

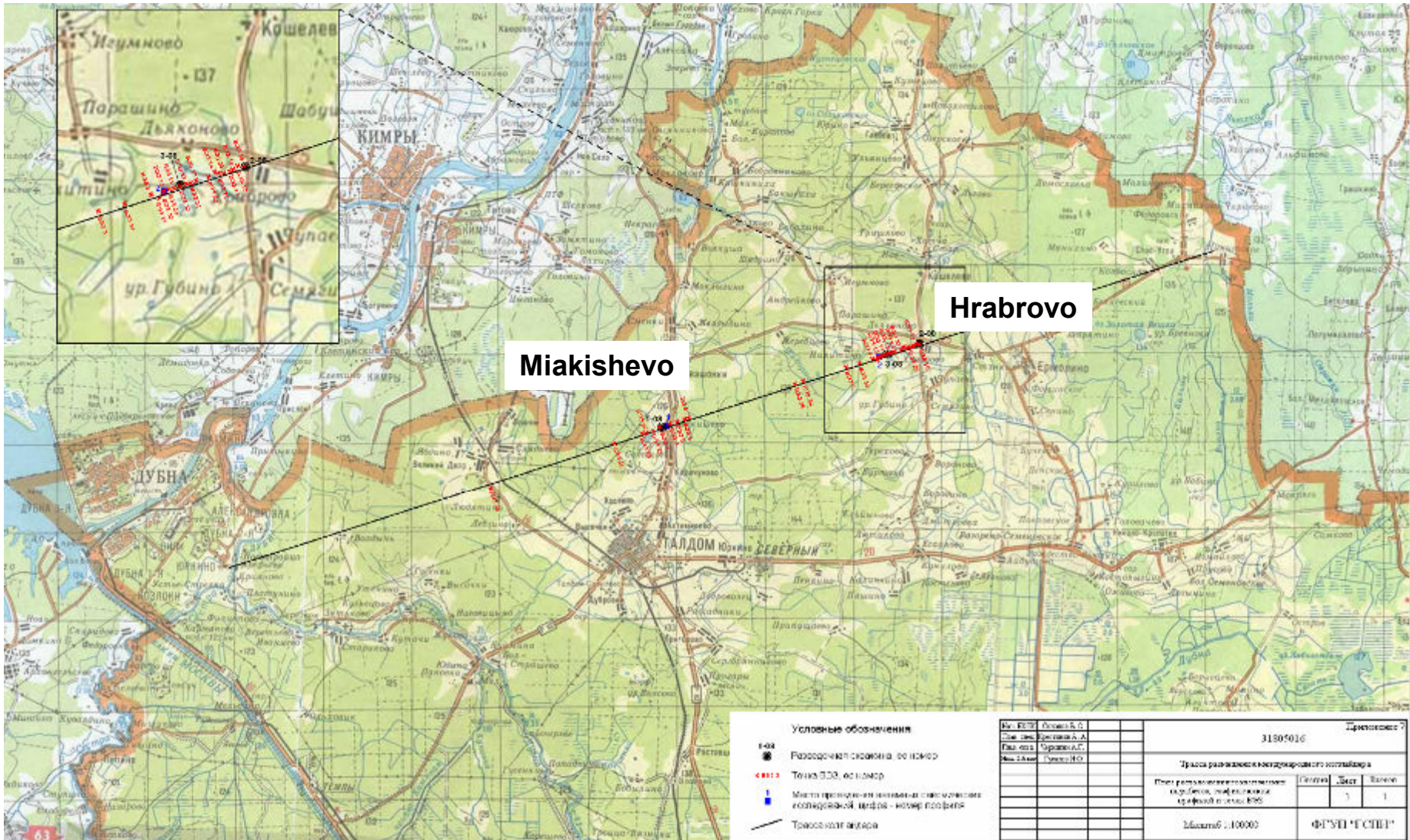


G. Shirkov



**First Results of Geological Investigations
of Dubna Siting**

Geological investigations of GSPI in the Taldom region in October 2008

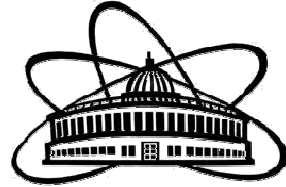


GSPI has performed geophysical investigations in 35 points (in red) including three drillings of chinks of 47 m, 43 m and 36 m depth. The probes of soils had been analyzed.

The power of loan are 27.5 m (2.0 m – 29.5 m) and 37.4 m (8.1 m – 45.5 m) correspondently. Geophysical investigations with a series of seismic and electrical investigations have been performed as well.



Space views of drillings # 1, 2 и 3 (October 2008)



Results of first geological investigations of Dubna siting

1. Introduction

2. Previous studies of the engineering-geological conditions of the region

3. Natural conditions of the region

3.1. Climatic feature of the region

3.2. Physiographic and technogenic conditions

3.3. Seismic conditions

3.4. The geological structure of the territory

3.5. Hydro-geological conditions of the territory

4. Engineering-geological conditions along the collider line

4.1. Physiographic and technogenic conditions

4.2. Geological structure

4.3. Hydro-geological conditions

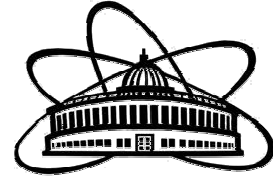
4.4. Properties of the soils

4.4.1. Laboratory methods for soils physical-mechanical properties investigation

4.4.2. Field methods for soils speed properties investigation

4.4.3. Physical-mechanical properties of the soils

4.4.4. Specific properties of the soils



Results of first geological investigations of Dubna siting

5. Geologic and engineering-geological processes

5.1. Endogenic geological processes

5.2. Exogenic geological processes

5.3. Engineering-geological processes

6. Conclusion

7. Metrological maintenance of the executed operations

8. The list of the used materials

9. Appendixes

Letter-task, 1 page.

VES points catalogue, 1 page.

The table of the soils physical-mechanical properties, 3 pages.

The table of statistical processing results of laboratory definitions of soils characteristics by engineering-geological elements, 5 pages.

Results of water chemical analysis, 10 pages.

Results of soils chemical analysis, 19 pages.

The plan of a location of geologic developments, geophysical profiles and VES points, 1 page.

Geophysical section, 1 page.

A geologic column with results of gamma logging and thermometry, 3 pages.

Results of definition of strength and deformation properties of the soils, 41 pages

VES curves, 6 pages.

Methods and gauges, 5 pages

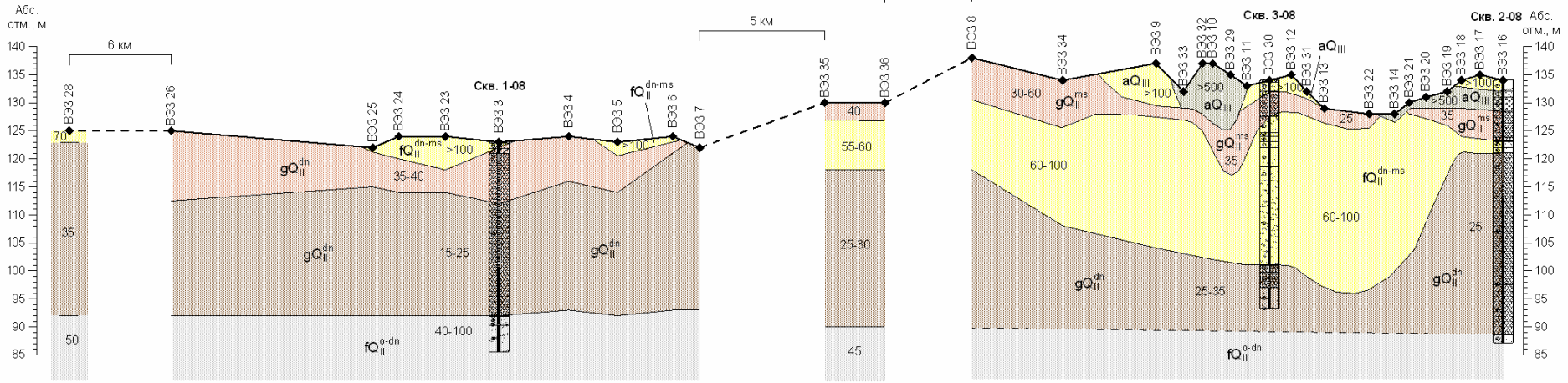
Conclusions

The results of preliminary geological engineering survey

1. Route of the International Linear Collider passes in sparsely populated area near existent scientific center JINR
2. Climatic conditions are comfortable.
3. Relief of the area is flat with soft outlines and small excess. The most part of the track is forest, the smaller part is meadows and tillage, partly is swamp land.
4. The route passes through the stable, steady structural element of the earth's crust – Russian plate. This territory is related to the 5-point zone under the MSK-64 scale.
5. Geological structure, hydrogeological conditions, geotechnical properties of soil are suitable for the ILC construction.
6. The ILC is placed at a shallow depth (13-24m) in layer of firm dense drift clay, partly in layer of water-field sand. Under the further researches of the region it is possible to place the route in drift clay entirely.
7. In general, the assumed route is favorable for the ILC construction. There is a positive experience of automated tunneling in similar soils in the Russian Federation.

Ю-3

С-В

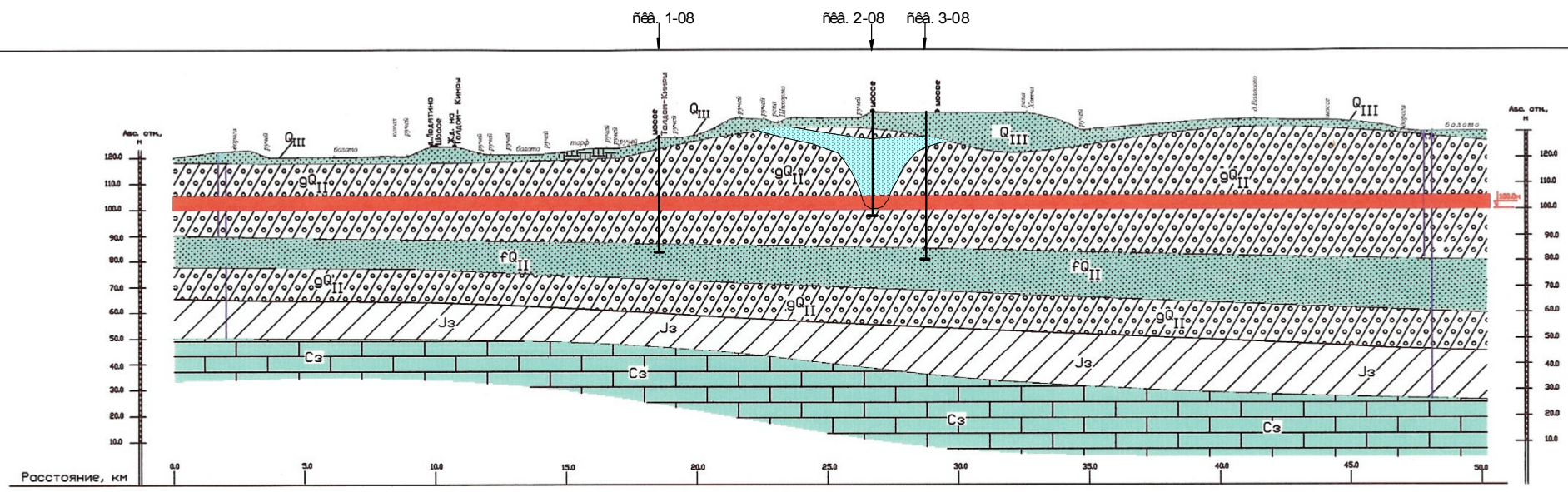


Условные обозначения

- I геозлектрический горизонт - моренные суглинки московской и днепровской стадии опеденения
- II геозлектрический горизонт - моренные суглинки днепровской стадии опеденения
- III геозлектрический горизонт - песчаные отложения окско-днепровского межледниковья
- IV геозлектрический горизонт - аллювиальные песчаные отложения и флювиогляциальные песчаные отложения днепрово-московского межледниковья
- V геозлектрический горизонт - аллювиальные гравийно-галечниковые отложения

Нач. БКИИ	Сokolov B. C.				Приложение 8
Глав. спец.	Крестинин А. А.				31805016
Глав. спец.	Черныгин А. Г.				Трасса размещения международного коппайдера
Инж. 2-й кат.	Гусakov И. О.				Геолого-геофизический разрез по оси трассы
					Масштаб: горизонтальный 1:20000 вертикальный 1:500
					Страница 1 Лист 1 Листов 1
					ФГУП "ГСПИ"

Schematic geological engineering section of the ILC route



Условные обозначения

- Торф
- Песок
- Суглинок
- Глина
- Известняк
- Осаждение
- Контур проекционного сооружения

peat sand loam clay limestone watering tunnel

PLANS for the FUTURE

1. Detailed geological investigations on the ILC route.
2. Looking for the best Interaction Point as a center and starting point of ILC, Detectors and Convention Facilities location.
3. Cost Estimation for different solutions of Dubna siting (one tunnel and surface gallery, full cut and cover, combinations of solutions).
4. Conditions and funding of GSPI work and participation in the GDE/CFS activity