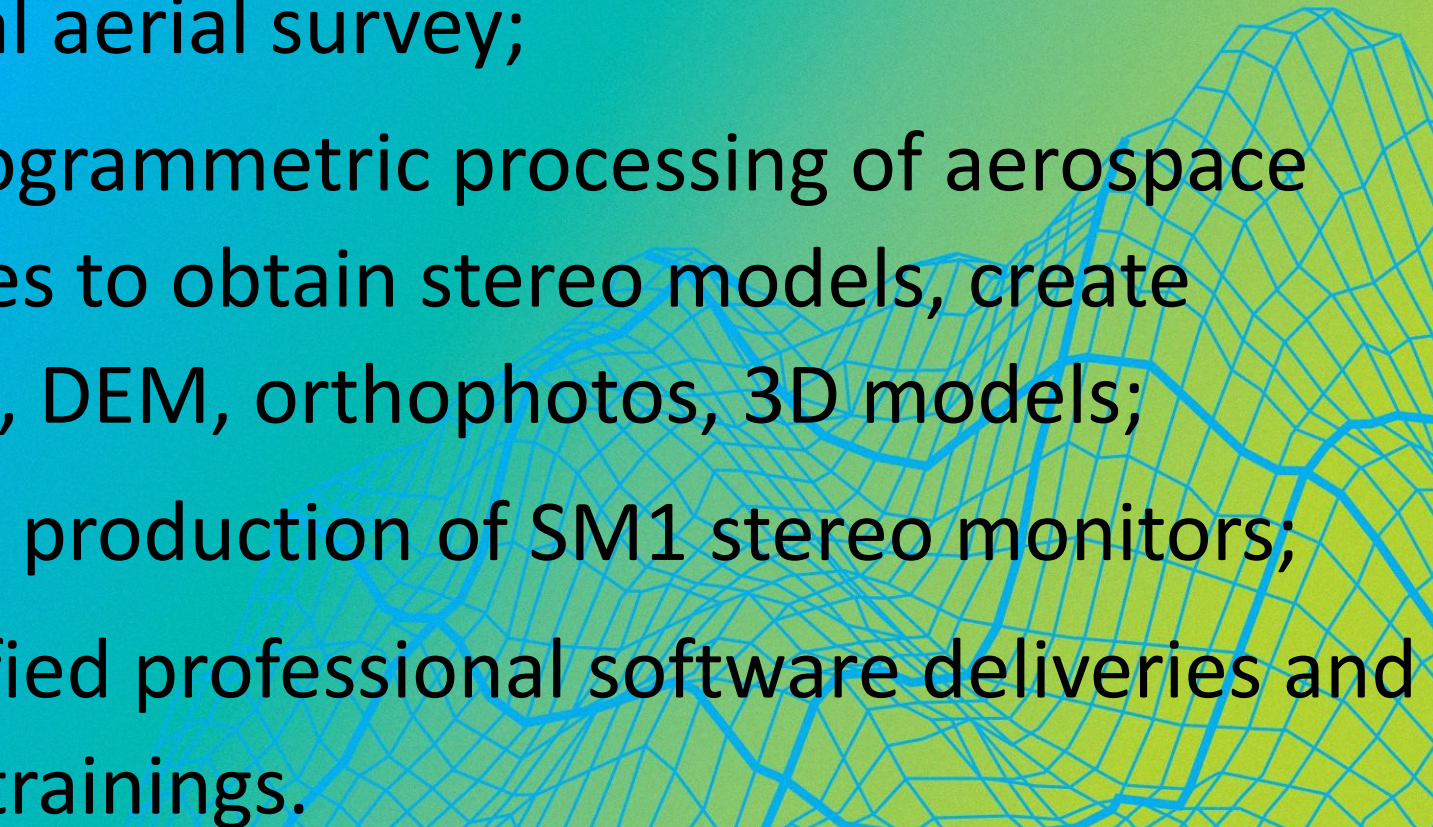


The 19th conference "FROM IMAGING TO DIGITAL REALITY: Remote
Sensing of the Earth and Photogrammetry"
Seoul, Korea, 10.28.2019

A total stereophotogrammetric terrain model for solving the problems of territorial management in cities

**Ural-Siberian GeoInformation Company,
Yekaterinburg city, Russia**



- Geodetic, cartographic, topographic works;
 - Digital aerial survey;
 - Photogrammetric processing of aerospace images to obtain stereo models, create maps, DEM, orthophotos, 3D models;
 - Serial production of SM1 stereo monitors;
 - Certified professional software deliveries and user trainings.
- 
- A 3D wireframe terrain model rendered in light blue lines, showing a mountainous landscape. The model is semi-transparent, allowing the text of the list to be seen through it. The background of the slide is a gradient from blue on the left to green on the right.

WHAT IS NEEDED?

Multifunctionality, informativeness relevance,
three-DIMENSIONAL COORDINATES with accuracy in
terms of: 10-20 cm in XY, 17-25 cm in height; user
convenience, operational and cheap monitoring.

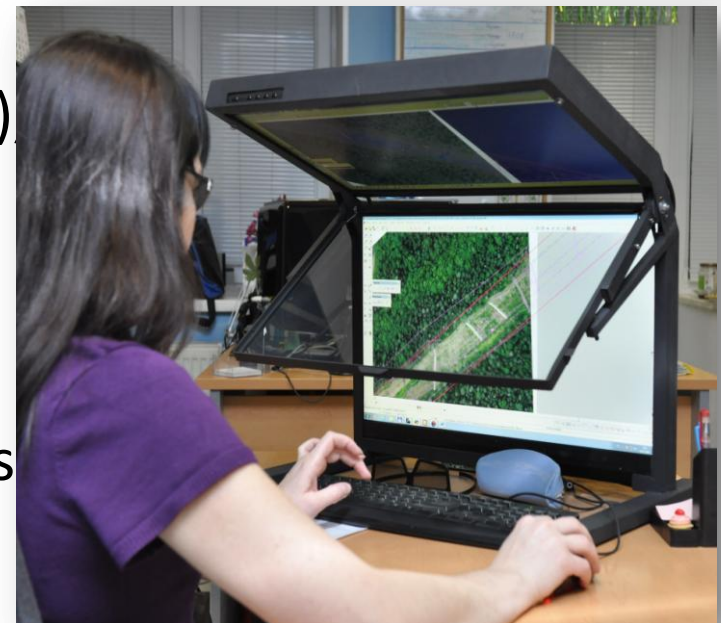
WHAT INFORMATION CITIES HAVE?

Typically:

1: 500-1:2 000 scale digital topographic maps,
1:2000 – 1: 10000 scale digital orthophotos.

- Urban development
- Territories management
- Accomplishment of territory
- Unified state register of real estate
 - Safe city
 - Smart city

- 1:2000 scale digital orthophotos,
- PHOTOMOD (Core and StereoDraw modules),
- equalized photogrammetric project (digital photogrammetric stereo models)
- stereo monitors SM1 (production of JSC «USGIC»),
- training users to work with stereo models



РОССИЙСКАЯ ФЕДЕРАЦИЯ



СВИДЕТЕЛЬСТВО

о государственной регистрации программы для ЭВМ

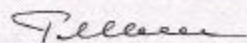
№ 2018617544

Цифровая стереофотограмметрическая система
«Информационный стереоскопический образ территории»
(«ИНСОТ», «INSOT»)

Правообладатель: *Акционерное общество «УРАЛО-СИБИРСКАЯ
ГЕО-ИНФОРМАЦИОННАЯ КОМПАНИЯ» (АО «УСГИК») (RU)*

Заявка № 2018614590
Дата поступления 20 апреля 2018 г.
Дата государственной регистрации
в Реестре программ для ЭВМ 26 июня 2018 г.

Руководитель Федеральной службы
по интеллектуальной собственности

 Г.П. Ильев



Registration the INSOT

The software "INSOT" is included in the unified register of Russian programs for electronic computers and databases by Order of the Ministry of communications of the Russian Federation dated 25.07.2019 No. 412

The software is designed **to visualize a stereoscopic model of the terrain:**

- creation and three-dimensional visualization of a seamless stereoscopic model of the territory based on aerial photos (up to **20,000 aerial photos**);
- three-dimensional visualization of vector data;
- three-dimensional visualization of 3D-models of objects;
- support for polarization, line-by-line, shutter, anaglyphic stereovisualization mode;
- perform **measurements** on the stereoscopic model.

Operating system

- Microsoft Windows 7,8,10 (32&64)
- Export to Linux is Possible

Hardware requirements

- For operation in mono and stereo:
NVIDIA GeForce 10 series graphics card;
For operation on a stereo monitor:
Nvidia Quadro P 620 (minimum configuration) - Nvidia Quadro P 2000 (recommended configuration)

Software platform

- Free Pascal + OpenGL api-developer version, debugging, porting to Linux
- Visual C++, C# (.NET 4.6)+ DirectX 11(12)API+ WPF-vepsia for users

Supported data formats

- Photogrammetric projects PHOTOMOD
- Photogrammetric projects in their own format Supports almost all digital frame shooting systems,
- The number of images in the project is up to 20 thousand

Vector layer

- Mapinfo Mid/Mif
- ShapeFiles
- Xml (for Rosreestr)

Raster data (orthophotos and DEM)

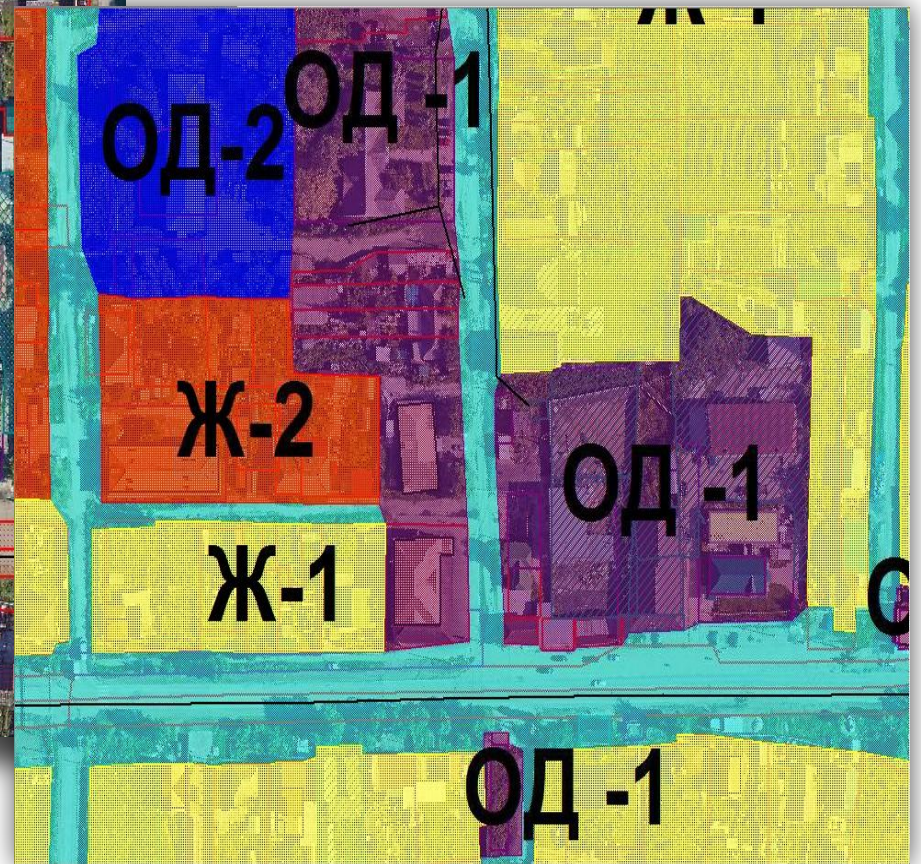
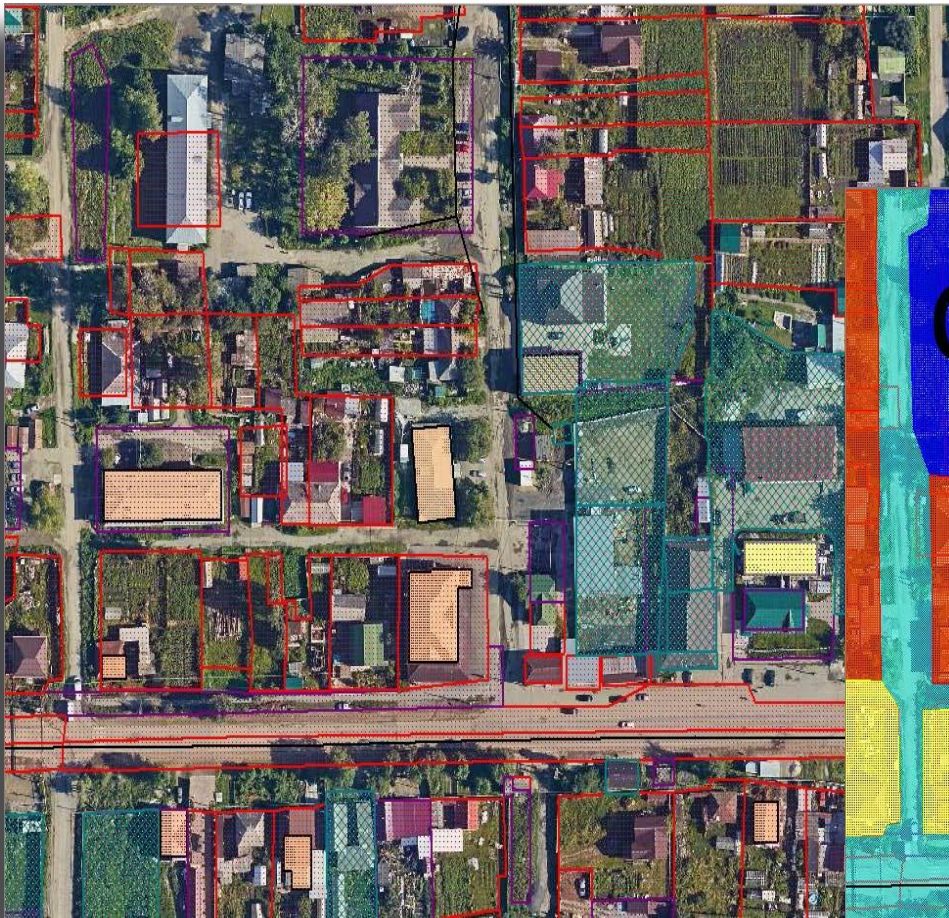
- GeoTiff
- WIC-compatible formats +World File+WKT

3D Vector object models

- kml/kmz
- Collada



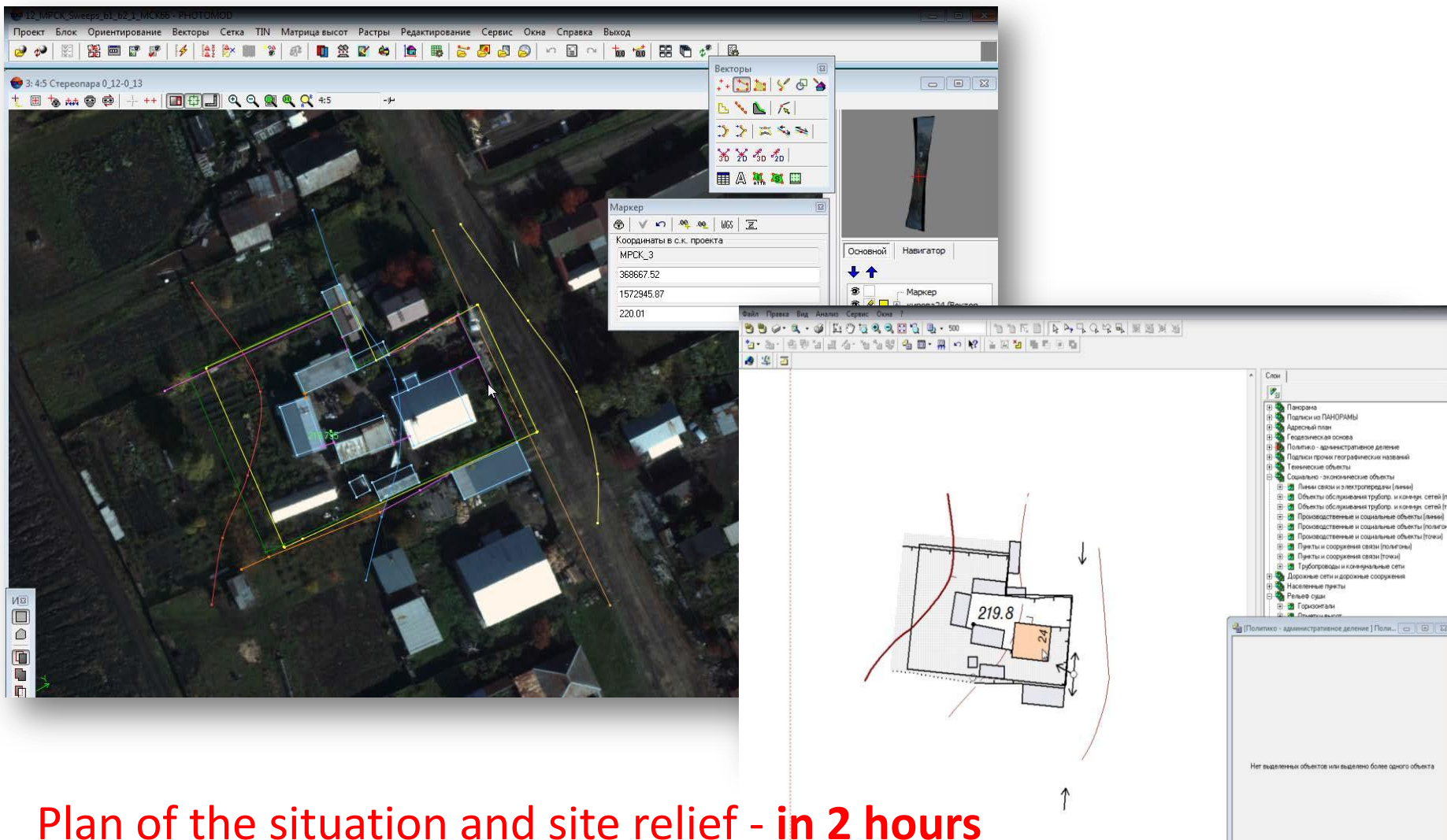
1. **3D-modeling**
2. **Updating The Master Plan**
3. **Updating of maps of town-planning zoning, rules of land use and building**
4. **Improvement of the territory of common use and its cleaning**
5. **Choice of places for advertising structures**
6. **Identification of land plots for rent**
7. **Land control**
8. **Measurement of SAG of wires of power lines**
9. **A comprehensive cadastral works**
10. **Control of solid waste storage (landfills)**
11. **Update topographic information (plan, absolute and relative heights)**
12. **Definition of zones of flooding**
13. **Definition of protected areas (roads, hydrography, etc.)**
14. **Preparation of initial data for design of objects (technical and economic indicators), reconstruction, capital repairs**
15. **Getting information about the territory and objects regardless of the time of year and weather**
16. **Registration of urban forests**
17. **Project presentation**
18. **Placement of non-stationary objects (Economics Department)**
19. **Calculation of insolation in new construction in residential buildings**
20. **Resolution of issues in emergency situations (Department of civil protection and Department of public safety)**
21. **Coordination of projects of planning of linear objects (passing of the route, its length, intersections with ground engineering networks)**
22. **Creation of a navigation system in the city (placement of information signs, lines, etc.)**



- The boundary of actual land use.
- The boundary of the land contained in the usrn

Signs of unauthorized occupation of land

stereo model allows you to determine the coordinates of the characteristic points of land plots, OKS necessary accuracy



Plan of the situation and site relief - in 2 hours

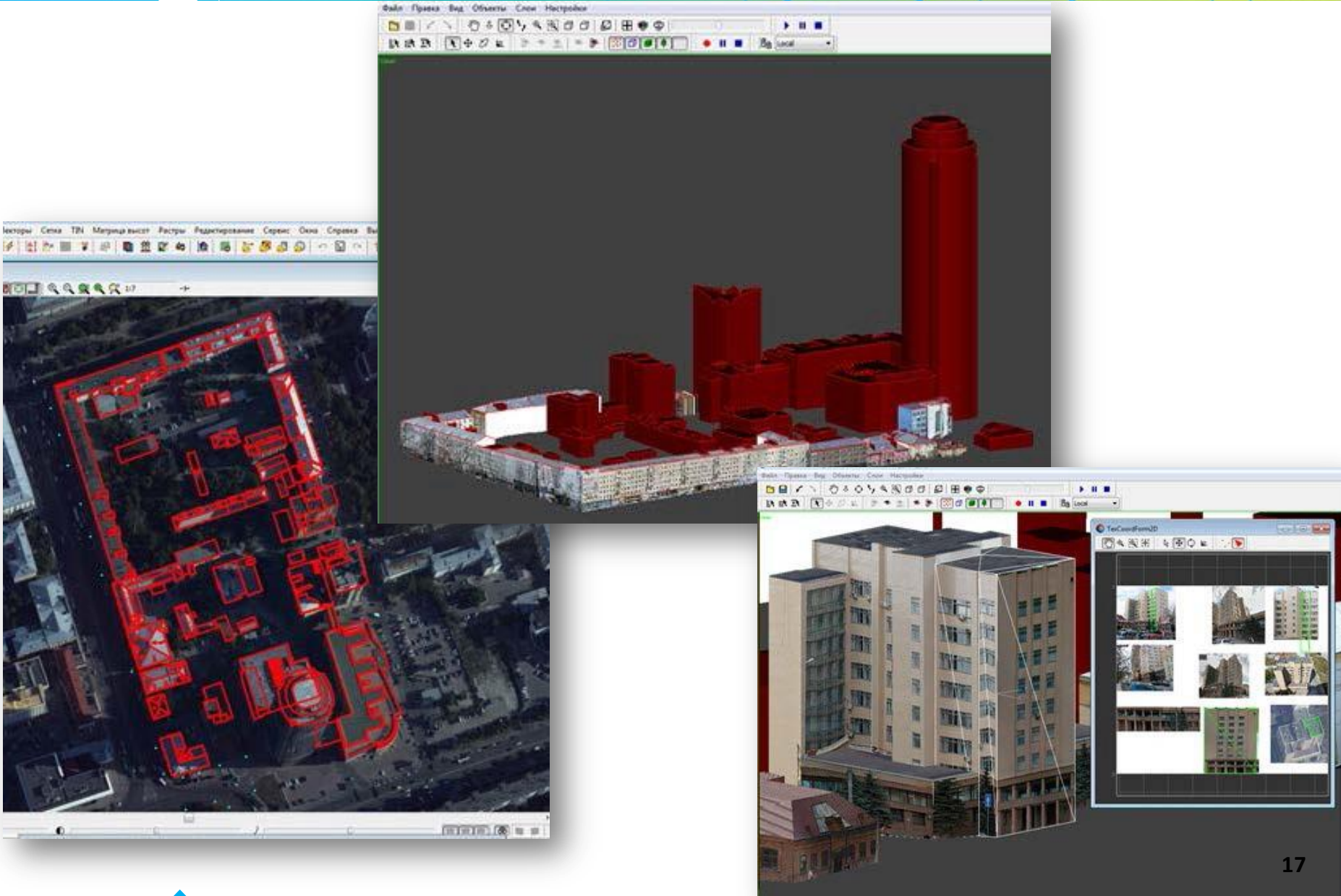


Вид ЗОУИТ	Площадь	Име
▶ Береговая полоса	15129,8	
Зона минимальных расстояний объектов магистральных ...	779203,78	
Санитарно-защитная зона промышленных объектов и пр...	66080,79	
Санитарно-защитная зона промышленных объектов и пр...	133893,01	
Санитарно-защитная зона промышленных объектов и пр...	28383,26	
Санитарно-защитная зона промышленных объектов и пр...	53958,2	
Охранная зона объектов электросетевого хозяйства	31929,94	
Охранная зона объектов электросетевого хозяйства	30831,95	
Охранная зона объектов электросетевого хозяйства	6348,48	
Охранная зона объектов электросетевого хозяйства	11683,88	

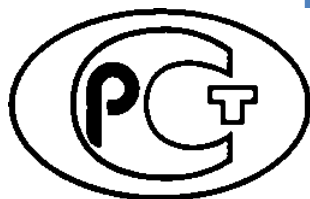


Misuse

- The boundary of land plots contained in the USRN
- The boundary of actual land use
- Border of water protection zone¹²



FEDERAL AGENCY
FOR TECHNICAL REGULATION AND METROLOGY



NATIONAL
STANDARD OF THE
RUSSIAN FEDERATION

GOST R
—
2019

Standardization in the Russian Federation

**PHOTOGRAMMETRY. REQUIREMENTS FOR THE CREATION OF
ORIENTED PHOTOGRAMMETRIC AERO IMAGES, PROVIDING THE
CONSTRUCTION OF STEREOSCOPIC AREA MODELS FOR SOLVING THE
PROBLEMS OF CADASTRAL AND URBAN PLANNING ACTIVITIES**

This draft standard is not applicable until approval

Thanks for your attention!

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