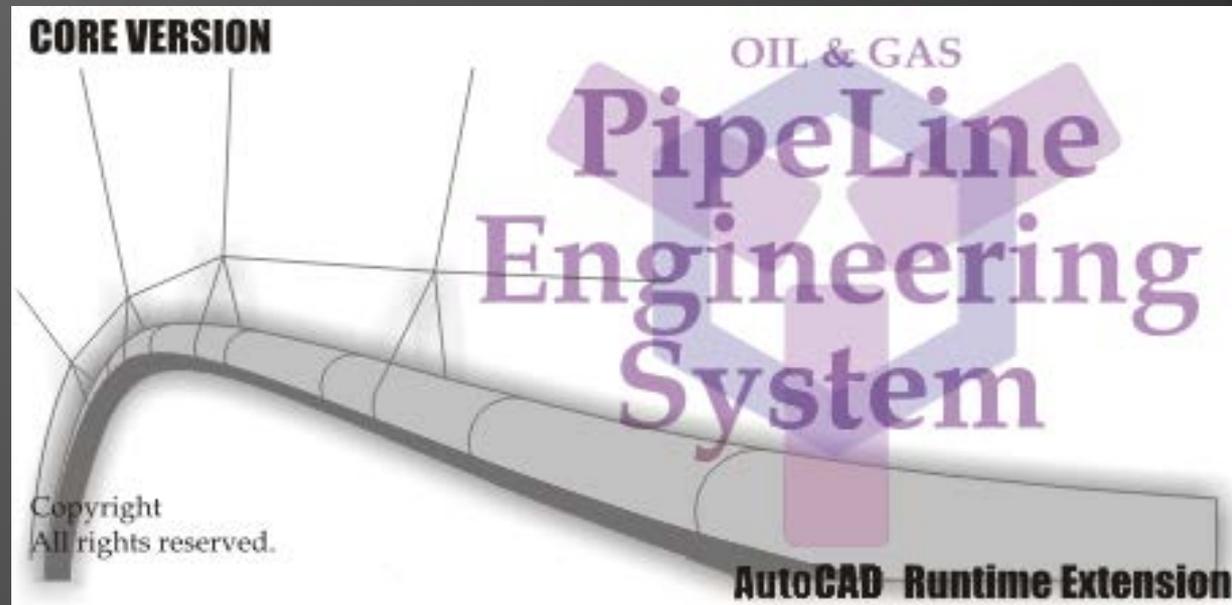


Pipeline Engineering System for AutoCAD



Application Area

This software is designed to automate the design of linear pipeline systems:

- ⦿ *High-pressure gas and oil pipelines*
- ⦿ *Gas distribution networks*
- ⦿ *Water supply systems*

- ⦿ *The main goal of application this program is to improve the quality of designed pipelines while minimizing project costs and increasing the speed of design.*

Key Features

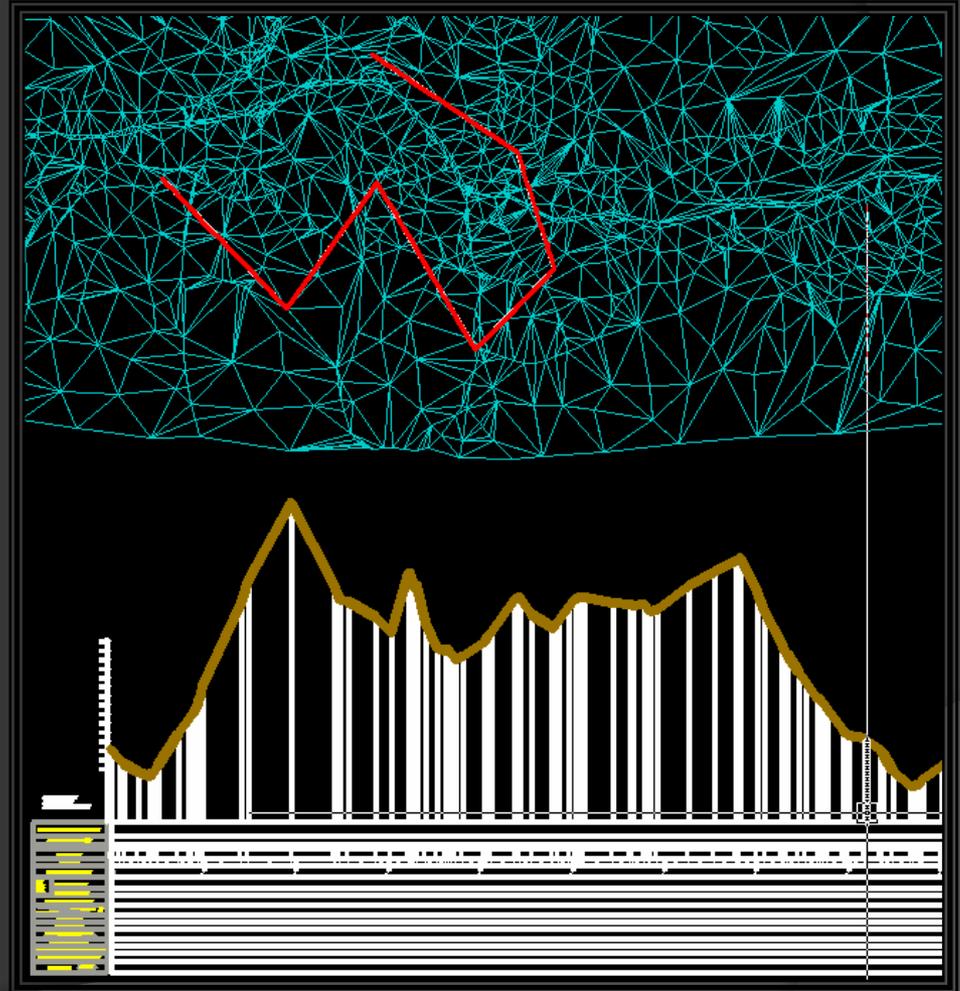
- ⦿ *Create Digital Terrain Models (DTM) from survey data*
- ⦿ *Pipeline routing considering existing utilities*
- ⦿ *Generate surface profiles*
- ⦿ *Edit pipeline profiles (curves, bends, casings)*
- ⦿ *3D earthwork calculations*
- ⦿ *Integration with Excel for quantity calculations*
- ⦿ *Centralized database with network access*
- ⦿ *Export to START and CPIPE formats for stress analysis*

Key Features

- ⦿ *Saving projects to a network database and online access to projects located in a single database.*
- ⦿ *Creating a compressed profile from multiple database profiles.*
- ⦿ *Exporting data to an open START file format for strength and stability calculations.*
- ⦿ *Exporting data to an open CPIPE file format for strength and stability calculations.*

Key Features

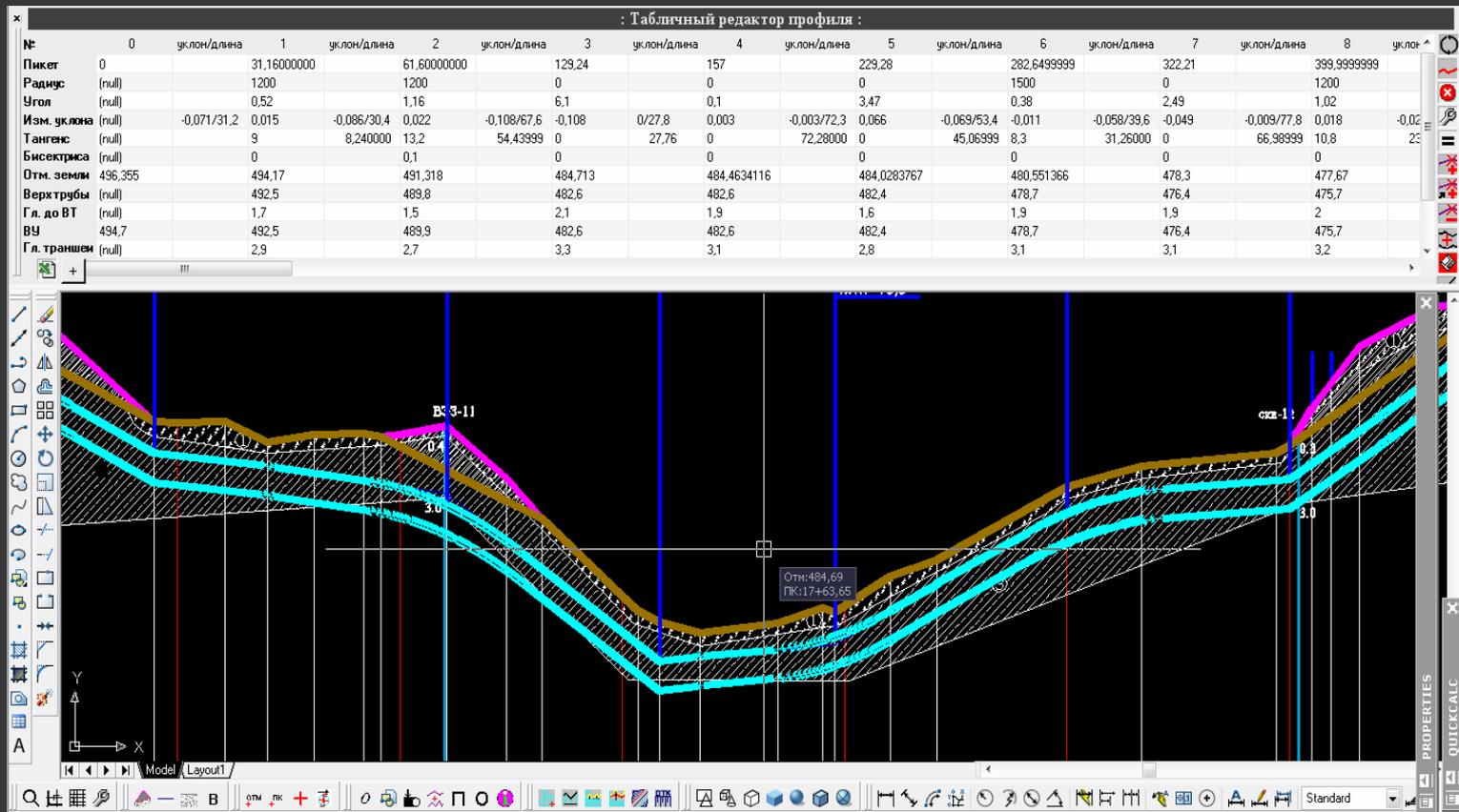
- Ability to create a digital elevation model (DEM) based on engineering surveys and elevations with coordinates (x, y, z)
- Create a surface profile (ground profile) based on engineering surveys and a DEM.



Key Features

- ① *The OIL&GAS PipeLine Engineering System program automatically calculates pipeline profiles based on developed design methods and standards, simultaneously generating a drawing in AutoCAD with tabular output of calculated information (bisector, tangent, angle top, pipe top).*
- ② *At any stage of the design, changes can be made according to the designer's requirements, including adding or removing pipeline vertices, bends, casings, cutoffs, embankments, shelves, and sections of soft soil. Sections with different diameters can be added or removed.*

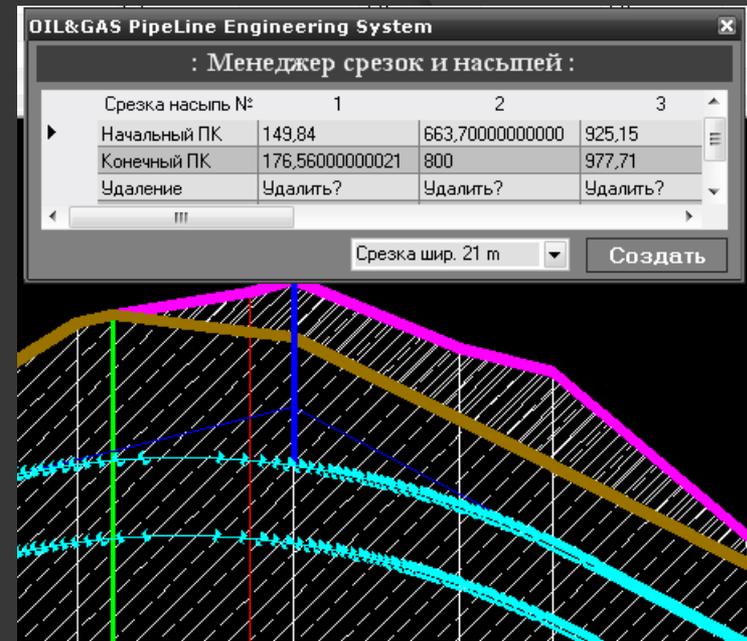
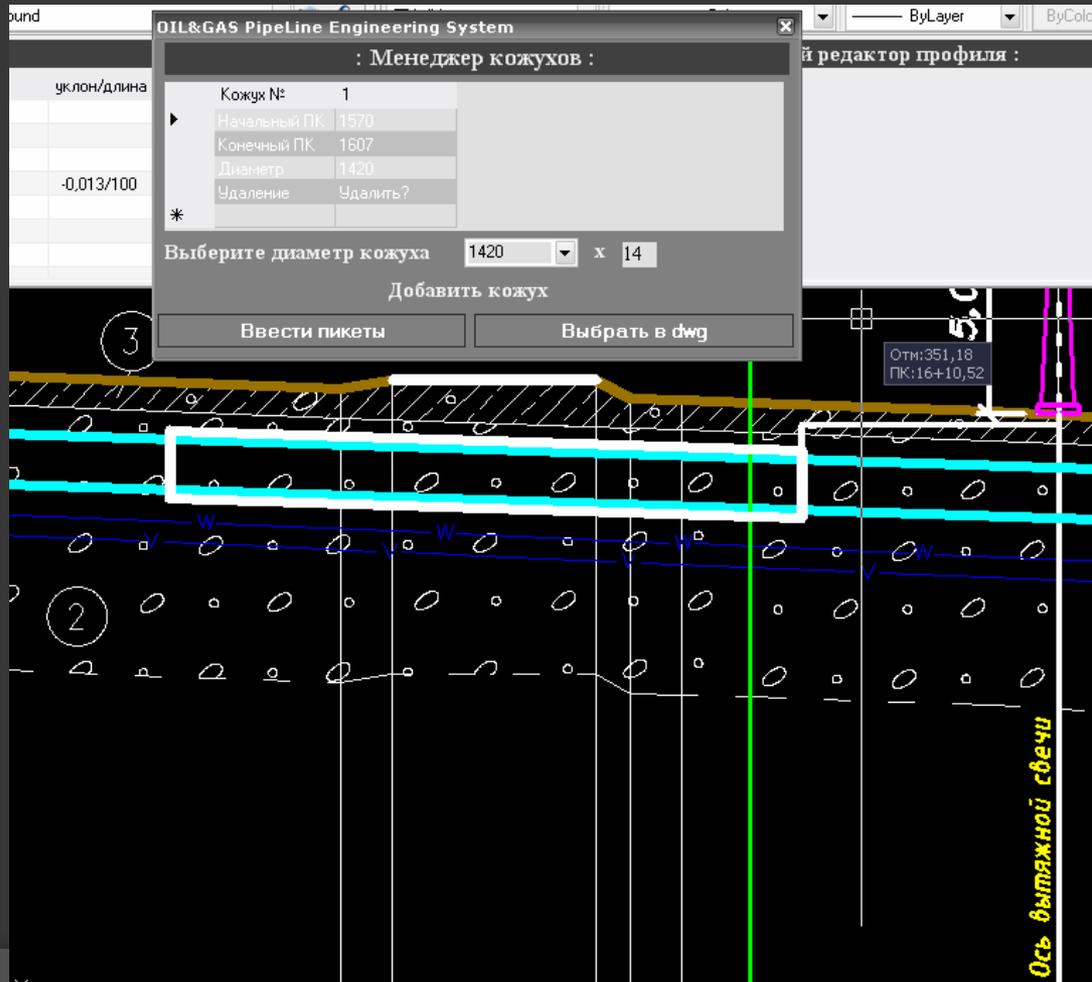
All the information the designer needs for laying the pipeline is displayed in the profile editor's spreadsheet. Furthermore, the drawing area features a tooltip with the current elevation and pointer station, which is very convenient.



It is also possible to assign sections of different categories to the profile.

The scope and functionality of this program are defined as: calculating and drawing longitudinal pipeline profiles, cutoffs, embankments, casings, insulation, soft soil fill, categories, etc., as well as instantly generating information on the volume of the trench being excavated as one of the criteria for optimal installation.

The ability to assign cutoff, embankment, and shelf areas, and, if necessary, remove them from the project. Cutoff, embankment, and shelf areas can also be displayed on the plan.



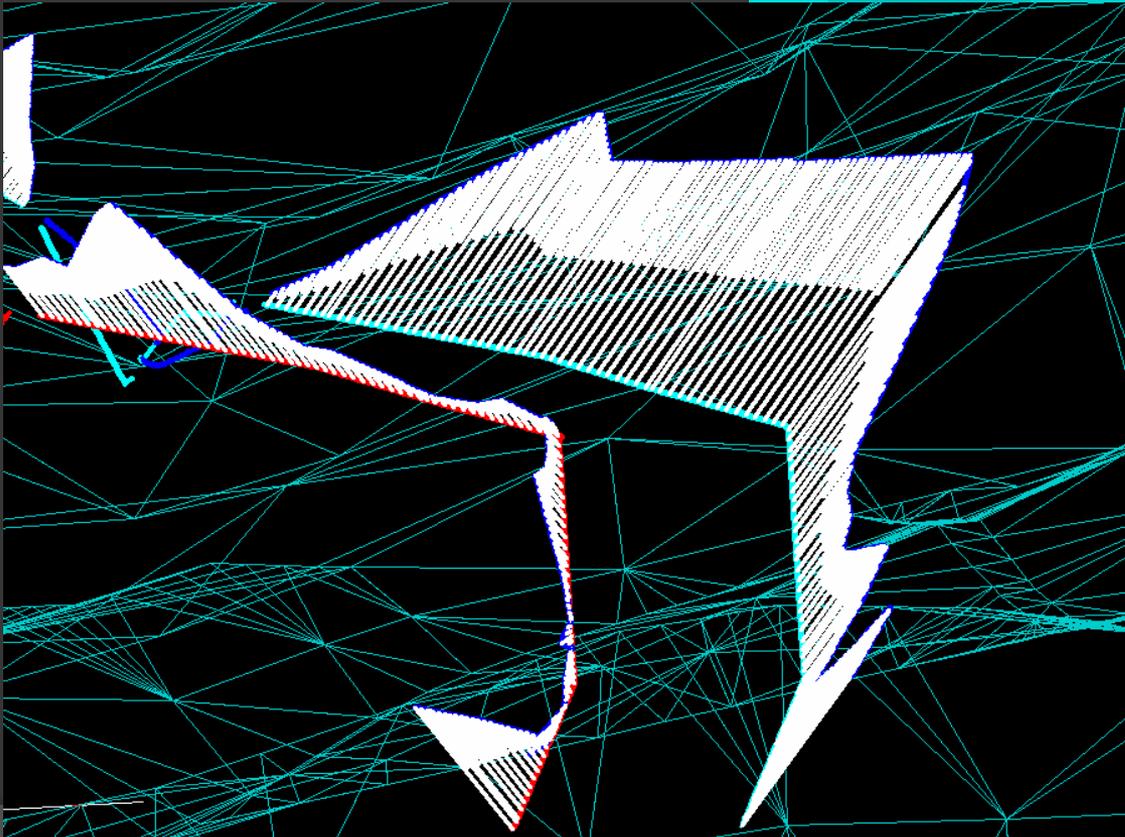
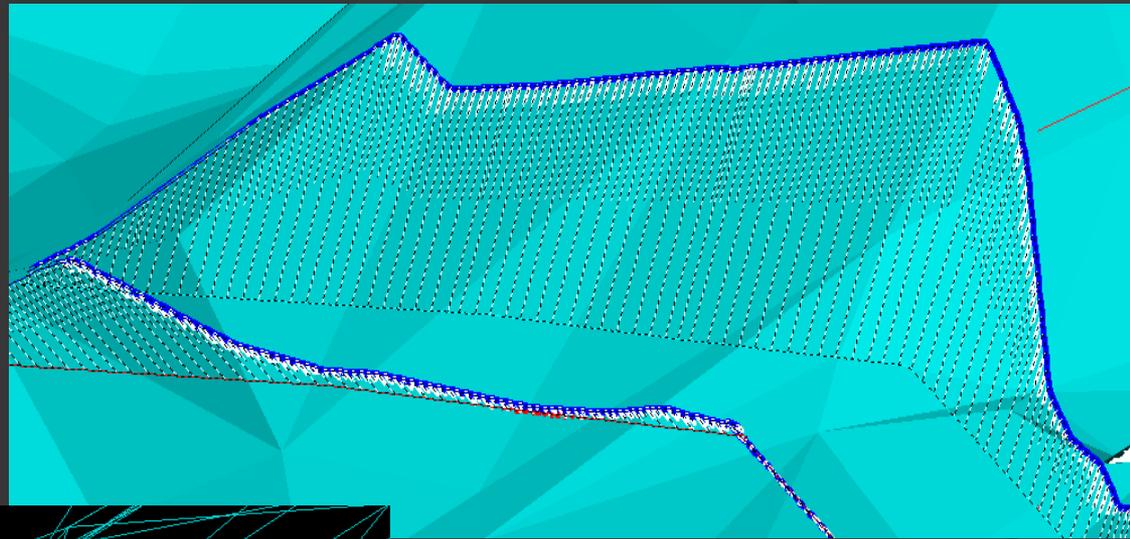
Casings can be added at crossings over railways and roads, as well as at any other locations at the designer's discretion.

All pipe and main trench elevations are adjusted according to the casing diameter.

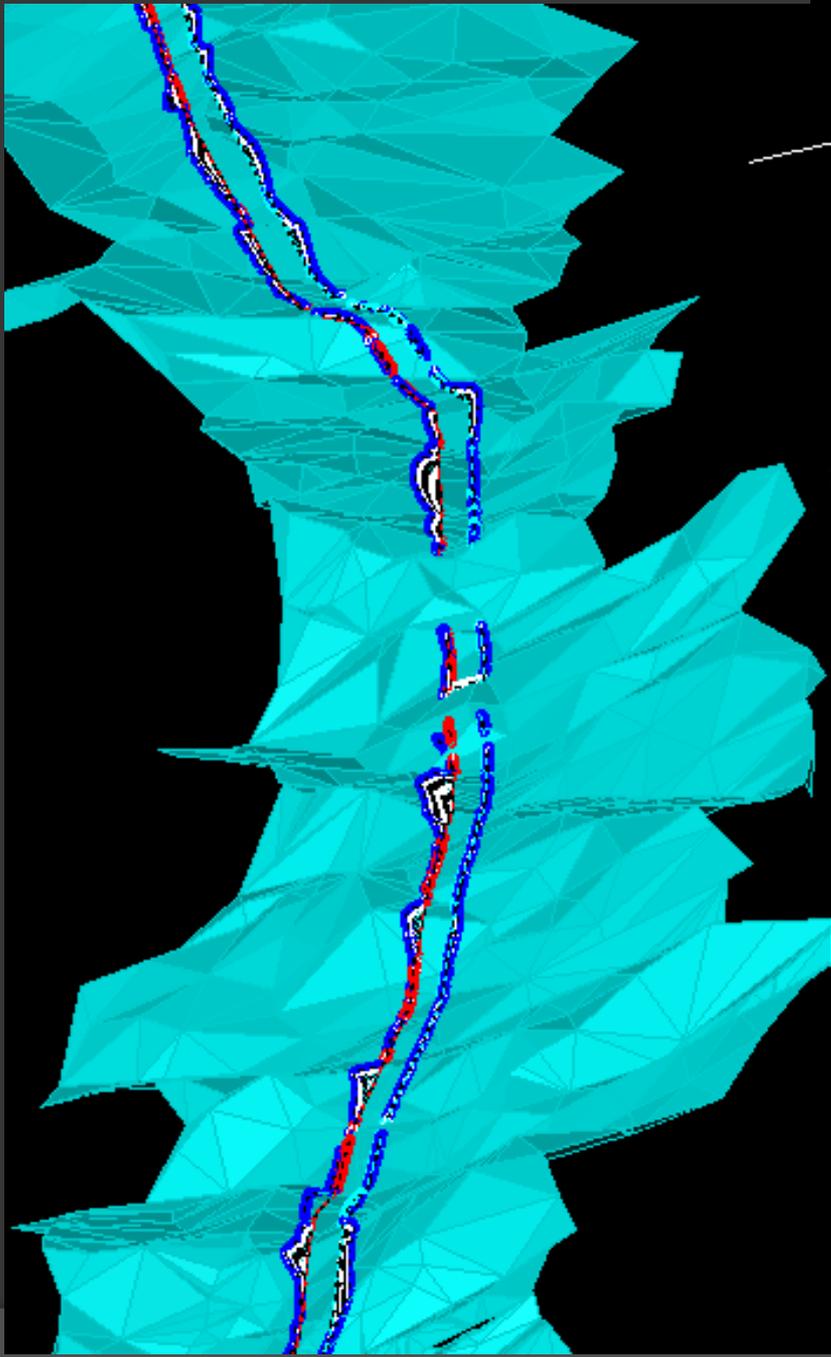
- There is a system for calculating Bill of Quantities using the Excel program.

	A	B	C	D
	Прокладка газопровода в горной местности :грунтах 4 группы с заглублением до низа			
33	траншеи:на 1,8 м	м	0	1
34	на 1,9 м	м	12	0
35	на 2,1 м	м	148	0
36	на 2,4 м	м	298	0
37	на 2,7 м	м	199	0
38	на 3 м	м	80	0
39	на 3,3 м	м	19	0
40	на 3,6 м	м	17	0
41	тоже в грунтах группы 5:на 1,8 м	м	0	0
42	на 1,9 м	м	0	0
43	на 2,1 м	м	0	0
44	на 2,4 м	м	0	0
45	на 2,7 м	м	0	0
46	на 3 м	м	0	0
47	на 3,3 м	м	0	0
48	на 3,6 м	м	0	0
49	тоже в грунтах группы 7:на 1,8 м	м	0	0
50	на 1,9 м	м	0	0
51	на 2,1 м	м	0	0
52	на 2,4 м	м	0	0
53	на 2,7 м	м	0	0
54	на 3 м	м	0	0
55	на 3,3 м	м	0	0
56	на 3,6 м	м	0	0
	Разработка траншеи в грунтах группы 5 с :предварительным рыхлением			
57	механизированным :способом	м ³	0	1
	Разработка траншеи в грунтах группы 7 с :предварительным рыхлением шпуровым методом			
58		м ³	9708,1	1
59	Прокладка газопровода по обводненным участкам	м	0	1
	Манжеты BTS-65(трехслойное покрытие для защиты :стыков)	шт	98	1

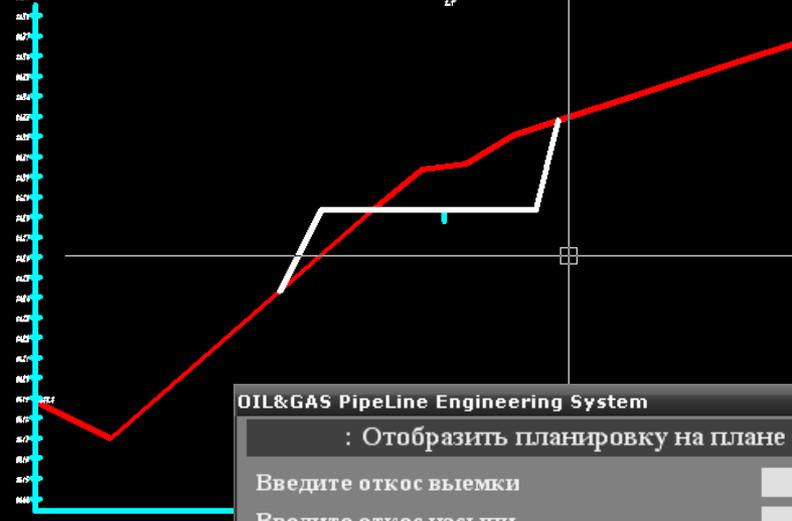
- *The ability to calculate, create and display shelves, cuts and embankments on the plan based on a digital elevation model (DEM)*



- *Auto drafting shelves and slopes in 3D. Drawing sections at specified distances, as well as calculating 3D excavation volumes.*



7 - из программы
1 - из AutoCAD



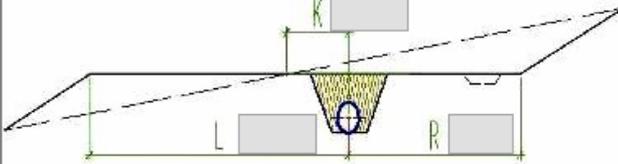
OIL&GAS PipeLine Engineering System

: Отобразить планировку на плане :

Введите откос выемки

Введите откос насыпи

Введите данные для полки



Автоопределение насыпной части

		Введите данные		
Для срезки			Для насыпи	
L	<input type="text"/>		L	<input type="text"/>
R	<input type="text"/>		R	<input type="text"/>

Настройка сечения

Ширина сечения

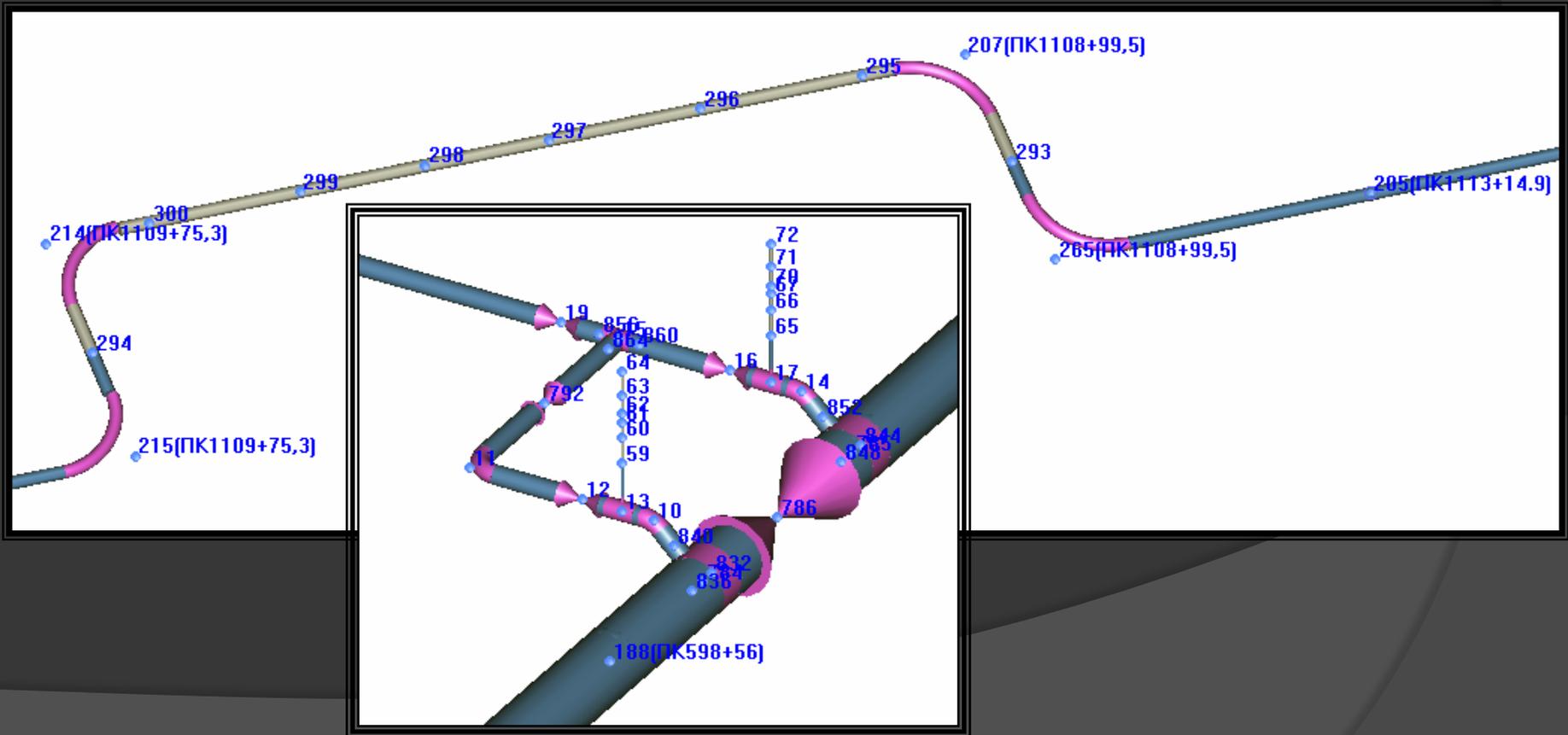
Шаг интегрирования при расчете 3D объема

Введите угол при котором полка будет строится только за счет выемки

Введите горизонтальный масштаб сечения

Введите вертикальный масштаб сечения

- It is also possible to export a longitudinal profile to a file in the open format of the START program
<http://www.truboprovod.ru/cad/soft/ctapt.shtml> With subsequent stress analysis calculation in the START program



- It is also possible to export a longitudinal profile to a file in the open format of the CPIPE program, with subsequent stress analysis calculation in the CPIPE program t.me/cpipesoftware

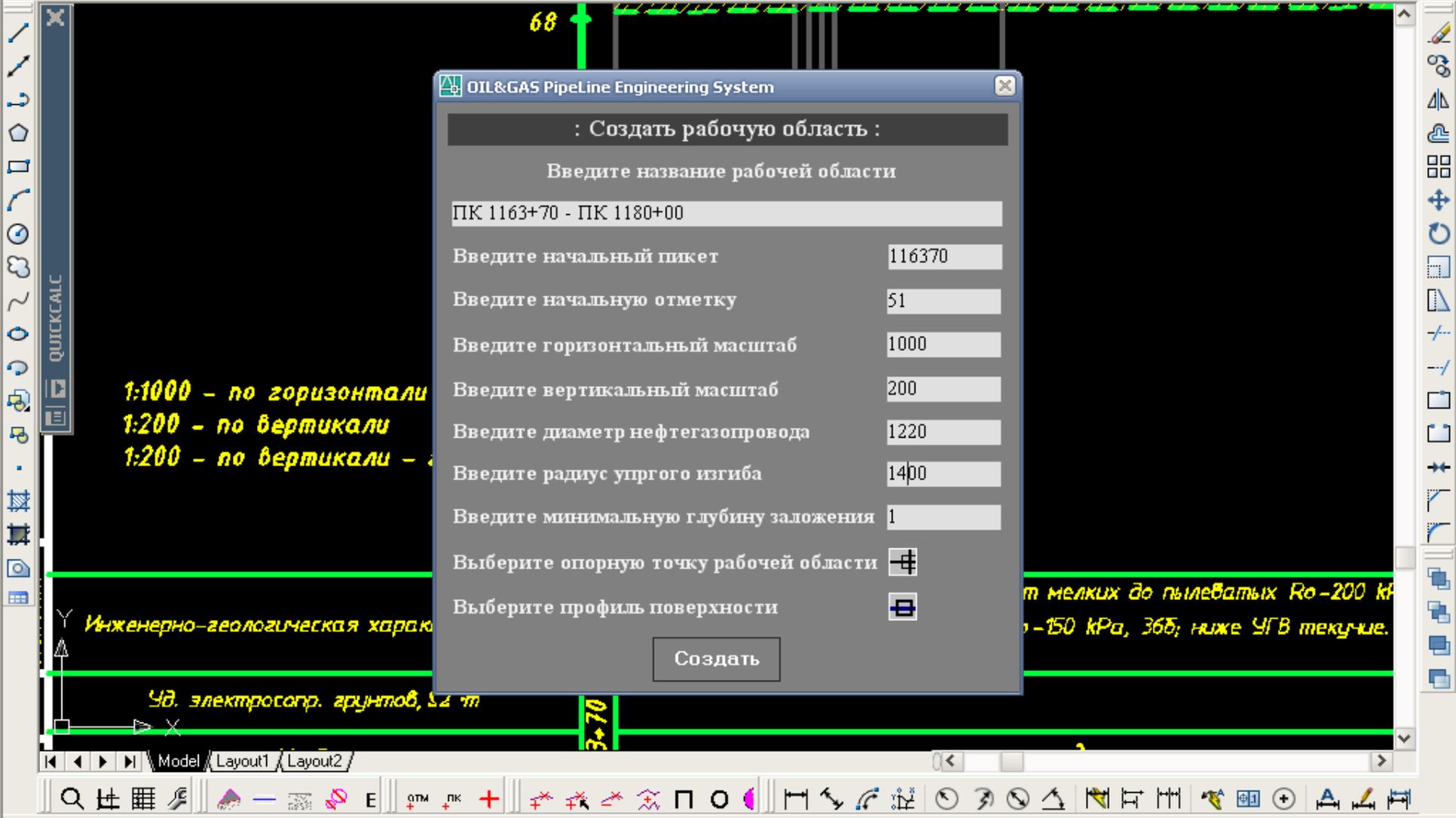


- The picture shows an overhead pipe beam crossing.



Initial Data

The initial design data includes survey drawings, the "Black Profile" survey profile, and a survey with a digital elevation model (DEM). This program also allows you to create a DEM. The data is taken from the drawing and entered into the form shown on the next slide.



Calculation result

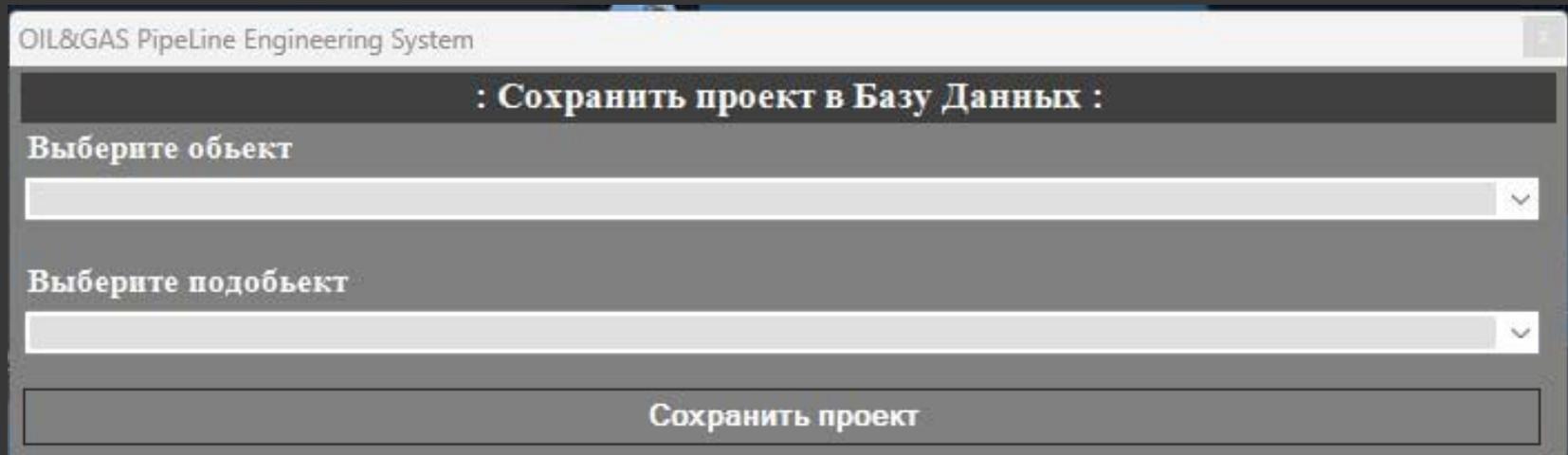
The calculations include:

- *unknown distances;*
- *pipeline slopes and angles;*
- *all elements of circular curves and characteristics of the angles;*
- *pipeline burial depth, taking into account all factors, including bisectors and vertical displacements of the pipeline during bending;*
- *pipeline top elevations;*
- *verification of the superposition of angle tangents;*
- *selection of forced bending curve parameters, etc.*

Network Database

A tool designed for storing projects in a network database (hereinafter referred to as DB) and providing access to projects over a local network. This is an excellent tool for maintaining a centralized project repository while providing access over a local network. There's no need to transfer files between engineers.

Microsoft SQL Express was chosen as the network database. Microsoft SQL Express is free and available in the Microsoft Store.



OIL&GAS PipeLine Engineering System

: Сохранить проект в Базу Данных :

Выберите объект

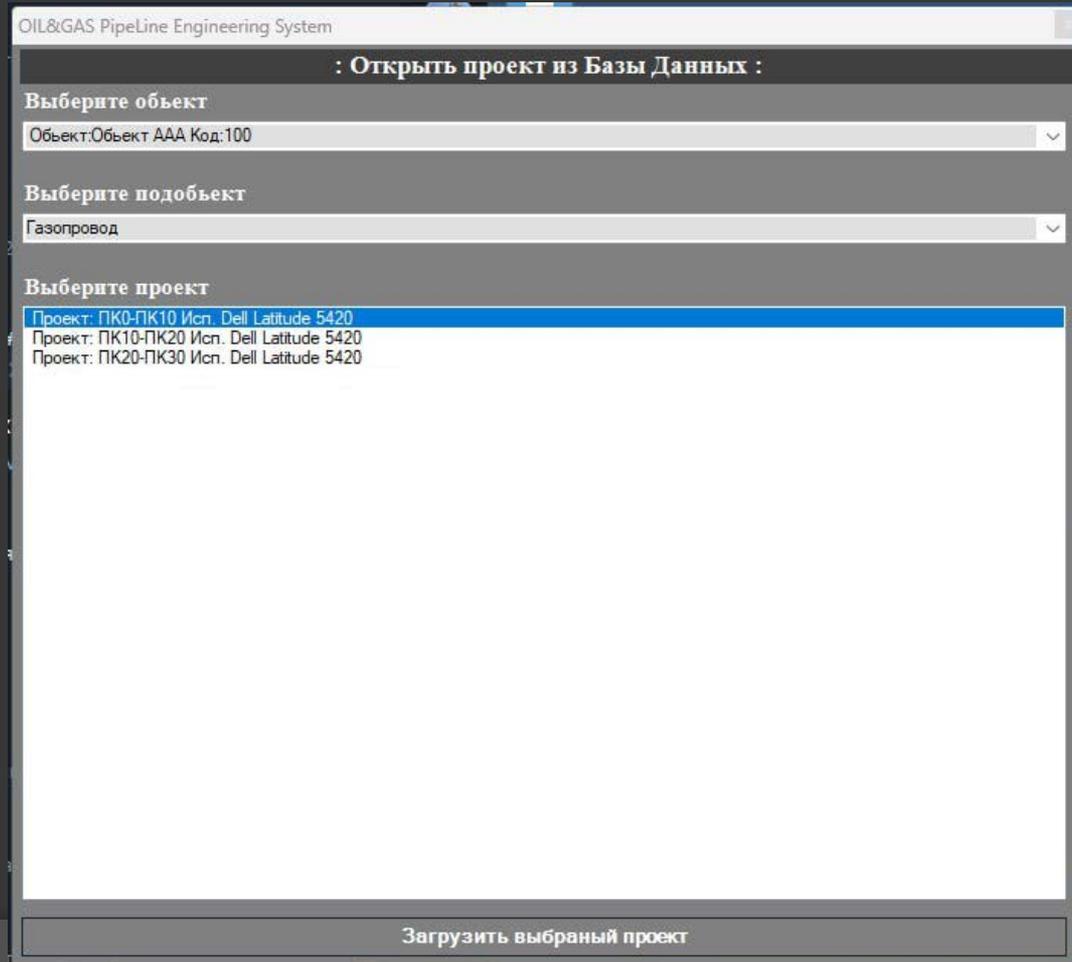
Выберите подобъект

Сохранить проект

The image shows a screenshot of a software dialog box titled "OIL&GAS PipeLine Engineering System". The dialog box has a dark gray background and contains the following elements: a title bar with the text "OIL&GAS PipeLine Engineering System"; a main heading in Russian: ": Сохранить проект в Базу Данных :"; two dropdown menus, the first labeled "Выберите объект" (Select object) and the second labeled "Выберите подобъект" (Select sub-object); and a button at the bottom labeled "Сохранить проект" (Save project).

Network Database

The user can save both new and old projects to the database. This provides all users with access to a structured drawing repository.



OIL&GAS PipeLine Engineering System

: Открыть проект из Базы Данных :

Выберите объект

Объект:Объект ААА Код:100

Выберите подобъект

Газопровод

Выберите проект

- Проект: ПК0-ПК10 Исп. Dell Latitude 5420
- Проект: ПК10-ПК20 Исп. Dell Latitude 5420
- Проект: ПК20-ПК30 Исп. Dell Latitude 5420

Загрузить выбранный проект

Benefits of using

- ⦿ *The program can be customized for specific tasks.*
- ⦿ *The program's design technology allows the user to quickly master the program and begin working.*
- ⦿ *Automatic calculation of the designed pipeline frees the designer from manual calculations.*
- ⦿ *At virtually any stage of the design process, adjustments can be made to meet the designer's requirements, and the designed object can be edited.*