGU)
- Preparation of archaeological survey based on Law No. 9048, dated 04.07.2003 "FOR CULTURAL HERITAGE" as amended
- The consultant must prepare the necessary documentation for the application of the Infrastructure Permit from ARRSH, based on Law No. 107/2014 dated 31.07.2014 "On Planning and Development of the Territory" as amended and in Decision No. 408, dated 13.05.2015.

5.2.11. The drawings

The consultant must present the following drawings, but not limited to, organizing the basic part of the contract documents for the implementation of the works.

Description of the Drawing	Stairs
Horography of the area under study and the footprint occupied by the project	1:10,000
Topographic survey plan (features of existing land, road, structures, buildings, etc.)	1:500
Type cross-sections (for the main axis, junction ramps and secondary roads)	1:50
Construction details of road layers, slopes, slopes, etc.	1:20; 1:50
Main street plan	1:1000
Longitudinal profile of the main road	H 1:1000; V 1:100
Transverse profiles of the main road every 25 m	1:100; 1:200
The plan of the connecting roads with the main axis and the secondary roads	1:1000
Longitudinal profile of connecting roads and secondary roads	H 1:1000; V 1:100
Transverse profiles of connecting roads and secondary roads every 25 m	1:100; 1:200
Floor plan of level or dislevel joints	1:200; 1:500
Longitudinal profile of joints, raphes	H 1:500; V 1:100
Transverse profiles of joints, ramps every 20 m	1:200
Planimetry and longitudinal profile of the drainage system	H 1:1000; V 1:100
Placement and construction details of canals, wells, etc.	1:1000; 1:10
Lighting plan	1:500
Various lighting and electrical panel details.	variable
Greenery layout	1:500
Various details of greenery (irrigation network if any)	variable

Signage plan	1:1000
Details of traffic signs, lines, protective barriers, etc.	variable
Plan of expropriations	1:1000; 1: 2500
Detailed drawings for bridges and culverts	1:50
Detailed drawings of retaining walls, receiving and reinforcement of escarpments	1:25 - 1:50
Revised geological map along with road plan (along with available geotechnical details)	1:1,000
Revised hydrological map (showing water courses)	1:1000
Map of the location of construction sites and quarries	1:10,000
Location plan, details of sensitive, archaeological, environmental areas, etc.	1:1000
The plan of the aboveground and underground engineering network	1:1 00
Various details of the above ground and underground engineering network	variable

All material must be signed with an electronic seal.

5.2.12. Volumes of works and final estimate

Based on the calculations and drawings described above, the consultant must prepare a list of all items that will be part of the Final Volume List. In terms of pricing, Consultants must refer to the applicable Pricing Manual. For the items that are not in the manual, the consultant must present the technical analysis based on the methodology defined in Instruction No. 2 dated 08.05.2003 of the Council of Ministers and presented in the unified format.

5.2.13. Preparation of Technical Specifications.

The presentation of technical specifications with sufficient detail makes possible a successful implementation of the project. In their drafting, it should be kept in mind that the more detailed the technical specifications are, the clearer, easier and better their implementation becomes. The material must include the methods of realization of all items of work according to the standards defined and used during the phases of the project. For the materials that will be used in the project, the physical-mechanical properties will be given. A monitoring program of works and materials used in the facility will be reflected.

5.2.14. Materials report

The consultant will prepare a report on the construction materials that are available and suitable for inclusion in the work including quarry locations and approximate quantities of aggregates, sand, etc. This report should include analysis of construction methods and will contribute to the preparation of construction specifications.

5.2.15. Traffic management plan.

The consultant must prepare a traffic management plan, so that the urban areas where the road traces pass, can be accessible by residents even during the time of works on the road as well as along it.

5.2.16. Methodology and Quality Assurance:

The consultant will prepare the project methodology in detail including the adoption of design criteria, specifications & reference standards for the construction of the new road segment connecting roads, parallel roads as well as entrance and exit ramps in the road segment based on the Albanian standards and laws in force .

The consultant is responsible for the accuracy & suitability of all the documentation that he will prepare for the realization of the project. The consultant will carry out the program for the realization of the project.

5.2.17. Technical Opposition

After the drafting of this phase (project - implementation), the documentation will be subject to technical opposition, based on VKM No. 363, dated 18.7.2002: "On the establishment of technical opposition for building construction projects"

6. ORGANIZATION AND STAFF

During the realization of the project, the Consultant must report to the Albanian Road Authority, the progress of the realization of the project according to the phases given above. The progress of the project will be monitored by the ARSH specialist, in all its phases, and I will assist during field investigations and taking samples for testing.

7. STAGES, DEADLINES AND APPROVALS

7.1. Stages and approvals

The anticipated phases and indicative deadlines for the realization of the Elbasan - Lekaj road axis project study are:

- Project Idea 10 months (from the date of conclusion of the contract)
- Approval of the project idea 2 months
- Implementation Project 8 months (after approval of the project - idea)
- Approval of the implementation project 2 months

Each stage of the design must be checked and approved by the Technical Council at the Albanian Road Authority.

7.2. TIME



- Project Idea 10
months
- Implementation Project 8
months

8. PAY

Calculation of the value of the design study was carried out on the basis of:

- VKM No. 354, dated 11.05.2016

The consultant's payment will be made based on the terms of the contract signed between the consultant and the ARSHA.

CALCULATION OF LIMIT FUND FOR THE OBJECT

"ELBASAN - LEKAJ ROAD AXIS DESIGN STUDY, CORRIDOR 8"

CALCULATION OF THE LIMIT FUND FOR SERVICE ACCORDING TO VKM 354 DATED 11.05.2016

MAXIMUM VALUE OF THE PROJECT WITHOUT VAT	83,139,834.24	Lek
MAXIMUM VALUE OF THE PROJECT WITH VAT	99,767,801.09	Lek

UNDERGROUND SERVICE DESIGN FEE, UNDERGROUND WORKS (FOR TRANSPORT WORKS)

GROUP II

PROJECT FEE FOR TOPOGRAPHIC SERVICE OF TRANSPORTATION WORKS

GROUP II

DESIGN FEE FOR TRANSPORTATION STRUCTURES

GROUP II

UNDERGROUND SERVICE DESIGN CHARGE, WORKS UNDER THE FOUNDATION (FOR ENGINEERING WORKS)
GROUP II

PROJECT FEE FOR TOPOGRAPHIC SERVICE OF ENGINEERING WORKS

GROUP II

DESIGN FEE FOR ENGINEERING WORKS

GROUP II

ENVIRONMENTAL IMPACT SERVICE DESIGN FEE

GROUP I