Features of cadastral work in relation to road transport constructions

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Abstract. The article is devoted to the problems of state cadastral registration of road transport constructions. Existing methods of cadastral registration of road constructions are considered. The drawbacks of the existing cadastral registration system in relation to the main types of road constructions are revealed by the example of a road, stopping and parking area for cars and the gas station. Legislation of the Russian Federation does not regulate the issue of cadastral registration of such types of constructions as the gas station, all gas stations which are subject to the state cadastral registration do not have a single composition of the property, a single purpose, the selected type of characteristics. In the course of research, the most correct type of real estate for the gas station was determined, as well as the composition of the elements subject to cadastral registration. The article contains illustrative examples proving the possibility of applying the proposals made.

1. Introduction

In the Russian Federation, in order for real estate to be owned by citizen, each facility is subject to state cadastral registration and state registration of rights to it. To confirm or terminate the existence of the property, the information is entered into the Unified State Register, i.e. conduct state cadastral registration. Information about it must necessarily contain such characteristics inherent only to it, which can uniquely describe it among other real estate facilities [1].

According to the current legislation of the Russian Federation, road constructions include constructions that are constructive elements of the road: artificial constructions (bridges, overpasses, ramps, pipes, tunnels, etc.), protective constructions (snow protection forests, permanent snow protection devices, noise protection and wind protection devices, devices for protecting roads from avalanches, rockfalls, landslides, etc.), road improvement elements (stopping areas and pavilions for passengers, rest areas, special areas for stopping and parking for cars, including the gas stations).

Thus, these constructions are both linear and polygon facilities, and in some cases are presented as complex indivisible things, including all kinds of graphic representations.

At present, the documents regulating cadastral work at the legislative level are of general nature and do not have specific recommendations regarding the facilities of certain sectors of the national economy. Thus, when carrying out cadastral work in relation to specialized constructions, issues that arise most frequently are those regarding the composition of the property, the type (building, construction or single immovable complex) and the graphic display of its contour [2].
In order to resolve these issues, it is necessary to consider the advantages and disadvantages of the existing methods of cadastral registration of road transport constructions.

2. Methods and results of the study
In the course of the research the following road transport constructions were considered:
1. Linear construction — the road;
2. Surface construction — stopping and parking areas for cars;
3. Complex indivisible facility — the gas station (GS).

2.1. Linear road transport constructions
The question of linear facilities has always been and is one of the most difficult in the urban planning and land legislation of the Russian Federation. The lack of precise definition of the concept of “linear construction” significantly complicates the process of preparing the necessary technical documentation. The RF Urban Development Code states that linear facilities are power lines, communication lines (including linear cable constructions), pipelines, roads, railway lines and other similar constructions. Thus, in cadastral registration, roads are not area but linear facilities. It should be noted that the concept of “linear facilities” is subjective in nature, due to the absence of criterion for classifying “similar” constructions to linear ones.

According to the current legislation, the main characteristic of linear constructions to be entered in the Unified State Register of Real Estate is the length. In addition, during cadastral work over the course of the office processing of measurements, contour is formed to register linear facility; since the construction is long, its contour is displayed as an open-circuit line formed by points located on the central axis [3].

In accordance with the foregoing, the publicly available information about the roads in the Unified State Register of Taxpayers does not make it possible to unambiguously determine its width, in connection with which such information is not sufficiently informative. Thus, as recommendations, it is proposed to introduce the “width of linear construction” characteristic into the USRT.

Road transport area constructions
The most correct way to display stopping and parking areas for cars and similar constructions is the “polygon” contour (Figure 1).

Figure 1. Layout chart of the road transport area construction.
The main characteristic of this facility is the built-up area, which is calculated from the results of the office processing of geodetic measurements performed on the ground. It should be noted that carrying out cadastral work in respect to road transport facilities does not cause difficulties.

2.2. *Complex indivisible facility — GS*

The gas stations (GS) are designed to provide consumers with petroleum products. Number of technological processes are carried out at the GS: reception, storage, distribution (supply) and accounting of the amount of oil products [4].

The project of the gas station reflects the necessary composition of buildings, constructions, premises for the provision of services on the territory of the gas station. During the operation of the gas stations, the requirements of regulatory technical documents that will ensure the safety of people must be complied with [5].

Based on these standards, the following service and household buildings (premises) for the gas station personnel can be placed at the gas stations: operator, administration, boiler room, room for food intake, security service room, as well as sanitary facilities, storerooms for overalls, tools, spare parts, appliances and equipment. In addition, on the territory of the gas station with underground reservoirs it is allowed to place buildings (premises) for servicing passengers, drivers and their vehicles [6].

Based on the basic requirements of regulatory documents in the field of safety of operation of the gas stations, one can single out the mandatory components of the gas station (Figure 2).

![Figure 2. The composition of the filling complex.](image)

However, the building of the operator room, constructions for wastewater treatment, for placing technological equipment, information boards indicating the range of petroleum products sold, services provided, and the types of transport served are mandatory.

The main problem in the cadastral registration of the gas station is the lack of clear list of structural and technological elements that relate to real estate. The cadastral engineer and the owner must agree among themselves which components of the filling complex will be counted and registered. At the same time, there are often suspensions in the implementation of state cadastral registration and registry, due to an incorrect definition of the composition of the gas station.

Currently, to systematize the registration of real estate facilities by cadastral engineers, there is letter from the Office of the Federal Registration Service for the Moscow Region No. 50-70a-10-1017, published on February 7, 2019. It provides list of facilities that are not subject to cadastral registration and registry, as well as list of facilities that may be subject to cadastral registration and registry and may not be [7].

Thus, it is possible to identify elements of the gas station that are not real estate facilities (Table 1).
Table 1. Structural and technological elements of the gas station.

| Structural and technological elements of GS | Are not real estate facilities | Are not real estate facilities and real estate facilities |
|------------------------------------------|-------------------------------|---------------------------------------------------------|
| Temporary buildings, kiosks, canopies    | +                             | -                                                       |
| Fences                                   | +                             | -                                                       |
| Planar objects accomplishments            | +                             | -                                                       |
| Tanks, reservoirs (underground, aboveground) | +                             | -                                                       |
| Advertising construction                  | +                             | -                                                       |
| Parking                                  | -                             | +                                                       |
| Well                                     | -                             | +                                                       |

According to this letter, canopies are not subject to real estate. However, the canopy of the gas station is an integral part of the building and is a complex construction. Based on this, we can conclude that the canopy, which is part of the construction and has complex structural elements, can be considered as a property. After analysing this table, we can conclude that the following main components of the filling complex are subject to the cadastral registration:

- The operator room with a sales area (with a canopy);
- Gas station dispensers (hereinafter — GSD);
- Wells of underground reservoirs (reservoir park).
- Onsite and utility networks (fire-fighting reservoirs; lighting of the area; sewage treatment plants; electrical cables, etc.).

The facility of the study was considered to be the gas station Gatchina Oil Company LLC, located at the address: St. Petersburg, 18 A Nakhimov Street.

During the construction of the gas station, the following composition of structural and technological elements was provided in the design documentation:
- the building of the operator room with the sales area;
- the canopy over the GSD;
- 2 gas station dispensers under the canopy;
- 2 separate gas station dispensers for trucks;
- exit of underground reservoirs to the outside (reservoir park).

For the convenience of servicing drivers, the land plot of the gas station is divided into several areas:
- the area for the entrance, which is allocated in accordance with the requirements of the Traffic Rules (it includes the road for the arrival of cars and departure from the gas station);
- the area allotted for: reservoir park, necessary local treatment constructions, areas for outdoor equipment;
- the area of the fuel-dispensing zone is separate for passenger cars and for trucks;
- the area for servicing cars, including car wash;
- the area for the provision of services to drivers and passengers of vehicles.

The situational plan of the land plot on which the filling complex is located is presented in Figure 3.
Figure 3. Site situational plan.

Explication to the situational plan is presented in Table 2.

Table 2. Explication to the situational plan.

| Letter on plan | Name of the object                        | Building area |
|----------------|-------------------------------------------|---------------|
| A              | GS                                        | 417.9         |
| A              | The operator room                         | 192.9         |
| a1             | Canopy                                    | 208.2         |
| a2             | GSD 1 (under a canopy)                    | 1.3           |
| a3             | GSD 2 (under a canopy)                    | 1.3           |
| a4             | GSD 3 (diesel fuel)                       | 1.3           |
| a5             | GSD 3 (diesel fuel)                       | 1.3           |
| a6             | Transformer vault                         | 3.1           |
| a7             | Fire tank                                 | 0.6           |
| a8             | Drain well                                | 1.9           |
| a9             | Underground tank for storages 1           | 4.0           |
| a10            | Underground tank for storages 2           | 4.0           |
| a11            | Underground tank for storages 3           | 4.0           |
| a12            | Solid waste site                          | 11.8          |
| a13            | Road sign 1                               | 0.2           |
| a14            | Billboard                                 | 1.5           |
| a15            | Price board                               | 3.7           |
For the state cadastral registration and state registry of rights to real estate in the Russian Federation, there are requirements for conducting, for the form and content of documents, for the composition of the information contained in them, which are fixed by law. For each property there are its own regulatory requirements that the cadastral engineer is required to perform when performing cadastral work. However, difficulties arise when registering such complex facilities as gas stations. Here issues arise for the cadastral engineer and owner, which are not reflected in the legislation of the Russian Federation. These include:

- selection of the type of property for the gas station;
- composition of the structural and technological elements of the GS, which are subject to cadastral registration;
- area calculation;
- number of types of building characteristics, etc.

If the registrar does not agree with the decision of the cadastral engineer and owner to register the selected structural and technological elements, accounting and registration may be suspended.

We will analyse the cadastral registration of gas stations in St. Petersburg to resolve controversial issues about how and in what construction the registration of the gas station is taking place.

For this purpose, a representative sample of gas stations located in different parts of St. Petersburg, which belonged to 7 different oil companies, was taken. This sample is presented in Table 3.

Table 3. Representative sample of gas stations.

| №  | Right holder               | Type of property | Possible characteristics, area | Composition of the property                                                                 | Possible characteristics | Exclusion of GSD |
|----|----------------------------|-----------------|--------------------------------|-------------------------------------------------------------------------------------------|--------------------------|-----------------|
| 1  | Transservice construction  | 555,9           | operator room, canopys with GSD (4 p.) drain tanks, fire-prevention tanks | area                                                                       | +                        |                 |
| 2  | LUKOIL-NorthWestOilprodukt | 597,0           | operator room, canopys with GSD (3 p.) and underground reservoir (3 p.), drain well, platform of tankers, treatment facilities rainwater | built-up area               | -                        |                 |
| 3  | KIRISHIAVTOSERVIS construction | 835,2           | operator room with canopys, reservoir park, utility networks | built-up area | -                        |                 |
| 4  | Gatchina oil company       | 276,6           | -                              | built-up area                                                               | -                        |                 |
| 5  | Gatchina oil company       | 2201,1          | -                              | built-up area                                                               | -                        |                 |
| 6  | LUKOIL-                      | 847             | operator room, GSD, utility | built-up area                                                               | -                        |                 |
It should be noted that one of the controversial issues is the inclusion of such a constructive and technological element as reservoirs of fuel reserves in the property. Based on Table 3, it can be concluded that in three petrol stations, reservoirs were excluded from the petrol complex (Figure 4). This is due to the fact that the reservoir tanks are underground, and therefore do not occupy the surface area of the earth.

Also, technically, the cadastral engineer is required to write the type and main characteristic for the construction. Moreover, if the building has several types of characteristics, all possible characteristics for this facility should be indicated, the statistics are presented in Figure 5.

According to the chart data, in most cases, the main characteristic of gas stations is the built-up area in square meters rounded to 0.1 square metres.
In addition, the sample shows that all gas stations include a canopy, which is included in the complex and is inextricably linked with the operator room. The explanations of the Office of Federal Service for State Registration, Cadastre and Cartography in the Moscow region indicated that the canopy is not a real estate facility, but its physical and technological link in the complex of real estate facilities was not considered. Based on this, we can conclude that the canopy in the gas station is a real estate unit.

According to Table 3, the gas stations presented are subject to State Cadastre as a “Construction”. Let us analyse these statistics by identifying the priority of the cadastral registration of gas stations as a type of “Construction”, and not as a “Building” or “Unified Real Estate Complex”. Table 4 presents the main criteria that are necessary for state cadastral registration.

Table 4. Comparison of the formulation of the property types for the gas station.

| Criterion Available XML scheme | The separation of the property in parts | Characteristic | Simplifying the registration process complexes |
|--------------------------------|----------------------------------------|----------------|-----------------------------------------------|
| «Construction»                 | +                                      | area, built-up area, depth of occurrence, length | + |
| «Building»                     | +                                      | area           | + |
| «Unified Real Estate Complex»  | -                                      | area, built-up area, depth of occurrence, length | + |

The advantage of subjecting the gas station to the state cadastral registration as a “Construction”:

- Available XML scheme for the construction, posted on the Federal Service for State Registration, Cadastre and Cartography website, which allows you to structure the necessary documentation for submission to the state body for the implementation of state registration and registry of rights of the property.
- Possibility of isolating any construction or technological element from the gas station.
- To reduce the likelihood of suspension of the implementation of cadastral registration by the registrar, there is the possibility of indicating several necessary characteristics. Three characteristics can be indicated for the gas station: area, built-up area and depth. However, according to the Letter of Office of the Federal Service for State Registration, Cadastre and Cartography for the Moscow Region, reservoirs and tanks are not included in the gas station complex. Therefore, the main characteristics of the gas station that registrars may require are the area and built-up area.

The appearance in the Russian legislation of the concept of the “Unified Real Estate Complex” simplifies the procedure for registration and increases the efficiency of turnover of complex infrastructure facilities, thereby facilitating the structure of cadastral registration. However, the property can act as the UREC, if it is provided for in the project documentation.

3. The discussion of the results

According to the analysis, it can be concluded that all gas stations which are subject to the state cadastral registration do not have a single composition of the property, a single purpose, the selected type of characteristics, etc. This is due to the fact that the legislation of the Russian Federation does not regulate the issue of cadastral registration of such types of constructions as the gas station.

A huge role is played by the necessary implementation of fire safety, gas safety, environmental safety, which contain requirements for the design of the gas station. Therefore, any construction and technological element of the filling complex is an important component, which is indicated in the design documentation of the gas station. State fire and energy supervision authorities must necessarily monitor the correct operation of the systems for receiving, storing and issuing fuel, both from the point...
of view of explosiveness, and from a sanitary and environmental points of view. For quality control of the gas station, records of its constituent elements are kept.

However, for subjecting the gas stations to cadastral registration, not all elements of the filling complex must be considered, since they increase the area, resulting in increased tax payment. Such elements may include car washes, advertising stands, canopies, asphalt areas, etc.

But in addition to considering the structural elements as a safe operation of gas stations, you must follow the procedure for maintaining the Unified State Register of Real Estate, as well as the interests of the owner as a taxpayer.

To do this, using the analysis, it is possible to identify such structural and technological elements of the filling complex that will be mandatory for cadastral registration and registry of rights:

- The building of the operator room with the sales area;
- Gas station dispensers;
- Wells of exits to the surface of underground reservoirs (reservoir park);
- Onsite and utility networks

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