DESK PROCESSING OF LEVELING MATERIALS

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ANNOTATION

This article shows the plane of construction site construction and its exact leveling. As well as recalculating the accuracy of leveling construction sites. The lines of cranes installed on columns along which the crane tracks run should not be included in the main leveling moves, since they are under the influence of variable load from the operating crane.

KEY WORDS: *Measurement, level, office, accuracy formulas, crane, polygons, accuracy, reference points, site, field land, construction sites, conditional measurements.*

INTRODUCTION

In-house processing of measurement results begins with checking field entries in the log, including the output of average exceedances. Then they make a scheme of leveling moves (Fig. 1), which is written out the calculated excess with the number of the magazine and the page where they are taken from, as well as the resulting and permissible residuals in polygons.[1] The latter for class I is calculated using the formula:

$$\Delta_{I\ \kappa л}^{ДОП} = \pm 0{,}3\sqrt{n}\, мм$$

where n - is the number of stations in the polygon.

If we assume that the valley of the levelling shoulder in the conditions of the construction site is 25 m, then for moves of 0.5 km in length, we get the permissible residuals according to the formula:

$$\Delta_{0{,}5\kappa м}^{ДОП} = \pm 0{,}3\sqrt{10} = 0{,}9\, мм$$

A for class II by the formula:

$$\Delta_{0{,}5\kappa м}^{ДОП} = \pm 1 мм\sqrt{n}$$

where n is the number of stations:

OBJECTIVES

Marks installed on columns that run under the crane tracks should not be included in the main leveling stroke, as they are under the influence of variable load from the operating crane. As practice has shown. altitude position of such brands. depending on the physical and mechanical properties of the base soil, it may vary by 2-3 mm or more.[2]

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After drawing up a list of excesses, balancing the leveling network in each observation cycle is performed by any of the peaceful network in each observation cycle is performed by any of the strict methods, for example:

- by the method of conditional measurements or by the method of polygons In.In Popova;
- method of equivalent replacement by the method of nodes V.V. Popova.

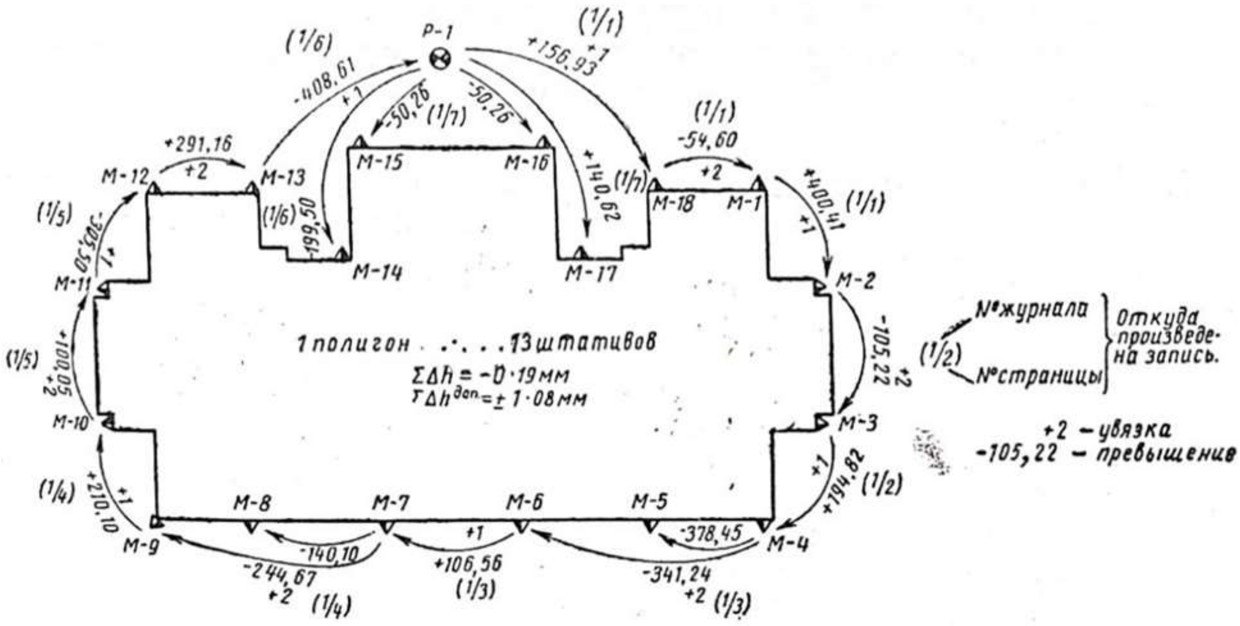

Fig-1 Scheme of leveling moves.

If there are signs that the altitude of one or more rappers has changed after the first measurement cycle, then in subsequent cycles, balancing with the passing determination of the heights of these reference points is performed again, as newly installed.

METHODOLOGY

Given that balancing is associated with a large expenditure of labor of a qualified surveyor, in order to invest computational work, it is necessary to lay leveling lines in the same directions and with the same number of stations in each of them in each measurement cycle. Data for repeated measurement cycles will have the same coefficients, differing only in free terms, i.e., residuals.[3]

In this regard, there is no need to solve the system of normal equations for each cycle separately-it will be quite enough to re-calculate only the graph of free elements. To do this, they make up a single scheme for solving normal equations and, depending on the intended range of measurement cycles, provide and use columns for free terms of equations of different cycles. These columns are filled in as leveling cycles are performed. In this case, the labor cost of balancing is significantly reduced.[4]

STATISTICAL DESIGN

If you keep the same scheme of leveling moves in different cycles, there is no need for and. in composing the weight function for each cycle separately.

It is compiled and calculated once.

The accuracy of leveling is evaluated based on data obtained before and after balancing;

1. The difference of excess, derived from the double leveling.

The average square of errors per 1 km of a single course is

$$\mu_{1км} = \sqrt{\frac{\left[\dfrac{f_R^2}{2R}\right]}{N}}$$

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There f_R – differences in excess of the double leveling of the stroke sections in *мм*

N- number of sections in all moves

R- length of travel sections in km

2. By residuals in closed polygons and moves[5]

The average square leveling errors for one station and for 1 km of travel are determined by the formula:

$$\mu_{1cm} = \sqrt{\frac{\left[\frac{f_h^2}{n}\right]}{N}},$$

$$\mu_{1км} = \pm\mu_{1cm}\sqrt{\frac{[n]}{[L]}},$$

there f_h – error of closure, or stroke in mm;

n – the number of tripods in the range or the course;

N – number of polygons or moves;

$[L]$ – total length of polygons or paths in km.

3. According to the results of trim

After balancing the leveling network, the average square error per 1 km of travel is calculated using the formula

$$\mu'_{1км} = \sqrt{\frac{[p\delta^2]}{N-r}},$$

there N – number of moves in the entire network;

r – number of nodal points;

p – stroke weight =1/n (n is the number of stroke stations);

δ – stroke correction.

Average square in the course from the initial reference point to this brand.

RESULTS

If the differences in the heights of the points of the leveling network are significant, then before balancing in the average excess from the results of leveling in the forward and reverse directions, corrections are made for the average length of the rail meter obtained as a result of its comparison.

Cameral processing of the results of leveling each measurement cycle ends with the calculation of mark marks (for leveling classes I and II - up to hundredths, and for leveling class III - up to tenths of a millimeter). The calculated marks are entered in the catalog with rounding to tenths and whole millimeters, respectively.

The catalog of absolute marks of reference points and marks together with the plan of their location and the act on the production of sediment measurements is transmitted to the construction organization. The report notes the state of the erected structure and the initial depth reference points during the measurement process.

SUGGESTIONS

The described method of processing the results of precipitation measurement can be considered rational only if the initial reference points do not change their height. The latter can be judged by the results of repeated levelings: if the exceedances obtained from two levels are close to each other between two reference points, then their heights are considered unchanged. In this case, the criterion for allowing a discrepancy in the difference in excess is the value h, determined by the formulas (1), (2), (3) and (4).[2,3]

There is another approach to processing the results of measurements of sediment structures. It is proposed by the Polish Professor T. Lazzarini and is based on the joint balancing of the results of leveling each repeated and initial measurement cycles. As you know, the main requirement of the least squares method can be expressed by the condition

$$[\upsilon\upsilon]+[\upsilon'\upsilon']=\min,$$

Where υ is the corrections to the exceedances measured in the initial observation cycle;

υ' – corrections to exceedances determined from observations of another cycle.

It is assumed that the repeated measurement is performed with the same accuracy as the initial one.

CONCLUSION

Experience has shown that this method of balancing is advisable to apply only when the invariance of the heights of the initial reference points can not be detected by the results of field measurements of exceedances.

REFERENCES

1. *Babenko, A. V.; Kleshnina, V. A.; Baranova, A. A. [et. al.]. The study of the accuracy of determining the roll of chimneys using the coordinate method using geometric modeling [Text]. In: Scientific and technical achievements of students in the construction and architectural industry: collection of abstracts. Makeevka : Donbas National Academy of Civil Engineering and Architecture. 2019. P. 164. (in Russian)*
2. *Germonova, O. Yu.; Germonova, K. O; Mitrofanova, O. I. Method for determining the shape and inclination of tall chimneys [Text]. In: Collection of scientific papers DNTU. 2010. № 12(173). P. 23–29. (in Ukraine)*
3. *Rustamova, M. M., Oxunjonov, Z. N., & Madaminov, J. Z. (2020). Use of graphics computer software in the study of the subject "Drawing and engineering graphics". ACADEMICIA: An International Multidisciplinary Research Journal, 10(5), 83-86.*
4. *Abdullayev, I. N., & Marupov, A. A. THE ANALYSIS OF LANDS IN SECURITY ZONES OF HIGH-VOLTAGE POWER LINES (POWER LINE) ON THE EXAMPLE OF THE FERGANA REGION. 6/2/2020, p-55-58, ORCID: 0000-0002-5120-4359, https://doi. org/10.36713/epra3977.*
5. *Numanovich, A. I., & Abbosxonovich, M. A. (2020). About The Special Regime Of Use And Standards Of Land Plots And Their Buffer Zones Located In Borders Of Roadside Strips Of Highways Of The Ferghana Region Of The Republic Of Uzbekistan. The American Journal of Engineering and Technology, 2(09), 77-81.*