Curriculum Vitae

Personal details:

Name:	Done Nikolovski;
Date of birth:	26/03/1984 Skopje, R. Macedonia;
E-mail:	done.nikolovski@gmail.com;
Mobile phone:	+389 71 248 604;
Nationality:	Macedonian;
LinkedIn:	mk.linkedin.com/pub/done-nikolovski/2b/109/190/;

Education:

- University "St. Kiril i Methodius" - Skopje, R. Macedonia
  Period: 2010 – (Master Thesis candidate)
  Faculty of Civil Engineering – Master of Science (M.Sc.), Geotechnical Engineering
- University "St. Kiril i Methodius" - Skopje, R. Macedonia
  Period: 2004 - 2008
  Faculty of Civil Engineering – Bachelor of Science (B.Sc.), Geotechnical Engineering

Memberships:

- ISSMGE - International Society of Soil Mechanics and Geotechnical Engineering;
- MAG - Macedonian Association of Geotechnics;

Work experience:

Geoing MK – Skopje April 2008 - present

The company is specialized in the department of the geotechnical investigations and geotechnical project design. During my work period in this company, I was involved in project design and expertise of wide range of problems in this specific field, such as detailed geotechnical reports, engineering geological evaluation of the terrain conditions, slope stability, deep foundations, retaining walls, etc. Some additional information about several project designs and researches are given in the text below.

International Balkan University (IBU), part-time Teaching Assistant September 2018 - present

I currently work as part-time Teaching Assistant, at International Balkan University (IBU), at Faculty of Civil Engineering. I'm teaching at courses of Soil Mechanics and Geology, on the borderland between theory and practice in this field.

Projects:

Period:	March 2015 ---
Location	Wijdewormer, Amsterdam - Nederland
Position	Research of appropriate calculation method of HEK displacement piles trough FEM
Description	The aim of this research, is to define a design method for HEK displacement grout piles, trough the Finite Element Method. The HEK displacement grout pile is a mixed-in-place pile system, that is screwed in by steel tube into the ground, without any soil removal, but displaced and compacted into the surrounding media. After reaching the required depth, grout pressure is increased during which it is expanded into the soil, forming the shape of the pile. This is new method of deep foundation, patented by company HEKTEC BV - Nederland.

Date:	July 2016
Location	Wind Farm for generation of electricity with a nominal power of 3,6MW, WTG 1-10 – Bogoslovec, R. Macedonia
Position	Preparation of geotechnical report and design
Description	The purpose of these investigations was to prepare a report of the geotechnical characteristics of the materials on the terrain, with detailed geological map for of the terrain, for the purposes of the design phase of the wind farm in Bogoslovec, Sveti Nikole. The wind farm on the aforementioned location is composed of 10 wind turbines, and its main purpose is the generation of renewable energy with a production of electricity of nominal power of 3,6MW.

Date:	March 2011
Location	Recki Channel, HES “Mavrovo” – Gostivar, R. Macedonia
Position	Geotechnical project design
Description	Preparation of study for stress and strain analysis of the soil half-space, as well as evaluation of the slope stability of the natural terrain. The purpose of this study was to enable protection against landslide and to evaluate the potential influence of the natural terrain on the channel, and his work. The analyses of the slope were made numerically by FEM in program package Plaxis 2D.

Date:	July 2010
Location	Highway E-75 part Demir Kapija - Smokvica design of open rectangular caisson foundations – R. Macedonia
Position	Geotechnical project designer
Description	Preparing a main project design of specific foundation of open rectangular caisson, subdivided in two equal positions. This kind of caisson, has purpose to be sunk into the river bed soil at depth of 9,0m, and by that to enable the foundation of the bridge, in open river waters with depth up to cca 1,8m. The design was provided by both, analytical and numerically by FEM analysis in program package Plaxis 3D.

Date:	January 2009
Location	Hospital Sistina, st. ”Skupi”, Municipality Karpos – Skopje, R. Macedonia
Position	Geotechnical project design
Description	Preparation of main project design, for prevention of potential sliding of soil mass, in height of 11.8-13.0m, by combined retaining wall system of double row RC piles and beams. The design was provided by both, analytical and FEM analysis, with purpose to optimize the retaining wall construction. Also, as part of the project design, calculations for water filtration were provided, which will be used for dewatering the construction pit.

Date:	June 2008
Location	Offshore soil investigations on the bottom of Ohrid Lake and authentic reconstruction of timber piles settlement, Peshtani – Ohrid, R. Macedonia
Position	Geotechnical project design
Description	Preparation of main geotechnical report for offshore investigations on the bottom of Ohrid Lake, and design for the authentic reconstruction of the timber pile settlement "Bay of the bones". In 2008, the activities for construction of museum complex started on wider scale at the archeological site on the peninsula Gradishte Ohrid Lake, by patronage of the Board for cultural heritage of the Republic of Macedonia. The works are to create an authentic reconstruction of prehistoric palafitte settlement on timber piles, located in the place called "Bay of the bones", which dates from the late bronze age and beginning of iron age, in the period of 1500 – 700 BC.

Personal skills:

Languages

Levels: 1 (poor) -5 (excellent)

Language	Understanding	Speaking	Writing
Macedonian	native speaker		
English	5	5	5
Italian	2	2	1

Computer skills

- Plaxis 2D;
- Plaxis 3D Foundation;
- GeoSLOPE;
- GEOTEC Office - Elpla 9.2;
- Geo5;
- MS Office;
- Auto CAD;

Publications and presentations:

- Participant in 1st congress from Geological and Geotechnical faculties GEOREX, Tusla 2007, Bosnia

  "*Analysis of vertical component from seismic acceleration, to stability of slopes in flysch sediments*"

- Participant in 13th symposium, organized by Macedonian Association of Structural Engineers (MASE) – Ohrid 2009, R. Macedonia

  "Protection of deep excavation pit by system of double row RC piles"

- Participant in 3rd symposium, organized by Macedonian Association of Geotechnics (MAG) – Struga 2010, R. Macedonia

  "*Improvement of foundation soil with gravel columns*"

- Participant in 21st European Young Geotechnical Engineering Conference – EYGEC, organized by International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) – Rotterdam 2011, Netherlands

  "*Comparison of constitutive laws for soil materials on earth dams*"

- Participant in 2nd symposium of Geotechnical Engineering for the Preservation of Monuments and Historic Sites – Napoli 2013, Italy

  "*Offshore soil investigations on the bottom of Ohrid Lake and authentic reconstruction of timber piles settlement*"

- Participant in 4th symposium, organized by Macedonian Association of Geotechnics (MAG) – Struga 2014, R. Macedonia

  "*Analytical and numerical 3d analysis of open rectangular well construction for the phase of sinking*"

Conferences and seminars:

- Participant in 2nd symposium, organized by Macedonian Association of Geotechnics (MAG) – Ohrid 2006, R. Macedonia

- Participant in international seminar, "*EC7 & EC8 in engineering practice*" – Struga 2008, R. Macedonia

- Participant in seminar, "*Improving the bearing capacity of the foundation soil at roads and railway constructions*", by TriAx geogrids – Skopje 2013, R. Macedonia

- Participant at conference, "*XVI Danube - European Conference on Geotechnical Engineering*" – Skopje 2018, R. Macedonia

Project 1: FE Analysis of isolated foundation pad on RC bored piles

In this project, isolated foundation pad on RC piles with height of 6,50m, on complex soil conditions, composed of very soft silty clay soil is analyzed.

The analysis of the interaction between the soil and the structure is done in program *PLAXIS 3D*. The soil and the piles are modeled with 3D soild elements, while the foundation pad is modeled as plate element. Piles are modeled with height of H=6,50m and diameter of Φ=66cm.

The geometry of the foundation is applied according to the drawings phase architecture, while the loads from the upper construction, are taken from the main project of construction design. Soil parameters are taken from the geotechnical report, applying deformation hardening soil model of soil behavior.

Figure 1. FEA Plaxis 3D model

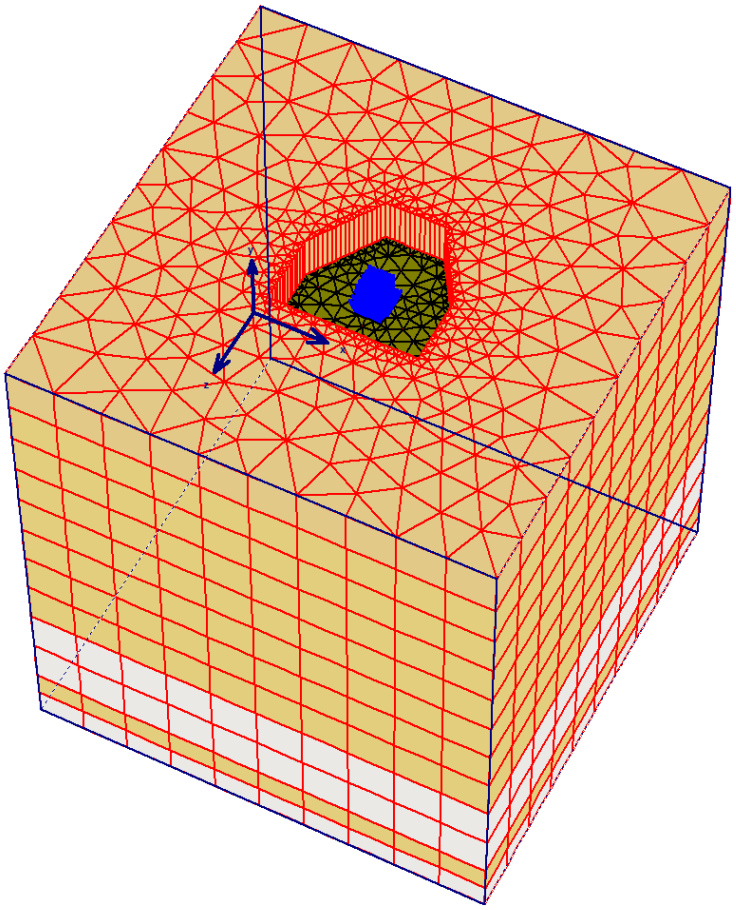


Figure 2. Vertical displacements Uv

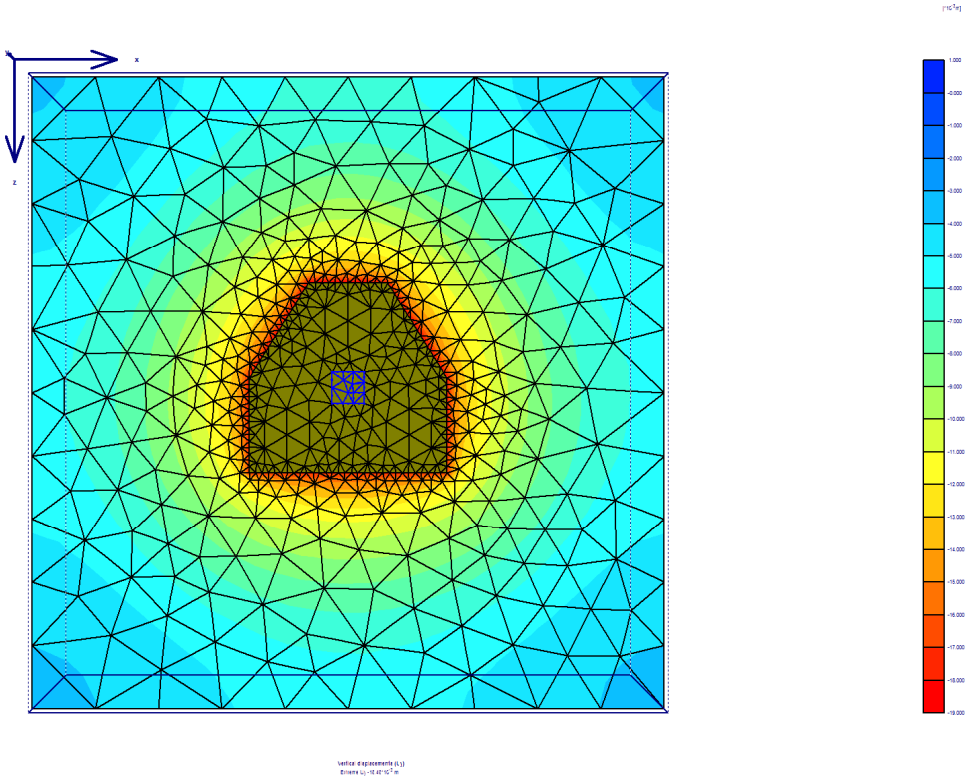


Figure 3. Total displacements at bored piles Utot (z=-6,5m)

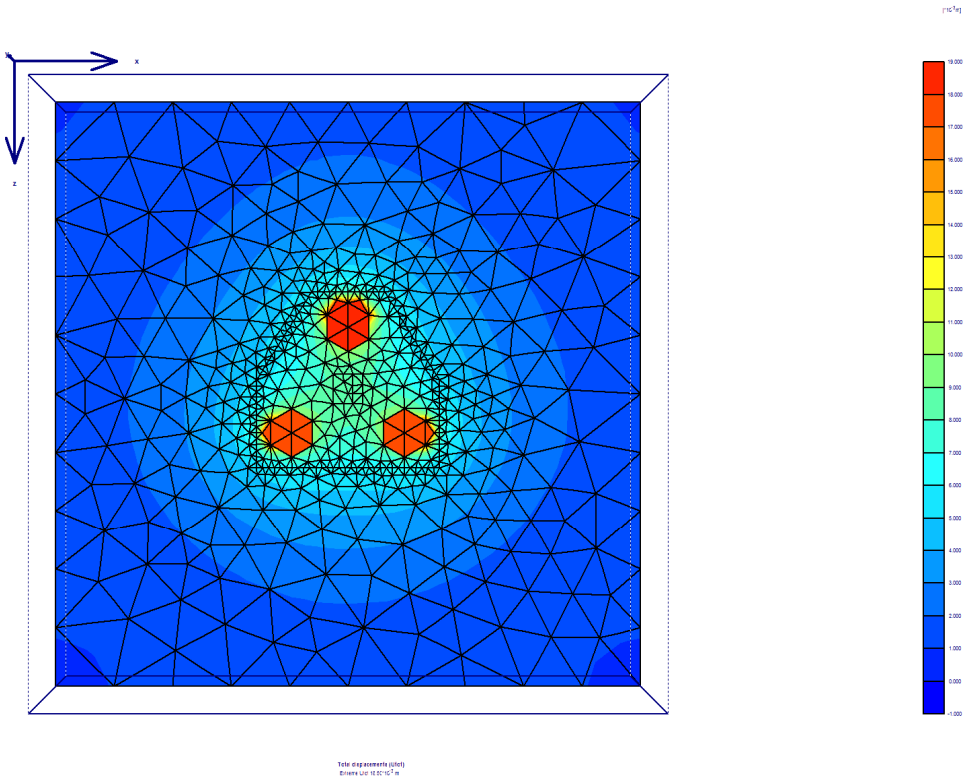


Figure 4. Vertical displacements view in cross-section piles and soil

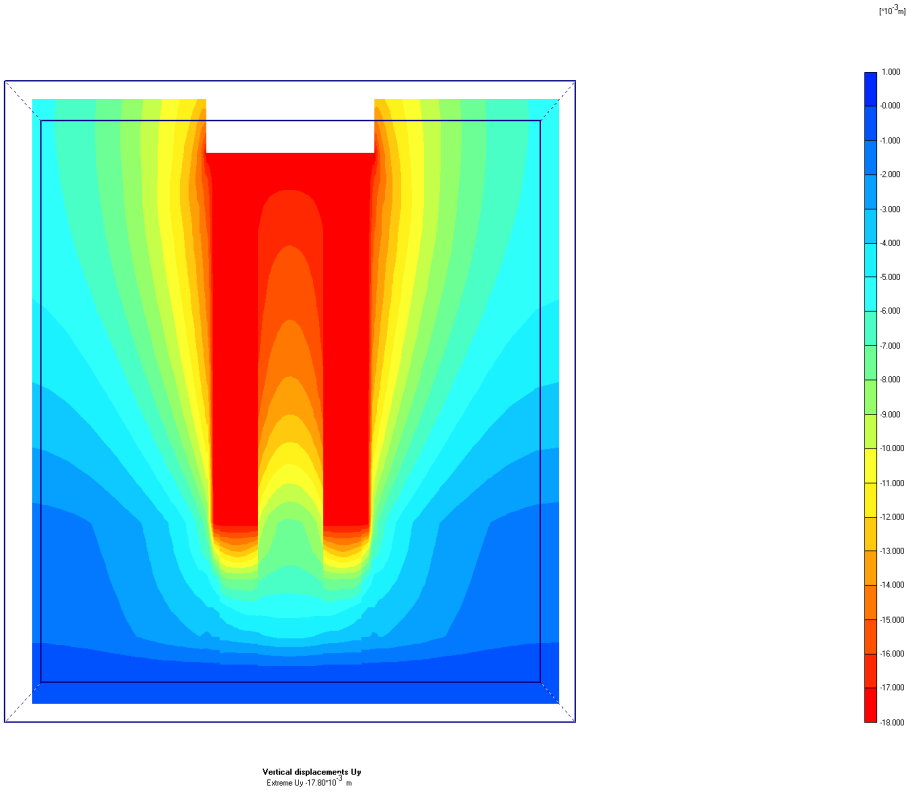
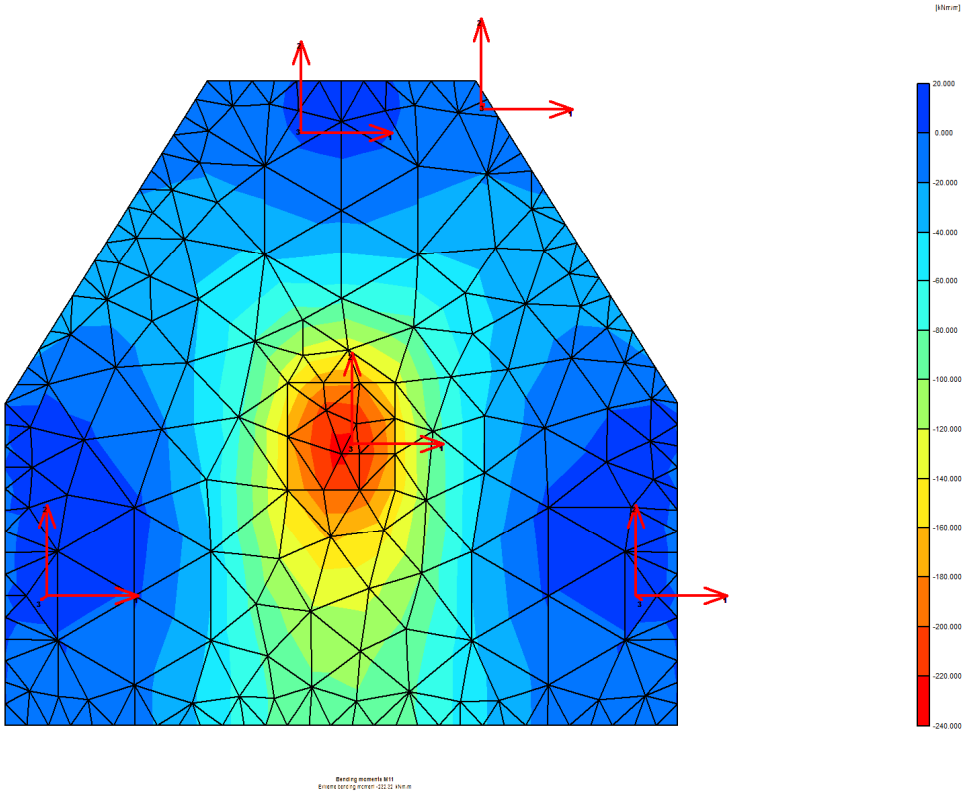


Figure 5. Bending moments in foundation pad M_{1-1}



Project 2: FE Analysis of foundation pads on RC bored piles connected with beams

The purpose the analysis, was to choose and design an optimal system of foundation disposition, taking into account the complex soil conditions at the location composed of soft silty clays. After taking into account several options for foundation of the upper construction, as most suitable is chosen combined foundation system, composed of foundation pads on RC bored piles, which are connected with beams.

The analysis of the interaction between the soil and the structure is done in program *PLAXIS 3D*. The soil and the piles are modeled with 3D soild elements, while the foundation pad is modeled as plate element. Piles are modeled with height of H=5,50m and diameter of Φ=66-80cm.

Figure 6. FEA Plaxis 3D model

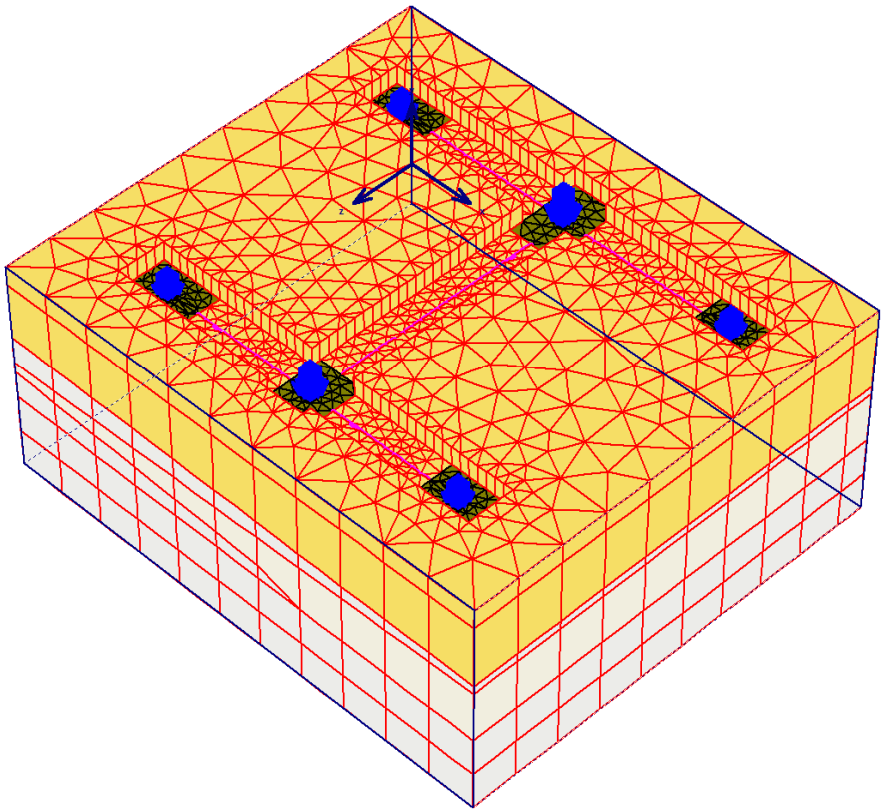


Figure 7. Vertical displacements Uv

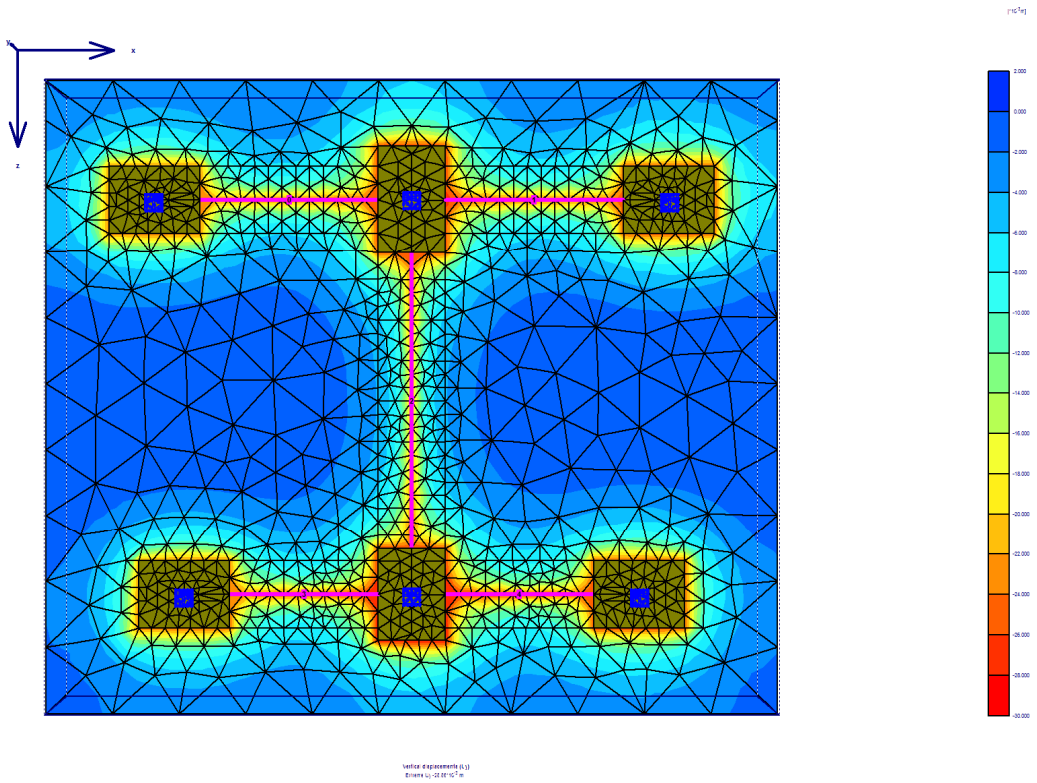


Figure 8. Total displacements at bored piles Utot (z=-5,5m)

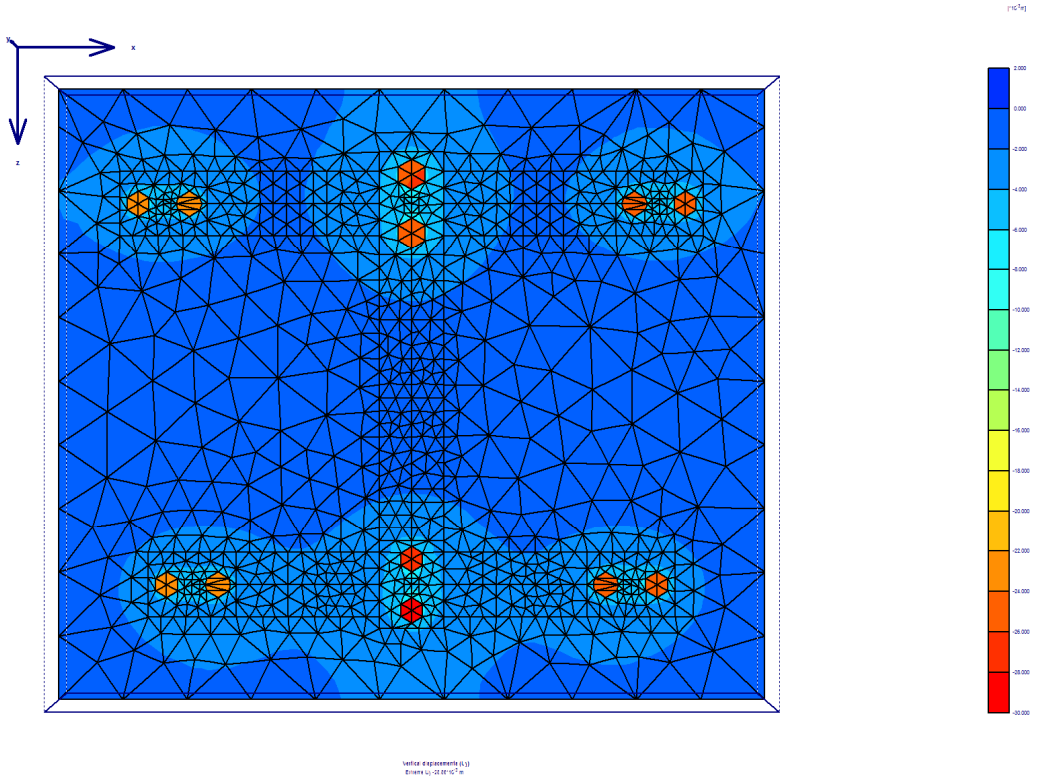


Figure 9. Vertical displacements view in cross-section piles and soil

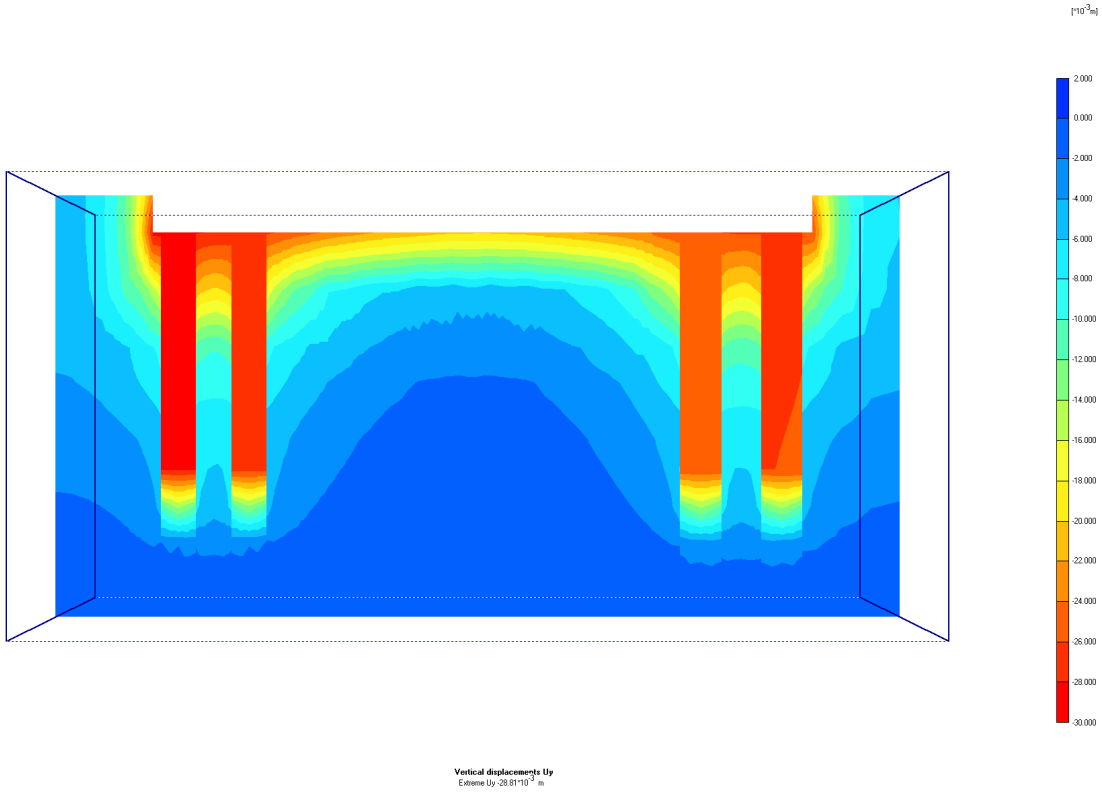
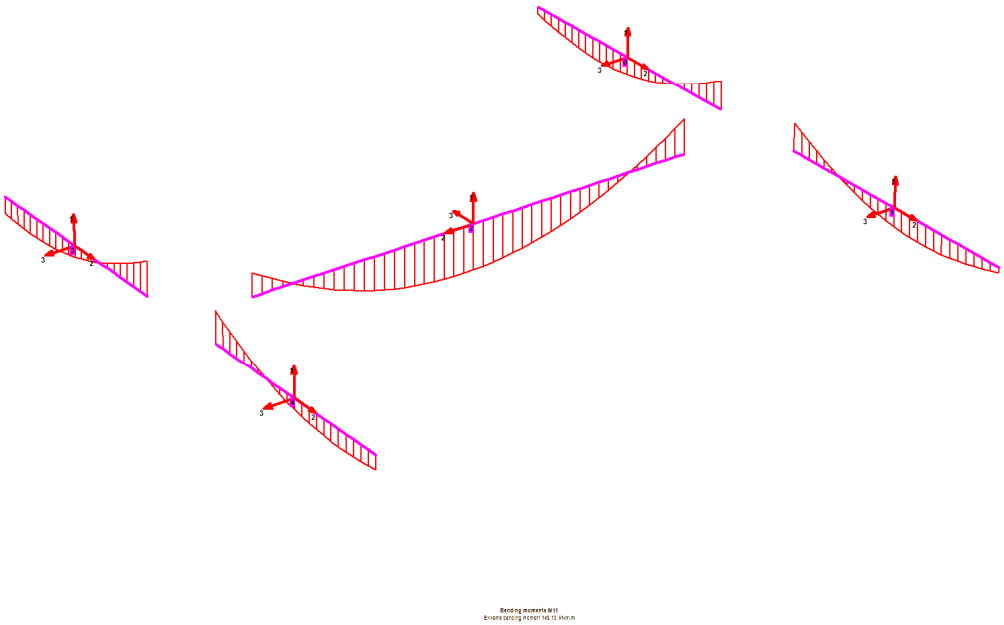


Figure 10. Bending moments in RC beams M_{1-1}



Project 3: Analysis of settlements for tall tower building on foundation RC plate

The purpose of the analysis for this project was to define the settlements on the tall tower building with height of H=70,0m. The construction's foundation with height of H=1,50m, lays on depth of D=10,5m, in stiff clayey soils with hard consistency.

The analysis of the interaction between the soil and the structure is done in program *PLAXIS 3D*. The soil is modeled with 3D soild elements, while the RC foundation plate is modeled as plate element.

The geometry of the foundation is applied according to the drawings phase architecture, while the loads from the upper construction, are taken from the main project of construction design. Soil parameters are taken from the geotechnical report, applying deformation hardening soil model of soil behavior.

Figure 11. Disposition of constructive elements and loads on foundation plate in model

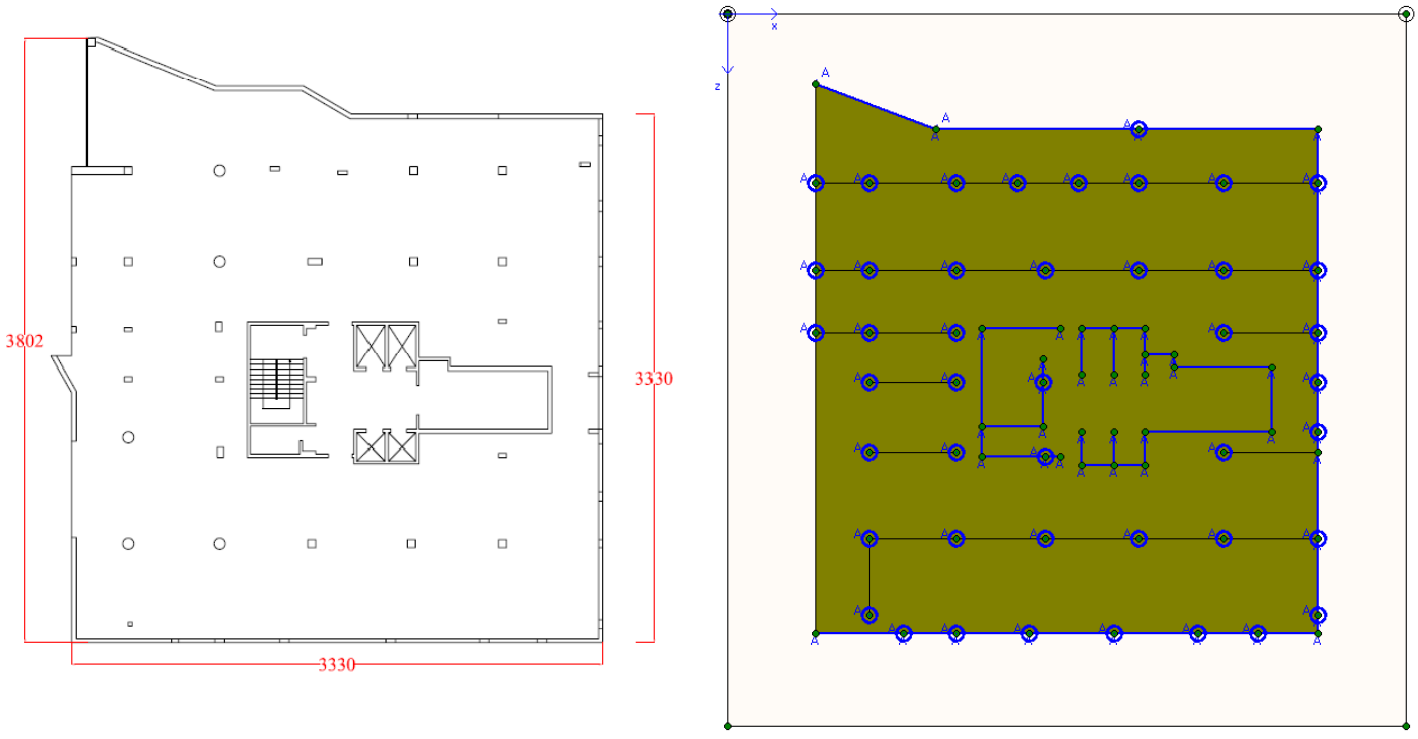


Figure 12. FEA Plaxis 3D model

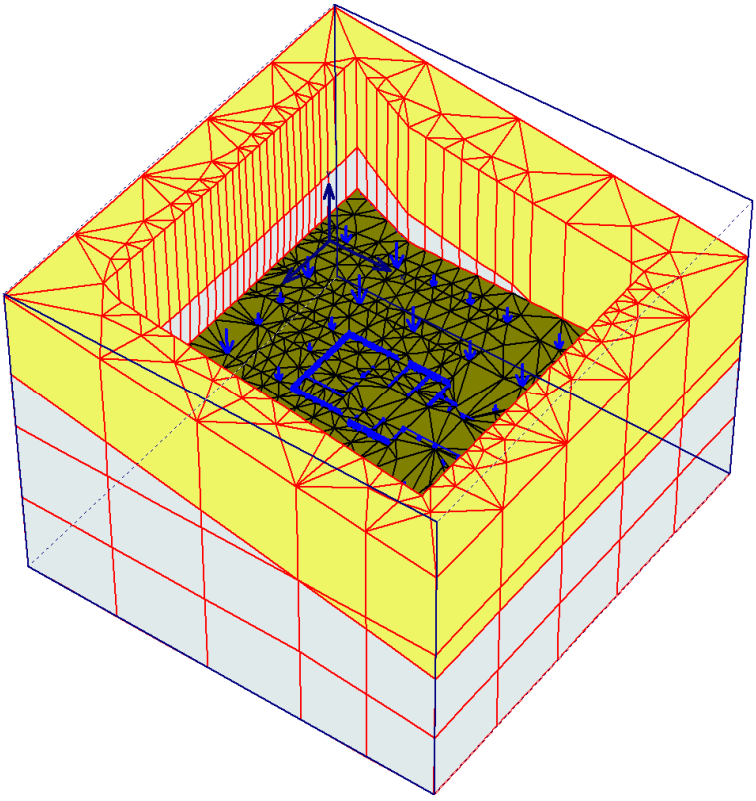
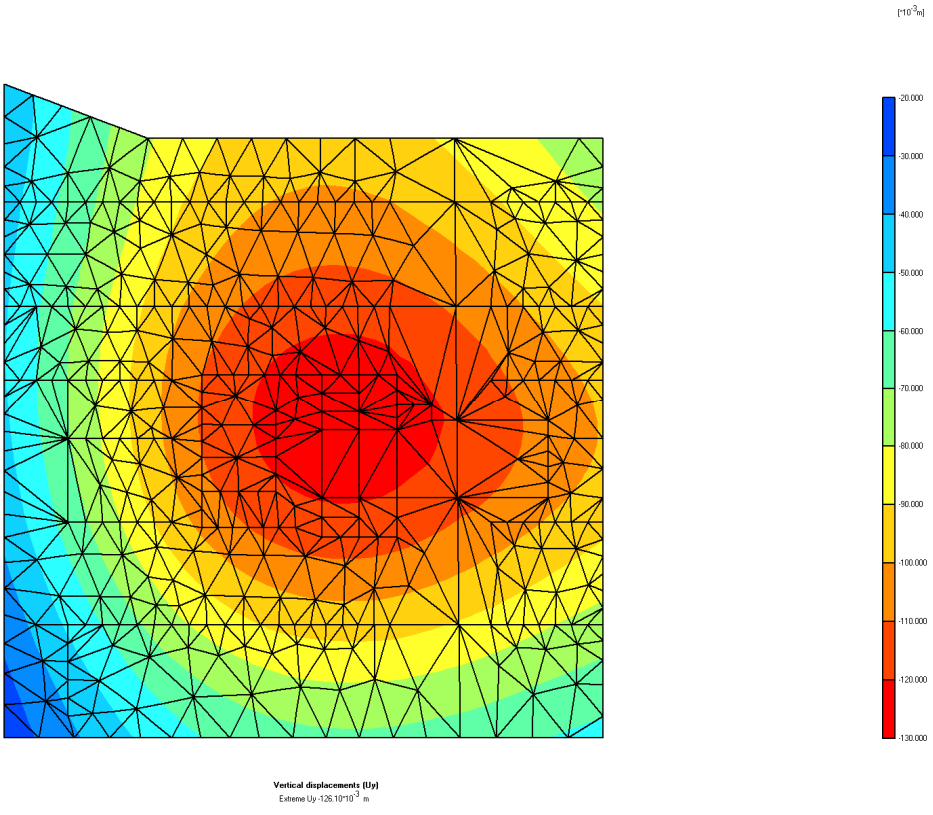


Figure 13. Vertical displacements Uv



Project 4: Analysis of settlements for tall wind turbine on circular foundation plate

The purpose of the analysis in this project is to analyze the settlements of 150,0m total tall wind turbine, with hub height of 85,0m, on circular foundation plate with diameter of 19,3m. The foundation of the wind turbine is with total volume of 560m^3, on height of D=3,60m below the natural terrain, in flysch sediments.

The analysis of the interaction between the soil and the structure is done in program *ELPLA*. The soil is modeled trough *Winkler* springs, which are calculated according to the deformability parameters of the soil materials.

Nominal loads: V=5010kN, H=675kN, M=68600kNm;

Extreme overturning loads: V=6690kN, H=1070kN, M=122000kNm;

Figure 14. Disposition of constructive elements and loads on foundation plate in model

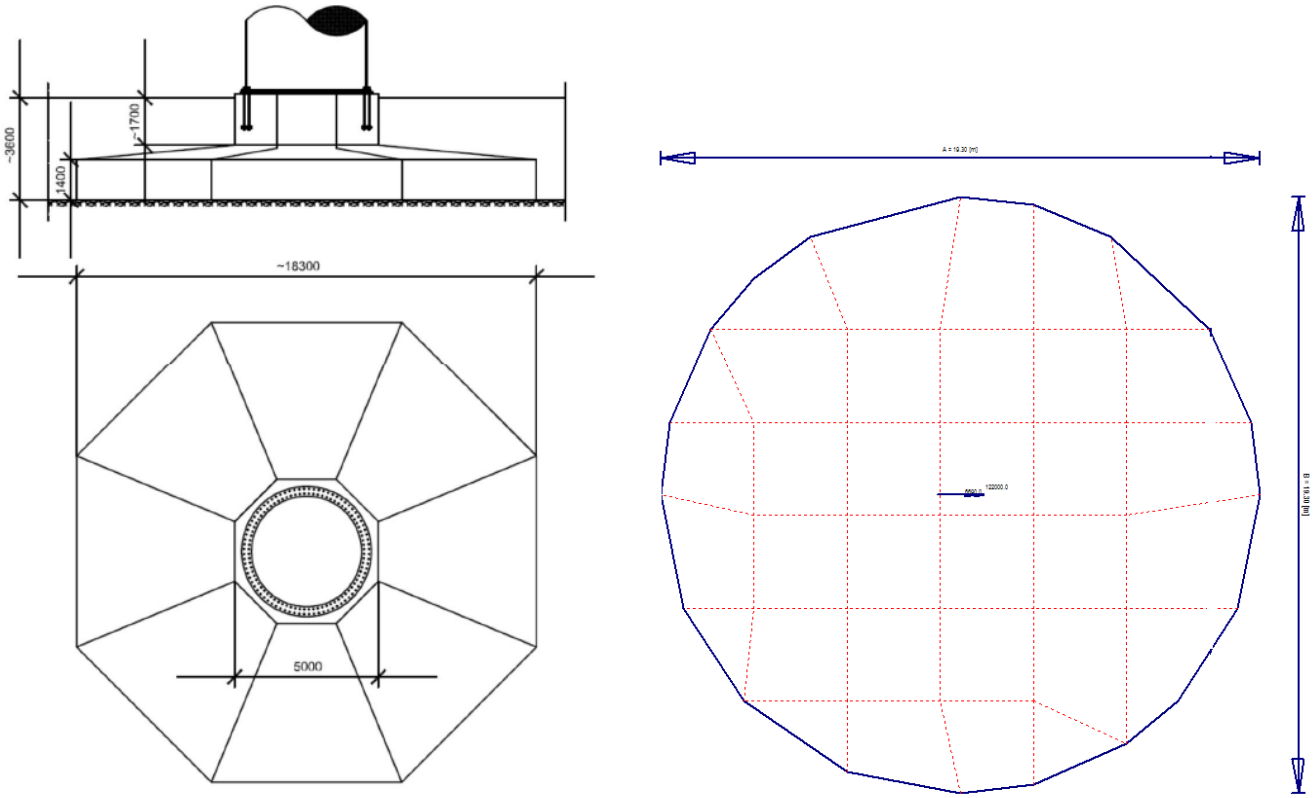


Figure 15. Contact pressures below circular RC plate Uv

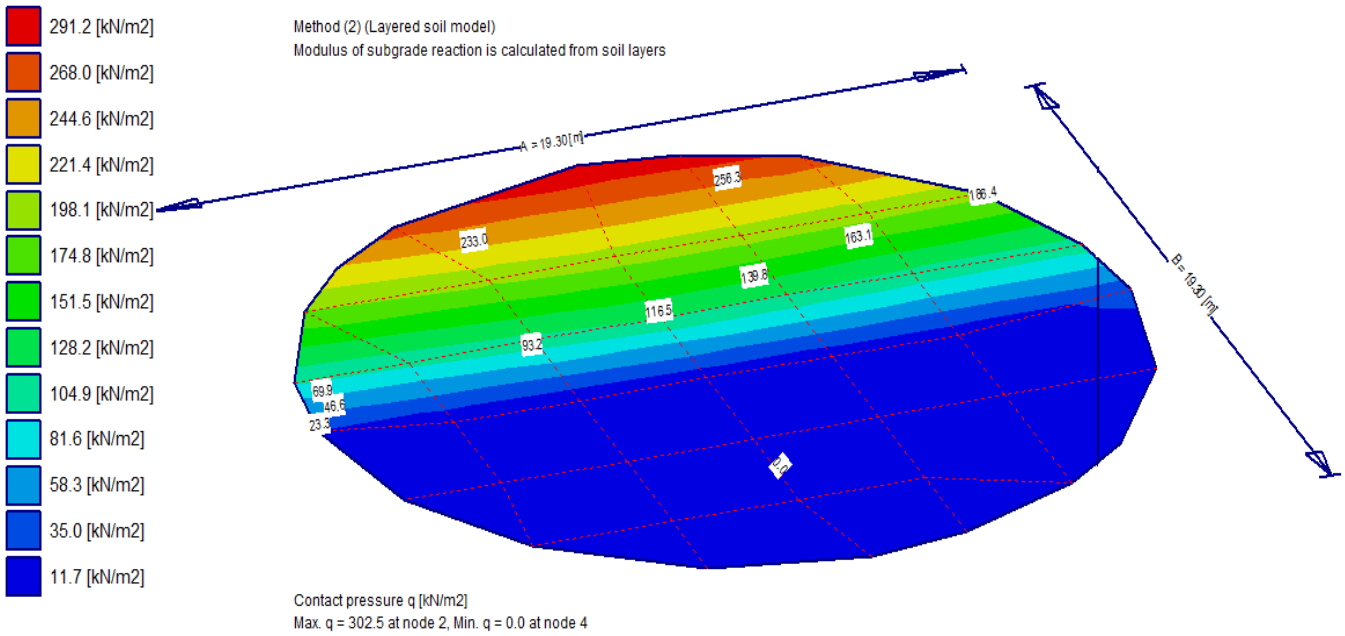
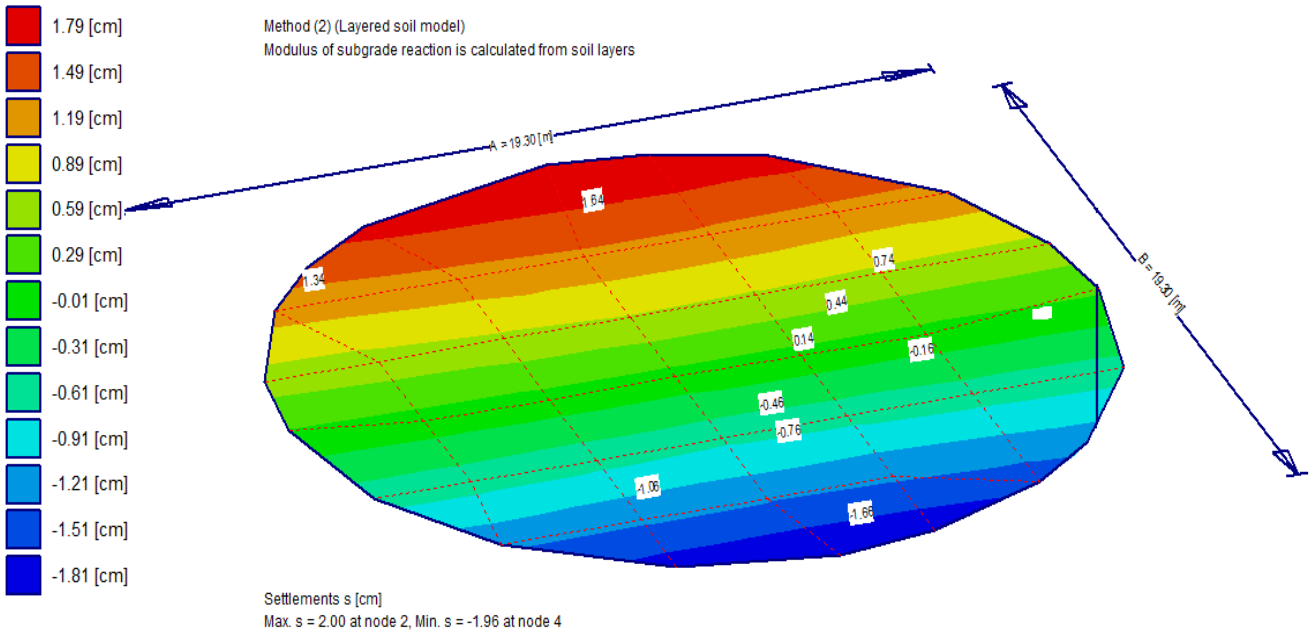


Figure 16. Vertical displacements Uv



Project 1: FE Analysis of slope stability for HEC Recki channel

The main objective of this project design, is to evaluate the stability of the naturally inclined terrain under initial conditions, as well as under future excavation in the toe of the slope. The purpose of the excavation in the toe of the slope, is replacement of the channel in order to increase its discharge capacity.

Finite element stress and strains analysis of the half space, as well as evaluation of the stability of the terrain are done in two typical cross sections, which are chosen in accordance of the natural slope inclination, height of the potential unstable soil mass etc.

The soil profile of the terrain, is composed of proluvial deposits (Pr) of gravely sand mixed up and unbounded with low plasticity silt material, with varying height up to 8,5-10,0m. For this project it is important to note that, the effective shear parameters of the soil mass are defined according to non-linear failure envelope, according to the actual stress state, while other soil parameters are taken from the geotechnical report. The deformation hardening model of soil behavior is applied in the FE model. The base of the terrain is sound rock material of diabase (ββ).

Figure 1. FEA Plaxis 2D model

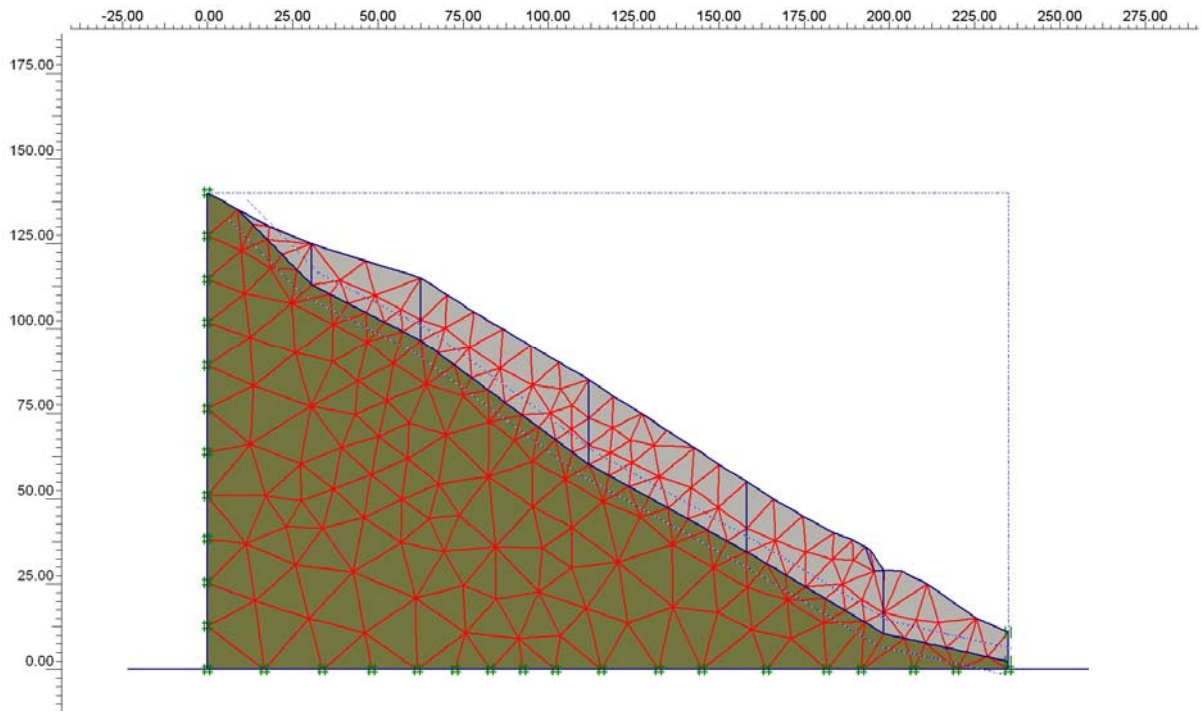


Figure 2. Total displacements after executing the excavation in toe of a slope

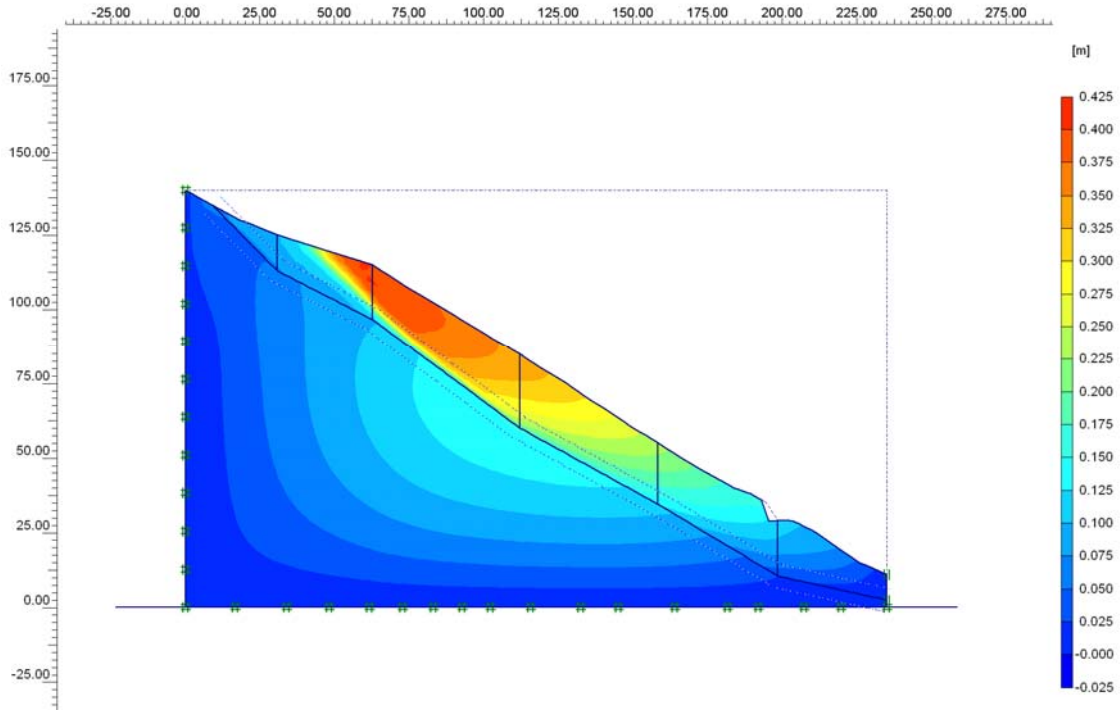
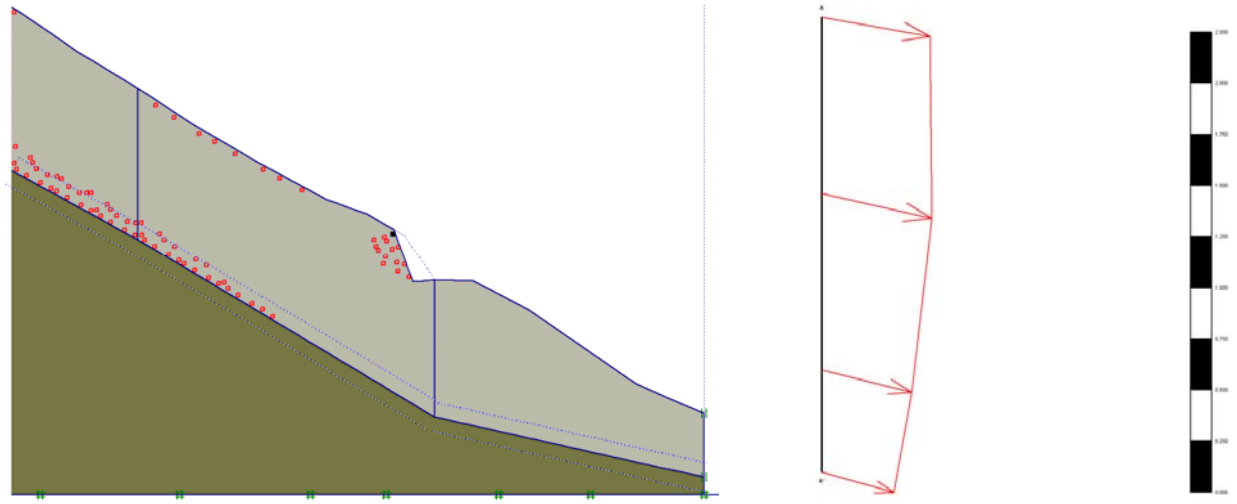


Figure 3. Plastic points at failure plane and toe of the slope after the excavation



Project 2: Calculation of slope stability in clayely soil with nonlinear shear envelope

Figure 4. Cross section of the slope (H=8,0m and α=53°) and calculation model

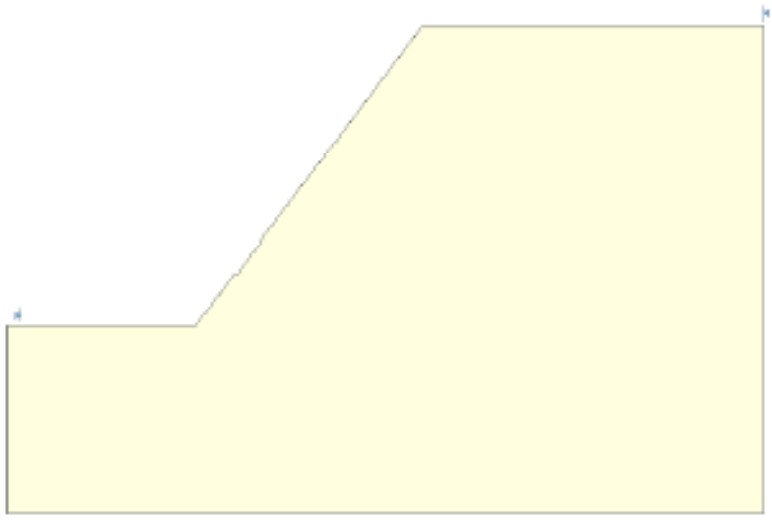
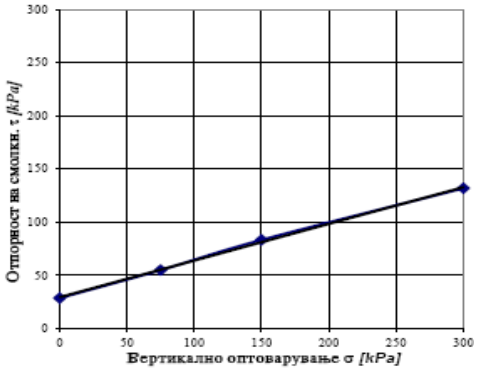


Figure 5. Direct shear strength test in clayely soil and linear strength parameters

Пореметен примерок	
Непореметен примерок	*
Димензии	б х б х 2 cm
Маса пред испитување	126,6 gr
Маса по испитување	128,95 gr
Маса во сува состојба	101,23 gr
Влажност пред испитув.	25,06 %
Влажност по испитување	27,38 %
Вол.тежина во сува сост.	14,06 kN/m³
Вол.тежина во прир.сост.	17,58 kN/m³
Консолидација	24 h
tg φ	0,35075
Агол на внат. триење φ	19,33 [°]
Кохезија	28,59 kPa



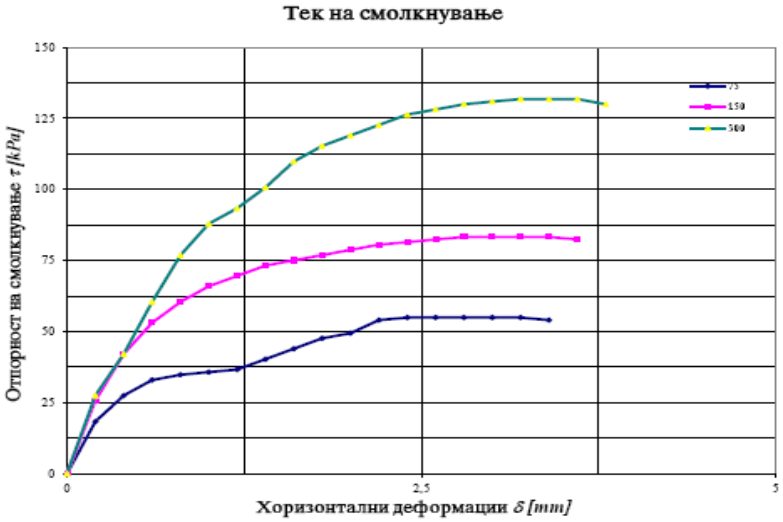
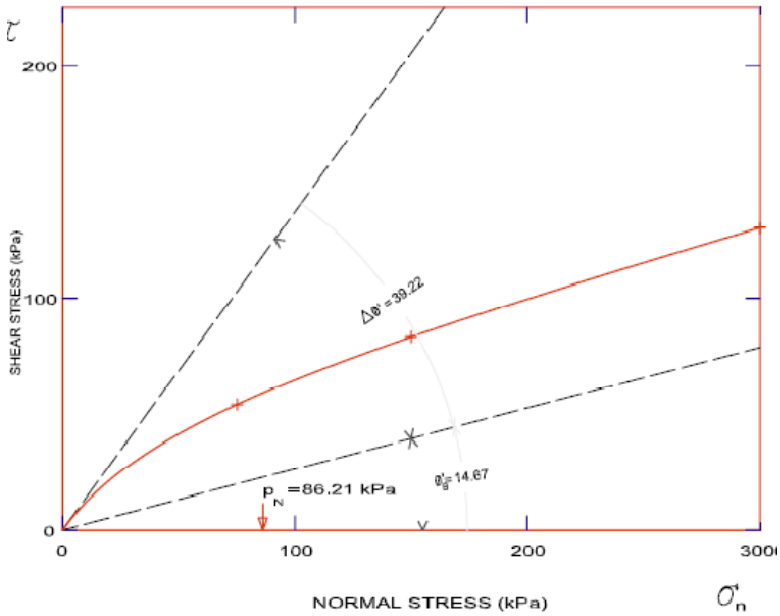


Figure 5. Non-linear strength parameters derived from direct shear test (Program NENVE-X)



φ_b=14,67°

$\Delta\varphi$=39,22°

P_m=86,21kPa

Figure 6. Calculation of factor of safety with non-linear strength parameters (Fs=0.86)