

ISSN 2518-7325 (Online), ISSN 2306-1677 (Print)
Land Management, Cadastre and Land Monitoring
Received: 31.01.2026; Accepted: 17.02.2026; Published: 30.03.2026;
<http://dx.doi.org/10.31548/zemleustriy2026.01.02>

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UDC 631.417.1:332.362

**DEVELOPMENT OF THE LAND-BASED PART OF THE DETAILED PLAN
OF THE TERRITORY WITHIN THE BOUNDARIES OF THE IRSHAN
VILLAGE COUNCIL OF THE KOROSTEN DISTRICT OF THE
ZHYTOMYR REGION**

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The article analyzes the regulatory documents regulating the development of a detailed plan of the territory, in particular its land management part. The territory within which the research was conducted is characterized, regarding the location of land plots, their intended purpose, land categories, land rights, and the presence of restrictions on use. The research was conducted within the territory of the Irshansk, which mostly refers to residential and public development lands, which are

characterized by an extensive network of engineering communications. It was established that within the DPT there are land plots, information about which is not entered into the database of the State Land Cadastre. Among those registered in the database of the State Land Cadastre are public use territories (streets, driveways, green zones of plantations), land plots for estate development, and areas for the construction and maintenance of commercial buildings. Based on the results of office processing of the topographic survey, the boundaries of restrictions on land use were established and shown on cartographic materials, and the areas of land plots subject to restrictions were also calculated. Among the latter: a protection zone around (along) a communication facility, protection zones around (along) an energy system facility, protection zones around engineering communications, territories in red lines; there is also a sanitary protection zone around an industrial facility; which justifies the change in the purpose of the land plot of interest and the category of land within the DPT from industrial land to residential and public development land, namely the location of a shopping center. Discrepancies were also identified in the existing state of land plots and data entered about the plots in the State Land Cadastre. In particular, the complete absence of existing restrictions in the cadastral database within the formed plots was established. Data from research materials within the DPT territory were highlighted. The scheme of work was justified on a specific example, which includes: a detailed study of current legislative and regulatory documents for the development of the DPT and the registration of its results; performing a topographic survey of the area and office processing of measurements; formation of textual and planning and cartographic materials that reflect the initial state of the research area and the results of design decisions.

Keywords: *detailed plan of the territory, topographic survey, land management.*

Relevance of the research. Only recently have land surveyors been involved in the development of architectural documentation. Today, this type of work is in demand, like other types. It is impossible to imagine such work without land surveying skills and approaches at all stages of development: conducting and processing topographic

survey data, which is the basis of any planning decisions; working with various software to form planning and cartographic materials; using current legislative requirements in the field of architecture and construction, in the field of land management. Also, the development of the most detailed plan of the territory is especially important in the absence of an updated general plan of the settlement, or a comprehensive plan for the development of the community territory.

Analysis of recent research and publications. The development of a detailed plan of the territory is regulated by the legislation of Ukraine, according to which a detailed plan of the territory (DPT) is an important prerequisite for the development of the territory of a settlement, taking into account all restrictions. In addition, it is an integral part of the general plan of a settlement, or a comprehensive plan [10]. The land management part of the detailed plan of the territory is its integral part. It contains a cartographic block and an explanatory note and must meet all regulatory requirements, which clearly stipulate the requirements for the scale of cartographic materials, names and number of drawings and their informativeness [11]. This documentation must also contain information about the boundaries and legal regime of all regime-forming objects established before or during the design. This is a difficult part of the work, since very often, especially within the built-up area, the location of such objects can be quite dense and diverse. When forming the boundaries of the zones of application of restrictions, it is important to take into account the norms of various documents, including laws, resolutions, orders of executive authorities, standards and building codes. Since the objects around which restrictions on land use are established are quite diverse [11] (power lines, communication networks, pipelines for transporting various materials, industrial or natural areas, historically valuable places, etc.), it is important to comply with all existing relevant requirements prescribed in various legislative and regulatory documents, sometimes related to different areas of management [1, 3, 7–10]. At the same time, important attention is paid to the norms of land management legislation regarding the requirements for documentation contained in the State Land Cadastre database. In particular, to the formation of an electronic exchange file,

measurement accuracy, coordinate systems, land rights, land use, land categories [2, 5, 6].

The purpose of the study is to analyze the territory within the framework of a detailed plan regarding existing objects, land plots, their intended use, the location of objects that cause restrictions on land use, and to identify inaccuracies in the state land cadastre information regarding the data of the relevant land plots in kind (on the ground). An important part of the research is also the development of approaches to the development of the land management part as part of architectural documentation in compliance with existing requirements for such a process.

Materials and methods of research. The studies were carried out in cooperation with architects, developers of a detailed plan of the territory based on current topographic survey data and in-house processing of the results of field measurements. Software for working with cartographic data was used: AutoCAD, Digitals. All cartographic materials were made to scale and with preservation of the original coordinate data of the situation objects and the boundaries of land plots. When drawing up the drawings, the requirements of the state building codes of Ukraine and the requirements for such materials for uploading to the electronic platform of the urban planning cadastre were taken into account. A number of regulatory documents analyzed above were used to form design solutions and also to establish zones of restrictions.

Research results and their discussion. The development of the land management part was carried out within the detailed plan of the territory located in the Irshansk, Korosten district, Zhytomyr region. The total area of the development is 2,3602 hectares. Within its boundaries there are land plots of various purposes and categories of land. Residential and public development lands prevail: household plots, plots for the construction and maintenance of trade buildings; for the construction and maintenance of buildings of public and religious organizations; public land plots used as streets. In addition, there are industrial facilities and plots that are not provided for ownership or use to citizens or legal entities, information about which is not included in the state land cadastre database. The areas of the land plots correspond to the

settlement development of the settlement. The development area is located within the residential and public development quarter, bounded by streets. There are built-up areas here: yards, streets, residential buildings, shops, a church, a transformer station and an inactive industrial building. Within the development, there are only four formed plots, information about which is entered into the database of the State Land Cadastre. Among them: a personal plot, plots for the construction and maintenance of commercial buildings, and a land plot of interest for the development of a detailed plan of the territory with a specific purpose - for the placement and operation of main, auxiliary and auxiliary buildings and structures of enterprises of processing, machine-building and other industries, including waste processing facilities, in particular with an energy-generating unit (code 11.02).

Within the development are engineering communications (water pipeline, gas pipeline, sewage system, heating network), overhead and cable power lines (voltage 0,4 kV, 10 kV), cable communication line. Around these objects, security zones have been established with a width that meets the requirements of the regulatory documents establishing them (Table 1). Restrictions have also been established within each formed land plot (Table 2). In general, the configuration of security zones is quite complex due to the large number of engineering communications and communication networks that intersect with each other in a relatively small area. This complicated the development of drawings and work with vector data in the software environment, since the location of the boundaries of all objects of the situation and the boundaries of security zones must correspond to the accuracy of measurements. This means the need for identical coordinates of the location of such objects on the map and in nature (on the ground), since information about land plots, their land use and restrictions on use are entered into the database of the State Land Cadastre based on vector design data of the detailed plan of the territory.

1. Restrictions on land use within the framework of the development of a detailed plan for the territory

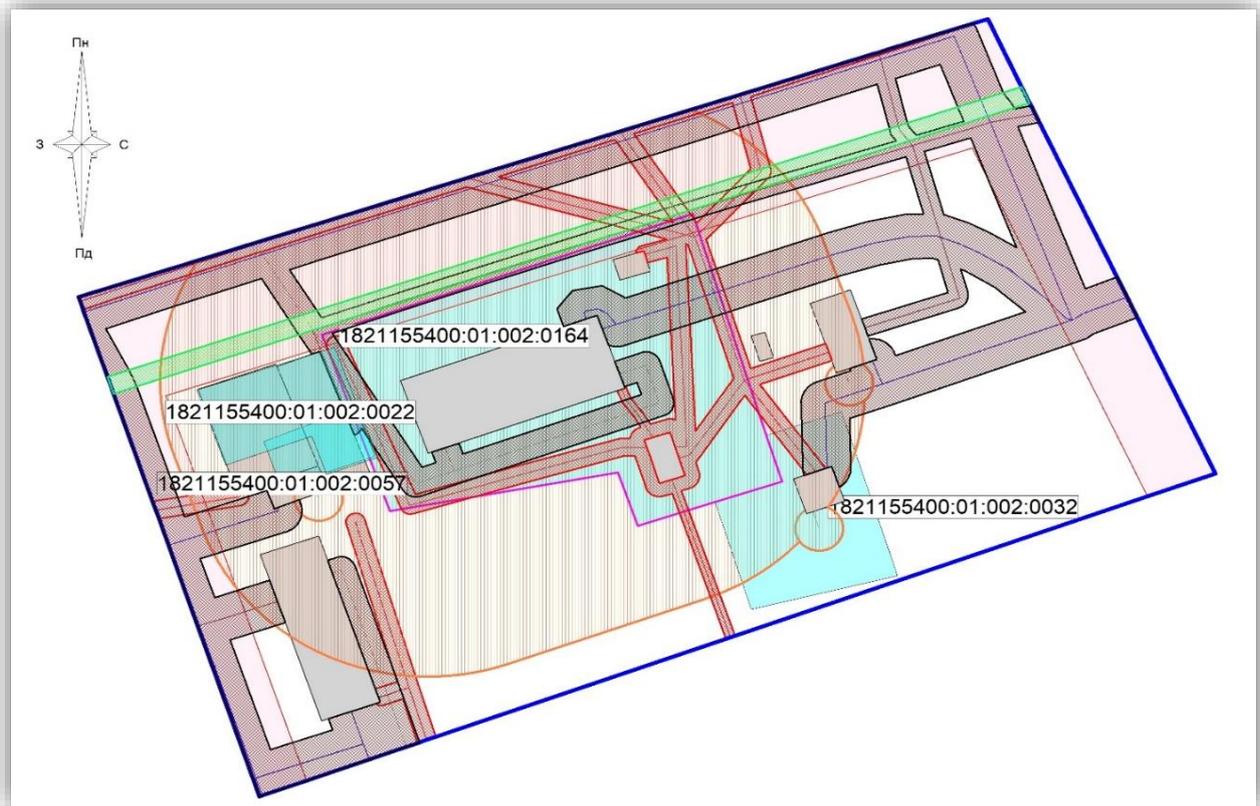
№	Constraint name	Restriction code	Restriction area, ha
1	security zone around (along) the communication facility	01.04	0,0805
2	protection zone around (along) an energy system facility	01.05	0,2173
3	security zone around utilities	01.08	0,6833
4	sanitary protection zone around an industrial facility	03.01	1,3710
5	territories in red lines	06.01.1	0,7535

2. Explication of land plots within the detailed plan of the territory

№	Cadastral number	The right to land	Intended purpose (existing condition)	Notice of restrictions	Area, hectares
1	1821155400:01:002:0164	private property	11.02 For the placement and operation of main, auxiliary and auxiliary buildings and structures of enterprises of processing, machine-building and other industries, including waste processing facilities, in particular with a power generating unit	Protection zone around (along) the energy system facility (0,0904 ha)	0,4223
				Protection zone around utilities (0,0876 ha)	
				Sanitary protection zone around the facility (0,4223 ha)	
				Areas in red lines (0,0269 ha)	
2	1821155400:01:002:0032	private property	02.01 For the construction and maintenance of a residential building, outbuildings and structures (homestead plot)	Protection zone around (along) the energy system facility (0,0046 ha)	0,1005
				Protection zone around utilities (0,0124 ha)	
				Sanitary protection zone around the facility (0,0597 ha)	

3	1821155400:01:002:0022	constant use	03.07 For the construction and maintenance of commercial buildings	Sanitary protection zone around the facility (0,0633 ha)	0,0633
4	1821155400:01:002:0057	communal property	03.07 For the construction and maintenance of commercial buildings	Sanitary protection zone around the facility (0,0232 ha)	0,0232

Based on the results of the research, three plans were formed: “Plan of modern land use by form of ownership, indicating the categories and type of intended purpose, taking into account existing restrictions and encumbrances” (Fig. 1); “Plan of land plots formed based on the results of the development of a detailed plan, information about which is subject to entry into the State Land Cadastre”; “Plan of restrictions on land use, information about which is subject to entry into the State Land Cadastre on the basis of the developed urban planning documentation”.



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Symbols

	The boundary of the development of a detailed plan of the territory		Land plot boundaries according to the land cadastre database
	The boundary of the project land plot, the object of development of the DPT		Protection zone around (along) the energy system facility
	Power line, 0,4 kV		Security zone around (along) the communication facility
	Cable power line, 0,4 kV, 10 kV		Security zone around utilities
	Low pressure gas		Sanitary protection zone around the facility
	Water supply network		Territories in red lines
	Gravity sewer network of municipal sewage system		Buildings and structures
	Thermal network		
	Cable communication line		

Fig. 1. Fragment of a plan for modern land use by form of ownership, indicating the categories and type of intended purpose, taking into account existing restrictions and encumbrances.

The design decisions of the detailed plan of the territory provide for the following information about the land plot: cadastral number 1821155400:01:002:0164: land category – code 200 – land for residential and public development; purpose of the land plot – code 03.07 – for the construction and maintenance of commercial buildings; form of ownership – code 100 – private property; land – code – 008.03 – land under shopping centers. The decision to change the purpose is justified and will be presented at local hearings of the town planning council. According to the information of the

previously developed in accordance with the established procedure general plan of the settlement, the development territory falls within the public center, the territory of residential and public development.

The location of an industrial facility, which causes the formation of a sanitary protection zone around it, is not justified in the center of a settlement with predominantly residential and public development areas. The built-up area of the project land plot, the purpose of which changes as a result of the design decisions of the detailed plan of the territory, as well as the location of all engineering communication networks, allows the use of the land plot as a shopping center. The design restrictions on the land plot remain unchanged, except for the sanitary protection zone around the industrial facility, which is not designed due to the change in the purpose of the land plot, the change of land and the liquidation of the industrial enterprise, which was located on the site of interest for the development of the detailed plan of the territory. Also, as a result of the reconstruction of the low-pressure gas pipeline crossing the car parking area, designed near the shopping center, the boundary of the protection zone of engineering communications around the gas pipeline will change slightly (Fig. 2, Table 3).

The justification for changing the purpose of the land plot of interest also depends on the convenient access to the land plot from the central street, the availability of neighboring plots for the construction and maintenance of retail buildings. It would also be convenient to combine a shopping center and a park area adjacent to the block (Fig. 3).

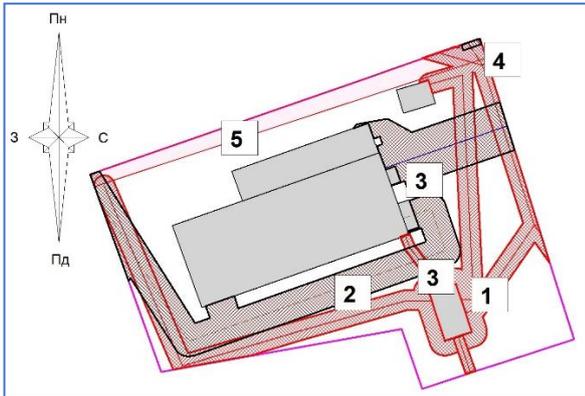


Fig. 2. Designed restrictions within the land plot of interest.



Fig. 3. Copying the location of the boundaries of the detailed plan.

3. Restrictions on the use of land designed before the change of purpose

№ on the map	Restriction code	Restrictions on the use of land plots	Area, hectares
1	01.05	Protection zone around (along) the energy system facility	0,0904
2	01.08	Security zone around utilities	0,0602
3	01.08	Security zone around utilities	0,0270
4	01.08	Security zone around utilities	0,0004
5	06.01.1	Territories in red lines	0,0269

Conclusions and research prospects. The development of the land management part of the detailed plan of the territory has always been preceded by a number of activities and stages of work (Fig. 4). In particular, a detailed study of the current requirements of legislative and regulatory documents in the field of architecture and construction, as well as in the field of land management and their application directly during development. At the first stage of work, a topographic survey was carried out using geodetic instruments and office processing of measurement results in order to

form planning materials for the development of a detailed plan of the territory. All DPT drawings were formed based on topographic survey data. The planning and cartographic materials of the land management part fully correspond to the graphic part of the entire detailed plan of the territory. Here, the boundaries of land plots that are plotted on the topographic survey, as well as those that correspond to the coordinates of the formed land plots in the database of the state land cadastre in JSON format, are taken into account.

In addition, the drawings indicate the situation and all engineering communications, electrical networks, communication networks and other objects that cause restrictions on land use before the development of the DPT and as a result of design decisions. The areas of restrictions are calculated both within the entire detailed plan of the territory and within individual land plots.

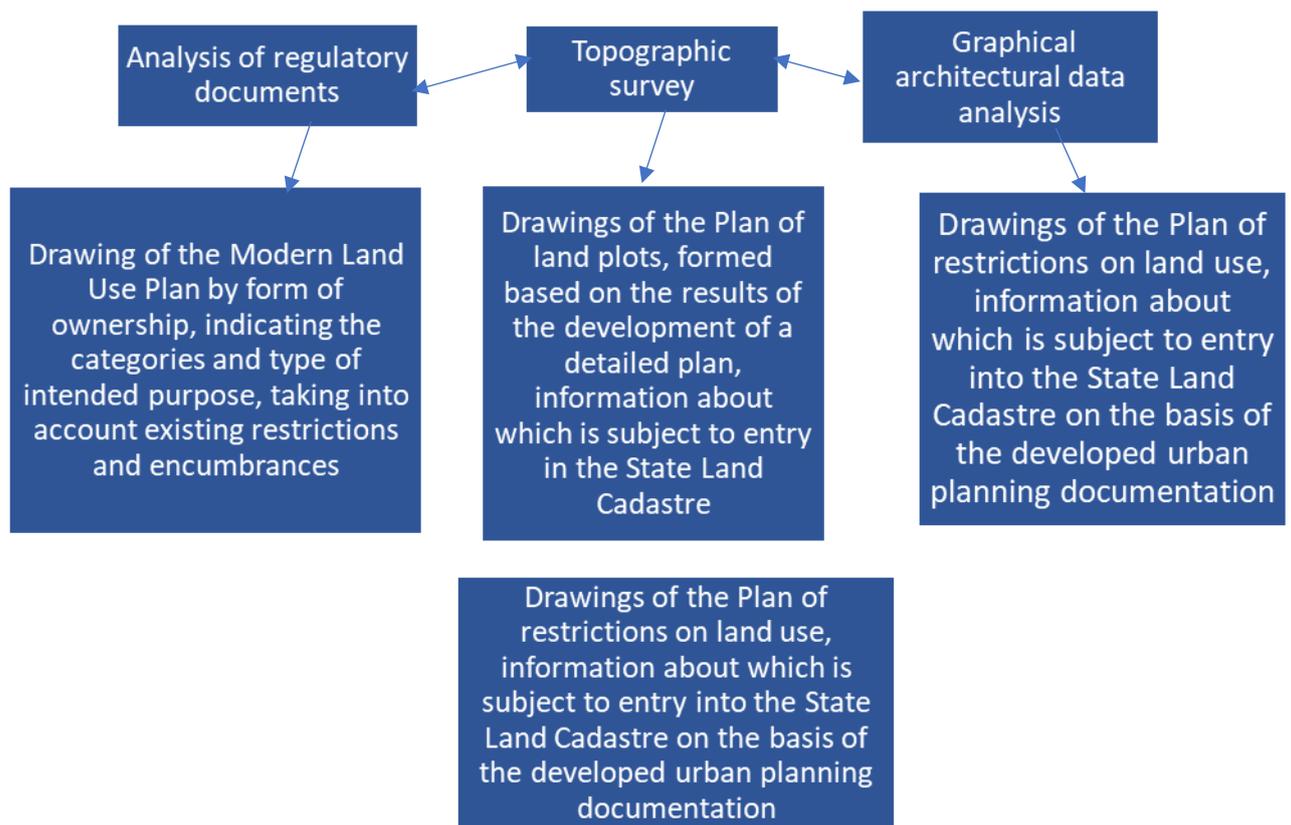


Fig. 4. Scheme of development of the land management part of the DPT.

It was established that information on existing restrictions on the use of land plots was not entered into the database of the State Land Cadastre. Their presence was established based on existing objects that cause the existence of restrictions on the use

of land as a result of a topographic survey of the area. At the same time, the category of land, the intended purpose of land plots, the right to land, the possibility of changing the intended purpose of the land plot and substantiation of the best type of land use were also analyzed. A detailed plan of the territory was made public at public hearings. The conducted study may serve to develop other architectural and planning documentation within the settlement, in particular, updating the general plan of the settlement or a comprehensive plan for the development of the community territory.

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РОЗРОБКА ЗЕМЛЕВПОРЯДНОЇ ЧАСТИНИ ДО ДЕТАЛЬНОГО ПЛАНУ ТЕРИТОРІЇ В МЕЖАХ ІРШАНСЬКОЇ СЕЛИЩНОЇ РАДИ КОРОСТЕНСЬКОГО РАЙОНУ ЖИТОМИРСЬКОЇ ОБЛАСТІ

У статті проаналізовано нормативні документи, що регламентують розробку детального плану території, зокрема його землевпорядної частини. Охарактеризовано територію, в межах якої проведені дослідження, щодо розташування земельних ділянок, їх цільового призначення, категорії земель, прав на землю, наявності обмежень у використанні. Дослідження проведені в межах території селища Іршанськ, що здебільшого відноситься до земель житлової та громадської забудови, яка характеризується розгалуженою мережею інженерних комунікацій. Встановлено, що в межах ДПТ є земельні ділянки, відомості про які не внесено до бази Державного земельного кадастру. Серед зареєстрованих у базі ДЗК є території загального користування (вулиці, проїзди, зелена зона насаджень), земельні ділянки садибної забудови, ділянки для будівництва та обслуговування будівель торгівлі. За результатами камеральної обробки топографічної зйомки встановлено границі обмежень у використанні земель та показано їх на картографічних матеріалах, також пораховано площі

земельних ділянок, на які поширюється дія обмежень. Серед останніх: охоронна зона навколо (уздовж) об'єкта зв'язку, охоронні зони навколо (уздовж) об'єкта енергетичної системи, охоронні зони навколо інженерних комунікацій, території в червоних лініях; також присутня санітарно-захисна зона навколо промислового об'єкта; що обґрунтовує зміну цільового призначення земельної ділянки інтересу та категорії земель в межах ДПТ з земель промисловості на землі житлової та громадської забудови, а саме розташування торговельного центру. Також виявлено розбіжності в існуючому стані земельних ділянок та внесених даних про ділянки у Державний земельний кадастр. Зокрема, встановлено повну відсутність наявних обмежень в кадастровій базі в межах сформованих ділянок. Висвітлено дані матеріалів досліджень в межах території ДПТ. Обґрунтовано схему проведення робіт на конкретному прикладі, що включає: детальне вивчення актуальних законодавчих та нормативних документів розробки ДПТ та оформлення її результатів; виконання топографічної зйомки місцевості та камеральну обробку вимірювань; формування текстових та планово-картографічних матеріалів, що відображають вихідний стан території досліджень та результати проектних рішень.

Ключові слова: детальний план території, топографічна зйомка, землеустрій.