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METHODS OF EQUALIZATION AND EVALUATION OF GEODESIC BASES.

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Annotation. In this article, equalization and evaluation of geodesic bases is important to ensure accuracy and reliability in geodesic studies. This article details methods for equalizing and evaluating geodesic bases. These methods help to accurately match the measurements of points in geodesic networks and assess their degree of accuracy.
Keywords: geodesic bases, equalization methods, evaluation methods, master plan, scale.

Introduction

Geodetic surveys are carried out to provide accurate and reliable data for any project. It is important to equalize and evaluate the geodesic bases to ensure the accuracy of this data. Equalization methods help coordinate measurements of geodesic points, while evaluation methods test the accuracy and reliability of the data. This article will talk about the main methods for equalizing and evaluating geodesic bases.

Determined by the scales of engineering and topographic research plans. Factors: design tasks solved according to the plan; design stage, situation and terrain complexity; subsurface and surface density communication, etc. [1-5]

Main part

Since the topographic plan serves as the basis for drawing up the master plan of construction, its constructive and technological scheme, the schemes of elements communication and transport communications, then what structure is more complex, the larger the questionnaire.

The 1: 5000 scale topographic plans are designed for the following purposes:

• development of projects for the construction of the first stage of large, large and medium-sized cities; development of projects for the planning of industrial areas with an area of more than 1000 hectares; drawing up general plans for engineering structures, engineering event projects, etc;
• suburban area to form the most complex units in planning;
• to draw up technical projects of industrial and Mining Enterprises;
• for preliminary and detailed exploration of metal and non-metal minerals (coal and oil shale);
• development of developed general Geodetic plans;
* oil and gas fields, field development design and solution of mining technical problems and land and mountain extraction issues bending;
* terrain of agricultural enterprises engaged in land Cadastre and intensive farming in areas with complex and small agricultural land development;
• development of technical projects for irrigation of the meliorated massif (areas with an area of less than 15 km2);
• reservoirs with a window area of water from 0.5 to 3.0 km2
• typical sections of drainage through open channels are flooded with groundwater;

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• drawing up working drawings of drainage arrays along open channels in difficult natural conditions; building materials sites; sidewalk crossings; construction material quarries;
• in difficult terrain conditions, when approaching large settlements and other places with a difficult situation for camera search of highways;
• for the design and construction of hydropower facilities in small plains and mountain rivers;
• for the design of railways and highways at the stage of technical design (on route selection in mountainous areas and the route adopted in plains and hills);
• for the design of main channels (ship, water, energy) at the stage of technical design, in flat and hilly terrain, located on a relief line with a width of 1–2 km [6-15].
Topographic plans on a scale of 1:5000 serve as the basis for topographic and specialized plans and maps on smaller scales.
Topographic plans on a scale of 1:2000 are intended for the following purposes:
• drawing up executive plans for mining enterprises (quarries, intersections);
• mineral for detailed study of metal and non-metal deposits;
• development of technical projects of seaports, ship repair yards and individual hydrotechnical facilities;
• drawing up a technical project of the accepted main option of thermal power plants, water intake, hydrotechnical structures and barrier dams;
• drawing up technical projects for irrigation; vertical arrangement of typical plots below; construction of dams, siphons, locks, etc. with a length of more than 300 m, laying canals and pressure pipes;
crossing in mountainous area; construction of reservoirs with an area of water windows up to 0.5 km2. [16-20]:
• for sections of riverbeds planned to be used as canals;
• to prepare working drawings: drainage with closed drainage; to ensure vertical planning of irrigated lands, sections of hydrotechnical structures, to ensure regulation of water intake in rivers with a small bend (100-150 m);
• with complex flood relief;
• railway and highway design at the stage of technical design in mountainous areas, for working drawings in plains and mountainous areas;;
• in the development of the master plan for the reconstruction of the railway junction;
• drawing up working drawings of pipelines, pump and compressor stations, line points and repair depots, crossings;
large rivers, difficult approaches to substations, difficult crossings and the approach of traffic and other highways.
Topographic plans on a scale of 1:1000 are intended for the following purposes:
• for the preparation of technical projects and working drawings of the building in an undeveloped area or in an area with one-story buildings;
• making working drawings of concrete dams, HPP buildings, locking chambers;
• development of working drawings of stations and nodes;
• for a detailed study and calculation of mineral reserves of mines with a very complex structure;
• for complex engineering studies;
• for design: pressure pipes on concrete foundations;

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• hydrotechnical structures (aqueducts, siphons, pumping stations) on an area of more than 2 hectares;
• for the development of working drawings in the design of mines and beneficiation companies.
Topographic plans on a scale of 1:500 are intended for the following purposes:
• drawing up the master plan and working drawings of the construction site, multi-story capital buildings with a dense network of underground utility networks, industrial enterprises, solving the vertical layout;
• for the preparation of working drawings of dams of main blocks of daytime control basins, tension shafts, pressure pipes;
hydroelectric power station buildings, tunnel portals, approach shafts (arched and rotating hydroelectric power stations).
The 1:1000 and 1:500 scale plans are the basic plans for accounting for underground utilities and are the exact plan of all underground structures [21-26].

Conclusion.

Methods for equalizing and evaluating geodesic bases are important for improving the accuracy and reliability of the results of geodesic studies. This article details methods for equalizing geodesic networks and estimating measurements. By applying these methods, it is possible to obtain accurate and reliable information in urban redevelopment and other geodesic projects.

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