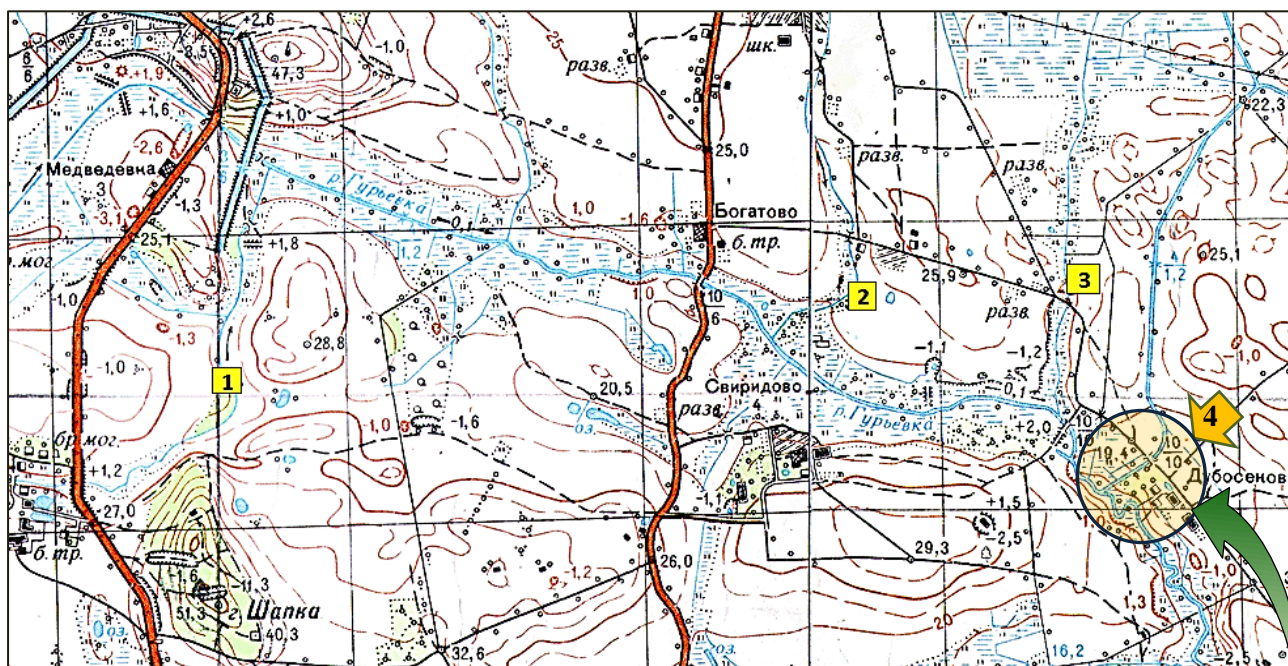


## Promilleafgiftsfonden for landbrug

### INVESTMENT: CONSTRUCTED WETLAND WITH SEDIMENTATION POND AND BIOFILTER FOR WATER QUALITY MANAGEMENT IN GURIEVSK, KALININGRAD OBLAST, RUSSIA

Case area of project Waterdrive were identified :

In the Waterdrive project, the Guryevka River catchment area was selected as the observation zone. The catchment basin of the Upper Pond / Lake Dambas is part of the main catchment area of the Guryevka River. The selected area includes 3 drainage channels. The total catchment area is 971 ha, of which 490 ha is agricultural land.



#### Drainage channel 1

Channel catchment area: 147 ha  
Flow rate: 1,27 m<sup>3</sup> / s  
Length: 2,2 km  
Territorial zone: Settlement land  
and agricultural land  
Point info: Lon, Lat:20.5437, 54.8013

#### Drainage channel 2

Channel catchment area: 393 ha  
Flow rate: 1,23m<sup>3</sup> / s  
Length : 3,2 km  
Territorial zone: agricultural land  
Point Info:  
Lon, Lat:20.5704, 54.7996

#### Drainage channel 3

Channel catchment area: 431 ha  
Flow rate: 1,07 m<sup>3</sup> / s  
Length: 3,5 km  
Territorial zone: agricultural land  
Point Info:  
Lon, Lat:20.5854, 54.7962

During the discussion, we decided to consider another area for the possible constructing Wetland on channel 4 (МПОО11-5), which is located below the dam.

## Location of case area



- Upper Pond Area / Lake Dambas: approximately 11.5 ha.
- The floodplain zone of the lake is about 6 hectares.
- The water level in the lake is regulated by a dam.





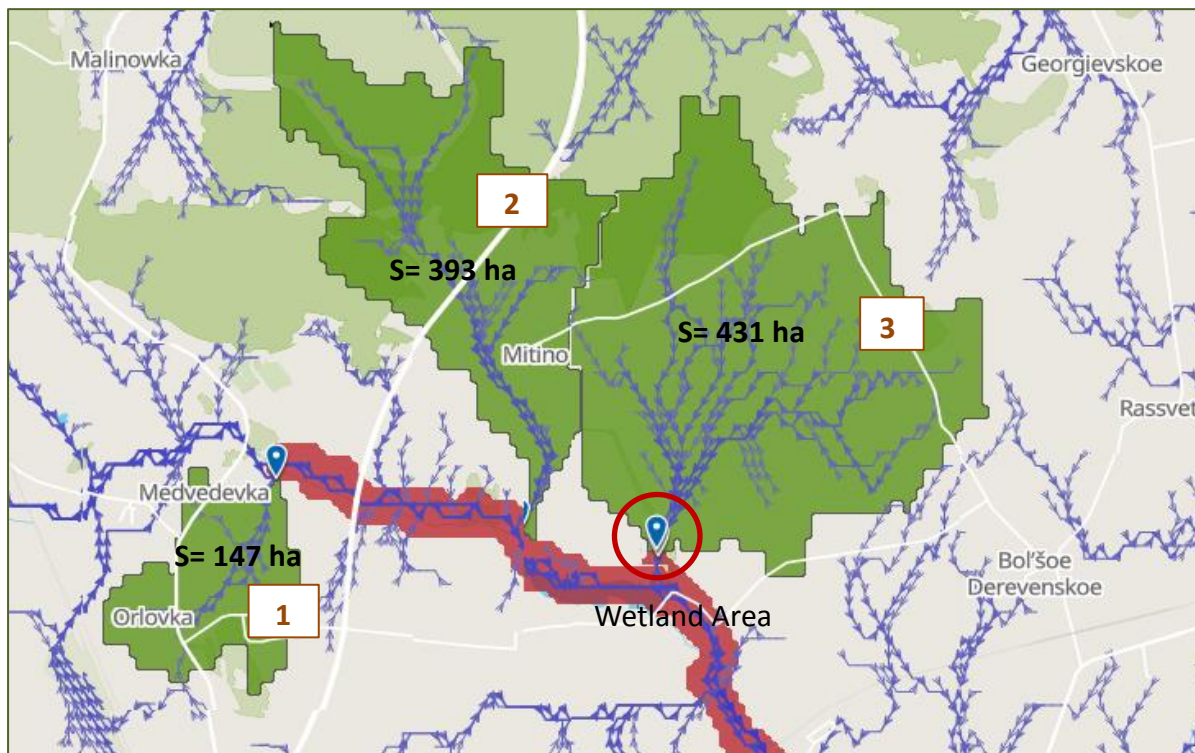
## SITE SELECTION AND DESIGN OF THE WETLAND COMPLETED

Catchment drain channel 1 only includes wastewater from settlements.

Catchment drain channel 2 includes agricultural land. But the territory does not have the road infrastructure.

Catchment drain channel 3 includes agricultural land. The territory has a road infrastructure.

### The water catchment of drainage channels in CA

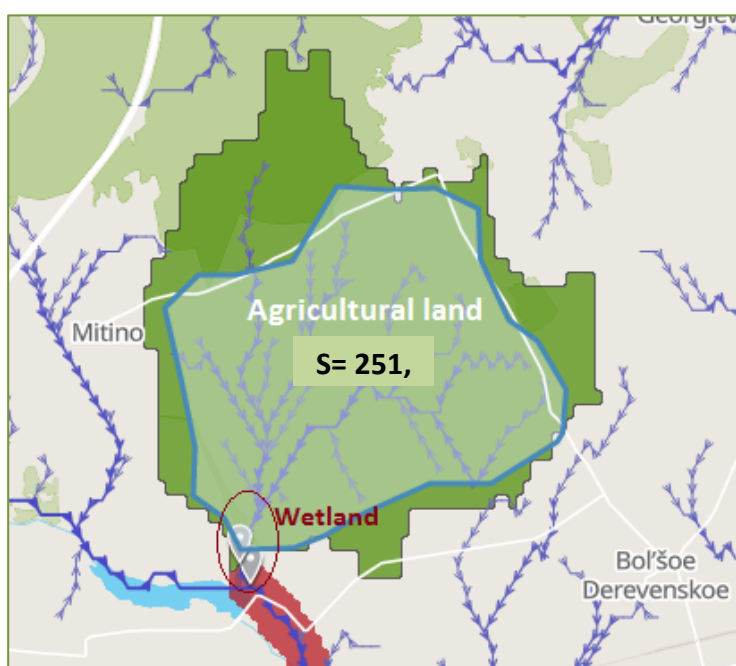


On the map, the theoretically optimal place of wetland is shown.

### PLACE OF DRAINAGE CHANNEL

(point 3 on the map)

- Channel catchment area: 431 ha
- Flow rate: 1,07m<sup>3</sup> / s
- The Length to the pond: 3,5 km
- Agricultural land about 251,48 ha
- The size of the catchment area in SCALCO (SRTM) - 580 ha
- The size of the catchment, according to "Kaliningradmeliovodkhoz" is 431 ha



## CHARACTERISTICS OF WETLAND AREAS

We analyzed the use and construction of wetlands in Denmark. (example: Minivådområde-ordningen 2019 Etablering af åbne minivådområder og minivådområder med filtermatrice). Based on the results of the land survey, we came to the following decision: it is advisable to place an open-type wetland with an open drain in the selected area.

It was selected territory, a total area of - 1.87 hectares.

This area includes:

- The municipality's plots of land are the area of 0,416 hectares and 0.63 hectares (These plots of land bordering the river's and drainage canal's water protection of territories );
- Zone of drainage channel MPO-11-6a (including water protection zone of a width of 5 m on both sides of the flood);
- Zone of Guryevka River (including water protection zone width of 20 m on both sides of the watercourse).

*The total area of aqueous land (part of Guryevka river and part of the drain channel) is 1.52 ha.*

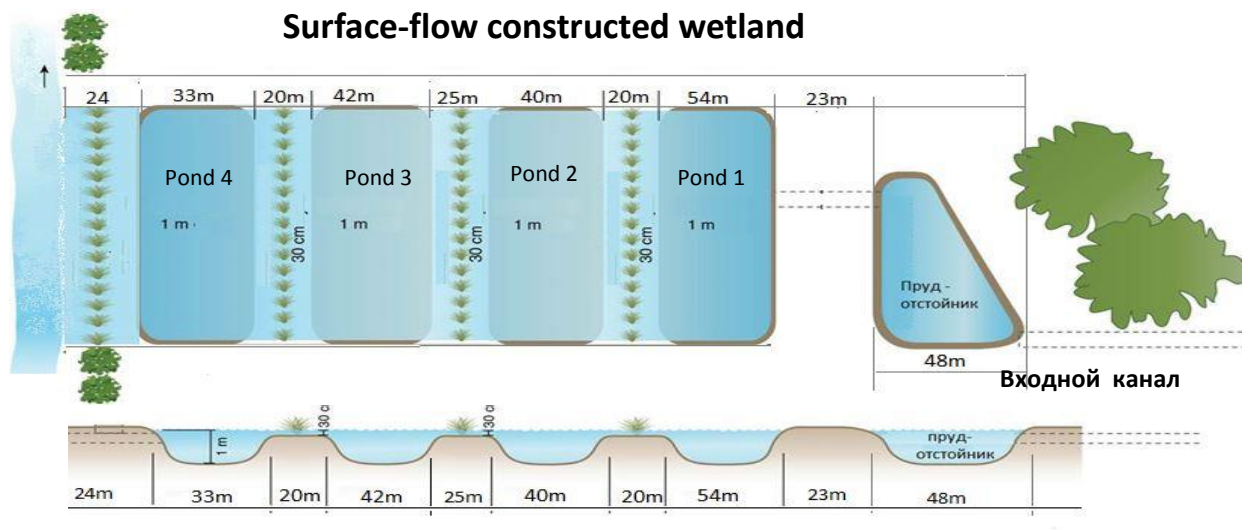
Wetland consists of settling pond (sedimentation basin) and 8-alternating deep and shallow basins.

In the process of construction of wetland, planned to change in the riverbed Guryevka, at the site of the confluence of the MPO-11-6a drainage channel to the main channel of the river.

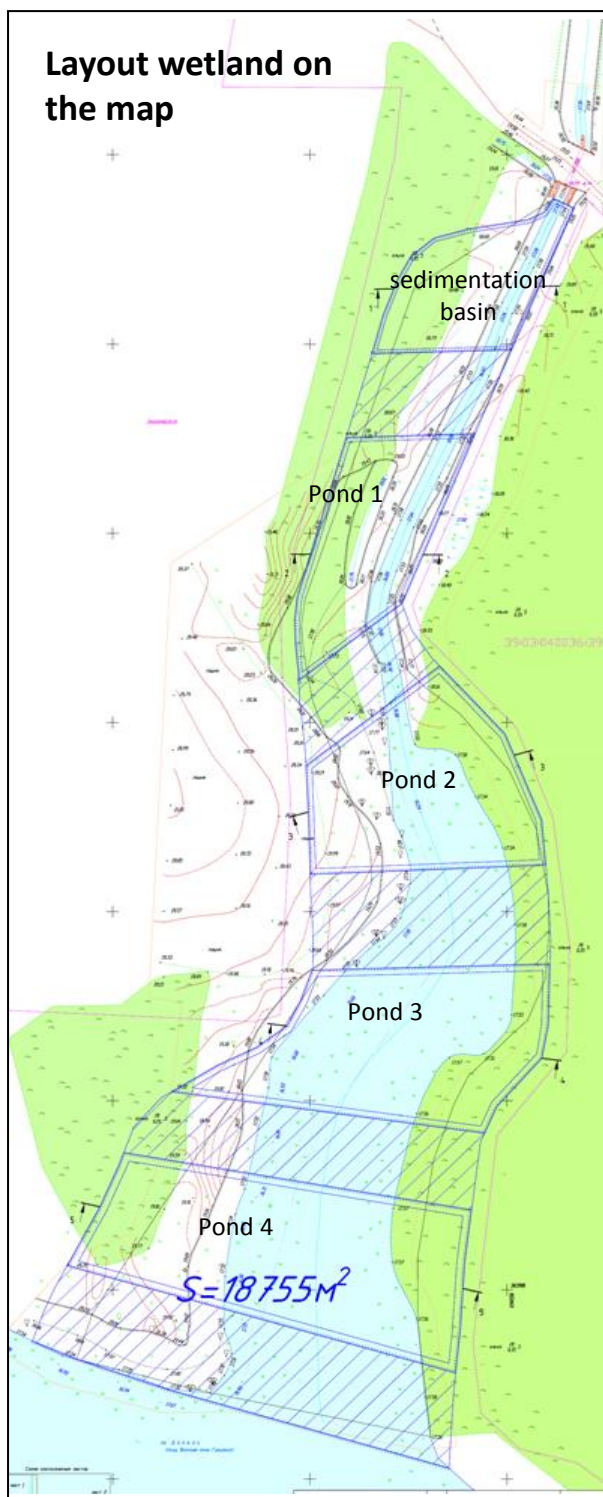
And also, the drainage channel bed will be changed (in the area from the country road to the confluence with p. Guryevka). This will entail changes to the technical characteristics of the channel.

## CHARACTERISTICS OF WETLAND AREAS

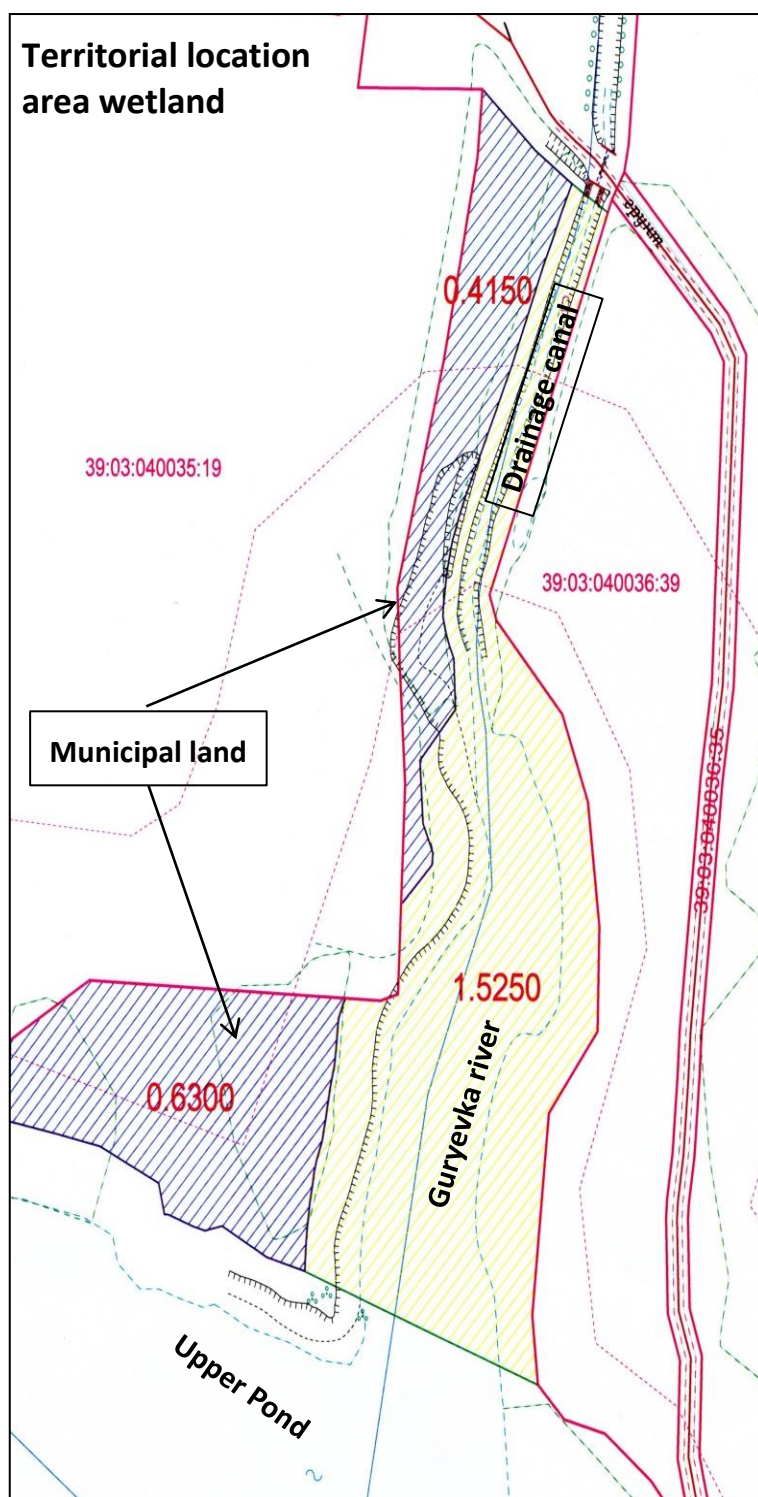
### Surface-flow constructed wetland



## Layout wetland on the map

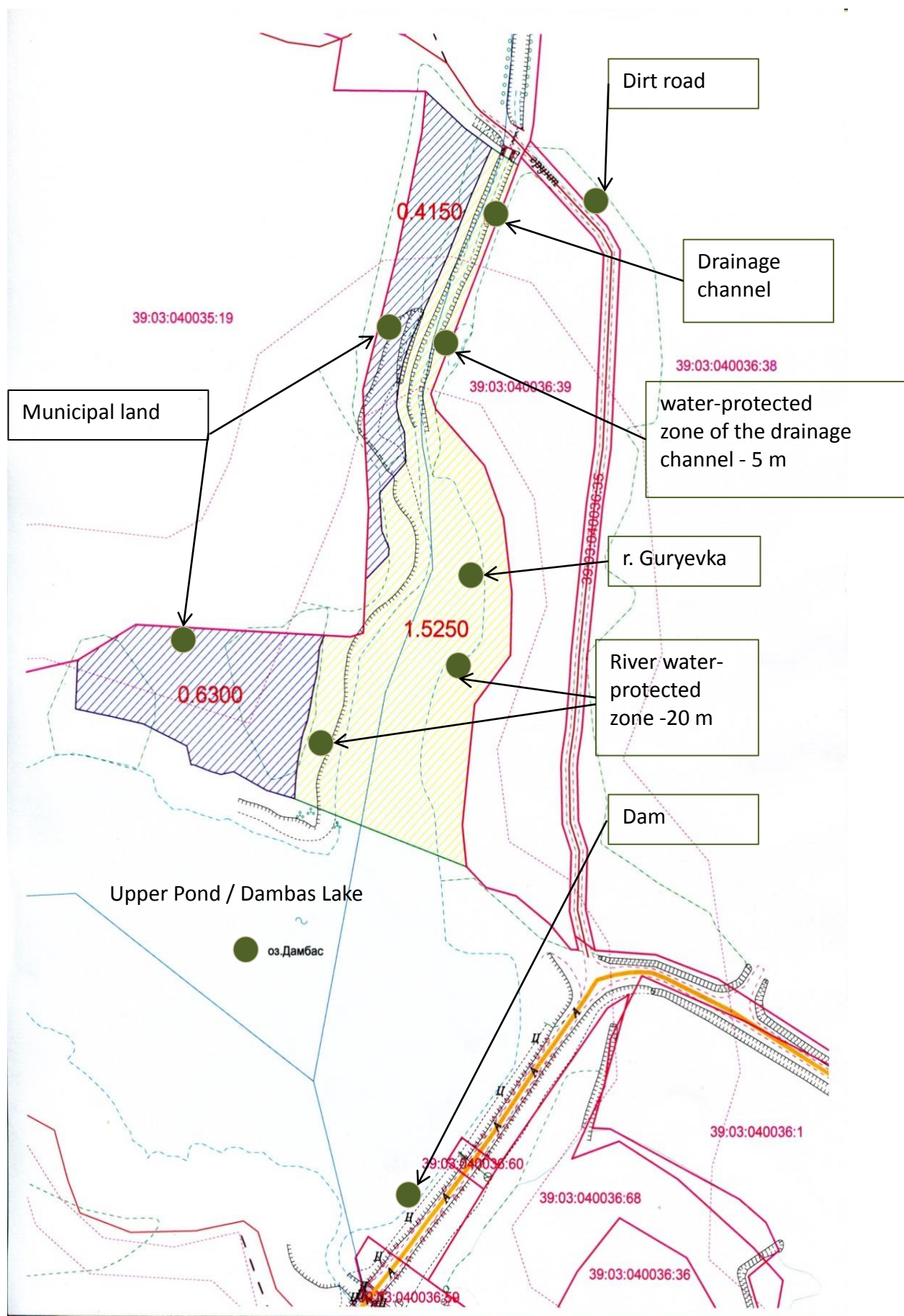


## Territorial location area wetland

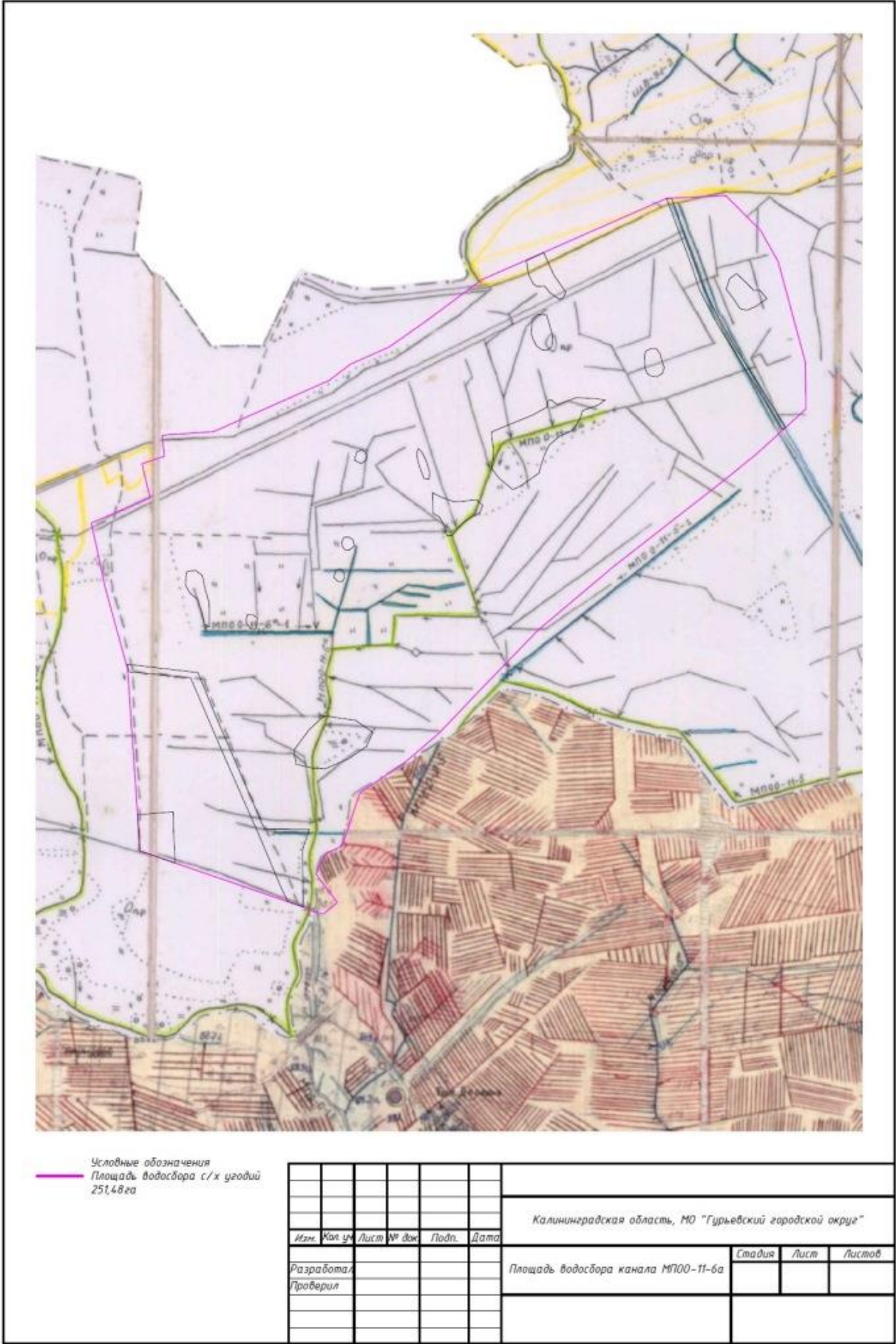




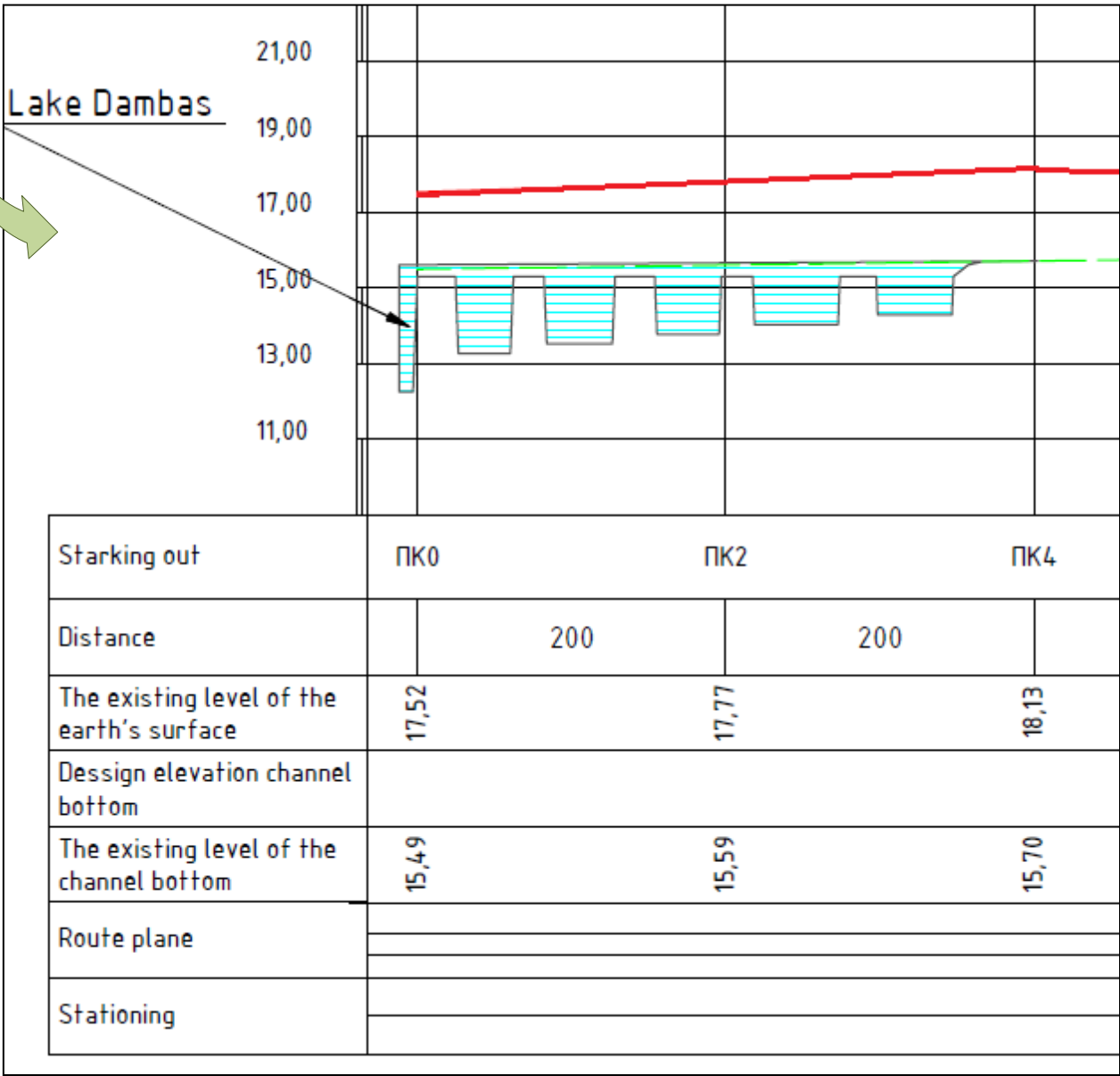
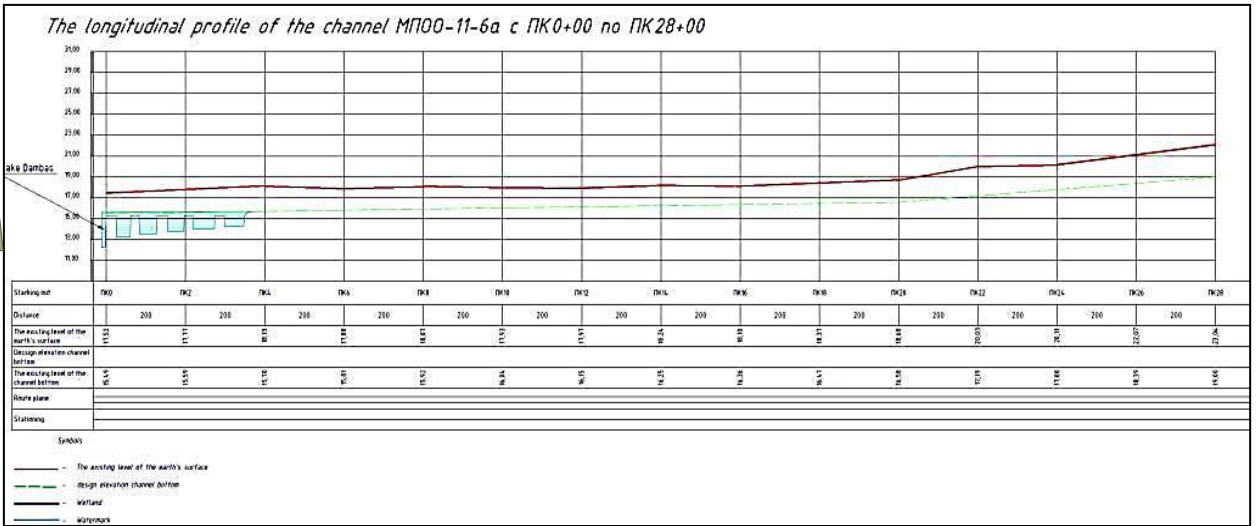
## CASE AREA CADASTRAL PLAN



AGRICULTURAL LAND IN CA  
 The total area of agricultural lands in CA251,48 ra

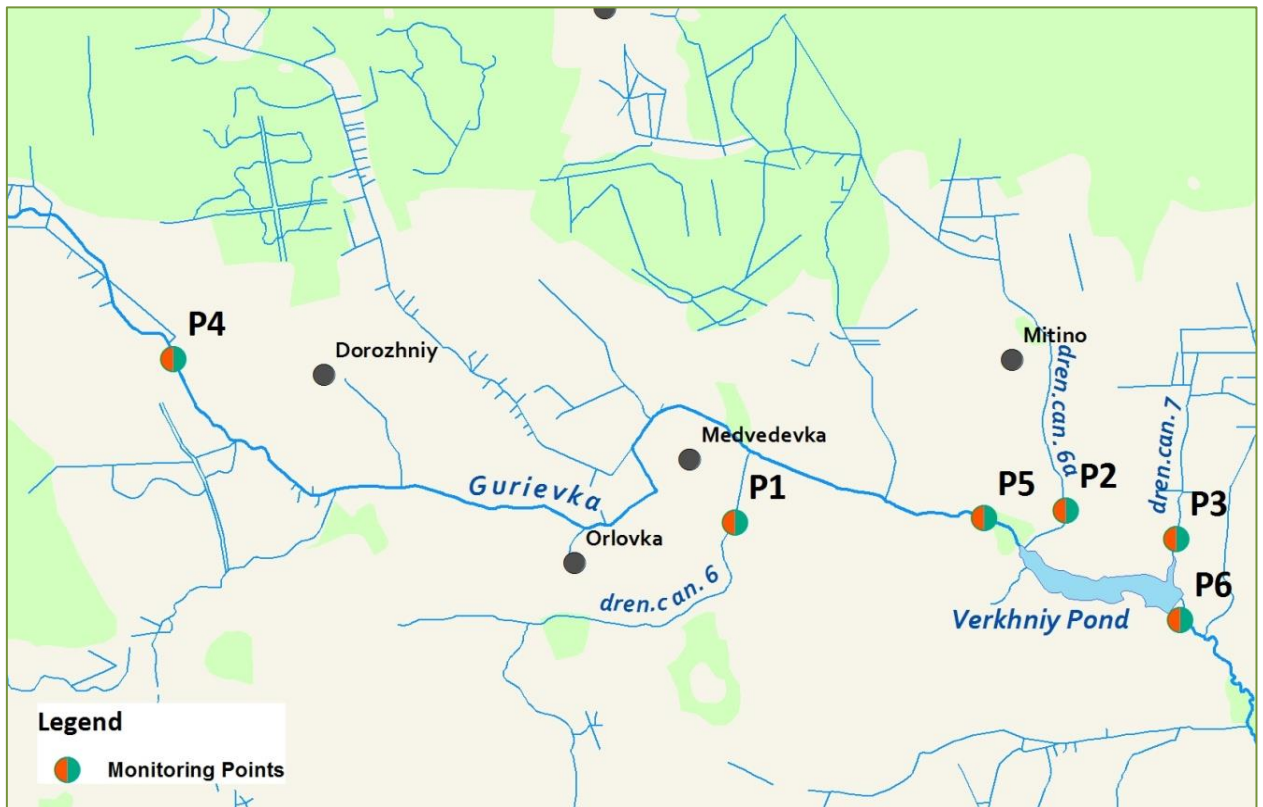


Longitudinal profile of drainage channel 3





## Monitoring points for the catchment of the upper pond



### IDENTIFIED PROBLEMS

Estimated area wetland location falls into the protected zone Guryevka River. All activities carried out in the protected zone should be coordinated with the Ministry of Natural Resources of the Kaliningrad region.

Drainage channels and river Guryevka are in the operational management of Federal state institution "Kaliningradmeliovodkhoz".

All actions related to the reconstruction of the drainage channels should be coordinated with the structure.

According to information Rossreestra Office in the state cadastre of a real estate considered guard band Guryevka River (MPOO-11) and water protection Guryevka River area (MPOO-11) established on the basis of the Order of the Ministry of Natural Resources and Ecology of the Kaliningrad region on November 24, 2017 № 187 "On approval of the boundaries of water protection and coastal shelterbelts river watercourses Pregel of the Kaliningrad region. "The legal mode of use in accordance with the Federal Law №74 from 03.06.2006, the "Water Code of the Russian Federation"

