TO THE QUESTION OF STUDY OF THE FEATURES OF THE OBJECT "STONE MILL" SETTLEMENT IN THE PROCESS OF TRAINING BACHELORS-DESIGNERS IN KFU

Lyajsan H. Kadyjrova[1]
Karina I. Musina[2]

[1] Kazan Federal University, Institute of Philology and Intercultural Communication, e-mail: lesia5614@mail.ru
[2] Kazan Federal University, Institute of Philology and Intercultural Communication

ABSTRACT

Nowadays, the problem of preserving historical and cultural landscapes as objects of memory for the development of the Republic of Tatarstan and the development of domestic tourism remains an urgent and very important issue. At the Department of Design and National Arts of the KFU, has been carried out work in aim to include in the training program for students-designers the study of the features of the preserved and lost cultural and historical objects of the Republic. Students conduct historical, environmental, geological research, deal with the issues of reconstruction and three-dimensional visualization of the preserved and lost historical and cultural monuments. The cultural and historical landscape that has been lost, the “Stone Mill” settlement, located in the Vysokogorsky district of the Republic of Tatarstan, can be considered as one of these sites. On the territory of this settlement at the turn of the XVIII-XIX centuries there was a milling production of merchants Suslovs. The article presents the main provisions and the results of the work, that carried out by the students on the study of the features of the water area of “Blue Lakes”, and the history of the origin of the settlement and milling production using water mills. A description of the objects of the historical and cultural landscape of the “Stone Mill” settlement and a description of practical experience from conducting the first research of the remains of these objects to the project of their renovation and 3-D visualization are given.

Keywords: historical and cultural landscape, cultural and historical heritage, renovation, reconstruction, 3-D visualization.

1.INTRODUCTION

Historical and cultural landscapes are priority areas for reserve museums and national parks, with the objects for conservation, use and management.

Cultural landscape includes as the natural complex, as the anthropogenic layer, formed as the result of economic and socio-cultural activities of the past centuries. Today, the problem of their preservation as heritage objects, witnesses to the periods of Kazan development, figuratively called by foreign researchers "the window to the East" [1], is especially urgent for the use in tourist routes of Tatarstan.

One of such objects is the lost historical and cultural landscape of the object “Settlement “Kamennaya Melnitsa””. In the XVIII-XIX centuries, there was the flour manufacture, belonging to the family of merchants - the Suslovs. The landscape is located within a specially protected natural area (SPNA) of the "Blue Lakes" reserve. It has a socio-historical, natural and cultural value and two protection status. In 2003, this reserve incorporated the state forest fund and water objects, on the basis of the Resolution of the Cabinet of Ministers of the Republic of Tatarstan №324. Since that time, it has been under protection of the Federal Law № 33-FZ "On Specially Protected Natural Territories" [2], and in 2010 the “Settlement “Kamennaya Melnitsa”” was taken under the protection of Federal Law № 73 "On the objects of cultural heritage" in the status of the identified object [3].

The first descriptions of Blue Lakes, dated 1829, were made by the famous Kazan scientist Karl Fuks (the rector of KSU, physician, local historian and ethnographer). He also investigated the properties of mud and water, described mills on these reservoirs. For a number of years, these reservoirs have been investigated by A.I. Artemievin 1849, Blumshtein Z.M. in 1932, Kurbangaleyeva H.M., Koshevarova O.V. in 1946, Sementovsky V.N. in 1957, Gorshkova A.T. in 1997.

Artemyev A.I.described Lake Scherbakovskoe in the newspaper "Kazanski egubernskie vedomosti" in 1849 [4].

According to the conclusions of H.M. Kurbangaleeva and O.V. Koshevarova the definition of reservoirs in the status of "disharmonious" lakes was given [5].

V.N. Sementovsky described the catastrophic situation of the complete dewatering in 1928, and the fact of breaking a narrow bridge between the lake formation and the Kazanka River [6].

Gorshkova A.T.studied the current ecological state of Blue Lakes; she emphasized their uniqueness [7].

2.METHODS

During 2005-2010, Demidov V.A. conducted local history investigation of the “Settlement “Kamennaya Melnitsa””.He revealed karst springs, sealed by merchants, and artifacts, located at a depth of 17 meters in Bolshaya Puchina of Big Blue Lake, inside the underground river. Found artifacts in an amount of more than 60 pcs were described and presented to the Institute of History n. a. Sh. Mardzhani AS RT with photographic fixation for their further museum ification [8].

From the analyzed archival data for 1882 (NA RT, f. 2, op.3, d. № 736) it follows, that merchants the Suslovs brought to life a grandiose engineering idea, using the springs. The coastal barrier (dam) was built between the pond and the Kazanka River, up to 15 m wide, to hold water. Mills were located on the created (anthropogenic) ponds in the watercourses. The stream, racing down, turned millstones of seven mills year-round. This contributed to the creation of flour production and the appearance of a settlement in 1790, which lasted until 1917. According to archival documents, the last owner of the mills was the merchant Suslov Fedor Fedorovich, who owned the production, received from his great-grandfather through his father, for 20 years before the 1917 revolution. To date, these objects of historical and cultural heritage of Tatarstan have been lost.

The flour-milling plant consisted of three objects, located on two ponds (within the current the first and the second Small Blue Lakes), as well as on the waterfall of the

lake (within the current Big Lake) near the village Scherbakovo. On each pond there was an independent production with a settlement and a hithe, managed by one estate manager. Ponds were located on eleven springs with a large flow of water. The springs were interconnected by diversion canals (causas). The springs were of two types: some were supplied from the upper aquifers, others were of karst origin, created from the water bearing layers of the Lower Permian deposits from a depth of 20-130 m.

Sealing of the springs was carried out according to the method of strengthening the walls of the spring by clay, forming a sanga rwith a height of up to 2 m, which suppresses seepage of water. The quality of this pond stood the test of time for 200 years.

The merchants used only nine spring cavities. The pond (the second Small Lake) was formed from the six springs, with the upper and lower ducts. Three spring cavities (karst) were included in the pond, the fourth cavity was located in the lower duct of the pond, and the fifth karst cavity was sealed with a tap of water to the upper duct. The water from the sixth cavity firstly was supplied to the lower duct to the mill, but subsequently, it was sealed, with water diversion to the Kazanka River, using the trays 50 m long, at a depth of 3-4 m under the road.The log reinforcement was constructed on the coastal part of the Kazanka, at the places of water outflow from the trays. At the mouth of each duct there were mills with large millstones, and at the top – the duct with millstones of a smaller size.

The constant working process of the mills was provided by five springs. During the flood period, lower mills fell under drowning, and for the period of high water in the river, work was carried out on mills, disposed in the upper part of the ducts.

60 workers lived in the settlement, located on a hill. 10 of them were underage. All the workers were Orthodox Christians. There were seven mills. 5 kinds of grinding flour were produced at a price from 4 to 12 rubles, in the volume of 33,000 bags (2640 tons) of 5 poods (80 kg) per year, for the amount of 28,000 rubles. A five-story stone building was located on the shore. There were the administration, the plant itself and warehouses. This stone building gave the name of the settlement - “Kamennaya Melnitsa”.

Hithes were disposed from the side of the Kazanka River, in the estuaries of each duct. There was wool production on the shore (in the XX century). The miller's house and barns were on the right bank of the lower duct, under the hillock, near the ravine. Above the lower, there was another residential building, with a view from the windows to the springs in the duct. The second settlement of “Kamennaya Melnitsa” located above the upper channel, on the hill (now it is a private guest house of Ak Bars Holding). From the ponds, roads passed through the settlement; one –through the forest road to Alatskaya road to Caimary, another - through the woodtoKrutushka.

“Kamennaya Melnitsa” provided the services for the residents of the nearby villages - Kadyshevo, Krutushka, Kulseitovo, farms near Urmanche. Arteries of roads with bridges across the river, supporting the life of the community of the nearest district on both banks of the Kazanka were created around the production.

3.RESULTS

The visit of students was organized to the Blue Lakes reserve, on the basis of investigations of V.A. Demidov, on the identification of objects of milling production. The students were engaged in the laboratory-association of teachers and students

"Asyltash", established at the Department of Design and National Arts of the Institute of Philology and Intercultural Communication, Kazan Federal University [9]. The purpose of the expedition was to conduct additional studies of the landscape, size, photographic fixation of the remains of the "Settlement" with the subsequent development of projects for visualization of the objects under study.

During the project implementation the following tasks were accomplished:

- identification of geographic, hydrological, historical and archaeological features of the water area of Blue Lakes;
- conducting complex analysis of the object, on the basis of collected materials;
- involvement of schoolchildren and teachers of general education institutions, located in the Vysokogorsky district of the Republic of Tatarstan, to joint activities;
- development of a series of map-boards of the cultural and historical landscape, with information on the history of Blue Lakes;
- production of 3D visualization projects and layouts of mills and landscapes.

The project of visualization of a typical water mill, based on the analogues studied, their design and principles of operation, was created after the expedition. The developed projects of 3-D visualization of the water mills models, map-boards and layouts gave a reliable idea of the external appearance, design and principles of operation of the mills, which provided the organization of flour manufacture of merchants the Suslovs in the XVIII-XIX centuries (Figures 3, 5).

Together with the author of the settlement investigation, an educational local history pedestrian route was developed (Figure 1). The local route contains the following stopover points near the artifacts:

The 1stpoint: Bolshaya Puchina of Big Blue Lake (near Scherbakovo) (Figure 2). The reservoir was formed under the influence of subsoil washing by underground currents of groundwater. Before the formation of reservoir, mining was carried out in Bolshaya Puchina. Remains of equipment were revealed in 2010, at a depth of 10 m of the underground river channel, located on the bottom of Bolshaya Puchina.

The fine wheat flour manufacture existed at the end of the XVIII century in the zone of the waterfall. The plant had a complex hydraulic engineering system. Water was supplied from the waterfall through the sluices into the reservoir, under the natural pressure of the current. Water from the river Solonka and springs, located downstream of the Kazanka, flowed by the diversion canalsinto the same reservoir. A watermill was at the mouth of the reservoir. Production structures were disposed above the waterfall. The objects of different purposes (hospital, tubdispenser, sanatorium, rest home, pioneer camp) were there during the Second World War and later.

The 2ndpoint: The entry of the reserve "Blue Lakes". Concrete bridge through the main duct of the first Small Blue Lake is a reservoir of karsticorigin with a regulated flow system, which was formed by merchants. At the mouth of the channel, near the existing spring, there was a mill. The second mill was disposed upstream. Another three mills, operating at different times, were located still upstream, in the ponds and in the spring well. Their remains were identified in 2007-2012.

The 3rdpoint: The territory from the parking to the location of the settlement above the spring (the mouth of the channel) on the hill. In special areas there was a settlement of workers - millers, serving the first reservoir (according to archival data, in

1882 their number was 60 people). Only the foundations of buildings of different periods have survived.

The 4thpoint: The lower channel of the Second Small Blue Lake. This reservoir is natural-anthropogenic.There is a pond, formed on natural karst springs. The causeway is strengthened - a foot road separating the pond from the river Kazanka. In the channel there was a mill; next to it - 2 houses of the miller. Upstream of the duct, on both its sides, there were barns and wool production. The hithe on the river Kazanka was located not far from the mouth of the channel. Some artifacts have survived - water wheel, dam, and millstones (Figure 4).

The 5th point: Upper duct of the Second Small Blue Lake. Two mills were located in the duct. At the mouth of the channel there was an iron bridge, and near the Kazanka River there was a large hithe. Near the hithea five-story stone building was built, where the flour milling of the merchants the Suslovs was organized. This building, as mentioned above, gave the name to the entire settlement.

The 6thpoint: The territory is located in 500 m from the five-story stone mill building. Half a kilometer from this building there was a merchant's house with a well-arranged meadow, a fruit garden and a spring.

4.DISCUSSION

In 2017 "The Institute of History named after Sh.Mardjani" Academy of Sciences of the Republic of Tatarstan developed a plan for the museum ification of objects with archaeological and ecological expertise, to clarify their historical boundaries. The students' projects were taken into account. Prepared projects were presented at the Republican Forum of Young Local Historians of Tatarstan in 2015, at the scientific and practical conference of the Institute of Philology and Intercultural Communication named after L. Tolstoy, Kazan Federal University, in 2016. The model of the "Settlement "Kamennaya Melnitsa"" was awarded the first place in 2016 at the Privolzhsky Student Festival "Natsionalnoe dostoyanie" (Figure 6).

The work, done by the laboratory Asyltash, complements the list of definitions, which prove the exclusivity of Blue Lakes and the uniqueness of the "Settlement "Kamennaya Melnitsa"".

The recognition of this natural-historical object as a socio-environmental museum, the organization of routes along it will increase the competitiveness of this historical and cultural landscape.

The project of reconstruction of historical and cultural landscape the "Settlement "Kamennaya Melnitsa"", in our opinion, is quite promising, as it contributes to: firstly, the creation of an idea of a lost monument of historical and cultural heritage; secondly, the revival of the forgotten history of society, life and culture of the provincial Kazan of the XVIII-XIX centuries.

The cultural and historical heritage is the spiritual, cultural, social and economic capital of the people of irreplaceable value [10]. Along with the natural wealth of the country, this is the most important foundation for national self-esteem. Studying the culture, art, traditions and values of peoples is a way for "elimination the prime causes of most global problems" [11].

5.CONCLUSION

Relation to the historical value of the past, expressed in the preservation of objects, is the source of existence of the present time [12]. Post-industrial civilization finally realized the great potential of the cultural and historical heritage, the need for its preservation and effective use, as one of the resources of the economy. The loss of cultural values is irreplaceable and practically irreversible. Any losses of cultural and historical heritage will certainly lead to spiritual exhaustion, loss of historical memory, impoverishment of society; they will affect all areas of life of present and future generations [13]. Neither development of modern culture, nor the creation of new works can compensate them. It may be said, that the preservation of cultural and historical values is the main basis for the development of civilization.

ACKNOWLEDGEMENTS

The research is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

REFERENCES

1. Geraci, Robert P. Window on the East:national and imperial identities in later tsarist Russia/Robert P. Geraci. Cornell University Press, 2001.
2. Federal Law of 14.03.1995 № 33-FZ "On Specially Protected Natural Territories". URL: http://base.garant.ru/10107990/ (Date of check: April 30, 2017).
3. Federal Law of 25.06.2002 N 73-FZ (as amended on 09.03.2016) "On the objects of cultural heritage (monuments of history and culture) of the peoples of the Russian Federation". URL: http://ivo.garant.ru/#/basesearch (Date of check: April 30, 2017).
4. Artemiev A.I.Lake Scherbakovskoe // Kazanskie gubernskie vedomosti. -1849.
5. Kurbangaleeva Kh.M., Koshevarova O.V. Hydrobiological characteristics of the Blue Lake// Proceedings of Kazan University.-1946. - Vol.106, book 3.-Pp.71-91.
6. Sementovsky V.N. On lakes // Essays on the geography of Tataria.- Kazan: Tatknigoizdat, 1957. - Pp. 199-224.
7. Gorshkova A.T., Yakovlev V.A., Vybornova E.V. Zooplankton and zoobenthos of protected Blue Lakes // Actual ecological problems of the Republic of Tatarstan. Abstract of the IIIrdRepublican Scientific Conference.-Kazan: Publishing house "Tatpoligraf", 1997.- Pp.80-81.
8. Demidov V.A. Conservation of the cultural and natural heritage of Tatarstan // Regional studies of natural and territorial complexes. Proceedings of the conference.- Kazan: ID MEDDOK, 2012.-224 p.-Pp.47-49.
9. Ahmetshina G.R., Kadyjrova L.H., Musina K.I. The use of virtual reconstruction technology to prepare intending designers in Kazan federal university// Turkish online journal of design art and communication.–2016.–Vol.6, Is.–P.3131-3140.
10.Petrov N.Y. Variety of Aspects of Researches of Graphic Activity as Pedagogical Problem. Mediterranean Journal of Social Sciences.–Rome-Italy: MCSER Publishing, 2015;Vol. 6.– № 1.–S.2 –Pp. 96-98
11. Deputatova A., Emanova Ju., Yao M. Influence of art technologies on motivation of school students to studying world art culture.–Modern Journal of Language Teaching Methods. Special Issue (December 2016).–Pp.59-65.

12. Jokilehto J.A.History of Architectural Conservation/JukkaJokilehto–Oxford, 2002.[Electronic source].URL: http://mestrado-reabilitacao.fa.utl.pt/disciplinas/jaguiar/jukkajokilehto1986historyofconservation.pdf.
13. Uzbekova Kadri Yulaevna, Kadyjrova Lyajsan Habibulhakovna, Petrov Nicolai Evgenyevich. To the issue fine art teachers artistic preparation for elementary schools//Turkish online journal of design art and communication.–2016.–Vol.6, Is.–Pp.3088-3093.

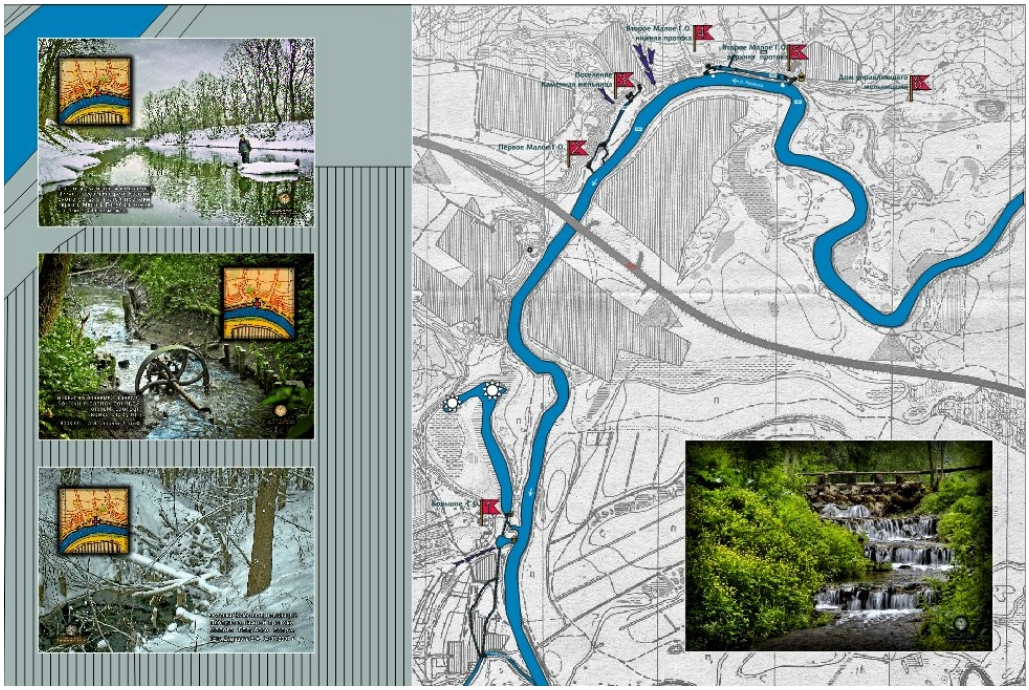

Figure 1. Artifacts and the local history route “Settlement “Kamennaya Melnitsa””.Performed by the students of IPIC KFU, gr. 10.2-416, the head: Assis.Prof.Musina K.I. Library photo.

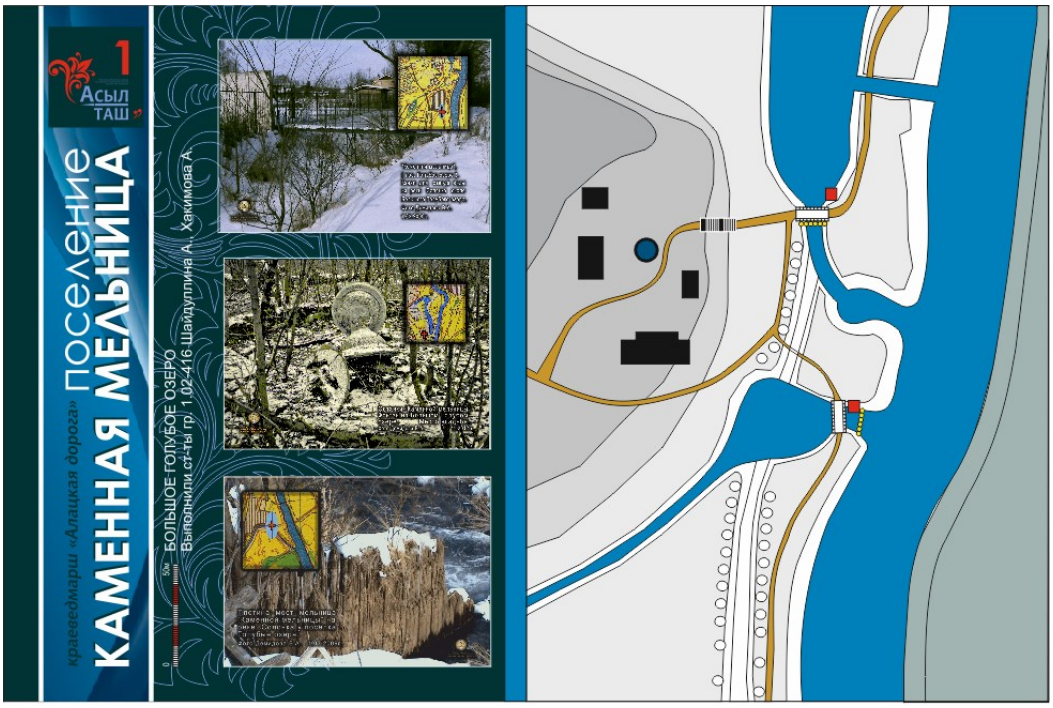

Figure 2.Point №1 (on the route).Layout. Performed by the students of IPIC KFU, gr. 10.2-416, Shaidullina A., Hakimova A., the head: Assis. Prof. Musina K.I.

Figure 3.Three-dimensional visualization of the mill in the point № 1 (on the route).Performed by the student of IPIC KFU, gr. 10.2-313, Katelnikova A., the head: Assis. Prof. Musina K.I.

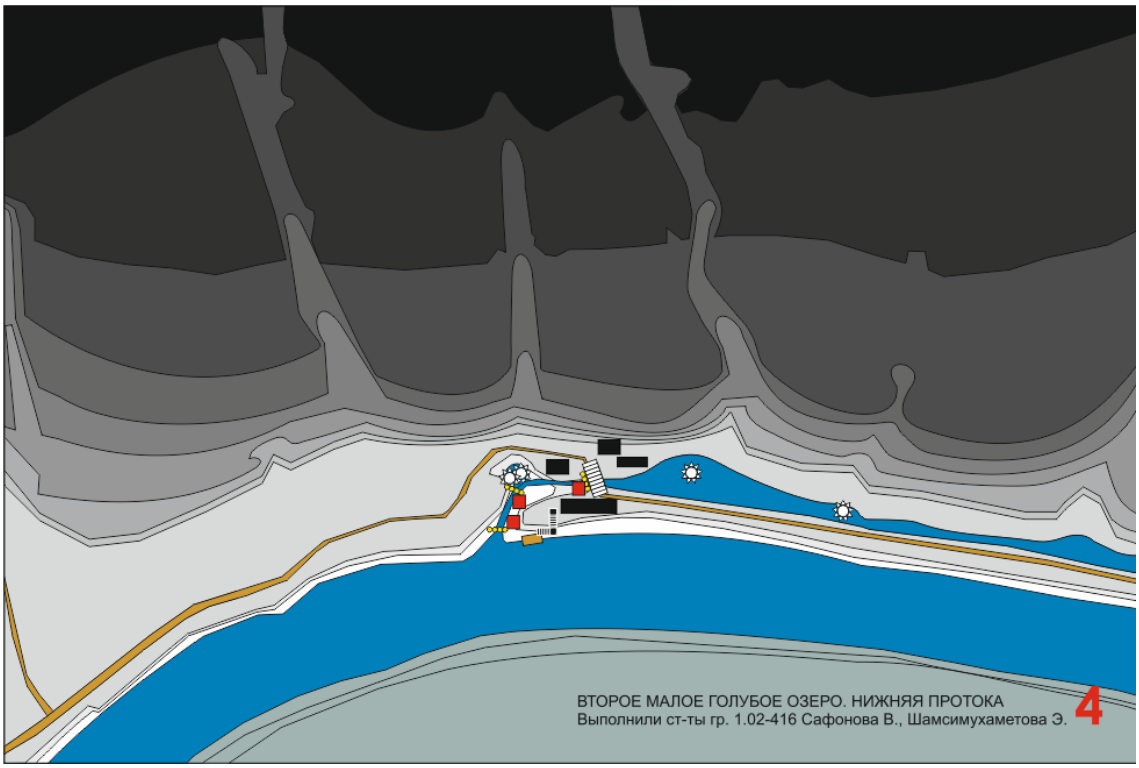

Figure 4.Point №4 (on the route).Layout.Performed by the students of IPIC KFU, gr. 10.2-416, Safonova V., Shamsimukhametova E., the head: Assis. Prof. Musina K.I.

Figure 5.Three-dimensional visualization of the mill in the point №4 (on the route).Performed by the student of IPIC KFU, gr. 10.2-313, Bagautdinov A., the head: Assis. Prof. Musina K.I.

Figure 6.Layout “Settlement “Kamennaya Melnitsa””.Performed by the students of IPIC KFU, the head: Assis. Prof. Musina K.I.