

# Application of Arcgis Software in the Production of Standard Subdivision Map in Land Engineering

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## Abstract

The rapid development of the economy and society has led to a rapid expansion of the volume of territorial and resource data in China, which has brought certain difficulties to the development of the land engineering industry. However, ArcGIS software not only overcomes many inconveniences in land data statistics, but also can be applied to all aspects of land use change. It can modify, organize and output the final change statistics summary table of the huge volume of territorial data in land engineering one by one. The operation is simple and the query is convenient. This article analyzes the application of ArcGIS software in the analysis of unused land reserve resources, the production of standard sheet maps, and the superimposition of surveying and mapping and land use status maps in land engineering one by one, and points out that the development prospects of ArcGIS software in the field of land engineering are huge, ultimately achieving the goal of efficient utilization and development of land resources in China.

## Keywords

Arcgis Software; Land Engineering; Standard Framing.

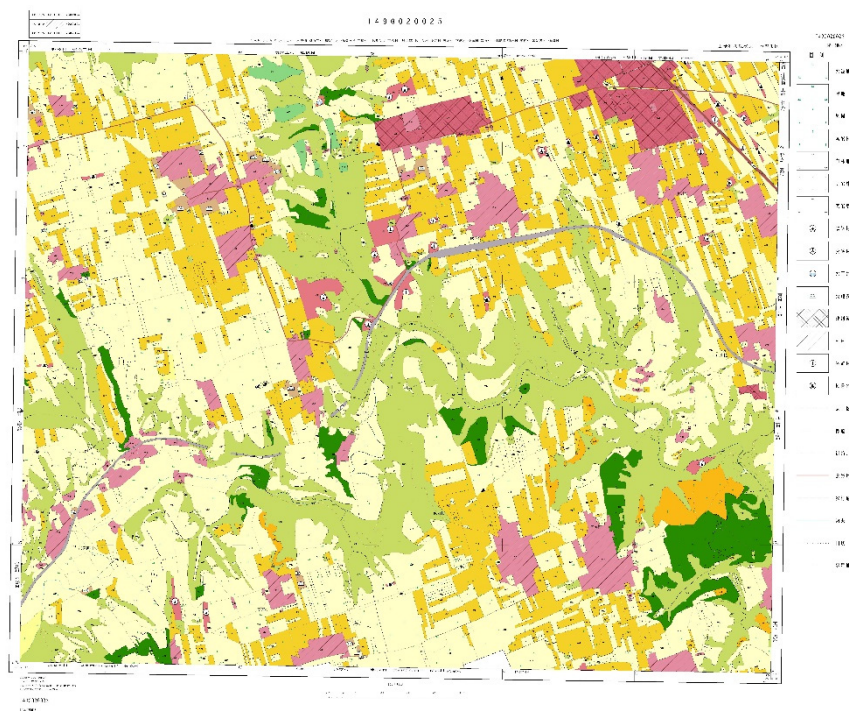
## 1. Introduction

With the rapid development of social economy and the continuous advancement of urbanization, China's demand for construction land is increasing, and the area occupied by agricultural land is increasing. In the four years from 1997 to 2001, the country's construction projects occupied 73.73hm<sup>2</sup> of cultivated land, and the reduction of agricultural land has threatened the security of food production. Faced with such a severe situation, the state put forward the national policy of "sticking to the red line of 1.8 billion mu of arable land", and it is imperative that non-agricultural land becomes agricultural land. The ways of transforming non-agricultural land into agricultural land engineering include land development, land consolidation, homestead reclamation and other related land improvement activities. As a new term put forward in recent years as a land and resources system, land improvement is more of a general concept. It includes the renovation of agricultural land, the renovation of rural construction land, the renovation of abandoned urban industrial and mining land, land reclamation and the development of reserve land suitable for agriculture. China's land use is facing a serious problem, that is, the development of reserve land resources is limited by poor quality, difficult reclamation and ecological environment constraints. Therefore, it is an

inevitable trend of land engineering development to develop and manage non-agricultural land such as sandy land, desert land, saline-alkali land, abandoned old river channels and abandoned residential land in a scientific and rational way, so as to improve blood supply for agricultural land [1].

From the existing rural land use status management and urban cadastral management system software, there are some shortcomings: first, the running speed is slow, the computer hardware configuration requirements are high; Second, it lacks many elements of 3D GIS. These bring a lot of inconvenience to land registration, statistics, change, summary and comprehensive analysis in land engineering [2]. Arcgis software integrates ownership management with land use management, and establishes a unified rural and urban cadastral management system with unified software, data structure, organization and management mode, which can also meet the current situation of rural land use and urban cadastral management requirements. A powerful software that integrates land consolidation and development to achieve seamless and integrated management of rural land and urban cadastre.

## 2. Production of Standard Subdivision Map in Land Engineering



**Figure 1.** Sub-map of I49G020025 in Baishui County

The standard framing is to cut the ortho image according to the predetermined scale, the length and width of the format, the coordinates of the southwest corner and the latitude and longitude interval, and its meaning is self-evident in engineering. In land engineering, all terrain can be clearly presented through a map, bringing clear map information for land regulation, land leveling, land reclamation, etc., to facilitate the construction of the site. And Arcgis software can realize this process well, and can accurately export the sub-map of each county (district).

To export the sectional map of each county, you must first set the sectional letter. In the Arcgis software interface, select "Framing Information Setting" from "System Settings", click "Component Amplitude Information", fill in the scale, central longitude, horizontal offset and other information according to the selected county, select "National 80 coordinate system", and

then manually select points in the lower left and upper right of the screen according to the form of "Custom", save and close. Reconnect the database that has just made the framing information, open the Arcgis software, click the "framing map" at the bottom left of the software, and a list of the county's framing map symbols will appear on the left side of the software. In this way, we need the information of which map symbol, directly right-click the map and print it out to the file, and save it in JPEG format. Figure 2 is a standard sub-map with map symbol I49G020025 in Baishui County. By enlarging the picture according to the purpose, we can clearly know the land use type, area and ownership of each place. So as to serve the land regulation work.

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