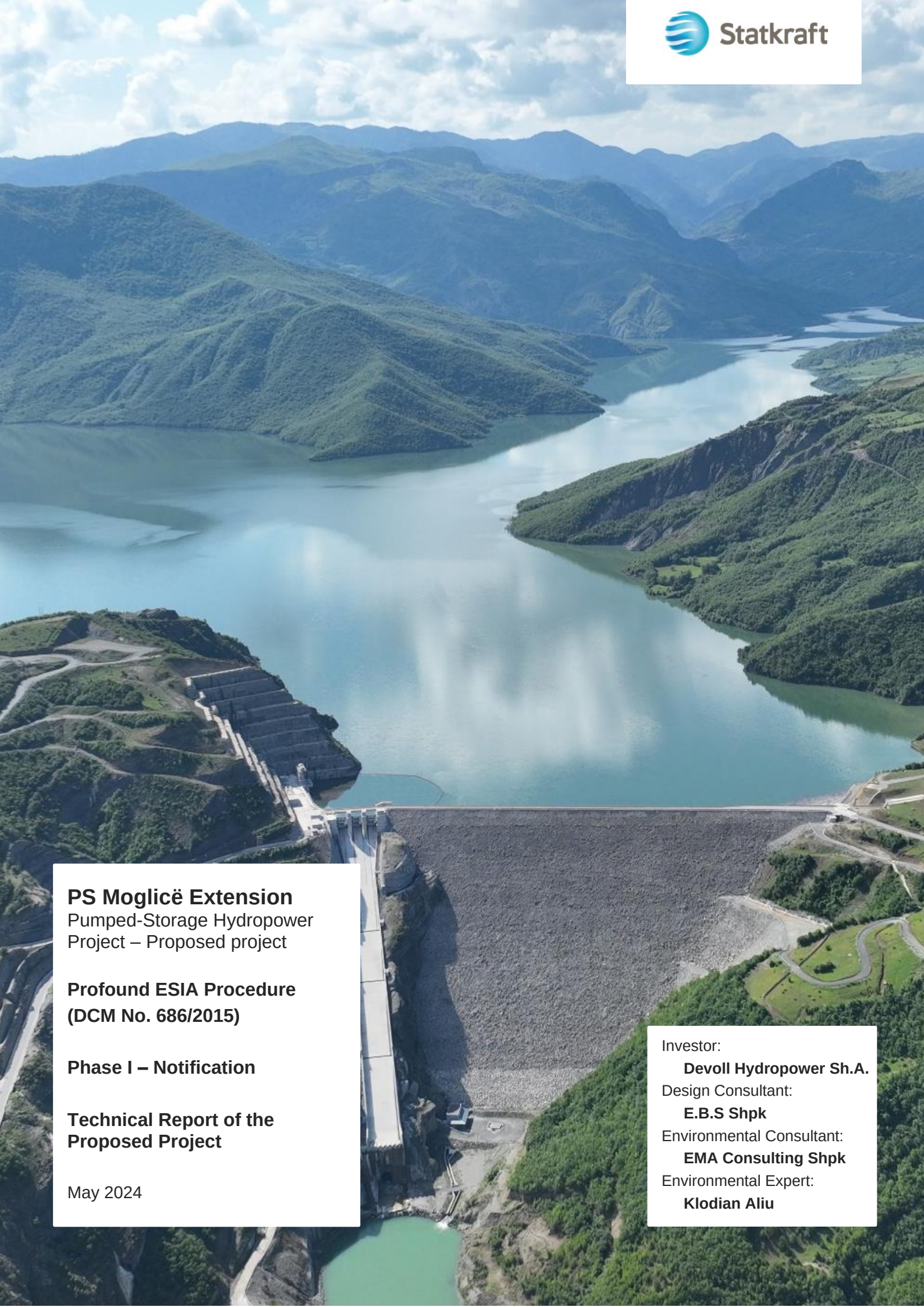

PS Moglicë Extension

Pumped-Storage Hydropower Project – Proposed project

Profound ESIA Procedure (DCM No. 686/2015)

Phase I – Notification

Technical Report of the Proposed Project

May 2024

Investor:
Devoll Hydropower Sh.A.
Design Consultant:
E.B.S Shpk
Environmental Consultant:
EMA Consulting Shpk
Environmental Expert:
Klodian Aliu

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1 INTRODUCTION

Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, gas-fired power and supplies district heating. Statkraft is a global company in energy market operations. Statkraft has more than 6,000 employees in over 20 countries. Further detailed information can be found in the Company's website www.statkraft.com or the Statkraft Annual Report for 2023[1].

Statkraft is the largest private investor in renewable energy in Albania and one of the largest foreign investors in the country. Based on the Devoll Concession Agreement, Statkraft has constructed two large scale hydropower plants, Banja and Moglice. The plants are currently in operation and will be transferred back to Albanian authorities according to agreed concession terms (BOOT). 60 km of transmission lines and 100 km of roads were also constructed/rehabilitated as part of the Devoll Hydropower Project, and these are transferred to the authorities upon completion. Total investment to date is around MEUR 600.

Statkraft owns and operates the Banja and Moglice plants through local subsidiary Devoll Hydropower Sh.A, and performs extensive market operation activities in the region related to power offtake. Devoll Hydropower Sh.A. (DHP) is an Albanian registered company, part of the Norwegian Statkraft Group. DHP is responsible for the implementation and operation of the Devoll Hydropower Project, based on a BOOT Concession approved by the Albanian Parliament through Law 10083 dated 23.02.2009, as amended. Further detailed information can be found in the Company's website www.statkraft.al or the DHP Annual Report for 2022[2].

Banja Hydro Power Plant is located on the river Devoll situated near the village Banjë, Albania. The plant has a nominal capacity of 72 MW and an average annual production of approx. 250 GWh. The dam is 900 m long, 370 m wide and 80 m high. The reservoir has a surface area of ~14 km^2, and a storage capacity of ~400 million m^3. The plant consists of two main units, as well as an eco-flow unit, utilising the water flow for renewable power production.

Figure 1-1 Banja Hydropower Plant

Moglice Hydro Power Plant is the second operational asset situated near the village of Moglice. The power plant has an installed capacity of 197 MW and an average annual production of approx. 450 GWh. The asphalt-core rock-fill dam is 320 m long, 167 m high and 460 m wide. The dam is one of the world's highest of its kind. The reservoir has a surface area of 7.2 km^2, and a storage capacity of ~380 million m^3.

Figure 1-2 Moglice Hydropower Plant

Statkraft has commenced the development of a large-scale Pumped-Storage Hydropower Plant in Albania. Moglice Extension Pumped-Storage HPP (PS Moglice Extension) is a part of the Devoll Hydropower Project Concession. PS Moglice Extension, will be the 3rd plant in the Devoll River, under the same Concession Agreement.

[1] https://www.statkraft.com/globalassets/0/.com/6-investor-relations/reports-and-presentations/2023/q4/statkraft-as---annual-report-2023.pdf

[2] https://www.statkraft.al/globalassets/0/.al/publications/dhp-annual-report-2022---english.pdf

2 PURPOSE OF THE PROJECT

Statkraft AS ("SK") and Devoll Hydropower Sh.A ("DHP") are co-concessionaires to the Concession Agreement entered into with the Ministry of Infrastructure and Energy of Albania ("MIE") on 19.12.2008, relating to the design, financing, construction, ownership, operation, maintenance and transfer of the Devoll River Hydropower Project in the Republic of Albania, as amended through the 1st, 2nd, 3rd and 4th Supplements (the "**Concession Agreement**"), approved through Law no. 10083, dated 23.02.2009, as amended. Under the 4th Supplement to the Concession Agreement, approved through Law no. 83/2023, dated 02.11.2023[3], DHP received the right to construct the PS Moglice Extension within 10 (ten) years after the Effective Date of the 4th Supplement, if DHP, in its sole discretion, elects to construct the PS Moglice Extension. Such construction must be done in accordance with good industry practice.

PS Moglice Extension is defined by the Concession Agreement as a Plant consisting of a pumping storage facility to be constructed near Moglice Plant and linked to the Moglice reservoir in the Devoll River Valley, as described in Annex A, including all necessary civil works and all electro-mechanical installations, including but not limited to turbines, generators, powerhouse ancillary equipment, transformers, switchyard equipment and the transmission line to the agreed point of delivery of electricity to the Grid. The installed capacity will be approx. 1200 MW +/- 35% (up to 1620 MW), subject to the final design.

Under Annex A of the Concession Agreement, the PS Moglice Extension will be located near the existing HPP Moglice Reservoir and will utilize the water in the said reservoir. The head is created by establishing an upper reservoir in the hills above the Moglice reservoir, (the "PS Moglice Extension Upper Reservoir"). The PS Moglice Extension will pump the water from the HPP Moglice Reservoir to the PS Moglice Extension Upper Reservoir and will generate energy when the water flows back again into the HPP Moglice Reservoir. The HPP Moglice Reservoir will be created by constructing dams, designed mainly for daily storage of water, of approx. up to 20 million m^3 live storage. The waterways and the powerhouse are located under the ground.

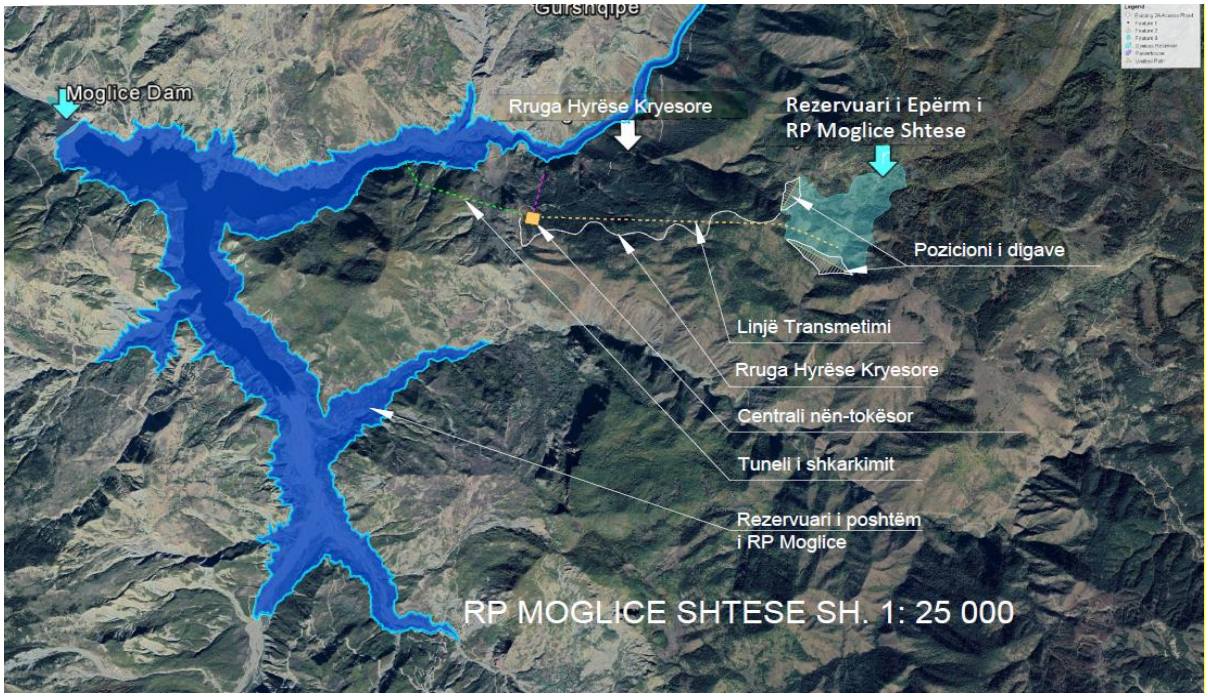


Figure 2-1 Illustrative layout of the PS Moglice Extension scheme

[3] Law no. 83/2023, dated 02.11.2023, Offical Journal no. 174 dated 04.12.2023, available at: https://qbz.gov.al/eli/fz/2023/174/accfbaa6-0b46-447b-b96c-2410c1bc70f6

The strengthened climate ambitions globally and especially in the region, and the significant cost decrease for deployment of solar and wind are supporting the green shift agenda for the reduction of emissions and accelerating the development of more renewable's capacities. The increase of renewable capacities (like wind and solar) will lead to growing intermittency and further, the weather driven price volatility is expected to increase both intra-day, intra-week and between seasons. As intermittent renewable sources increase, managing the power system is becoming more complex and maintaining sufficient system services is challenged. In response to such increasing share of intermittent renewable assets, the introduction of alternative sources for balancing purposes, such as pumped storage, is required.

PS Moglice Extension is a further optimisation of the existing hydrological resources in the Moglice reservoir, and can become an important energy storage solution for the future energy system of the region, while at the same time having limited additional environmental and social impacts. The development of the project is closely linked to the future development of the energy market (deployment of increased renewables such as solar and wind in Albania, the Western Balkans and the wider region), as well as the strengthening of the regional transmission system with increased capacities. The PS Moglice Extension will be a balancing plant for Albania and the Balkan region, as well as Greece and Italy. The configuration of the plant is dependent on, among other things, which products the plant will deliver in the respective energy markets. With the prospect of increasing connectivity with the European countries, such as increase of current capacities of interconnectors with Greece, or establishing new physical connection with Italy, the Moglice extension can be a key solution both to accelerate not only the regional and European decarbonisation process, but also to strengthen energy security by fostering the penetration of renewables and boosting the integration of energy markets.

Statkraft's global and regional ambitions in renewables are complementary to the European Green Agenda for the reduction of emissions and reducing energy price levels that make a strong rationale for the transformation of the European energy system, with accelerated renewables deployment. Further, it aligns to the country and Western Balkans (WB6 strategy) ambitions for a greener energy sector, with stronger regional cooperation.

In the frame of the Feasibility Study for PS Moglice Extension it is planned to be conducted an extended Environmental Impact Assessment for the project. This Report is prepared in the frame of the ESIA Notification process, based on the requirements set in the legislation in force in the Republic of Albania.

This Report was prepared by Technical Consultant E.B.S Shpk (NIPT: K72014002P, License No. N.5610/12), Environmental Consultant EMA Consulting Shpk (NIPT: L12010003V, License No. LN 3752-09-2011/2) and Environmental Expert Klodian Aliu (Certificate No. 294 – dated 10.12.2014). Copies of the relevant licenses/certificates of the authors of the report are attached to this report.

3 LOCATION OF THE PROJECT ON TOPOGRAPHIC MAP, SURFACE BOUNDARIES, COORDINATES, PHOTOS AND DATA FOR THE EXISTING USE OF THE SURFACE THAT WILL BE USED TEMPORARILY OR PERMANENTLY DURING THE CONSTRUCTION PHASE OR ITS OPERATION

3.1 Project location

PS Moglice Extension, as part of the Devoll Hydropower Project, is planned to be developed along the Devoll River valley in the south-east part of Albania. The Project area is located approximately 100 km aerial distance to the south-east of Tirana, and 20 km to the west of Korçë. The topography of the area is predominantly mountainous, extending throughout the entirety of the proposed project area.

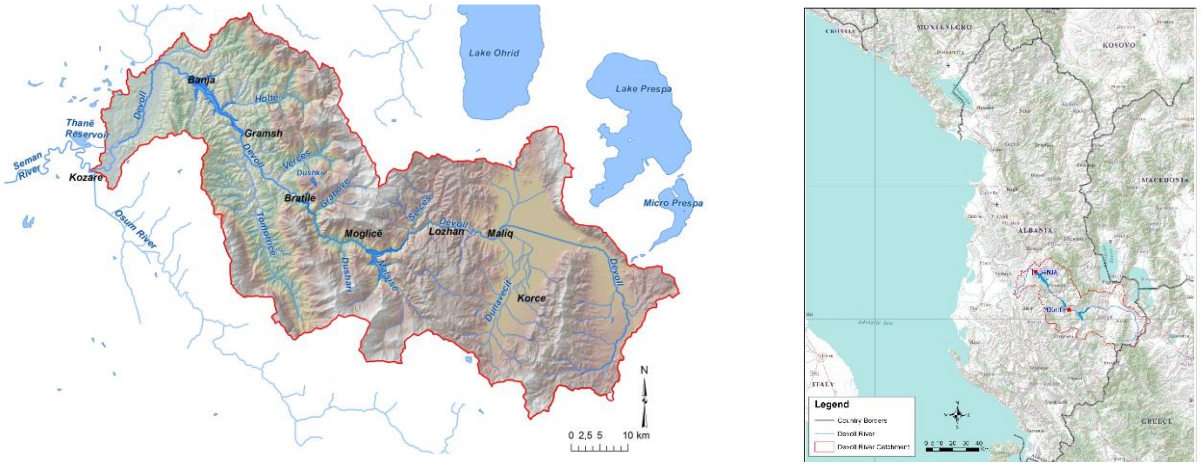


Figure 3-1 Devoll River Basin

The PS Moglice Extension will be located near the Moglice HPP reservoir and will utilize the water in the Moglice HPP Reservoir. The head is created by establishing an upper reservoir in the hills above the Moglice reservoir, the PS Moglice Extension Upper Reservoir. The PS Moglice Extension will pump the water from the HPP Moglice Reservoir to the PS Moglice Extension Upper Reservoir and will generate energy when the water flows back again into the HPP Moglice Reservoir. The PS Moglice Extension Upper Reservoir will be created by new dams, designed mainly for daily storage of water. The waterways and the powerhouse are located underground.

PS Moglice Extension is planned with the following main components:

1. **Lower reservoir:** Existing Moglice HPP reservoir with the Highest Regulated Water Level (HRWL) of 650 masl with a total volume of 380 million m^3 at HRWL
2. **New dams**: two new large dams for the creation of the upper reservoir
3. **Upper reservoir:** New reservoir of approx. 20 million m^3 live storage capacity
4. **Underground waterways**: Tunnels connecting the lower and upper reservoir
5. **Underground powerhouse / pumped-storage plant:** Planned installed capacity of 1200 MW ±35% (up to 1620 MW).

PS Moglice Extension is located on the territory of Korçë District, in the south-eastern part of Albania, with most of the project area in the territory of the Maliq Municipality, and a smaller area in Korçë Municipality.

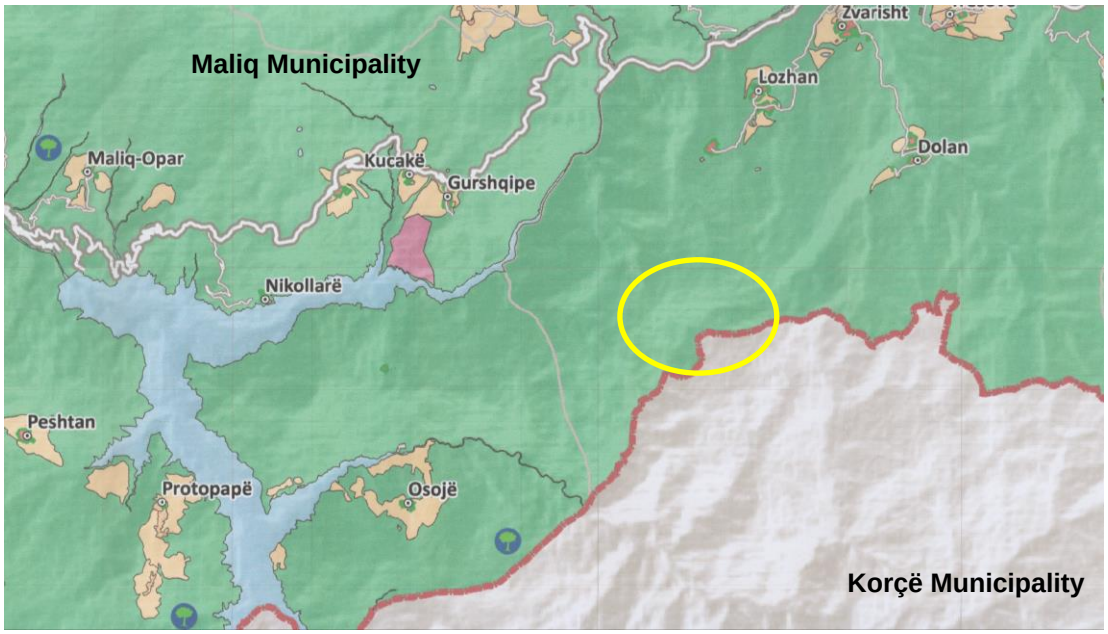


Figure 3-2 Indicative location of the proposed dams and upper reservoir

The following figures show the general layout of the proposed project and respective structures over topographic map and orthophoto.

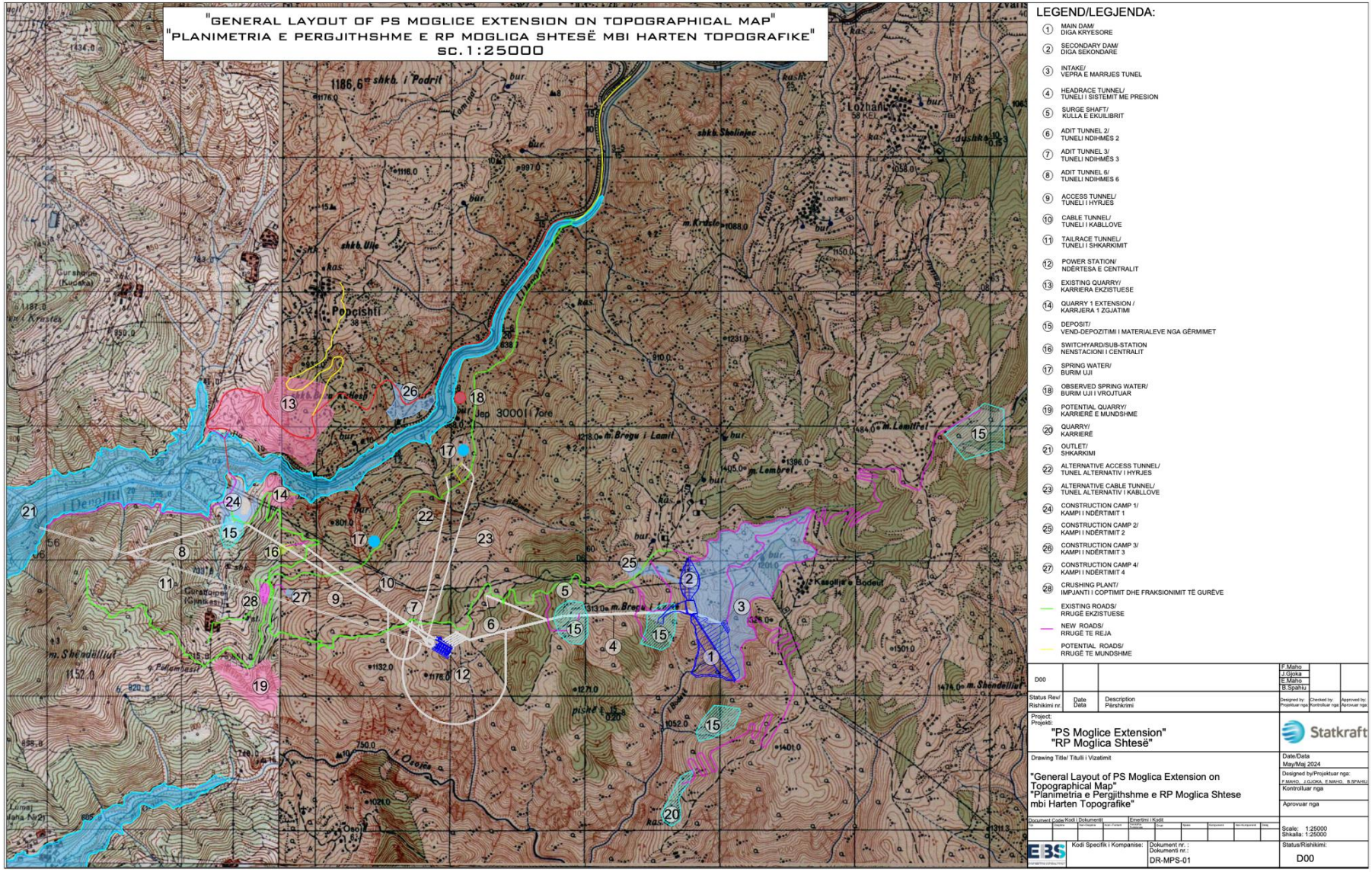


Figure 3-3 General Layout in Topographic Map

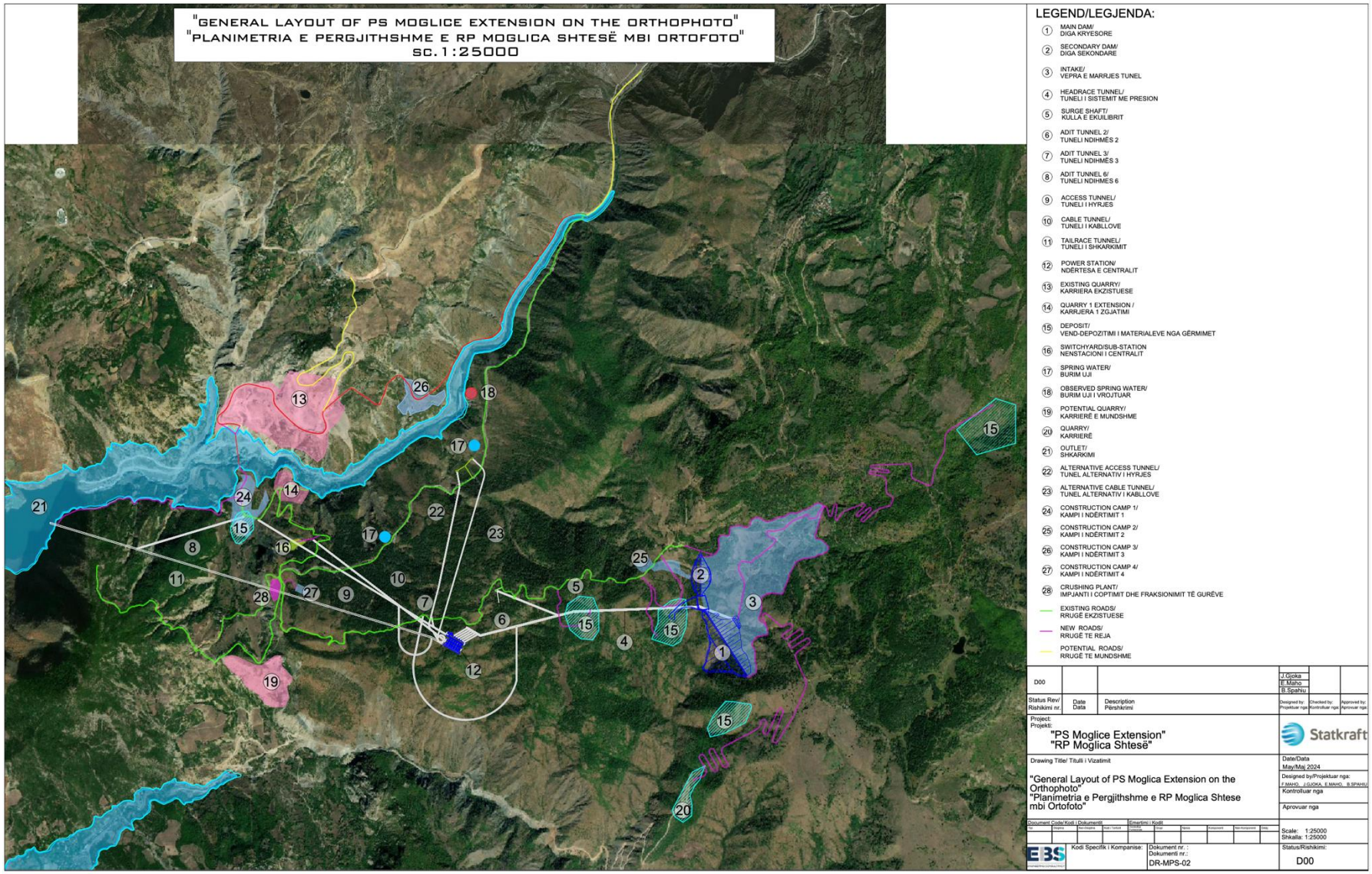


Figure 3-4 General Layout in Orthophoto

3.2 Project Coordinates

The following table includes the coordinates of the preliminary location of main project structures in three coordinate systems: UTM 34N, KRGJSH and Gauss-Krüger (GK). The final locations of these structures will be defined after the final configuration of the plant, after the completion of the Feasibility Study and development of the Detailed Design.

Table 3-1 Coordinates of main project structures

	UTM (E, N)		GK (E, N)		KRGJSH (E ,N)	
Secondary Dam Axis	460655.34	4503778.60	4460770.77	4505711.46	545175.54	4505613.92
	460656.88	4504102.13	4460772.31	4506035.11	545173.40	4505937.57
Main Dam Axis	460999.59	4503186.82	4461115.15	4505119.43	545526.64	4505025.85
	460682.89	4503677.30	4460798.33	4505610.12	545204.26	4505512.90
Intake at New Reservoir	460900.48	4503603.83	4461016.01	4505536.61	545422.76	4505441.87
Outlet	455836.80	4504318.34	4455950.25	4506251.42	540349.23	4506098.99
Surge Shaft	459714.25	4503663.18	4459829.29	4505595.99	544235.45	4505487.75
Underground Powerhouse	458667.04	4503463.83	4458781.65	4505396.56	543190.15	4505276.41
	458778.40	4503511.27	4458893.06	4505444.02	543301.01	4505325.13
	458913.00	4503433.54	4459027.71	4505366.26	543436.54	4505248.91
	458865.30	4503349.18	4458979.99	4505281.86	543389.78	4505163.97

The coordinates of the proposed project structure shall be subject to further optimization during the Feasibility phase and shall be determined upon the definition of the final configuration of the plant.

3.3 Project Area Photos

The following images depict photos taken from the project area.

Figure 3-5 Photos from the Project Area

3.4 Land Tenure and Use

PS Moglice Extension is planned to be developed mainly in an area currently of state-owned property, mainly comprised of forest area with patches of natural grasslands along the forest and some agriculture lands. In this aspect two main forest areas with its specific vegetative association dominate the project area: mixed deciduous and conifers forest and xero-thermophilus formations, both combined with patches of open grasslands. Some of the proposed project areas are bare land that is considered to have been agricultural land in the past years. The surface is occupied by herbs like gramineous, leguminous and other species.

The following image shows the project layout over the Corine Land Cover map.

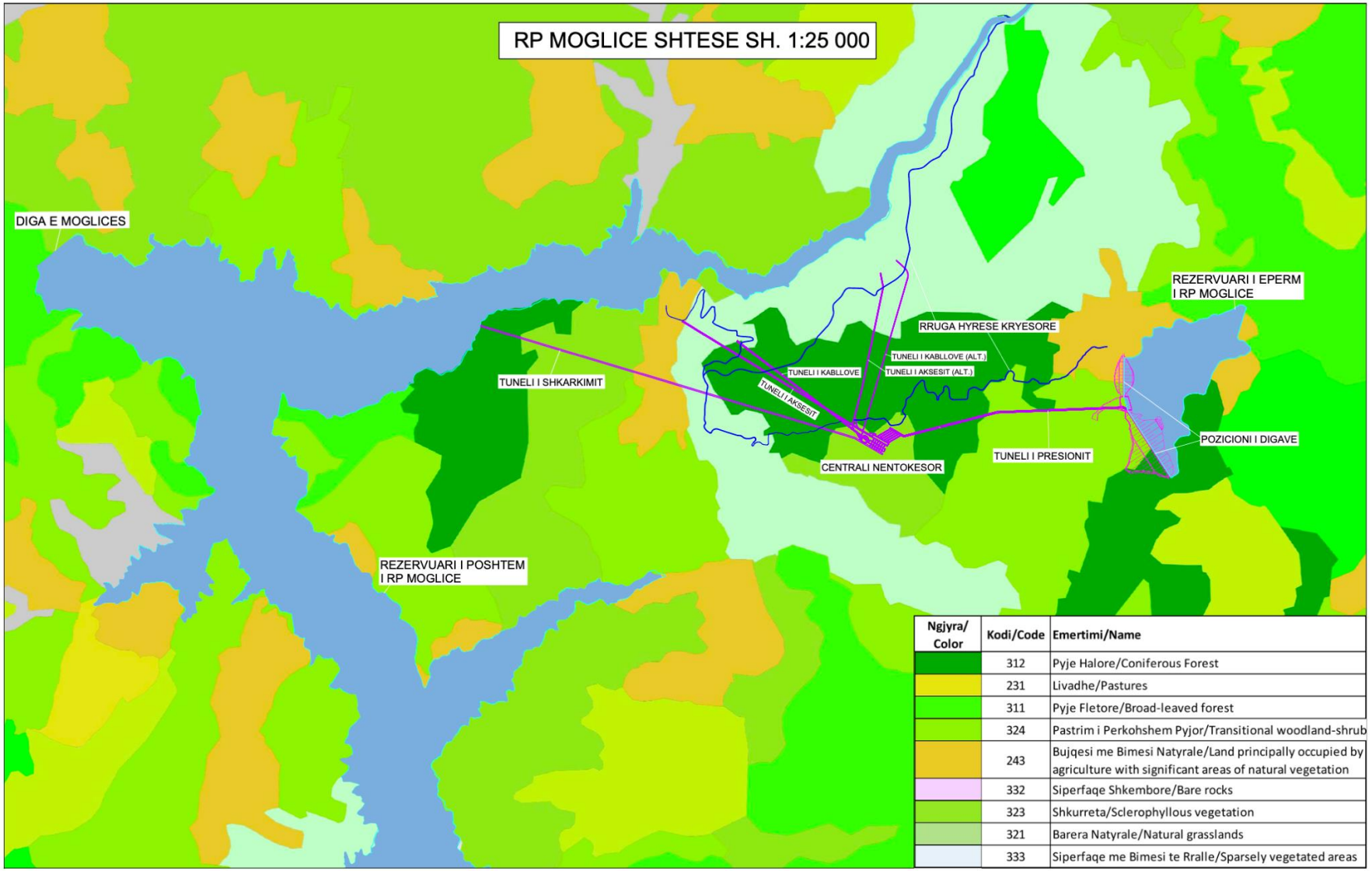


Figure 3-6 General Layout in Corine Land Cover Map

Several privately-owned areas of agriculture land might be required. From a preliminary evaluation it is expected that the number of private lands affected may be approx. 33 parcels for both permanent and temporary use, taking in consideration the median size of the parcel approx. 1000 m² for that area. Total area of private owned properties shall be assessed after the further development of the project's footprint during the Feasibility phase.

As of the Pre-Feasibility study phase, the preliminary estimated areas used for temporary and permanent land use are shown in the following table.

Table 3-2 Estimates of land use for temporary and permanent installations

Temporary - Area (ha)		Permanent - Area (ha)	
Construction Compound	2.8	Upper Reservoir	55.5
Camp Area	4.9	Dams & associated structures	16.5
Deposit Sites	30.1		

3.5 Natural protected areas in proximity to the proposed project

No National Parks or protected areas are found in the direct impact zone of the PS Moglice Extension project. The catchment of Devoll River has a number of protected areas which are at different distances from the proposed project. The main protected areas that are at relative proximity of the proposed project are listed below:

1. **Shparthi i Osojes-Bakullit Natural Monument** (Category III) is a protected area of 282.37 ha, located mainly in Osoje village, Moglice Administrative Unit of Maliq Municipality. This area is located approx. 2 km southwest of PS Moglice Extension dams and upper reservoir area. Planning of project related facilities should properly take into consideration this protected area.
2. **Guri i Nikës – Valamarë - Lenie** (Protected Landscape) is a protected area of approx. 5168.64 ha, located in the territory of Maliq and Gramsh Municipalities, positioned approx. 8-10 km to the northwest of PS Moglice Extension.

Currently it is estimated that all these areas are located outside the project direct impacted area and the PS Moglice Extension project is not likely to directly impact any of these objects.

4 INFORMATION ON RESIDENTIAL CENTERS IN THE AREA WHERE THE PROJECT IS PROPOSED TO BE IMPLEMENTED, ACCOMPANIED WITH PHOTOS AND DATA ON THEIR DISTANCE FROM THE LOCATION OF THE PROPOSED PROJECT, AS WELL AS DETERMINATION OF LOCAL GOVERNMENT UNITS THAT ADMINISTER THE TERRITORY WHERE THE PROJECT IS PROPOSED

PS Moglice Extension is planned for development in the southeastern part of Albania, specifically in the Korçë district, predominantly within the Maliq Municipality territory. The project is to be situated adjacent to the existing Moglice HPP reservoir, an area where Devoll Hydropower Sh.A. has significant experience and established cooperation with stakeholders and local communities. The primary structures of the project, including dams, the upper reservoir, the power plant, are expected to be located mainly within the administrative boundaries of Maliq Municipality and, to a lesser extent, within Korçë Municipality.

PS Moglice Extension will primarily be built in the territory of Maliq Municipality, in the administrative units of Moglice and Gore, near the villages of Gurshqipe (Popcisht & Gjinikas), Osoje, Lozhan and Dolan. A smaller portion of the project will extend into Korce Municipality, within the Voskopoje administrative unit, close to the village of Krushove, in proximity of the location known as “Kasollet e Bodesë”.

The population near the main project structures is relatively sparse, with about 50 families totaling approximately 200 inhabitants residing within a 5 km² area surrounding the main components of the proposed project site. However, potential transmission lines might be routed through more densely populated areas. So far, no minority groups have been identified within the immediate project area.

4.1 Detailed information in the extended Project Area

4.1.1 Population and Demography

The Region of Korça has a total population of approximately 257,530 inhabitants. There has been a significant trend of migration from the region, driven by the low economic conditions in the mountainous areas of Korça, Erseka, and Pogradec. This population movement has predominantly been both rural and urban, particularly towards Pogradec and Devolli. Additionally, a large number of people have relocated to Tirana or emigrated abroad.

4.1.2 Health Service

The Korça Region has a public healthcare system managed by the state, encompassing a network of clinics and hospitals. Each municipality operates its own health clinic staffed with a nurse, and doctors visit according to a set schedule. Korça also has a Women's Hospital specializing in Obstetrics and Gynecology services. The Main Hospital in Korça is equipped with various facilities, including an Emergency Room, Radiology, Physiotherapy, Cardiology, Pediatrics, Orthopedics, and Neurology Departments. Additionally, some areas within the city have dispensaries that house ambulances and emergency rooms. Apart from state-administered public health services, several non-governmental organizations (NGOs) provide health services in the region. Access to healthcare is particularly crucial for residents of the Upper Devolli area near Korça.

4.1.3 Education

Education funding in the Korça Region remains low, and there is a human resources crisis in education. Many graduates from the University of Tirana do not return to teach in the region, indicating a need for the University of Korça to offer pedagogic programs.

Only a small percentage of students who study abroad or in other Albanian cities return to Korça. A proportion of teachers lack proper qualifications, especially in rural areas, affecting education quality. Local governments lack authority over teacher recruitment and curriculum design. Many schools, particularly in Upper Devolli, face infrastructure challenges and shortages in teaching materials and equipment.

4.1.4 Infrastructure

The Korça Region's road infrastructure includes both rural and national roads. Key routes are the Kapshtica-Korçë-Qafë Thane axis and the Korça-Erseke-Leskovik axis where the Kapshticë-Korçë road meets highway standards. Out of the total roads, 71 km are unpaved, with rural roads amounting to 1,027 km, municipal roads to 307 km, and regional roads to 720 km. Of the rural roads, 115 km have been paved, with recent improvements including gravel paving.

Korça is abundant in water resources, with 293 water supply systems and 4,000 wells in rural areas. The city draws its water from the Turan catchment, ensuring a 24-hour supply. Bilishti, Erseka, Maliqi, and Leskovik also have significant water sources, though they suffer from pipe degradation. Similar issues affect sewage and stormwater systems in several cities. Recent projects in Korça have rehabilitated these systems and created sewage treatment facilities to reduce pollution, although pollution elimination in Upper Devoll remains challenging.

The electrical system is supported by the Zemblak substation, which feeds the Korça substation through a 110 kV line. The region has 10 other substations distributing electricity. The transmission systems, both digital and radio relay, operate with independent power sources to ensure uninterrupted service.

4.1.5 Economy

Most of the population in the Korça Region is engaged in agriculture, with others employed in the agricultural processing industry, textiles, commerce, construction, handicrafts, transportation, tourism, education, health, and public administration. According to the Municipality of Korça, a significant driver of the city's economic development is its renowned bazaar, which offers a variety of handicrafts and agricultural products. Additionally, Korça is well-known nationwide for its brewery.

4.1.6 Agriculture

Except for Korça and Pogradec, the region is predominantly rural despite some areas being classified as urban. The fertile soils support the cultivation of plants, forage for livestock, and vegetables like potatoes and peas. The upper part of Devolli catchment is known for the fruit trees, particularly apples and plums. In Maliq, animal husbandry and handicrafts are common, with beetroot production being notably popular. Beekeeping is also a widespread activity in many households.

4.1.7 Tourism

Eco-tourism plays a vital role in the Korça Region, attracting visitors both domestically and internationally with its ecological diversity and mountainous climate. The region is famous for its three lakes: Lake Ohrid, Lake Prespa e Madhe, and Lake Prespa e Vegle. The Prespa area, declared a National Park and a tourist zone, is renowned for activities like horse racing and sailing. Additionally, the "Drenova Fir" National Park, located 10 km from Korça atop Morava Mountain and covering 1,380 hectares, is rich in water resources and diverse flora and fauna. The Maliqi forest, a semi-natural mixed forest declared a cultural monument since 1960, spans 50 hectares and includes various types of wood like poplar and

pine, making it an important tourist site.

4.1.8 Culture, Heritage, and Religious Belief

Korça is a cultural hub attracting tourists with its rich history and cultural heritage. The National Museum of Medieval Art, unique for its iconography, houses valuable heritage from five centuries of Albanian artistry, featuring works by prominent Albanian painters such as Onufri and the Zografi Brothers, as well as international artists. The museum also exhibits metal and silver handicrafts and ornaments from the 17th to 19th centuries. The National Museum of Education, located in the same building as Albania's first school taught in the Albanian language, displays the history of written and published works in Albanian, including a significant 1744 book by Naum Veqilharxhi. Known as the "City of Parties," Korça frequently hosts cultural activities with high community engagement. The city also serves as a significant religious center for both Muslims and Orthodox Christians, featuring a 15th-century mosque and the Orthodox metropolitan bishop's seat. The Bektashi Muslim community around Korça is centered at Teqeja of Turani, and despite the prevalence of Islam, abandoned churches in Upper Devolli are still respected as part of the villages' heritage.

4.2 Photos from Residential Centres in Project Area

Photos taken from nearby settlements within project area are shown in the following figures.

Figure 4-1 Photo of Gurshqipe (Gjinikas) Village

Figure 4-2 Photo of Gurshqipe (Popçisht) Village

4.3 Distances of Residential Centres from Project Location

The distances of the inhabited areas from the proposed project area are shown in the following layout.

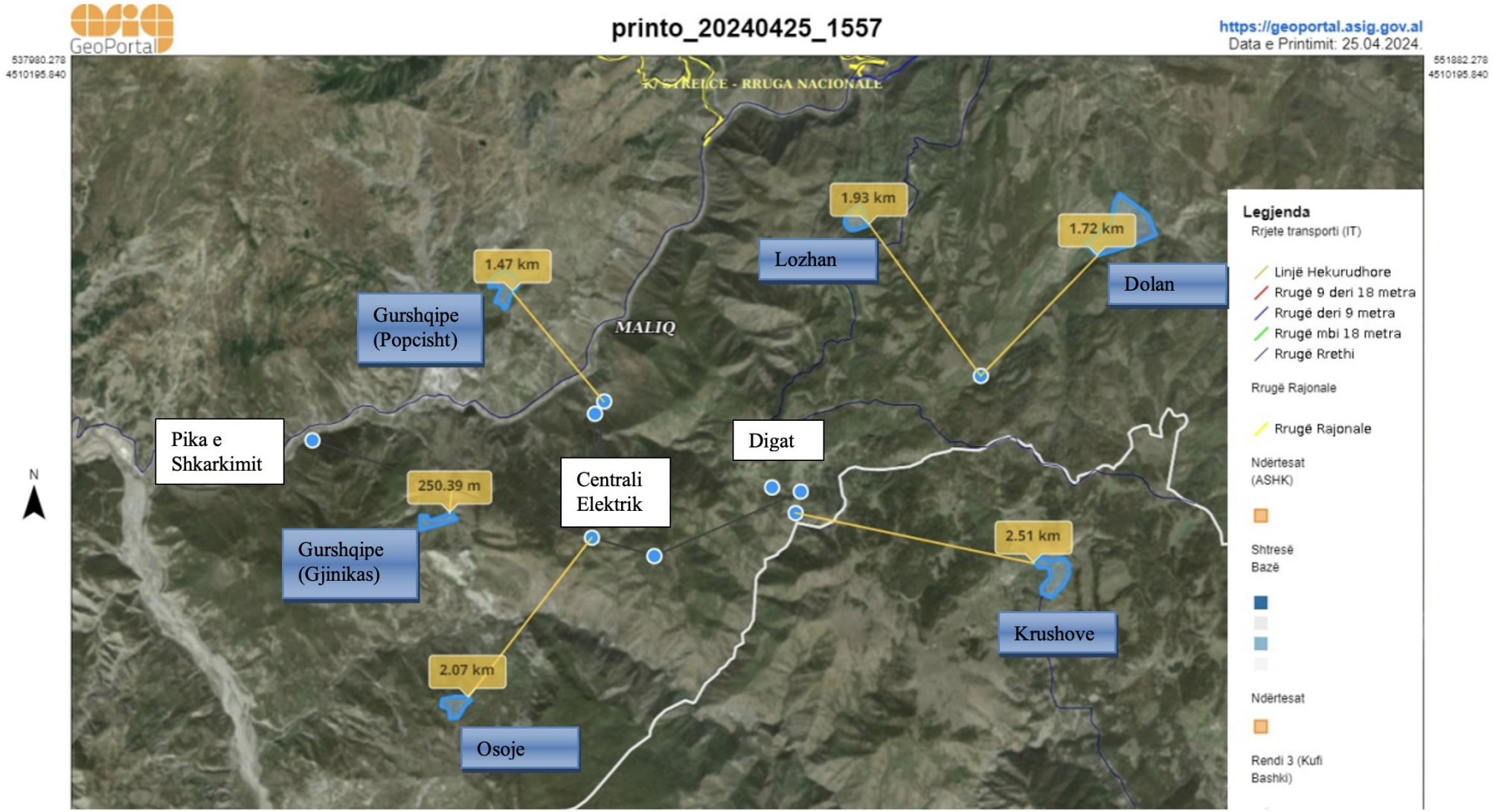
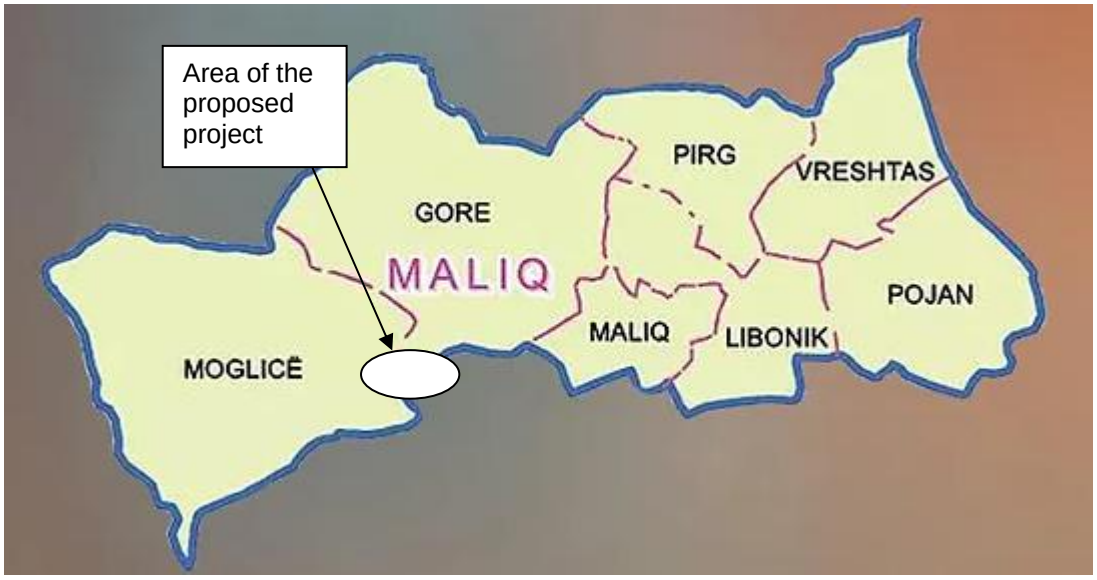


Figure 4-3 Distances of residential centres from main project structures

4.4 Administrative Units

The proposed project's area is within the Korce District, primarily in the Maliq Municipality and Moglice Administrative Unit, with a minor part in the Korce Municipality, Voskopoje Administrative Unit.



Emri i Njësisë	Qytetet dhe fshatrat në përbërje të tyre
Maliq	Qyteti Maliq, Fshatrat; Kolanec, Goce, Gjyras, Bickë, Fshat Maliq, Plovisht.
Libonik	Fshatrat; Libonik, Drithas, Vloçisht, Vashtëmi, Pocestë, Symiz, Klocë, Shkozë, Kembëthekër, Beras, Zboq, Memël, Manastirec.
Gorë	Fshatrat; Zvarisht, Dolan, Lozhan, Lozhan I ri, Senisht, Tresovë, Strelcë, Shalës, Selcë, Velçan, Mesmal, Moçan, Mjaltas, Marjan, Desmirë, Qënckë, Babjen, Dolanec.
Moglicë.	Fshatrat; Moglicë, Gopesh, Dobërçan, Maliq-Opar, Gurkuq, Bardhas, Zerec, Dushar, Torovec, Shpatmal Peshtan, Lumaj, Protopapë, Osojë, Gurshqipe, Kucakë, Nikollarë.
Vreshtas	Fshatrat; Vreshtas, Sheqeras, Bregas, Podgorie.
Pirg	Fshatrat; Pirg, Gurishtë, Zvirinë, Leminot, Qershizë, Kakaç, Shqitas, Veliternë, Sovjan, Novoselë, Bubuq.
Pojan	Fshatrat; Pojan, Zvezdë, Shëngjergj, Kreshpanj, Plasë, Zëmblak, Burimas, Pendavinj, Terovë, Rov, Orman, Rëmbec

Figure 4-4 Maliq Municipality Administrative Units and respective villages

Emri i Njësisë	Qytetet dhe fshatrat në përbërje të tyre
Korçë	Qyteti Korçë
Qëndër Bulgarec	Fshatrat; Bulgarec, Lumalas, Biranj, Melcan, Porodinë, Dishnicë, Shamoll, Belorta, Kuç i Zi, Barç, Çiflig, Malavec, Neviçisht
Voskop	Fshatrat; Voskop, Dërsnik, Polen, Vinçan, Goskovë Iart, Goskovë poshtë, Damjanec
Voskopojë	Fshatrat; Voskopojë, Shipskë, Krushovë, Gjonomadh, Lavdar
Lekas	Fshatrat; Lekas, Marjan, Gjonbabas, Gurmujas, Shkozan, Xerje, Tudas, Gjergjevicë, Lavdar Brozdovec, Mazrek, Poponivë
Vithkuq	Fshatrat; Vithkuq, Leshnje, Gjanc, Lubonjë, Rehovë, Roshanj, Trebickë, Grabockë, Treskë, Stratobërdh, Panarit, Shtyllë, Cemericë
Mollaj	Fshatrat; Mollaj, Floq, Pulahë, Ujë Bardhë, Kamenicë
Drenovë	Fshatrat; Drenovë, Mborje, Boboshticë, Moravë, Qatrom, Ravonik, Turan, Dardhë

Figure 4-5 Korce Municipality Administrative Units and respective villages

5 DRAWINGS OF PROJECT FACILITIES AND STRUCTURES AND CONSTRUCTION METHODS

PS Moglice Extension includes the construction of several tunnels, two dams, an underground powerhouse, and an upper reservoir with a live volume of approximately 20 mln. m^3, in addition to a limited dead storage volume which will be defined during the Feasibility phase. As of the Pre-Feasibility stage, the main project structures comprise the following:

- **Tunnels:**
  - Headrace
  - Tailrace
  - Access
  - Adits
  - Cable and escape

- **Dams:**
  - Main
  - Secondary

- **Other Components**
  - Underground Powerhouse
  - Inlet structure
  - Outlet structure
  - Surge shaft and pressure shaft

Regarding the dams, an embankment dam is currently proposed as main option. Concrete gravity and embankment type dams will be compared and the dam type will be optimized during the feasibility phase of the project. It is important to note that the details provided herein are preliminary and will be subject to further optimization and detailed engineering during the Feasibility and Detailed Design phases of the project.

5.1 Drawings of Project Facilities

The following figures provide a general layout of PS Moglice Extension, followed by detailed drawings of longitudinal profiles of dams and tunnels and cross-sections of dams.

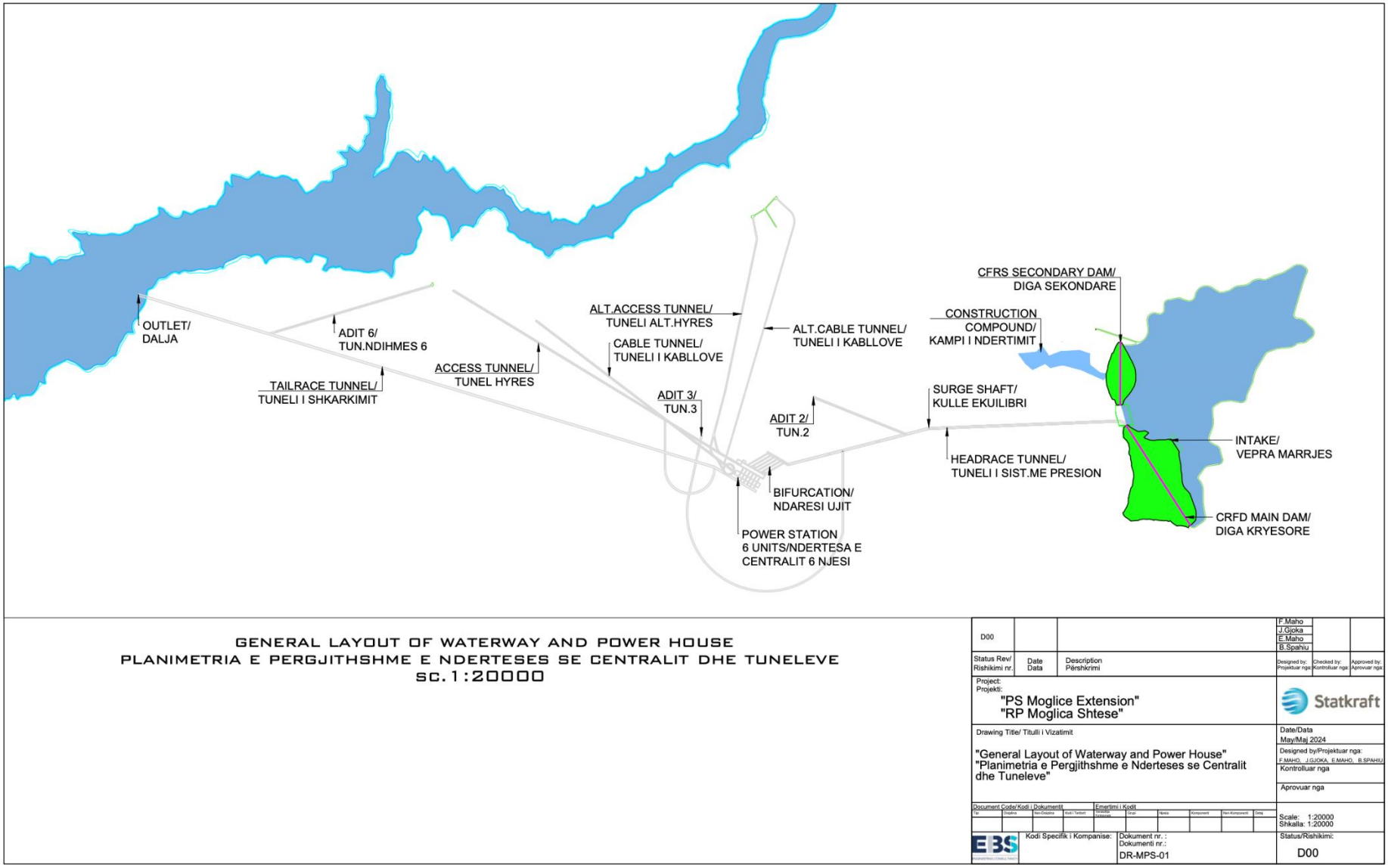


Figure 5-1 General Layout of Project Structures

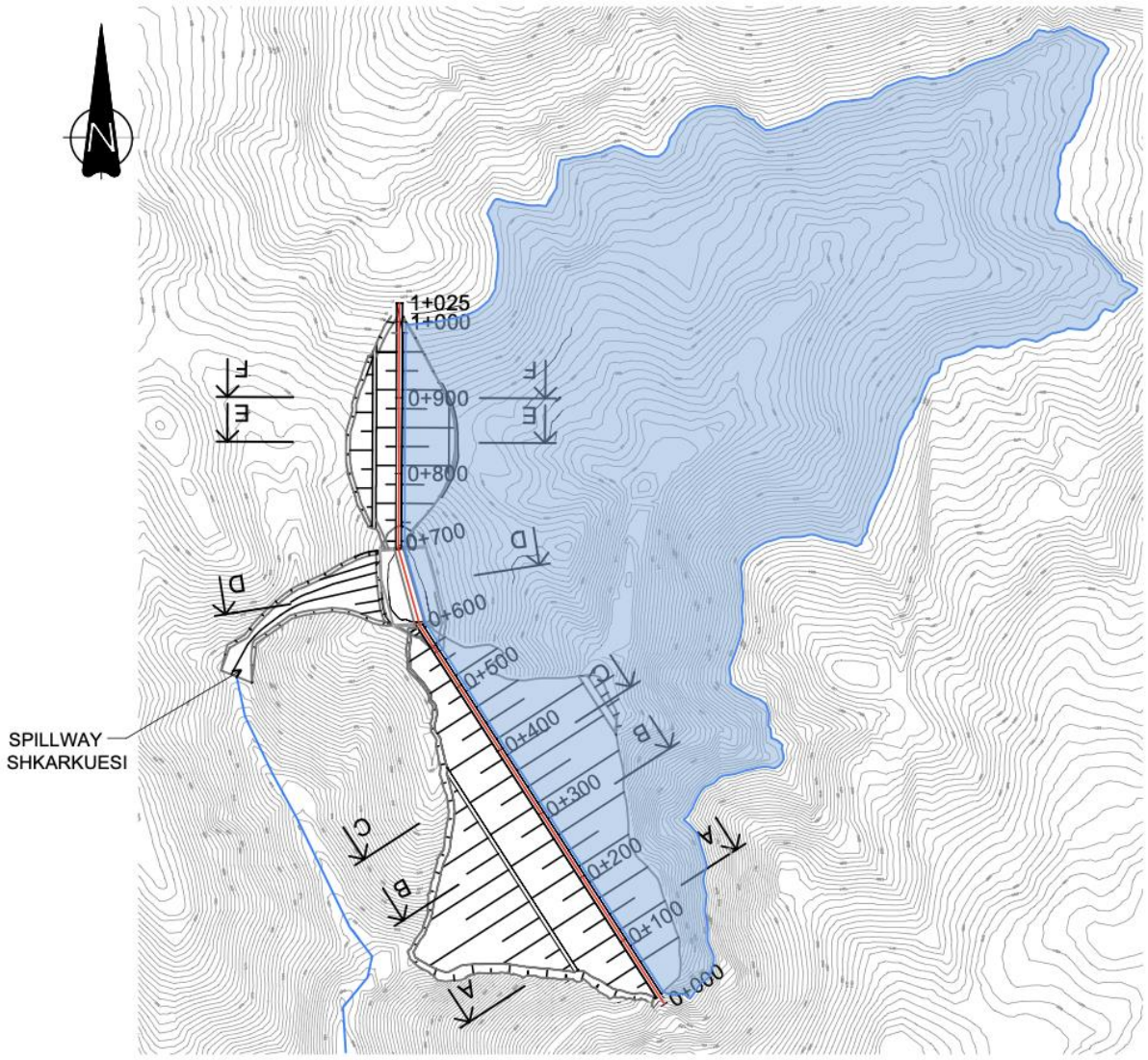


Figure 5-2 General Layout, Main Dam and CFRD Secondary Dam

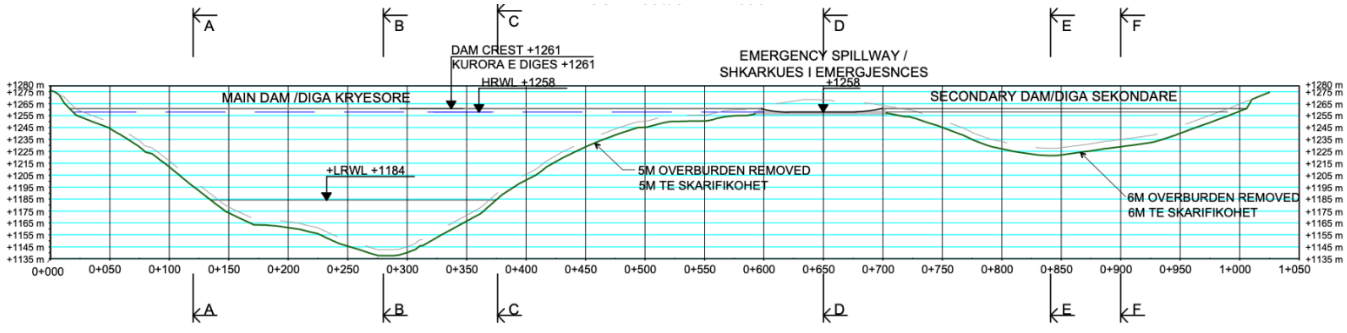


Figure 5-3 Longitudinal profile, Main Dam and Secondary CFRD Dam

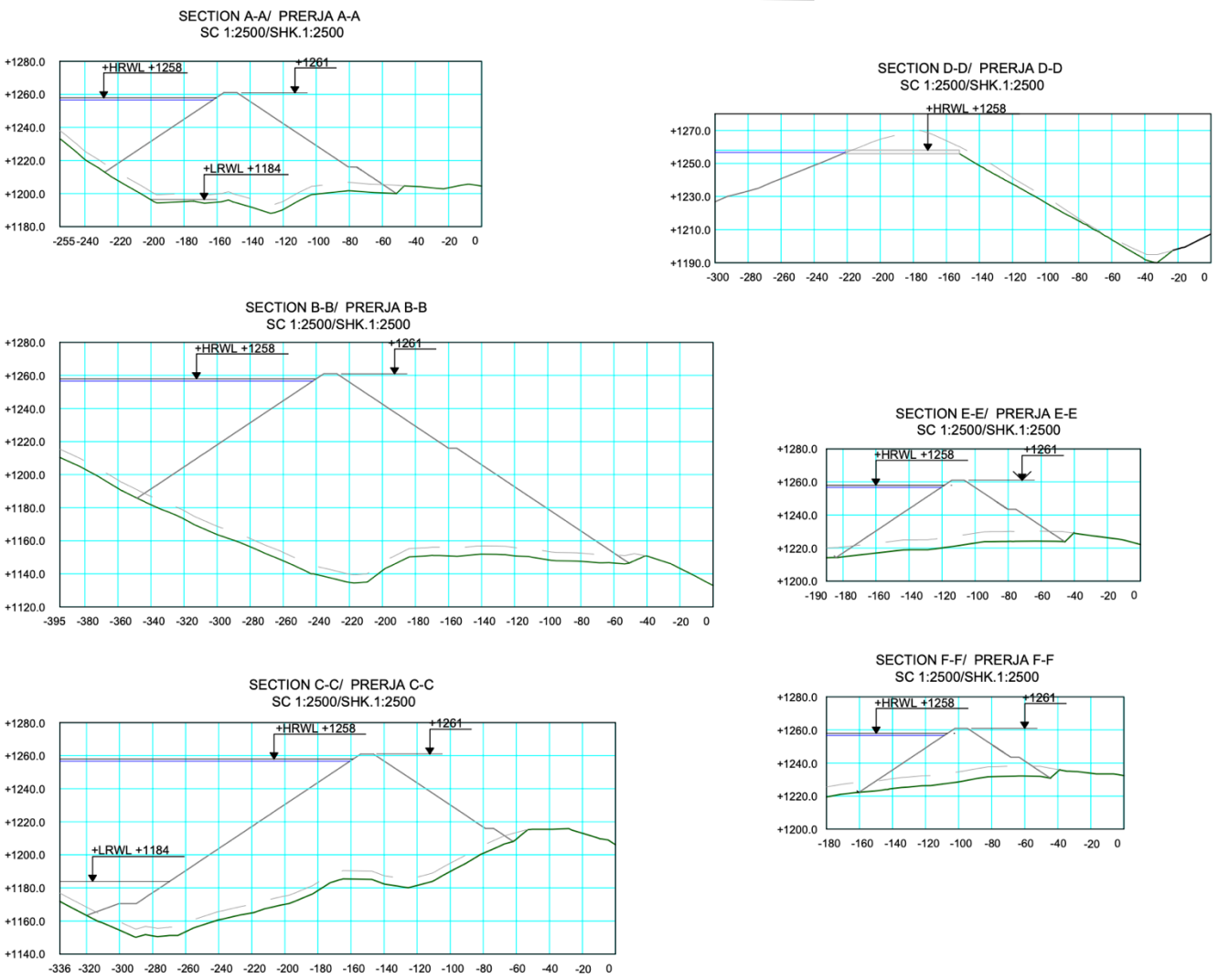


Figure 5-4 Cross-sections of the CFRD dam

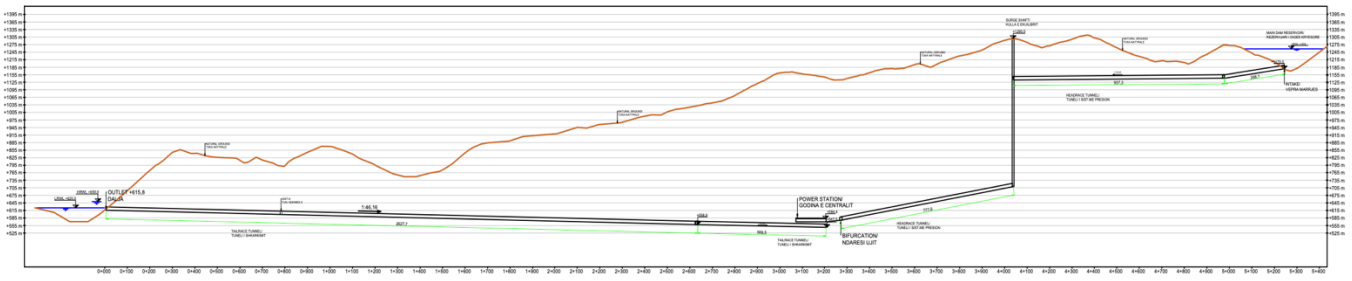


Figure 5-5 Longitudinal profile of waterway from main dam reservoir to outlet

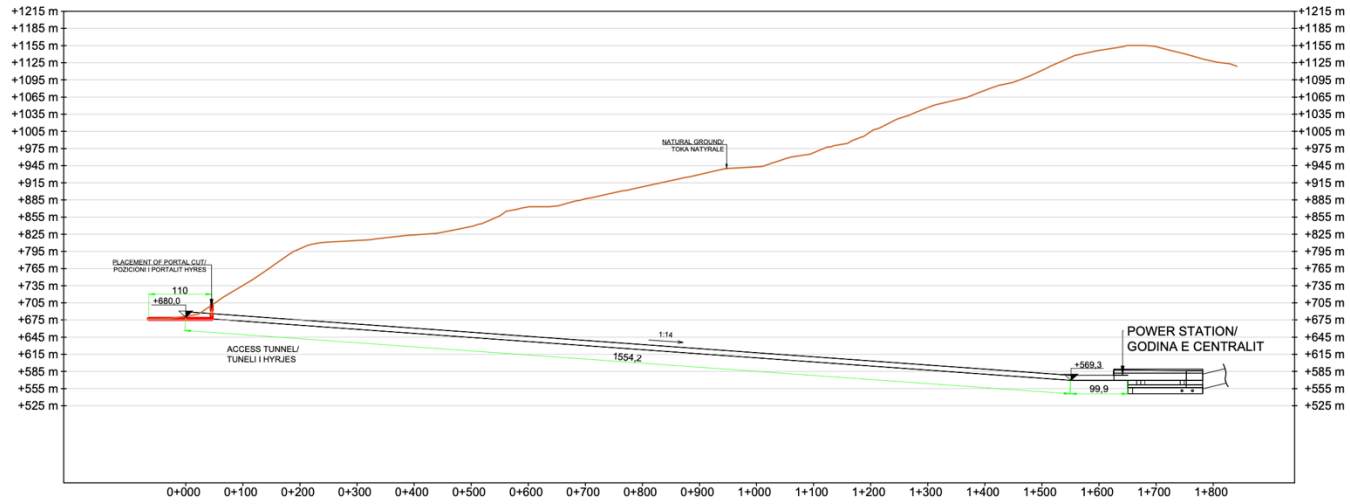


Figure 5-6 Longitudinal profile of access tunnel

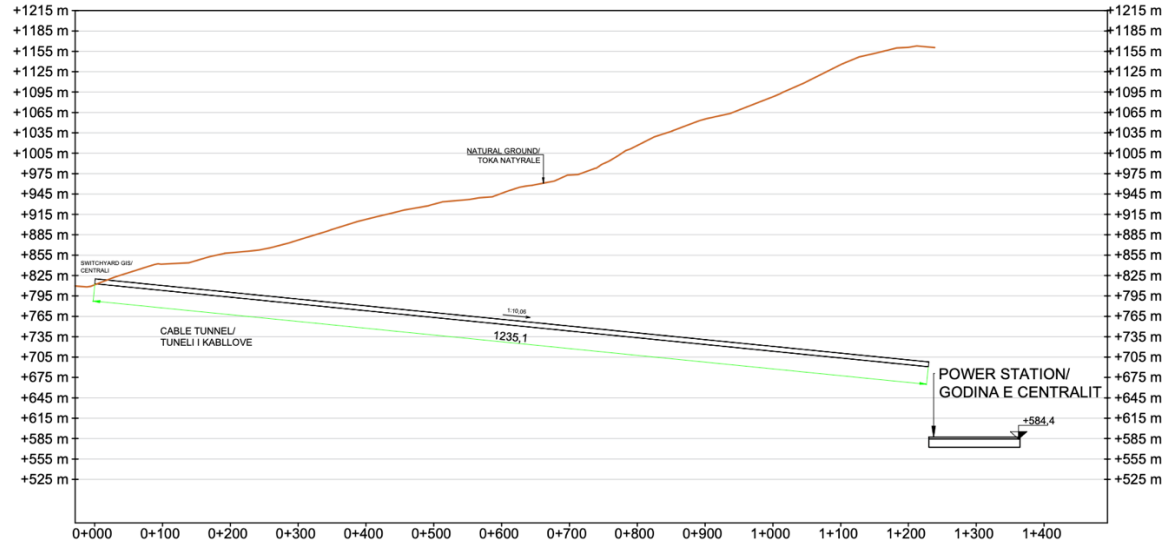


Figure 5-7 Longitudinal profile of cable tunnel

5.2 Construction Methods

For the construction and installation works of the project, standard civil and electro-mechanical construction technology and methods will be employed. Below is a table outlining the standard construction operations and related methods.

Table 5-1 Construction methods and technologies used

Construction Method	Technology
Vegetation clearance	Chainsaw
Excavation works/Opening of foundations	Excavators
Rock breaking (if necessary, during the opening and construction of foundations)	Jackhammer, crawler drill rigs
Filling and leveling of areas	Bulldozer/Grader

Transportation of equipment/services	Trucks, conveyor systems
Concrete works	Concrete mixers and pumps, conveyor systems and tower crane if required
Installation of equipment	Cranes, Lifting machinery
Steelworks	Cranes, welding equipment, testing equipment
Tunneling (Access, Headrace, Tailrace)	Drill rigs,shotcrete robots, loaders, trucks
Shaft Construction (e.g., Surge Shafts)	Raise Boring Machines, Down-The-Hole (DTH) drilling machines, Reaming machines, Drill jumbos

6 DESCRIPTION OF CONSTRUCTION AND TECHNOLOGICAL PROCESSES, INCLUDING PRODUCTION/PROCESSING CAPACITIES, QUANTITIES OF RAW MATERIALS AND FINAL PRODUCTS OF THE PROJECT

6.1 Construction Processes

Based on the construction methods detailed in Chapter 5.2, the following construction key processes and implementation strategy were identified.

Key Processes:

- **Site Preparation and Access:** Initial vegetation clearance and the establishment of access routes using heavy machinery.
- **Subterranean Construction:** Methods for constructing tunnels and shafts, detailing the use of drill jumbos for tunnels and specific technologies for shaft excavation.
- **Foundation and Structural Development:** Techniques for excavation and rock breaking, followed by the structural development of dams and other critical infrastructure.
- **Safety and Quality Assurance:** Processes to ensure the construction adheres to safety and environmental standards, especially in sensitive subterranean operations.
- **Integration and Commissioning:** Final assembly and testing of the hydraulic system, including tunnel and shaft integrations.

Implementation Strategy:

- Detailed planning of tunnel and shaft construction phases to align with surface operations, ensuring efficient progress across all construction fronts.
- Use of real-time data from advanced monitoring systems to adapt construction processes to geological conditions encountered during subterranean works.
- Emphasis on safety training and specialized equipment handling, particularly for underground operations.

6.2 Technological Processes

Technology deployed throughout the project encompasses all work processes critical for the development of the PS Moglice Extension. These include:

- **Excavation:** Utilizing advanced excavation machinery and methods specific to the diverse geological conditions of the project sites. This includes the use of excavators and drill rigs for open excavation and drill jumbos and shotcrete robots for tunnel construction. Additionally, the selection and management of quarry sites are integral to the excavation process, focusing on identifying locations with suitable material quality and volume to minimize haulage distances.
- **Construction of Structures:** Implementing the latest construction technologies for dams, tunnels, and other infrastructure components as detailed in the design specifications. This includes the use of concrete mixers, pumps, and cranes optimized for high-volume and precision tasks.
- **Grouting:** Deployment of grouting techniques to enhance the stability and impermeability of structures. This involves the use of high-pressure grouting equipment and specialized materials to fill voids and fractures in the rock, ensuring the integrity of dams, tunnels, and other critical infrastructure components.
- **Arrangement of Machinery and Equipment:** Strategic deployment of machinery and

equipment, critical for the timely and efficient construction of project components. Equipment selection is based on the latest advancements in construction technology, ensuring compatibility with the complex requirements of this large-scale hydraulic project.

- **Water Utilisation and Energy Production:** Integration of systems for water management and energy generation, designed to maximize efficiency and sustainability. This includes the installation of advanced turbine technology and control systems for optimal water flow management and energy conversion.

6.2.1 Hydro-Mechanical Equipment Technology

The hydro-mechanical equipment planned for this project represent the pinnacle of current engineering advancements, primarily sourced from leading manufacturers in Western European countries known for their long-standing expertise in hydropower technologies. The key features include:

- **Adaptability (variable speed) and Efficiency:** The equipment is specifically designed to adapt to frequent changes in water flow, which is critical for maintaining operational efficiency and maximizing energy output. This adaptability ensures that the plant operates effectively under both high and low water flow conditions.
- **Digital and Remote Control Systems:** Adoption of fully digital systems for the control and operation of hydro-mechanical equipment, allowing for remote operation and monitoring. This technology facilitates precise adjustments in real-time, essential for coping with variable flow conditions.

6.2.2 Main Processes of the Project

- **Electricity Production:** The core objective of the PS Moglice Extension is the efficient conversion of water flow into electrical energy. This involves water routing through turbines designed to maximize hydraulic head and flow efficiency, thereby enhancing the overall productivity of the power station.
- **Environmental Management:** Incorporating technologies that minimize environmental impact and promote sustainable operation, including sediment management systems and environmentally-friendly turbine designs.

The technological processes implemented in the PS Moglice Extension are designed to ensure that all aspects of construction, operation, and environmental management are addressed with the most advanced solutions available. This approach not only aims at achieving high operational efficiency but also emphasizes sustainability and minimal environmental impact.

6.3 Production Capacity

As of the Pre-Fesaibility stage of the project, the planned installed capacity stands at approximately 1200 MW +/- 35% (up to 1620 MW), with a stored energy capacity of approximately 28 GWh. The configuration of the plant with the final installed capacity shall be determined during the Feasibility phase.

6.4 Quantities of Raw Materials and Final Products

This project will utilise various raw materials during both the construction and operational phases, ensuring the efficiency and sustainability of the facility:

- **Fuel:** Utilised predominantly for operating transportation and construction machinery. Efforts will be made to optimise fuel consumption and consider alternative, more sustainable fuel sources where feasible.
- **Electricity:** During the construction phase, electricity will be sourced externally, essential for powering machinery and facilitating other construction-related activities. This will involve using

the local grid or portable generators to ensure uninterrupted construction progress. Transitioning to the operational phase, the plant will require substantial additional electricity from the grid transmission network to meet the high energy demands of pumping water to the upper reservoir in the pump storage scheme.

- **Water:** Used extensively for processing materials such as concrete during construction and for providing essential services such as drinking water. Water sourcing strategies will prioritise minimal environmental impact, utilising nearby sources to reduce transportation needs and manage resource sustainability effectively. During the operation of the plant, hydrological resources available in the current Moglice reservoir shall be used for power generation.

Additional raw materials, intermediate, and final products include the following:

- **Additional Materials:** The primary materials include rock, gravel, sand, concrete and steel, which are fundamental to the construction of the dam and associated structures. The quantities and specifications will be tailored to meet the structural and engineering requirements, with a focus on quality and durability.
- **Intermediate Products:** Components such as precast concrete elements and fabricated steel assemblies, which are crucial for efficient building of the infrastructure.
- **Final Product:** The ultimate output of the PS Moglice Extension is electricity, specifically generated through the pumped-storage method which offers not only power generation but also grid stability and storage capabilities. The estimated stored energy capacity as of the Pre-Feasibility stage is of approximately 28 GWh.

7 INFORMATION ON THE INFRASTRUCTURE NECESSARY FOR ELECTRICAL GRID CONNECTION, WATER SUPPLY, WASTE DISCHARGES, INFORMATION ON EXISTING ACCESS ROADS OR THE NEED FOR OPENING NEW ROADS

7.1 Electrical Grid Connection Infrastructure

- **Construction Phase**: Electricity will be supplied by the existing grid system in the area, with backup temporary generators, especially in the initial phase. Connection to the electricity grid and fiber optic should be established prior to the start of the construction activities. It is anticipated that additional power lines will be necessary to ensure a reliable electricity supply throughout the construction period, potentially extending the existing power line from Moglice Dam and establishing a new potential power line from Maliq. The planning and installation of these lines will be closely coordinated to meet the project's specific power requirements. Additionally, a fiber optic connection to the construction site should be established to connect the site facilities, ensuring robust communication and data management capabilities.
- **Operational Phase**: The project's connection to the national grid is currently under evaluation. The construction of transmission lines will depend on the findings of ongoing studies. Once the connection point of the plant to the Albanian grid is determined, there may be a need to construct high-voltage transmission lines. This construction will be addressed in a separate and dedicated Environmental and Social Impact Assessment (ESIA) process.

7.2 Water Supply

During the construction process, clean water will be essential for both operational purposes, such as operating construction machinery, and human resource needs, specifically providing drinking water for workers on site. The water supply strategy, including the sourcing, storage, and distribution of water, will be comprehensively managed by DHP and the Construction Contractor. This management will include assessing local water sources, ensuring the availability and reliability of the supply, and implementing sustainable water use practices to minimise impact on local resources.

1. As of the Pre-Feasibility study phase, one observed spring water source has been identified in the project area, shown in the following figure. During the Feasibility phase it will be investigated and determined the potential use of other available water sources for the construction activities.

Figure 7-1 Identified water source in the Project Area

7.3 Waste Management

- **Wastewater:** The construction phase is expected to generate a considerable amount of wastewater, both from human activities and construction processes. Human wastewater will include sewage and greywater from onsite facilities, while construction activities will generate wastewater, such as water being discharged from tunnels and excavations. Management of human wastewater will be handled by the Construction Contractor using environmentally responsible practices. This includes the installation sewage treatment facilities for camps and offices and portable toilets on-site, equipped with associated treatment systems that comply with legal requirements and industry best practices. Construction wastewater will require treatment, including sedimentation and oil separation as a minimum, and possibly pH adjustment, to ensure it meets environmental standards before being discharged. Wastewater treatment and disposal methods will adhere to local environmental regulations.

- **Solid Waste:** The construction phase will inevitably produce various types of solid waste, including inert materials (such as concrete and rubble), packaging waste, and organic waste (biomass from cleared vegetation). The Construction Contractor will be tasked with developing a comprehensive waste management plan that will specify and categorise all expected waste types. This plan will outline the appropriate handling, separation, recycling, or disposal methods for each type of waste, ensuring that all processes align with environmental standards and help in the mitigation of potential impacts on the surrounding areas. The plan will also include strategies for reducing waste at the source, promoting recycling and reuse, and ensuring the safe and environmentally sound disposal of non-recyclable materials.

7.4 Access Roads

PS Moglice Extension is planned in an area with limited availability of public infrastructure. There are existing road segments to reach the planned site, but the conditions of these roads are poor or have deteriorated in many sections. The public infrastructure in the direct impacted area of the project is estimated to be limited. Some short segments of existing road infrastructure (dirt road tracks) may be

inundated by the upper reservoir, which will be required to be replaced outside the impacted area.

New and upgraded public infrastructure (roads, electricity supply, water supply) need to be developed for the project implementation. Based on the statutory requirements for such infrastructure developments, separate ESIA processes may be followed for this type of infrastructure, which may be partially implemented during the Preparatory Works phase.

Upon determination of the final configuration of the plant during the Feasibility phase, the new road infrastructure shall be planned as per the needs to implement the project. The following figure and table shows preliminary indicative access roads and related infrastructure as of the Pre-Feasibility study phase.

7.5 Pre-construction (preparatory) Works

Before the start of the construction phase, adequate infrastructure should be in place. The pre-construction (preparatory) works may include construction of power lines, fiber optic lines, access roads,and other infrastructure. These works shall be subject to separate ESIA processes as per the legal requirements.

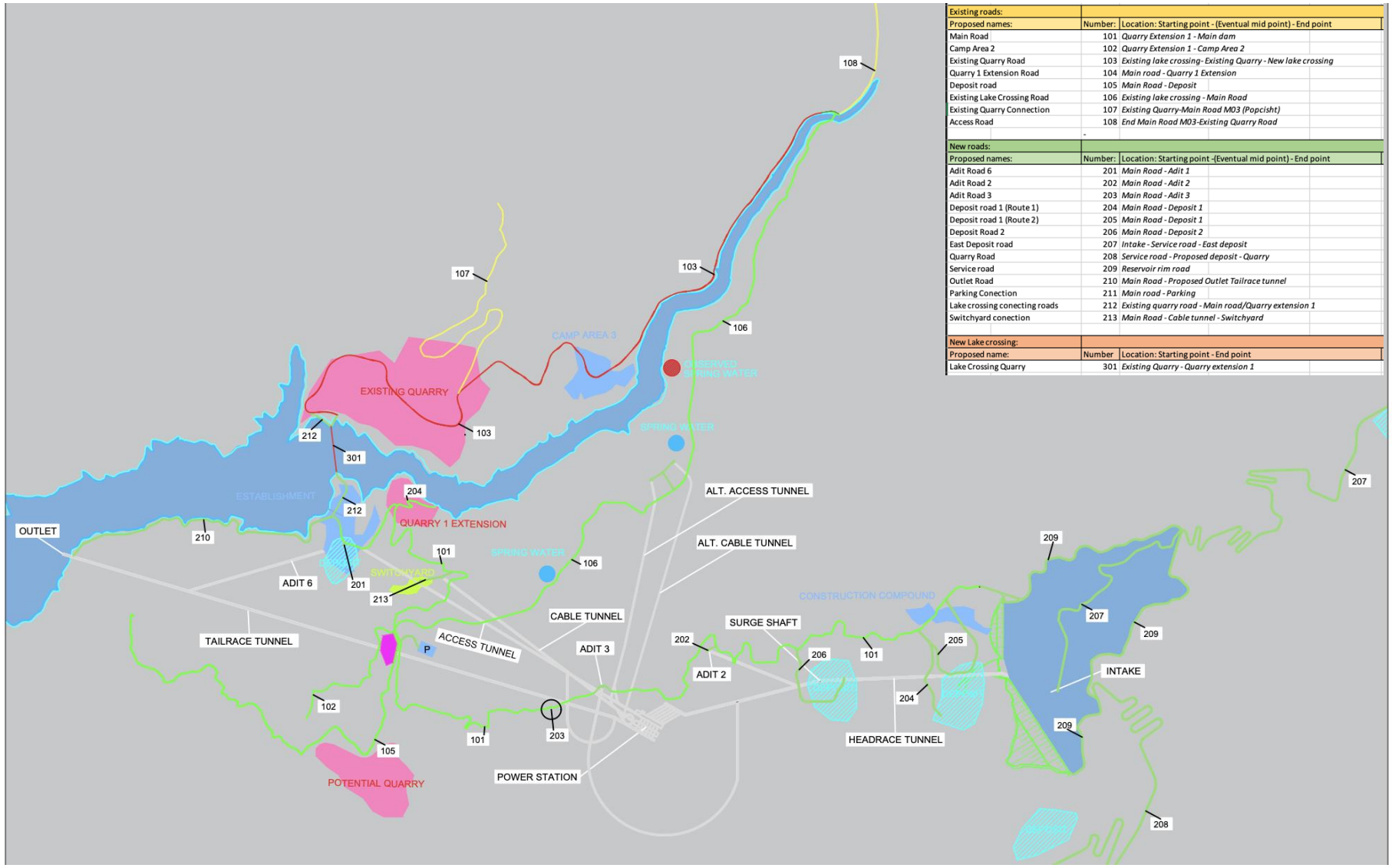


Figure 7-2 Map of existing roads and potential new roads that will be determined during the Feasibility Phase

8 IMPLEMENTATION SCHEDULE, DURATION OF THE CONSTRUCTION, SCHEDULED DURATION FOR OPERATION, TIME OF COMPLETION AND, IF APPROPRIATE, THE PLANNED PHASES OF SURFACE REHABILITATION, AFTER THE COMPLETION OF THE OPERATION OF THE PROJECT

The indicative timeframe of the PS Moglice Extension is provided in the Annex A of the 4th Supplement of the Devoll Concession Agreement, which is updated according to the entry into force of the Law no. 83/2023, dated 02.11.2023 as below:

Table 8-1 Timeline and Key Milestones for the Project

Q4 2023	**Entry into force of the 4th Supplement 4**	**Trigger event**
Q4 2023	Pre-Feasibility phase	Start of activities
Q3 2024	Feasibility phase • Technical feasibility • Commercial assessment • Transmission and connectivity • Environmental and social • License and permits	Start of activities
Q3 2025	Key milestones to proceed with the tendering of main contract 1. Main long term commercial contracts concluded (in Albania and in the region). 2. Required plans and commitments that the upgrade/investments on transmission system and interconnections are operative in 2028. 3. Required land, E&S approval and licenses and permits received. 4. Energy market is developed according to the plans and intentions with increased solar capacities. 5. In case that the conditions set out in points 1, 2 and 4 above are not met within the period of 10 years from the Effective Date of the 4th Supplement, the Concessionaire will have no longer the right to develop and Construct the PS Moglice Plant, unless a written agreement providing for the extension of the deadline is signed between the Parties.	End of feasibility phase
Q3 2025	Tendering of the main contracts (detailed engineering and tendering)	Start of activity
Q3 2026	Construction Phase • Underground structures • Tunnels • Mechanical and electrical • Transmission Lines	Start of activities
Q2 2031	Commercial Operation Date	Start of activity

This schedule is preliminary and given for information purposes. The detailed schedule shall be developed during the Feasibility Phase.

- **Construction Start**: Construction of the hydropower works will commence immediately after obtaining the necessary permits as required by current legislation, including the environmental permit.
- **Construction Period**: The construction period has been determined as follows: end of Q3 2026 – end of Q2 2031
- **Area Rehabilitation**: Rehabilitation of areas affected by the project will be conducted within the project timeline.
- **Operational Phase Rehabilitation**: During the operational phase, there are no designated rehabilitation phases. Any necessary maintenance or interventions will occur within the project's designated area.
- **Construction Duration**: The duration of the hydropower project construction is estimated at 57 months based on the following preliminary indicative schedule of works:

Table 8-2 Planned Project Implementation Schedule

Time Schedule of implementation of the project "Pumped Storage Moglice Extension"																																	
No.	*Description of project activities*	*Project Development Period*																															
		2023	*2024*				*2025*				*2026*				*2027*				*2028*				*2029*				*2030*				*2031*			
		T4	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*	*T1*	*T2*	*T3*	*T4*
1	Entry into force of Addendum no. 4 of the concession contract		19.12.2023																														
2	Project pre-feasibility study			Q2-2024																													
3	Project Feasibility Study: •Technical feasibility •Commercial assessment •Transmission and connectivity •Environmental and social •License and permits									Q3-2025																							
4	Granting of project sites, and securing of required licences and permits													Q3-2026																			
5	Tendering of main contracts (Detailed design and tendering of works)													Q3-2026																			
6	Pre-construction (preparatory) works													Q3-2026																			
7	Construction phase: •Underground Structures •Tunnels •Mechanical and electrical installations •Transmission lines																															Q2-2031	
8	Commercial operation date																																
9	Project Operation Period																																

9 RAW MATERIALS THAT WILL BE USED FOR THE CONSTRUCTION AND THE METHOD OF PROVIDING THEM (BUILDING MATERIALS, WATER AND ENERGY)

- **Raw Materials**: The primary raw materials for the construction of the project will include rock, gravel, sand, concrete, steel and fuel. Estimates of the volumes and quantities of these materials will be determined during the Feasibility phase by the Feasibility consultant, when the final configuration of the plant shall be determined, as well as by the construction contractor during the bidding process. Raw materials and energy supplies will be managed by the selected construction contractor.

- **Water**: Water requirements for the construction process encompass various activities, including concrete production, drilling, grouting, compaction of fill material and sanitary facilities. A comprehensive water supply plan will need to be developed, and it will involve assessing local water sources, securing necessary permits, and ensuring sustainable water usage practices that adhere to environmental regulations.

- **Fuel Supply for Construction Vehicles**: Fuel for construction vehicles and machinery will be procured from local providers. These providers will be licensed and designated by the construction contractor, ensuring that all fuel supplies meet local regulatory standards.

- **Electricity**: Electricity will be supplied by the existing grid system in the area, with backup temporary generators, especially in the initial phase. Prior to the start of construction activities, connection to the electricity grid and fiber optic should be established. It is anticipated that additional power lines will be necessary to ensure a reliable electricity supply throughout the construction period, potentially extending the existing power line from Moglice Dam and establishing a new potential power line from Maliq. The planning and installation of these lines will be closely coordinated to meet the project's specific power requirements.

10 INFORMATION ON POSSIBLE CONNECTIONS OF THE PROJECT WITH OTHER EXISTING PROJECTS AROUND/NEAR THE PROJECT AREA

PS Moglice Extension is a part of Statkraft's concession agreement with the Government of Albania, which also encompasses two other hydropower plants—Banjë and Moglica—constructed on the Devoll River. These hydropower plants have been operational since 2016 and 2020, respectively. Directly associated with this project is HPP Moglice, the largest private hydropower plant in Albania, having an installed capacity of 197 MW and a reservoir volume of approximately 380 million cubic meters, presenting significant development potential for a pumped-storage scheme.

PS Moglice Extension will be situated near the HPP Moglice reservoir, utilizing its available water resources. An upper reservoir is planned to be constructed in the hills above the existing Moglice reservoir. The additional hydroelectric facility, PS Moglice Extension, will pump water from the HPP Moglice reservoir to this upper reservoir, generating electricity as the water flows back down to the HPP Moglice reservoir. The new PS Moglice Extensin Upper Reservoir will be formed by constructing new dams, primarily designed for daily water storage. Both the tunnels and the powerhouse are planned to be located underground.

11 INFORMATION ON THE ALTERNATIVES TAKEN INTO CONSIDERATION AS TO THE SELECTION OF THE PROJECT LOCATION AND THE TECHNOLOGY TO BE USED

Moglice Extension Pumped-Storage HPP (PS Moglice Extension) is a part of the Devoll Hydropower Project Concession and will be the 3rd plant in the Devoll River, under the same Concession Agreement. The project is a further optimisation of the already existing hydrological resources in the Moglice reservoir. The proposed technology and location of the project are an extension of the already developed Devoll Hydropower Project, by further maximising the available resources for renewable energy storage and generation. PS Moglice Extension can become an important energy storage solution for the future energy system of Albania and the region, while at the same time having limited additional environmental and social impacts.

11.1 Pumped-storage hydropower technology

In Albania and the region, like in the rest of the world, there will be large growth in renewable power generation in the years and decades to come. Economic growth, electrification of society, phaseout of fossil fuels currently running base load, and falling costs for solar and wind power are all factors that point in the direction of more intermittent power generation. This will bring benefits to society, but it will also bring a need for balancing factors to generate power when the sun does not shine and the wind does not blow (foreseen and unforeseen), and to utilize the large volumes generated when nature allows. Balancing solutions are therefore required to ensure stable deliveries around the clock to all consumers of energy in Albania and the region in the years to come.

The balancing factors will come in many forms in the different countries in the region. Flexible gas power, demand side mechanisms, grid development, batteries, and flexible hydro generation will all play a role. But the most versatile, flexible, and large-scale flexibility contributor for balancing is a purpose-built pumped-storage hydropower scheme. Nowadays, such pumped-storage hydropower accounts for almost 90 per cent of the planet's installed global energy storage capacity (Ref: IHA, International Hydropower Association), and substantial global growth is expected in the coming years (Ref: IEA, International Energy Agency). The further development of the pumped-storage hydropower in Europe has been recognised from the European Parliament, which almost unanimously has voted in favour of a report on a comprehensive European approach to energy storage, in which the pumped-storage hydropower is noted as a technology that "***plays a crucial role in energy storage***"[4]**.**

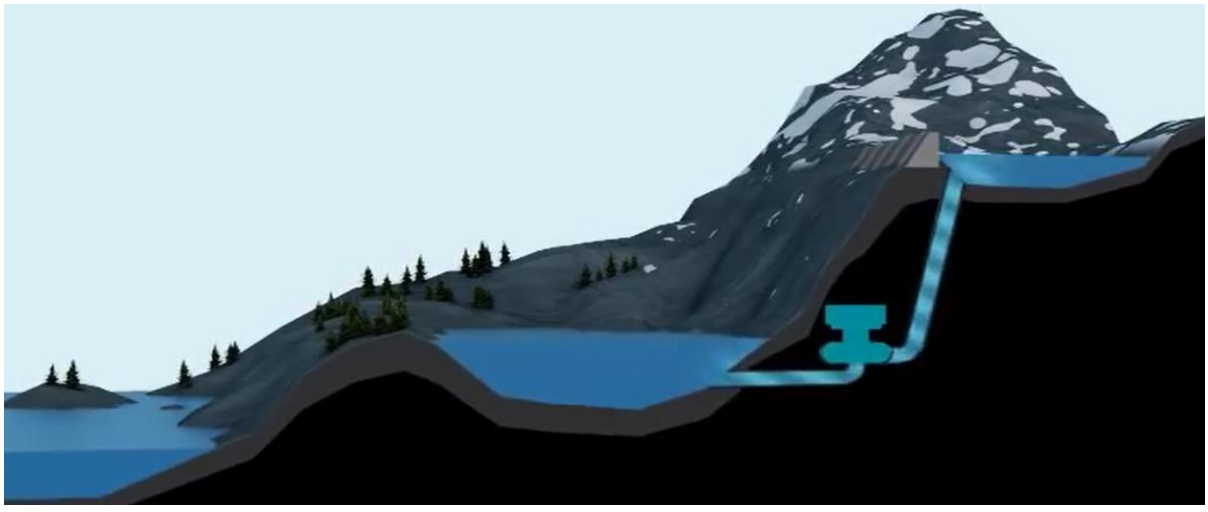


Figure 11-1 Pumped-Storage Hydropower - illustrative scheme

[4] https://www.europarl.europa.eu/doceo/document/A-9-2020-0130_EN.html#_ftn19

PS Moglice Extension is a prime example of such a scheme, here also utilizing existing infrastructure such as the existing Moglice Reservoir to provide high flexibility and large storage capacity at a competitive cost to the customers. PS Moglice Extension therefore needs to construct only one new small upper reservoir which is only approx. 10% of the total volume of the existing Moglice Reservoir. The complete waterways between the new upper reservoir and the existing Moglice Reservoir will be underground and not visible. Unlike traditional hydropower plants, another benefit for PS Moglice Extension is the consistent and same performance around the year, independent of precipitation and temperature. Other benefits are that the powerplant has very long lifetimes, is fueled by water, and is, in principle, a large water battery.

Moglice Extension Plant can be able to provide all services to the power market and energy system, which will be determined in detail in the Feasibility phase by concluding the Plant configuration. In its simplest mode, it can store surplus power during solar hours and supply power after sunset. The reservoir will be large enough to also generate power for relatively extended periods, and to cover special situations occurring in the power system and grid. PS Moglice Extension will be suitable for a range of ancillary, reserve, and capacity services required by the system operators and national energy authorities for a stable transmission system.

The energy market, and transmission system, are converging toward regional solutions, with strong influence and guidance from the EU. Albania and the region will therefore require a substantial volume of storage, which Moglice Extension can provide, to make the transmission grid stable during the green transition. Close cooperation, and agreements, with the TSO and the Authorities, are necessary to ensure that PS Moglice Extension will be built and can provide the maximum value to the power system for Albania and the region in this transition.

A primary target and guiding principle during development of the Moglice Extension Plant has been to satisfy predictable electricity demands while minimizing social and environmental impacts. The main objective is to strive to harness the hydropower potential while reaching maximum flexibility regarding electricity production. (Ref: Concession Agreement focus). Moglice Extension can become a main contributor for Albania to become a green energy hub in the Balkan region, with a minimal additional environmental footprint.

11.2 Optional location alternatives and proposed project location

The alternative locations of the proposed project taken into consideration have been chosen with the guiding principle of further optimization and maximization of the already available hydrological resources in the reservoirs of the Devoll Hydropower Project of Banja and Moglice. The assessment has been carried out based on several key factors, such as topography, geology, potential upper reservoir volume, distance from the existing reservoirs, avoidance of natural protected areas, underground development of waterways and powerplant to minimise project footprint. In this regard, Moglice reservoir is the most suitable location for further evaluation of the proposed project.

Several options for location of an upper reservoir in proximity of the Moglice reservoir area have been assessed.

The following 3 most suitable locations within a range of head between 400 and 600 m were compared, as indicated in figure below.

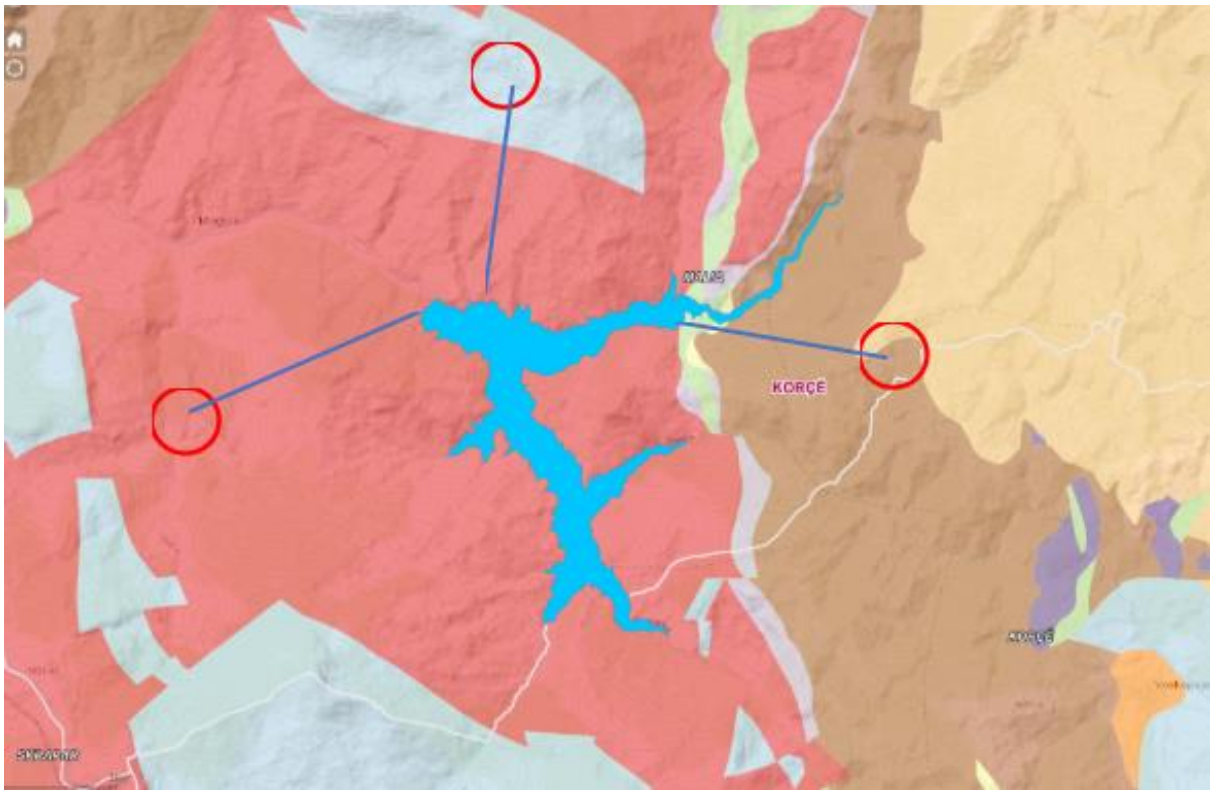


Figure 11-2 Assessed options for location of upper reservoir in Moglice HPP area

A selection was made based on the following criteria:

- Distance from the Moglice reservoir
- Geological conditions at the upper reservoir location
- Geological conditions along waterways

The optimum project area was found to be on the eastern side of the Moglice reservoir, as it:

1. Has the shortest distance with the existing Moglice reservoir;
2. Is located in an area with potentially good geological conditions;
3. Can create the required head for the project of approx. 600 metres, close to an optimal range for the technology;
4. Can accommodate a suitable volume of the upper reservoir;
5. Is estimated not to impact critical biodiversity habitats and is located in an area with relatively low population;
6. It is suitable for underground waterways (tunnels) and powerhouse from lower to upper dam. and hence a very low environmental footprint and visibility in operation.

The proposed project location is assessed to be the optimal location for the construction of the Plant, with its main components, the dams, upper reservoir, underground waterways and powerhouse.

12 DATA ON THE USE OF RAW MATERIALS DURING OPERATION, INCLUDING THE QUANTITIES OF WATER, ENERGY, FUEL REQUIRED AND THE METHOD OF PROVIDING THEM

- **Electricity**: During the pumping phase, the need for electricity will be determined based on electricity demands for the pumped-storage operations, through sourcing of electricity in the domestic and regional market. During the generation phase, the plant is designed to be largely self-sufficient in terms of electricity; it will generate its own power utilising the natural flow of water. To integrate this generated power into the national grid, a new transmission line will be constructed. This line will ensure that the plant is properly supplied with the required energy for pumping operations and the electricity produced can be distributed effectively, enhancing the plant's efficiency and contribution to the domestic and regional power supply.

- **Combustible Material**: No combustible fuels are required for energy production, aligning with the plant's design to harness clean energy. The plant's operations rely entirely on the hydraulic power generated through water flow, making it a clean energy project with minimal carbon footprint. A limited amount of fuel will however be required for the operation of backup generators and transportation needs.

- **Clean Water**: Water is essential not only for the operational mechanisms of the plant but also for everyday use by plant personnel. Clean water will be used for consumption by employees, cleaning, and other maintenance purposes. To supply this, the plant will implement a sustainable water management system that includes treatment facilities and sustainable sourcing from nearby water bodies, ensuring that the plant's operation does not adversely affect the local water supply.

13 OTHER ACTIVITIES THAT MAY BE NEEDED FOR PROJECT IMPLEMENTATION, SUCH AS CONSTRUCTION OF CAMPS OR RESIDENCES, ETC.

The construction of the project will necessitate a diverse workforce, including engineers, technicians, and construction workers. While the exact composition of the workforce has not been finalized, it is anticipated that a significant portion may be sourced from the local area, pending final decisions based on project needs and resource availability.

- **Workforce Accommodation and Services**: To support the construction phase effectively, specific temporary accommodation facilities such as camps, as well as offices and workshops, will be strategically planned and established. This infrastructure will cater to the daily needs of the workforce, providing a practical and efficient living and working environment.

  Local service providers may play a role in this setup, with potential involvement ranging from offering house rentals and hotel accommodations to providing catering and restaurant services. The primary approach will involve constructing dedicated temporary facilities that will ensure the workforce is well-accommodated near the project site. This strategy will help in minimising commuting times and enhancing productivity, while also supporting local businesses and the economy. However, it is expected that some workers will still commute from nearby areas such as Lozhan, Maliq, Korçë, Gramsh, and even Tirana.

- **Infrastructure for Construction Operations**: Essential temporary infrastructure, such as warehouses for material storage and designated areas for machinery parking, will be established to support the logistical needs of the project. The construction contractor will be responsible for identifying suitable locations for these facilities and ensuring they meet the operational requirements of the project.

14 INFORMATION ON THE PERMITS, AUTHORIZATIONS AND LICENSES NECESSARY FOR THE PROJECT, IN ACCORDANCE WITH THE DEFINITIONS MADE IN THE LEGISLATION IN FORCE, AS WELL AS THE COMPETENT INSTITUTIONS FOR THE PERMISSION / AUTHORIZATION / LICENSING OF THE PROJECT

Numerous permits and licenses are necessary for the implementation of the PS Moglice Extension project. Certain permits are required specifically for the construction phase, while others are needed for the operation phase of the project.

Table 14-1 Permits and Licenses and respective competent institutions

No.	Licence / permit / authorization	Competent institution
1	Amendment of Annex A of the Concession Agreement to allow PS Moglice Extension Law 10083 dated 23.02.2009, as amended Law no. 83/2023, dated 02.11.2023	Ministry of Infrastructure and Energy Albanian Parliament
2	Water Usage Permit	National Council of Water
3	Removal of the area from forest/pasture fund via DCM/Law and its classification as “reservoir” to be under the administration of Ministry of Infrastructure and Energy	Ministry of Tourism and Environment Council of Ministers Albanian Parliament
4	Expropriation of impacted private properties	Council of Ministers Ministry of Infrastructure and Energy State Expropriation Agency
5	Usufruct Agreement for the sites of the Project	Ministry of Infrastructure and Energy
6	Approval of Project’s Design	National Agency of Natural Resources
7	Approval of the Project’s Technical Review	Construction Institute
8	Approval of Project’s Electrical Design	State Technical and Industrial Inspectorate
9	Approval of Environmental Impact Assessment / Environmental Declaration for the Project	National Environmental Agency Ministry of Tourism and Environment
10	Approval of the Project Idea of the Dam(s)	National Committee of Large Dams
11	Approval of the Detailed Design of the Dam(s)	National Committee of Large Dams
12	Approval of the project	National Council of Cultural Heritage
13	If lands affected by the Project have agricultural status, they must be converted to construction land	Council of Ministers
14	Approval of design for the Fire Protection and Rescue	Ministry of Interior
15	Approval of the Project’s Infrastructure Permit	National Council of Territory
16	Risk attestation	National Council of Territory
17	Project’s Usage Certificate	Secretariat of National Council of Territory
18	Generation License	Energy Regulatory Entity
19	Registration of all properties/lands affected by the Project	Ministry of Infrastructure and Energy State Agency of Cadastre

15 COPIES OF PERMITS, AUTHORIZATIONS AND LICENSES THAT THE DEVELOPER HAS OBTAINED FOR THE PROPOSED PROJECT, IN ACCORDANCE WITH THE DEFINITIONS MADE IN THE LEGISLATION IN FORCE, AS WELL AS THE COMPETENT INSTITUTIONS FOR THE PERMISSION / AUTHORIZATION / LICENSING OF THE PROJECT

As of the Amendment of the Concession Agreement that allows for PS Moglice Extension (Law no. 83/2023, dated 02.11.2023), the project is in the early stages of the permitting process and is receiving the necessary approvals. The following tables list the obtained authorizations/licenses for PS Moglice Extension as well as existing licences/permits of the Concession.

Table 15-1 Obtained authorizations/licenses for PS Moglice Extension

No.	Available Licence / permit / authorization	Competent institution
1	**Concession Agreement for the Devoll Hydropower Project** Law 10083 dated 23.02.2009, as amended Amendment of Annex A of the Concession Agreement to allow PS Moglice Extension, Law no. 83/2023, dated 02.11.2023	Ministry of Infrastructure and Energy Albanian Parliament

Table 15-2 Existing authorizations/licenses

No.	Available Licence / permit / authorization	Competent institution
1	**Water Usage Permit** Decision no. 1, dated 28.03.2012 of the National Council of Water	National Council of Water
2	**Environmental Permit** Environmental Permit Approval Act Id no. 368, K.SH.K. Decision no. 36, Prot. no. 1107/1, dated 27.02.2012	Ministry of Environment, Forest and Water Administration
3	**Usufruct Agreement for the Project Sites** Usufruct Agreement between Devoll Hydropower Sh.A. and the Ministry of Economy, Trade and Energy, Nr. 5783 Rep., Nr. 1609 Kol., dated 17.05.2013, in front of public notary Julian Zhelegu, as amended.	Ministry of Infrastructure and Energy
4	**Infrastructure Permit** Decision no. 1, dated 20.12.2012 “Infrastructure Permit for the construction of Hydropower Plants in Devoll River, with investor company “Devoll Hydropower” Sh.A in Korçë and Elbasan District”	National Council of Territory
5	**Energy Generation Licence** Licence nr. 342, Seria PV16K, Decision of ERE Board nr. 80 dated 09.06.2016, valid until 09.06.2046	Energy Regulatory Entity
6	**Energy Trade Licence** Licence nr. 274, Seria T15, Decision of ERE Board nr. 35 dated 04.03.2015, Decision of ERE Board nr. 159 date 29.10.2019	Energy Regulatory Entity
7	**Energy Supply Licence** Licence nr. 275, Seria FK15, Decision of ERE Board nr. 36 dated 04.05.2015 - Licence nr. 343, Seria F16, Decision of ERE Board nr. 81 dated 09.16.2016 - Licence nr. 343, Seria F21, Decision of ERE Board nr. 134 dated 07.06.2021	Energy Regulatory Entity
8	**Transmission Network Extension Construction and Connection Agreement** Agreement between Devoll Hydropower Sh.A and OST Sh.A, dated 19.12.2008, as amended	OST - Transmission System Operator
9	**Moglice HPP Usage Certificate** Usage Certificate dated 31.08.2021, No. 400/23 Prot.	Secretariat of the National Council of Territory

ANNEX 1 – TECHNICAL CONSULTANT LICENCE

REPUBLIKA E SHQIPËRISË
MINISTRIA E INFRASTRUKTURËS DHE ENERGJISË
Komisioni i Posaçëm i Dhënies së Licencave Profesionale në Fushën e Studimit e Projektimit dhe Mbikëqyrje e Kolaudimit të Punimeve të Ndërtimit

LICENCË
N.5610/12

SHOQËRIA:	**"E. B. S"**
DREJTUES LIGJOR:	**FAHRI MAHO**
DREJTUES TEKNIK:	**FAHRI MAHO, SHPËTIM SKUKA, JULIAN GJOKA, BESNIK DERVISHI, NELISA BRACULLA (HAXHI), BESMIR SERIANI, VLADIMIR JOVANI, ERIND MAHO, MIRUSH NURÇJA, BASHKIM SPAHIU**
ADRESA:	**TIRANË**
Regjistruar në Regjistrin profesional që nga data:	**29.02.2024**

NE PROJEKTIM

Kat.	**1**	**c**	Plane të detajuara vendore.
Kat.	**2**	**c**	Projektim interiere.
		d	Projektim peizazhi, sistemim sipërfaqe të gjelbërta, lulishte e parqe.
Kat.	**3**	**a**	Projektim objekte civile – industriale – turistike prej murature e skelet beton arme deri në 5 kate.
		b	Projektim: 1. Objekte civile – industriale – turistike mbi 5 kate – 2. objekte me skelet metalik.
		e	Projektim objekte civile e turistike prej druri.
Kat.	**4**	**a**	Projektim të instalimeve hidro-termosanitare.
		b	Projektim të instalimeve termoteknike – kondicionimi, si dhe të impianteve të prodhimit të energjisë termike nga burime të rinovueshme.
		c	Projektim të linjave e rrjeteve elektrike, për objekte civile e industriale.
		f	Projektim të sistemeve kundra zjarrit.
		g	Projektim të sistemeve të monitorimit dhe automatizimit në industri dhe ndërtesa.
		h	Projektimi i impianteve ngritëse e transportuese (ashensorë, shkallë lëvizëse, etj.).
		i	Projektimi i ndriçimit rrugor, shesheve, dekorativ, ndriçimit të objekteve të mëdha sportive, porteve aeroporteve, etj.
		j	Projektim të rrjeteve të telefonisë, citofonisë, fonisë, internetit, TV, access kontroll, CCTV, sistemet e alarmit, sistemet e dedektimit të zjarrit, etj., për objektet civile e industriale.
Kat.	**5**	**a**	Projektim diga të mëdha (diga me lartësi mbi 10 m ose me vëllim uji të grumbulluar mbi 1 milion m^3 ose gjatësi kurore dige mbi 500 ml).
		b	Projektim furnizim me ujë - kolektorë shkarkimi.
		c	Projektim ujësjellës kanalizime urbane – rurale.
		d	Projektim vepra ujitje – kullimi – impiante vaditëse – diga të vogla (ato që nuk plotësojnë kushtin e digave të mëdha) – damba, sifona, kaskada, kapërderdhëse, ryméshpejtues, priza, baraze, porta, tombino.
		f	Projektim vepra hidroteknike, galeri e tunele hidraulike, marrje uji, shkarkimi – shkarkues të ujërave të tepërta, vepra të marrjes së ujit nga rezervuarët, vepra të marrjes së ujit nga lumenjtë dhe marrja e ujit me puse.
		h	Projektim vepra hidroteknike – kulla ekuilibri – porte – pontile.
Kat.	**6**	**a**	Projektim rrugë lokale, rrugë urbane dytësore dhe rrugë interurbane dytësore.
		b	Projektim rrugë urbane kryesore dhe rrugë interurbane kryesore.
Kat.	**7**	**a**	Projektim ura dhe vepra arti të vogla deri 10 m.
		b	Projektim ura dhe vepra arti mbi 10 m.
		d	Projektim ura metalike.
		e	Projektim tunele rrugore - hekurudhore.
Kat.	**8**		a, b, c, d, e – PROJEKTUES GJEODET (a- Rilevime inxhinierike.; b- Rilevime inxhinierike kadastrale.; c- Sisteme GIS.; d- Bazamente gjeodezike.; e- Projektim fotogrametrik dhe hartografik.)
Kat.	**9**		**a, b, c, d, e – STUDIM GJEOLLOGO INXHINIERIK – HIDROGJEOLOGJIK** (a- Studim/Vlerësim gjeologo-inxhinierik i truallit për objekte civile – ekonomike deri 5 kate.; b- Studim/Vlerësim gjeologo-inxhinierik i truallit për objekte civile - ekonomike mbi 5 kate.; c- Studim/Vlerësim gjeologo-inxhinierik i truallit për objekte të mëdha H/Ç, porte, aeroporte, bazamente me ngarkesa të mëdha.; d- Studim/Vlerësim gjeologo-inxhinierik i trojeve të buta dhe shpateve me qëndrueshmëri të ulët.; e- Studime e projektime hidrogjeologjike.)
Kat.	**10**	**a**	Projektim centrale hidraulike (elektrik, primare, sekondare). Kjo kategori jepet vetëm për persona juridik (shoqëri/studio).
		c	Projektim impiante të prodhimit të energjisë elektrike të rinovueshme, diellore, era, etj.
		d	Projektim nënstacione elektrikë, primar sekondar – linja të tensionit të lartë.
		e	Projektim kabina elektrike të rrjetit shpërndarës – linja të tensionit të ulët – të mesëm.
Kat.	**11**	**d**	Projektim sinjalistikë ndriçuese në infrastrukturë.

KRYETARI I KOMISIONIT

GERTA LUBONJA

Shënim: Kjo licencë është e vlefshme deri më datën 16.06.2027.

ANNEX 2 – ENVIRONMENTAL CONSULTANT LICENSE

REPUBLIKA E SHQIPËRISË
MINISTRIA E ZHVILLIMIT EKONOMIK, TREGTISË DHE SIPËRMARRJES

QKB
Qendra Kombëtare e Biznesit
National Business Center

Numri serial: **LN-3752-09-2011/2**

LICENCË

Subjekti: EMA Consulting

Adresa: Tirane, TIRANE, Tirane, TIRANE, Rruga e Kavajës, Pallati BAJA-BAD, Apartamenti Nr. 31

Kodi: III.2.A

Kod tjetër:

Data e lëshimit: 08/11/2013

Afati i vlefshmërisë: Pa afat

Emërtimi përshkrues i veprimtarisë

Veprimtaritë e ekspertizës lidhur me ndikimin në mjedis.

Kategoria

Shërbime ekspertize dhe/ose profesionale lidhur me ndikimin në mjedis

Kufizime specifike

Licenca ushtrohet sipas kufizimeve në legjislacionin në fuqi

Nënkategoria

Veprimtaritë e ekspertizës lidhur me ndikimin në mjedis

Detyrime specifike

Licenca ushtrohet sipas detyrimeve në legjislacionin në fuqi

Veprimtari specifike

Vendi i kryerjes së veprimtarisë

Qarku: Tirane, **Rrethi:** TIRANE, **B/K:** Tirane, **Q/F:** TIRANE,
Adresa: Rruga e Kavajës, Pallati BAJA-BAD, Apartamenti Nr. 31

Specialiteti

Nënshkrimi i sportelit:

REPUBLIKA E SHQIPËRISË MINISTRIA E ZHVILLIMIT EKONOMIK TREGTISË DHE SIPËRMARRJES QKB QENDRA KOMBËTARE E BIZNESIT

Ky dokument mbetet pronë e Qendrës Kombëtare të Biznesit dhe duhet të kthehet në rast se ka ndryshim të ndonjë detaji ose ndërpritet detyrimi ligjor për të qenë person i tatueshëm.

ANNEX 3 – ENVIRONMENTAL EXPERT CERTIFICATE

REPUBLIKA E SHQIPËRISË
MINISTRIA E MJEDISIT

Nr. 11691 Prot. Tiranë, më 10.12.2014

Nr. identifikues 294

ÇERTIFIKATË

Në mbështetje të Vendimit të Këshillit të Ministrave Nr. 122, datë 17.02.2011 Për një ndryshim në Vendimin Nr. 1124, datë 30.7.2008, të Këshillit të Ministrave, "Për miratimin e rregullave, të procedurave dhe kritereve për pajisjen me certifikatën e specialistit, për vlerësimin e ndikimit në mjedis dhe auditimin mjedisor":

Z. KLODIAN ALIU

Çertifikohet për hartimin e raporteve të vlerësimit të ndikimit në mjedis, për të kryer auditimin mjedisor, për hartimin e ekspertizave për probleme mjedisore dhe thirrjen si ekspert për të vlerësuar një raport të vlerësimit të ndikimit në mjedis ose rezultatet e një auditimi.

MINISTRI

Lefter KOKA

REPUBLIKA E SHQIPËRISË MINISTRIA E MJEDISIT TIRANË