

CLIMATE CONFERENCE

Creating a climate strategy and shaping attitudes in Székesfehérvár

A GREEN CITY - THE LUNGS OF FEHÉRVÁR

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Municipality of the City of Székesfehérvár

2022. 05. 18.



1. Plan presentation... how?



1. Plan presentation... how?

31 ha, green focus, complex technical content:

- Construction of an access road and car park;
- construction of a reception building (200 m²) with service infrastructure;
- landscaping using horticultural methods around the building;
- afforestation using silvicultural methods;
- planting of tree-lines using horticultural methods;
- construction of an internal foot-path network;
- simple water management tasks.

Environmental conflicts:

- Uncharted natural assets;
- inland water, low-lying area;
- aggressive groundwater;
- saline (acidic) and carbonate soils;
- archaeological interest.

Other aggravating circumstances:

- The area is affected by a bypass road that is currently being planned;
- no utilities within the plot.

1. Presentation of the plan based on the objectives

WILL BE IMPLEMENTED AT A LATER STAGE.

The aim of the planning programme is:

"The programme is essentially a large-scale **forest and park development** (for both leisure and recreation) in which forest areas and groves are presented in a mosaic of interconnected systems."

← ABSOLUTE PRIORITY.

Source: Lungs of White Castle programme, Phase II sub-area, Technical content definition

↑ THIS IS NOT WHAT WE ARE PLANNING, BUT IT WILL BE.
Anticipatory fine-tuning!

The conference aims to:

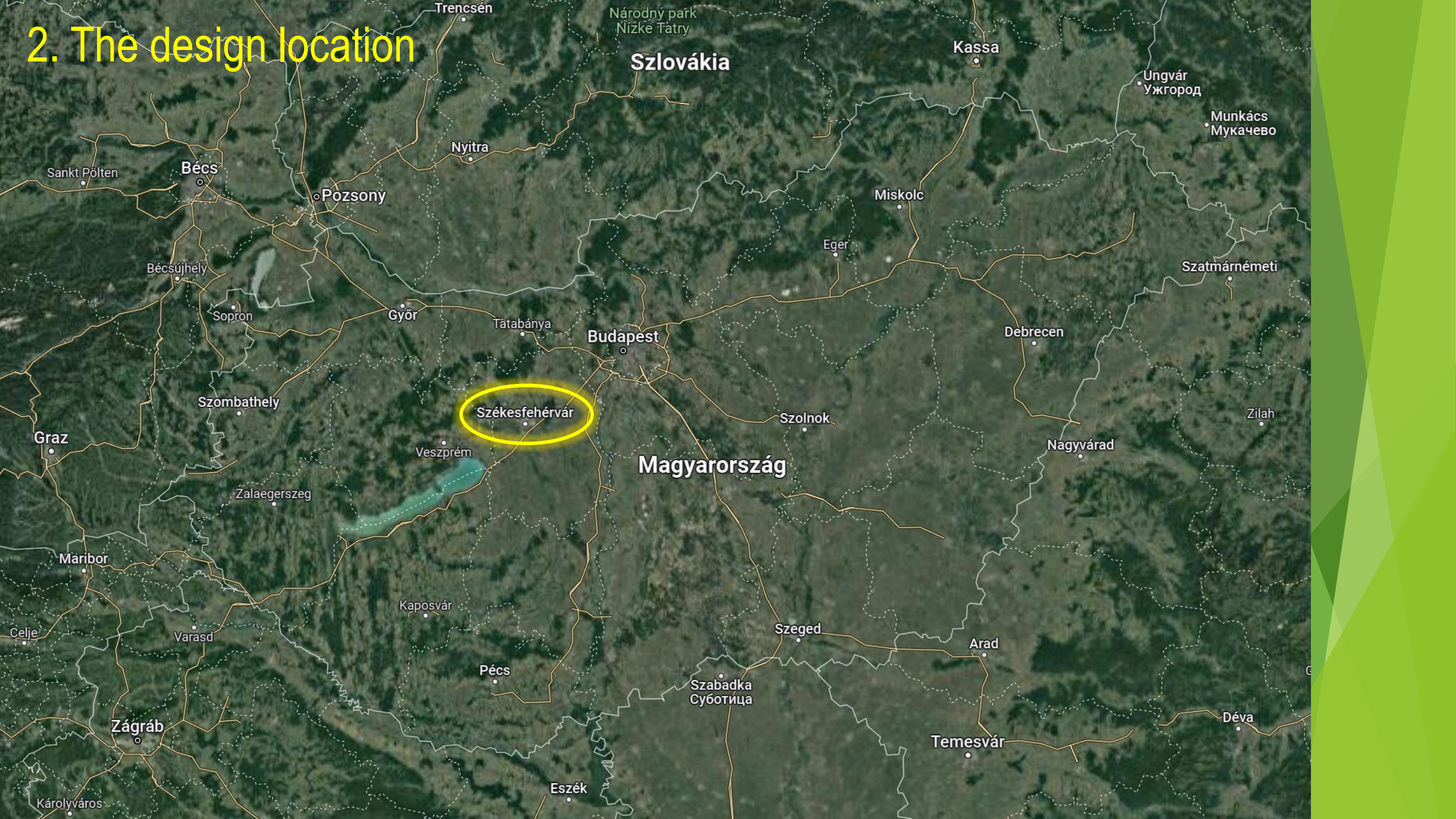
"... **prevention, ... adaptation, ... sustainability, ...**

strengthening local capacity to reduce greenhouse gas emissions ..."

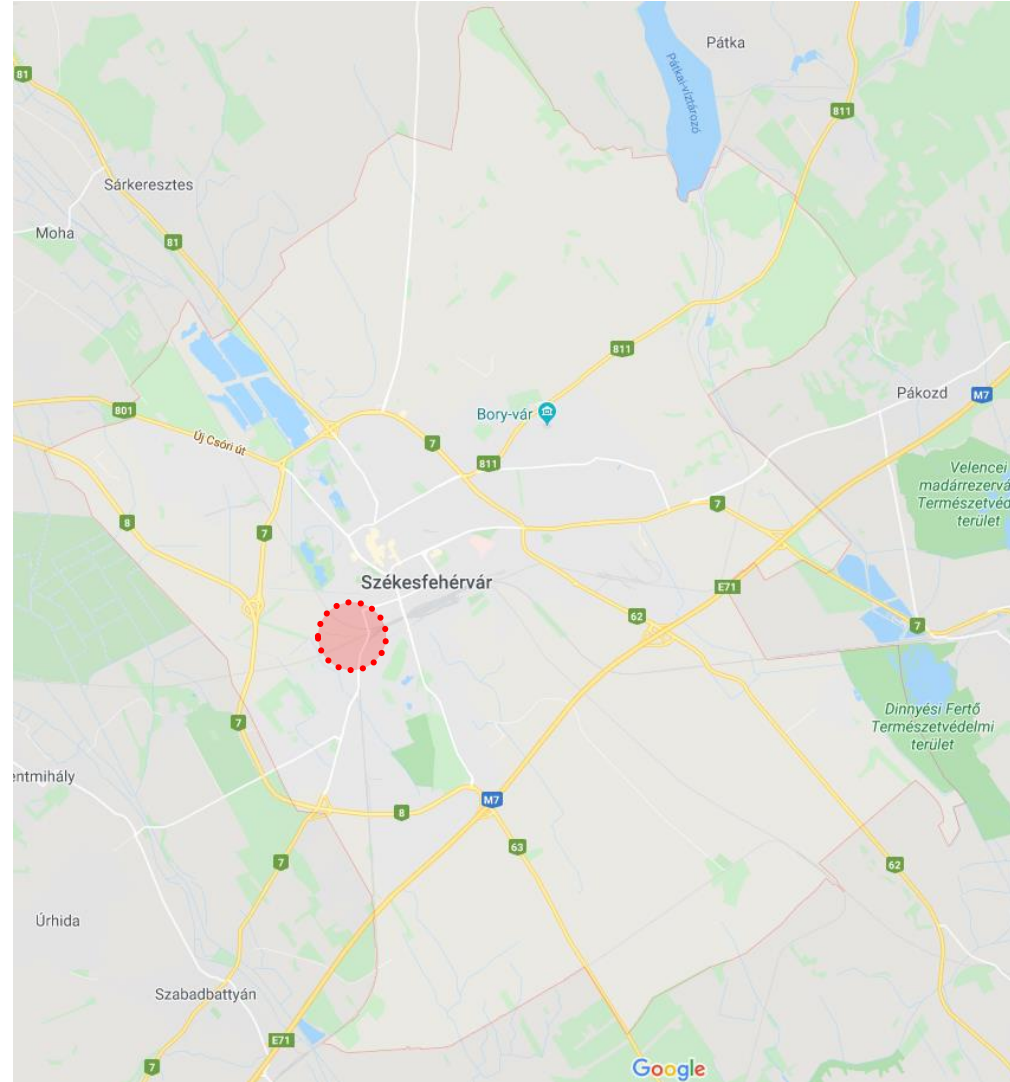
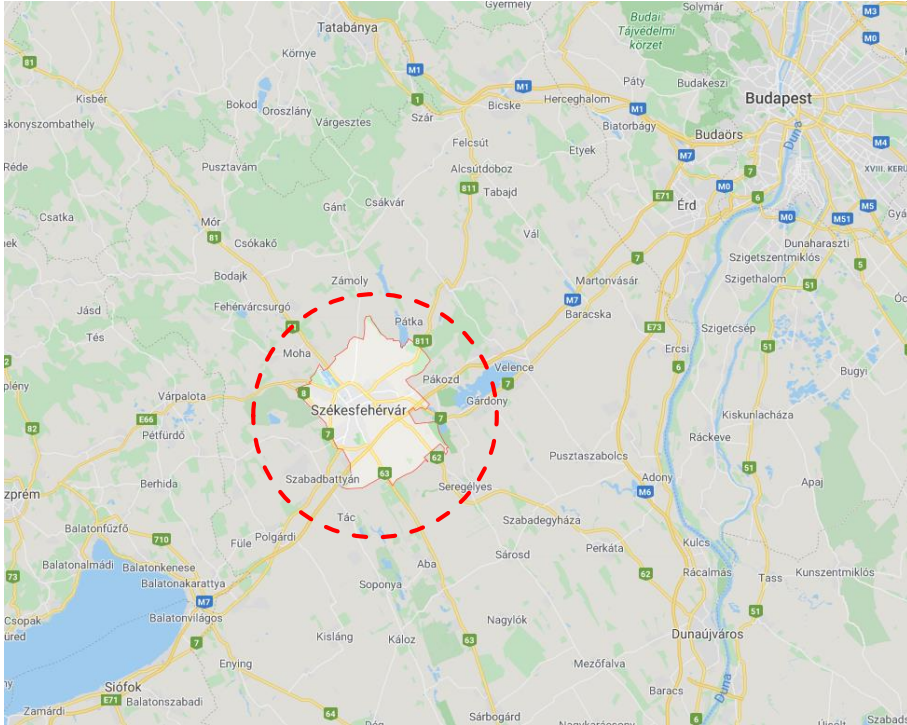
Source : <https://www.szekesfehervar.hu/klimastrategia-letrehozasa-es-szemleletformalas-szekesfehervaron>

↑ GROWERS SAVE 8.9% OF GAS IN THE EU IN ONE YEAR ... (2014 data), the EU is putting a strong emphasis on land use and the role of forests in the fight against climate change.

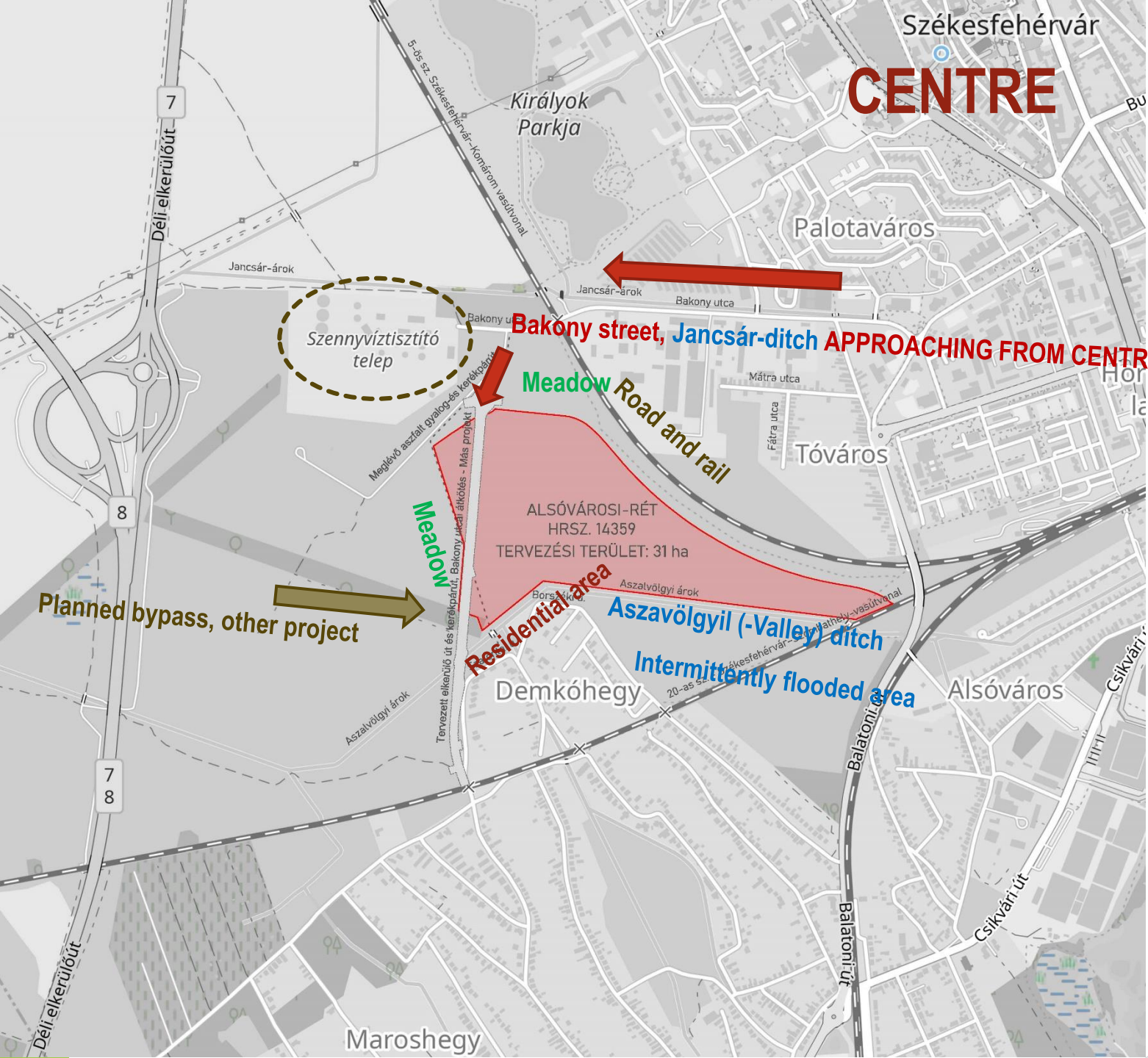
2. The design location



2. The design location



- 65 km from Budapest
- 45 km from Lake Balaton
- Székesfehérvár 3 km from the city centre



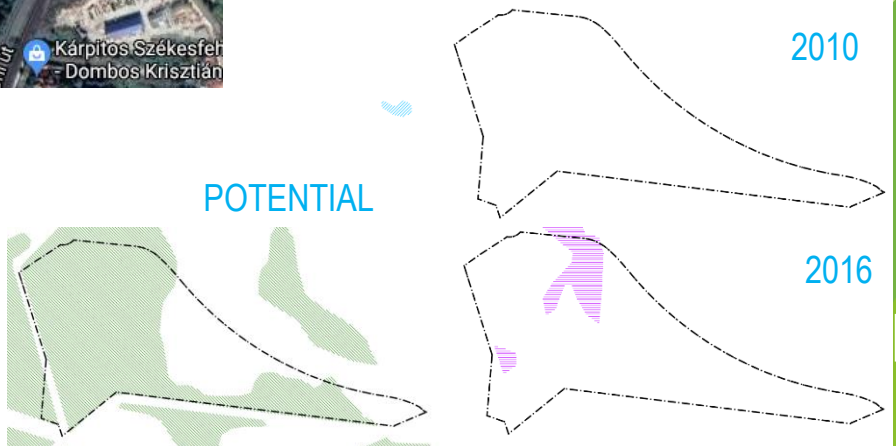
2. The design location



TERRAIN + MEADOW + INLAND WATER + AGGRESSIVE GROUNDWATER

3. Attributes – Risks

... highlighting the most relevant ones ...



THE WATER

● Waste water

Water ●

● Electric

- At the highest point, i.e. the plateau, it is an archaeological site.
- Potential occurrence of botanical values on the plateau.
- Urban strategic water allocation requests the retention of buffer storage capacity in the design area.
- A planned bypass route bisects the area.
- Remote utility connections.

3. Attributes – Risks

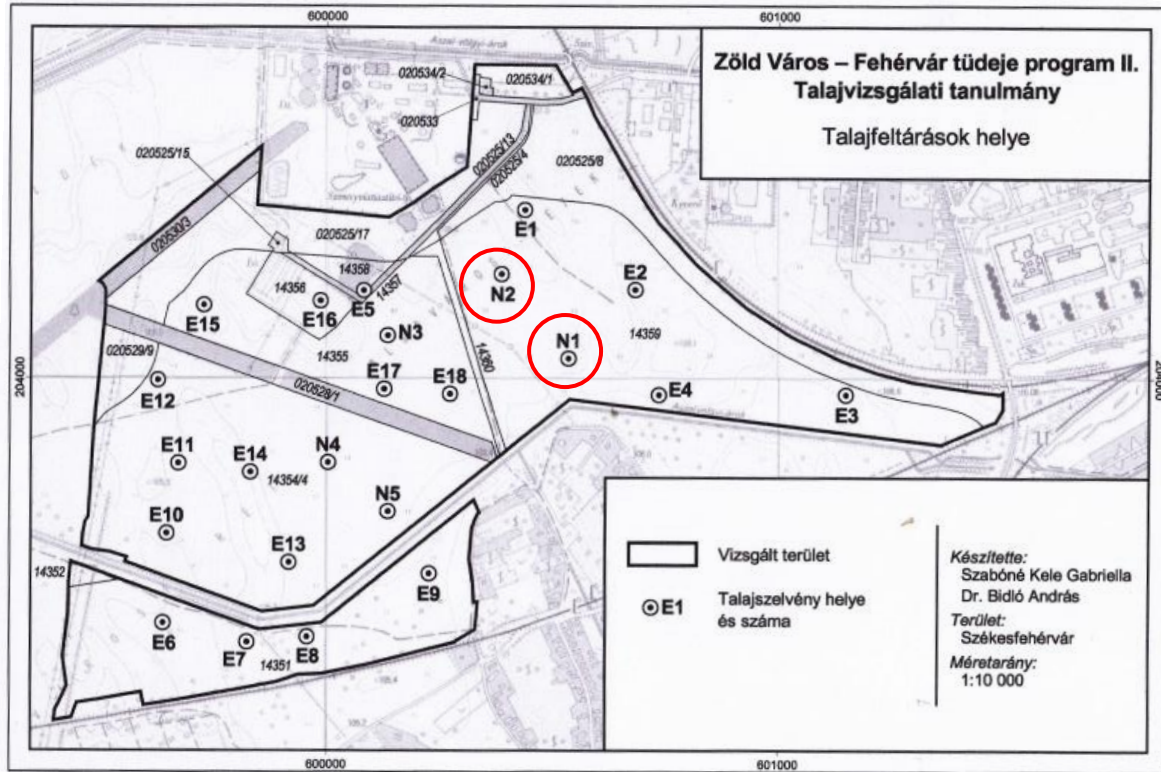
... highlighting the most relevant ones ...

THE WATER

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

Based on a forestry site survey ...

THE FOREST



N1:

- Groundwater at 180 cm.
- Typical **deep saline meadow soil** <- formed on river sediments.
- **In terms of planting, this is the most favourable area, both for water depth and salt content.**

N2:

- Groundwater at 180 cm.
- The side of the segment is slumped over.
- The soil type of the area is a **saline meadow soil** (291), formed on river sediments.
- **Water and nutrient management is unfavourable.**
- **High salinity at 45 cm depth (dominated by Mg).**

- 2+4 soil segments;
- high water table in spring, intermittent water saturation, high salt and lime content;
- the lower saline, saline layers should never reach the surface;
- woody plants should be planted in planting pits of appropriate size, with the original soil replaced entirely by topsoil;
- preference should be given to species less sensitive to soil salinity.

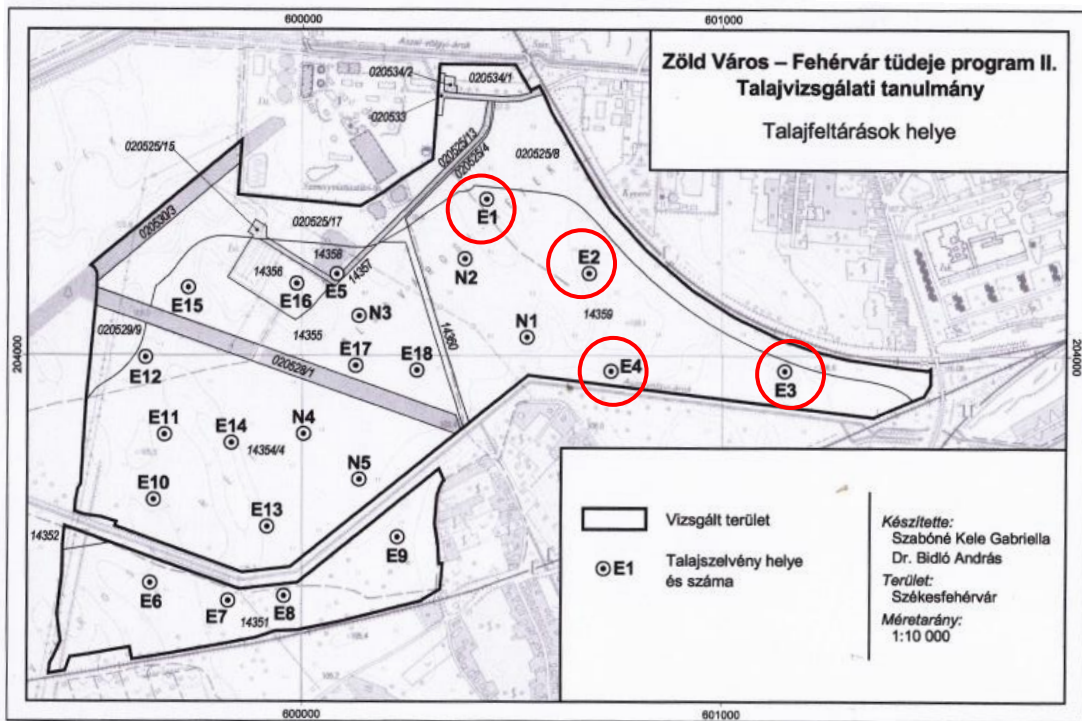
3. Attributes - Risks

... highlighting the most relevant ones ...

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

Based on a forestry site survey ...

Részletes erdészeti termőhely feltárási szakvélemény



Classification of place of production:

NTTH forest production area

3. Attributes – Opportunities

... highlighting the most relevant ones ...



E1:

- Talajvíz 155 cm-en
- Termőréteg 90 cm
- Talajhiba: kedvezőtlen mészfelhalmozódás
- Fizikai talajféleség agyag

Célállomány és növekedése:

- Kocsányos tölgy (KST) (gyenge-közepes)
- Cser (CS) (gyenge-közepes)
- fehér nyár (FRNY) (gyenge-közepes)

Elegyek: : Mezei juhar (MJ), mezei szil (MSZ), turkesztáni szil (TUSZ)

E2:

- Talajvíz –
- Termőréteg 50 cm
- Talajhiba: kedvezőtlen mészfelhalmozódás
- Fizikai talajféleség vályog

Célállomány és növekedése:

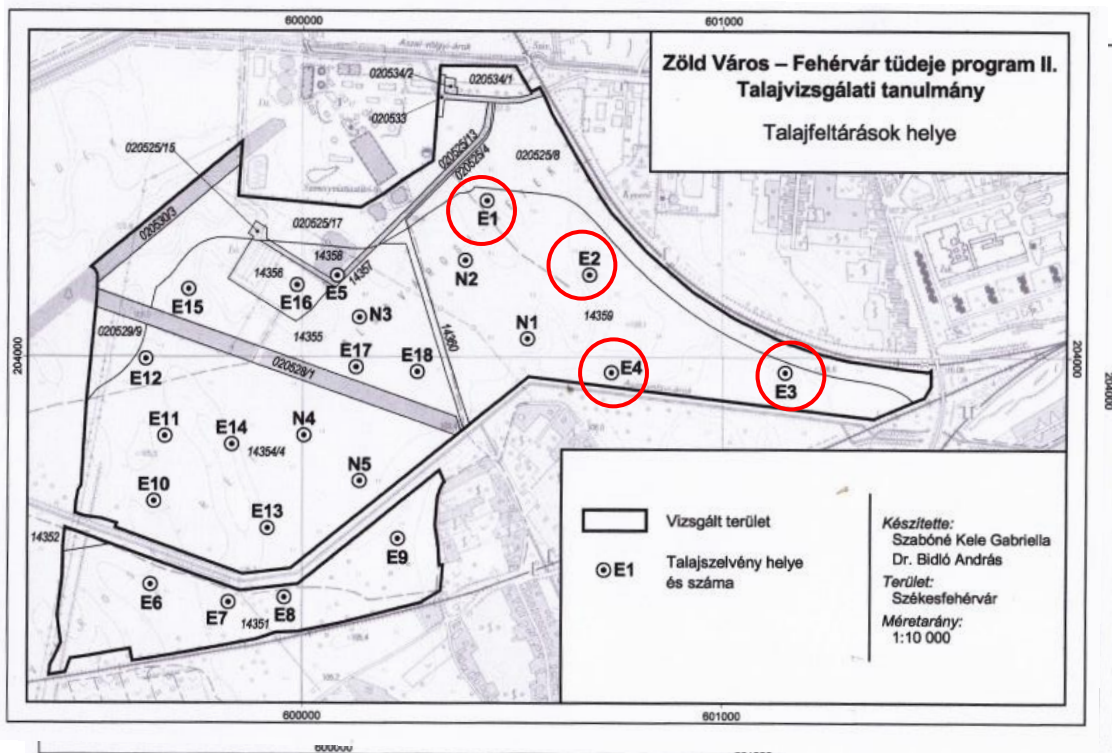
- Cser (CS) (gyenge)
- fehér nyár (FRNY) (gyenge-közepes)
- akác (A) (közepes)
- erdei fenyő (EF) (közepes)

Elegyek: : Mezei juhar (MJ), mezei szil (MSZ)



SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

Based on a forestry site survey ...



Classification of the production site:

NTTH forest production area

3. Attributes – Opportunities

... highlighting the most relevant ones ...

Részletes erdészeti termőhely feltérési szakvélemény



• E3:

- Talajvíz 190 cm-en
- Talajhiba: kedvezőtlen mészfelhalmozódás
- Fizikai talajféleség vályog

• Célállomány és növekedése:

- Kocsányos tölgy (KST) (gyenge)
- cser (CS) (gyenge)
- fehér nyár (FRNY) (gyenge)

Elegyek: : Mezei juhar (MJ), mezei szil (MSZ),
túrkezei szil (TUSZ)



• E4:

- Talajvíz 170 cm-en
- Fizikai talajféleség vályog

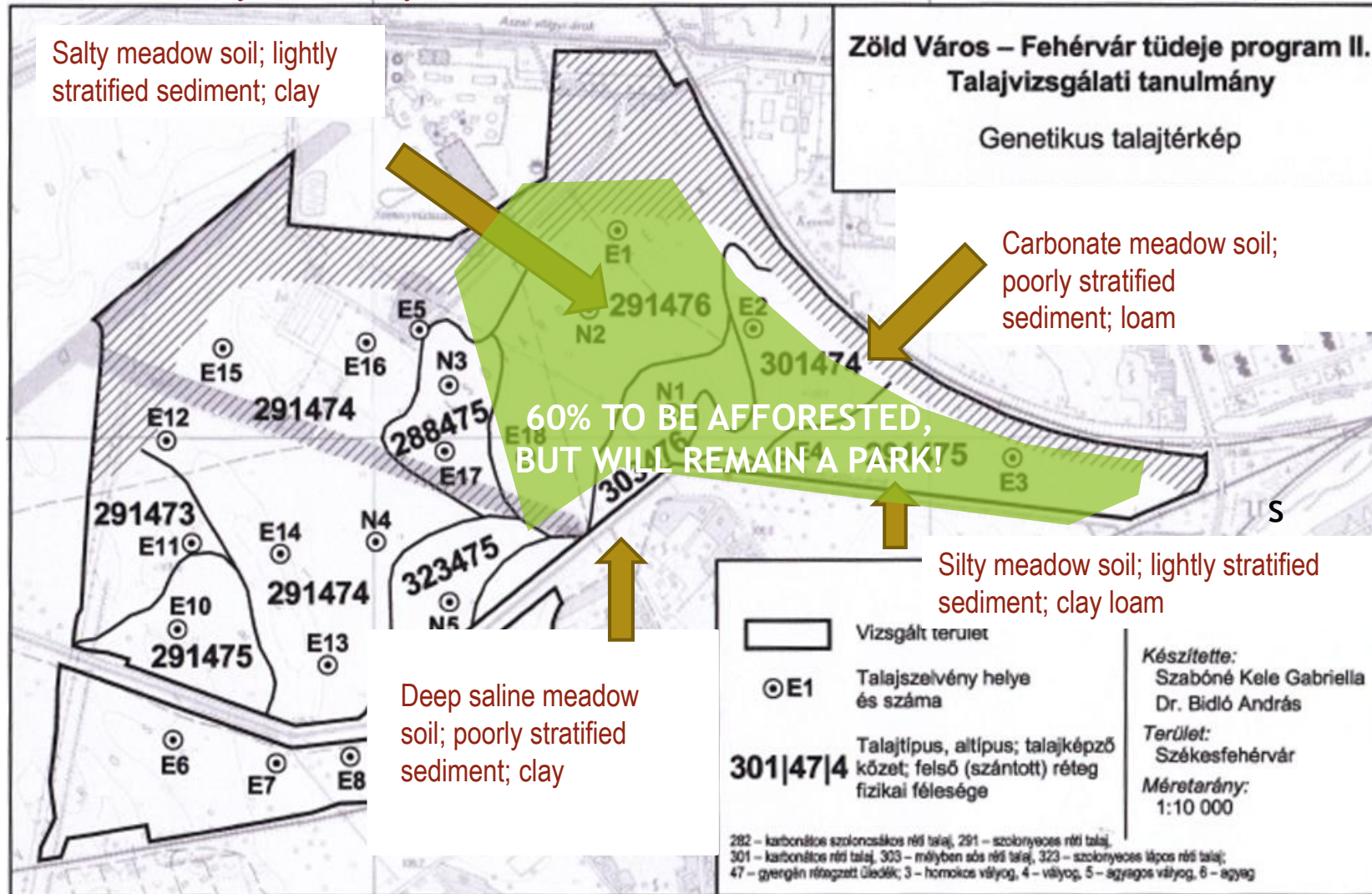
• Célállomány és növekedése:

- Kocsányos tölgy (KST) (gyenge)
- cser (CS) (gyenge)
- fehér nyár (FRNY) (gyenge)

Elegyek: : Mezei juhar (MJ), mezei szil (MSZ),
túrkezei szil (TUSZ)

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

On the basis of a forestry site survey ...



3. Attributes – Commitments

... highlighting the most relevant ones ...

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

On the basis of a forestry site survey ...

... from the expert opinion ...

- ▶ Originally treeless areas, but **can be afforested**.
- ▶ ... we recommend planting **pedunculate oak** and **white poplar**, mainly with **field maple**, **field elm** and **Turkistan elm**.
- ▶ The area is to be treated as a protective area(?). Planting and maintenance should be carried out in such a way as to preserve **the water content of the soil**. **Good growth cannot be expected from the planted stock**.
- ▶ **Drought damage is** also expected in the area due to the climatic conditions and unfavourable soil conditions. !!!!

3. Attributes – Opportunities

... highlighting the most relevant ones ...

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

Based on a forestry site survey, botanical study ...

Lombhullató fák:

1. *Acer campestre*
2. *Acer tataricum*
3. *Betula pendula*
4. *Cerasus avium*
5. *Crataegus laevigata*
6. *Fraxinus angustifolia* ssp. *pannonica*
7. *Fraxinus excelsior*
8. *Fraxinus ornus*
9. *Malus sylvestris*
10. *Populus alba*
11. *Populus x canescens*
12. *Prunus padus*
13. *Pyrus pyrastra*
14. *Quercus cerris*
15. *Quercus robur*
16. *Salix alba*
17. *Sorbus torminalis*
18. *Tilia argentea*
19. *Tilia cordata*
20. *Ulmus laevis*
21. *Ulmus minor*

Örökzöldek:

22. *Pinus sylvestris*

Lombhullató cserjék:

- | | |
|--------------------|--------------------------------|
| Mezei juhar | 23. <i>Berberis vulgaris</i> |
| Tatárjuhar | 24. <i>Cornus mas</i> |
| Közönséges nyír | 25. <i>Cornus sanguinea</i> |
| Madárcseresznye | 26. <i>Corylus avellana</i> |
| Cseregalagonya | 27. <i>Crataegus laevigata</i> |
| Magyar kőris | 28. <i>Crataegus monogyna</i> |
| Magas kőris | 29. <i>Euonymus europaeus</i> |
| Virágos kőris | 30. <i>Frangula alnus</i> |
| Közönséges vadalma | 31. <i>Ligustrum vulgare</i> |
| Fehér nyár | 32. <i>Prunus spinosa</i> |
| Szürke nyár | 33. <i>Rhamnus catharticus</i> |
| Zselnicemeggy | 34. <i>Rosa canina</i> |
| Vadkörte | 35. <i>Rosa gallica</i> |
| Csertölgy | 36. <i>Salix cinerea</i> |
| Kocsányos tölgy | 37. <i>Salix purpurea</i> |
| Fehér fűz | 38. <i>Salix triandra</i> |
| Barkóca berkenye | 39. <i>Salix viminalis</i> |
| Ezüst hárs | |
| Kislevelű hárs | |
| Vénic szil | |
| Mezei szil | |

- Erdei fenyő

FURTHER NARROWING BASED ON SALT TOLERANCE!

- Sóskaborbolya
- Húsos som
- Veresgyűrű som
- Közönséges mogoró
- Cseregalagonya
- Egybibés galagonya
- Csíkos kecskerágó
- Kutyabenge
- Vesszős fagyal (mérgező!)
- Kökény
- Varjútüvis
- Gyepű rózsa
- Parlagi rózsa
- Hamvas fűz
- Csigolyafűz
- Mandulalevelű fűz
- Kosárfonó fűz

3. Attributes – Opportunities

... highlighting the most relevant ones ...

SALINE, SALTY AND CARBONATE SOILS IN DEPTH!!!

On the basis of a forestry site survey ...

Ssz.	Latin name	Hungarian name (forestry code)	Salt meadow soil*		Deep saline meadow soil (Salt<0.1%, up to 80 cm; H>40 cm)	Can withstand seasonal water cover	Felhaszdivorce
			Strong spike (Salt > 0.2%, 20-40 cm; H:7-20 cm)	Moderately strong spark (Salt<0.1%, 20-40 cm; Salt>0.2%, 40-80 cm; H:20-40 cm)			
DECIDUOUS TREES							
1.	<i>Acer campestre</i>	Mezei juhar (MJ)		X	X	X	HON+
2.	<i>Acer tataricum</i>	Tatár juhar (TJ)		X	X	X	HON+
3.	<i>Celtis occidentalis</i>	Nyugati ostorfa (NYO)			X		ID-
4.	<i>Cerasus avium</i>	Madárcseresznye (CSNY)		X	X	X	HON+
5.	<i>Elaeagnus angustifolia</i>	Keskenylevelű ezüstfa (EZ)	X	X	X	X	ID-
6.	<i>Fraxinus angustifolia</i> subsp. <i>pannonica</i>	Magyar kőris (MAK)		X	X	X	HON+
7.	<i>Fraxinus pennsylvanica</i>	Amerikai kőris (AK)	X	X	X	X	ID-
8.	<i>Gleditsia triacanthos</i>	Tövises lepényfa (-)			X		ID-
9.	<i>Juglans nigra</i>	Fekete dió (-)		X	X	X	ID-
10.	<i>Malus sylvestris</i>	Vadalma (AL)		X	X		HON+
11.	<i>Populus alba</i>	Fehér nyár (FRNY)	X	X	X	X	HON+
12.	<i>Populus</i> sp.	Fehér nyár erdészeti hibridjei (-)			X	X	HNEF+
13.	<i>Populus x canadensis</i> I-214	Kanadai nyár (-)		X	X	X	HNEF+
14.	<i>Populus x canadensis</i> 'Marilandica'	Kanadai nyár (-)		X	X	X	HNEF+
15.	<i>Populus x canadensis</i> 'Robusta'	Kanadai nyár (-)		X	X	X	HNEF+
16.	<i>Populus x canescens</i>	Szürke nyár (SZNY)		X	X		HON+
17.	<i>Prunus padus</i>	Zselnicemeggy (ZSM)			X	X	HON+

... etc.

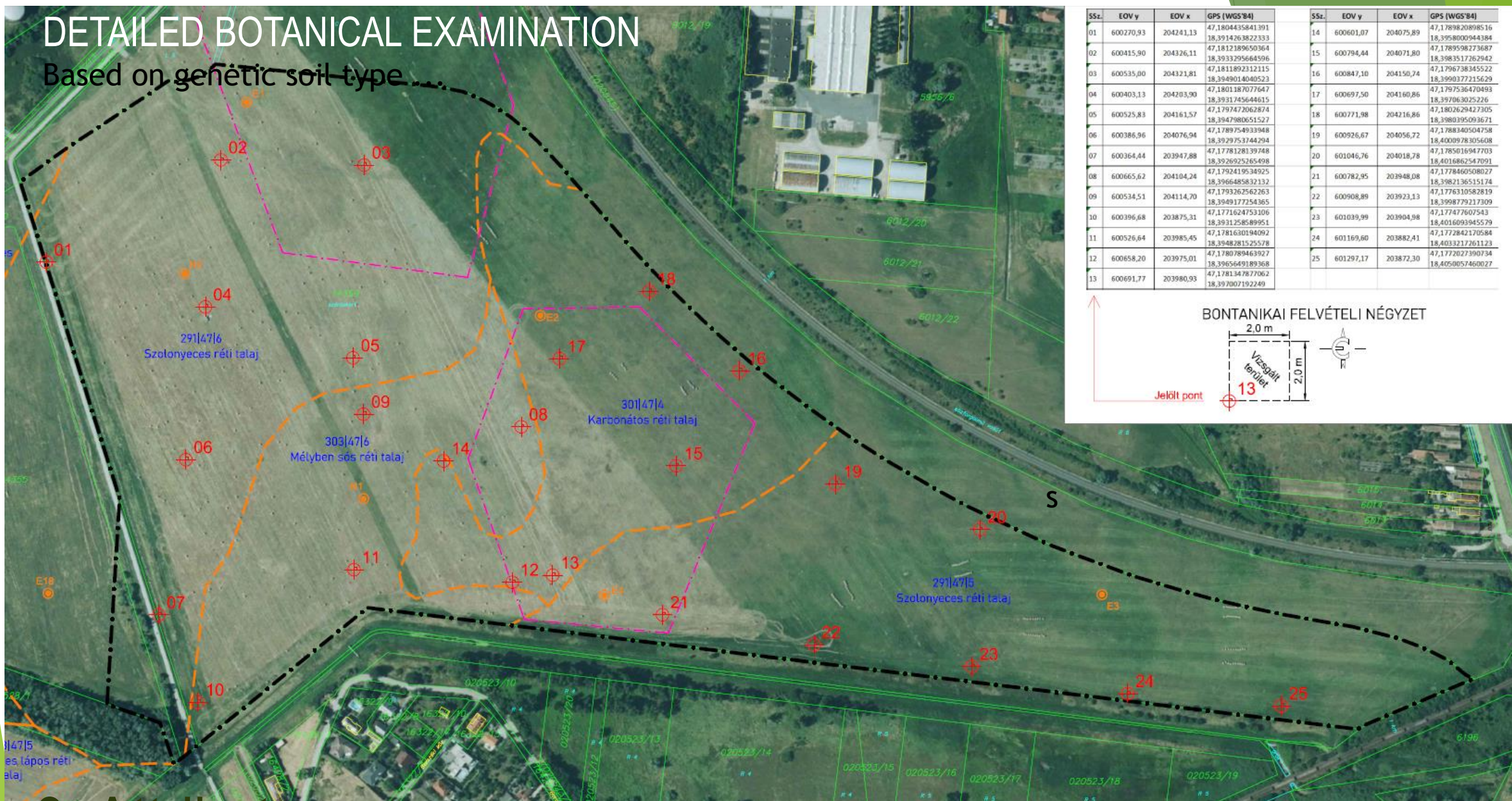
SUPPLEMENT		
HON+		Native species proposed for afforestation
HNEF+		Species of native genus proposed for afforestation
ID-		Non-native, ecologically suitable species/species not recommended for afforestation

3. Attributes – Opportunities

... highlighting the most relevant ones ...

DETAILED BOTANICAL EXAMINATION

Based on genetic soil type

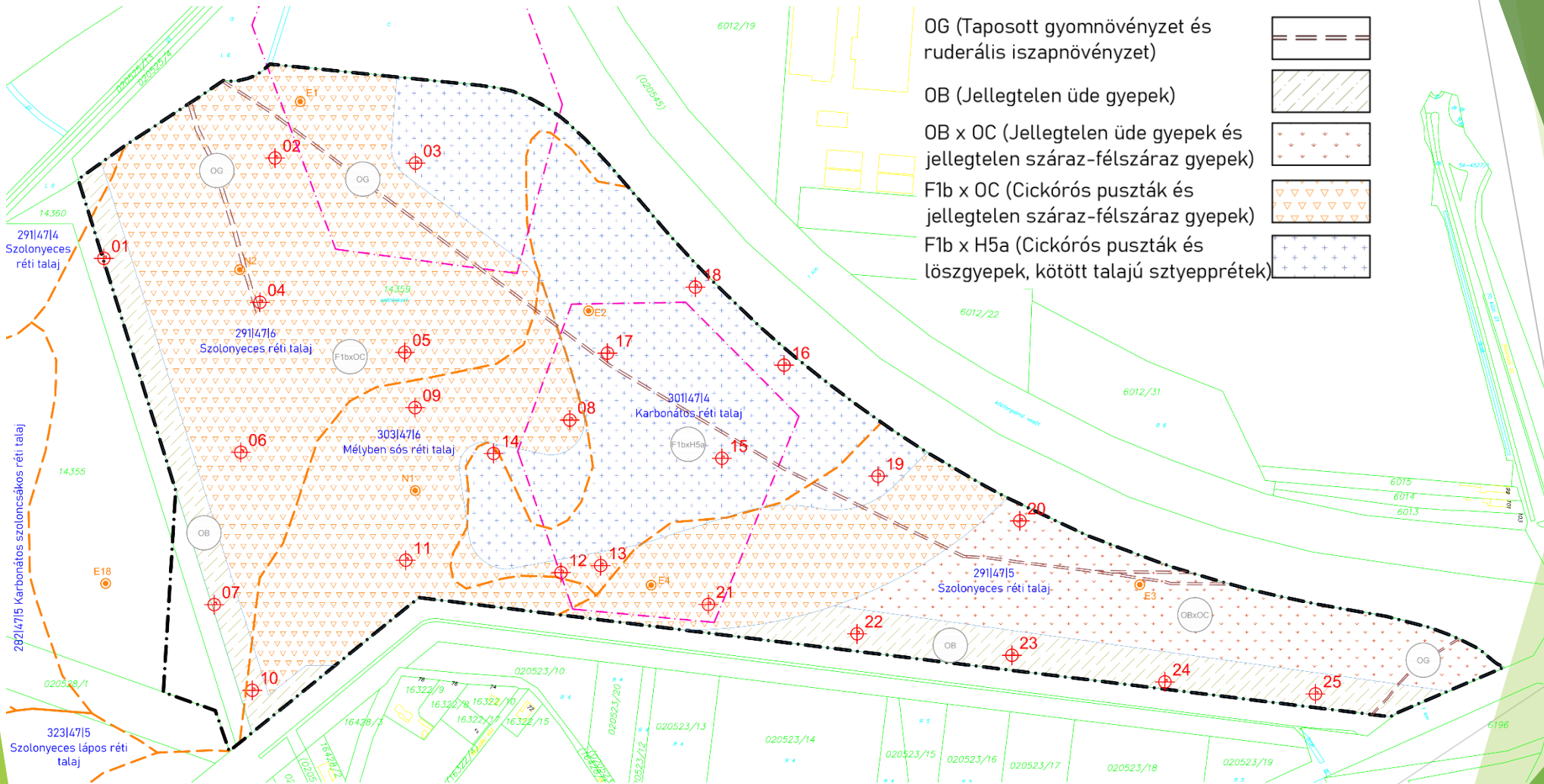


3. Attributes

... highlighting the most relevant ones ...

THE LAWN

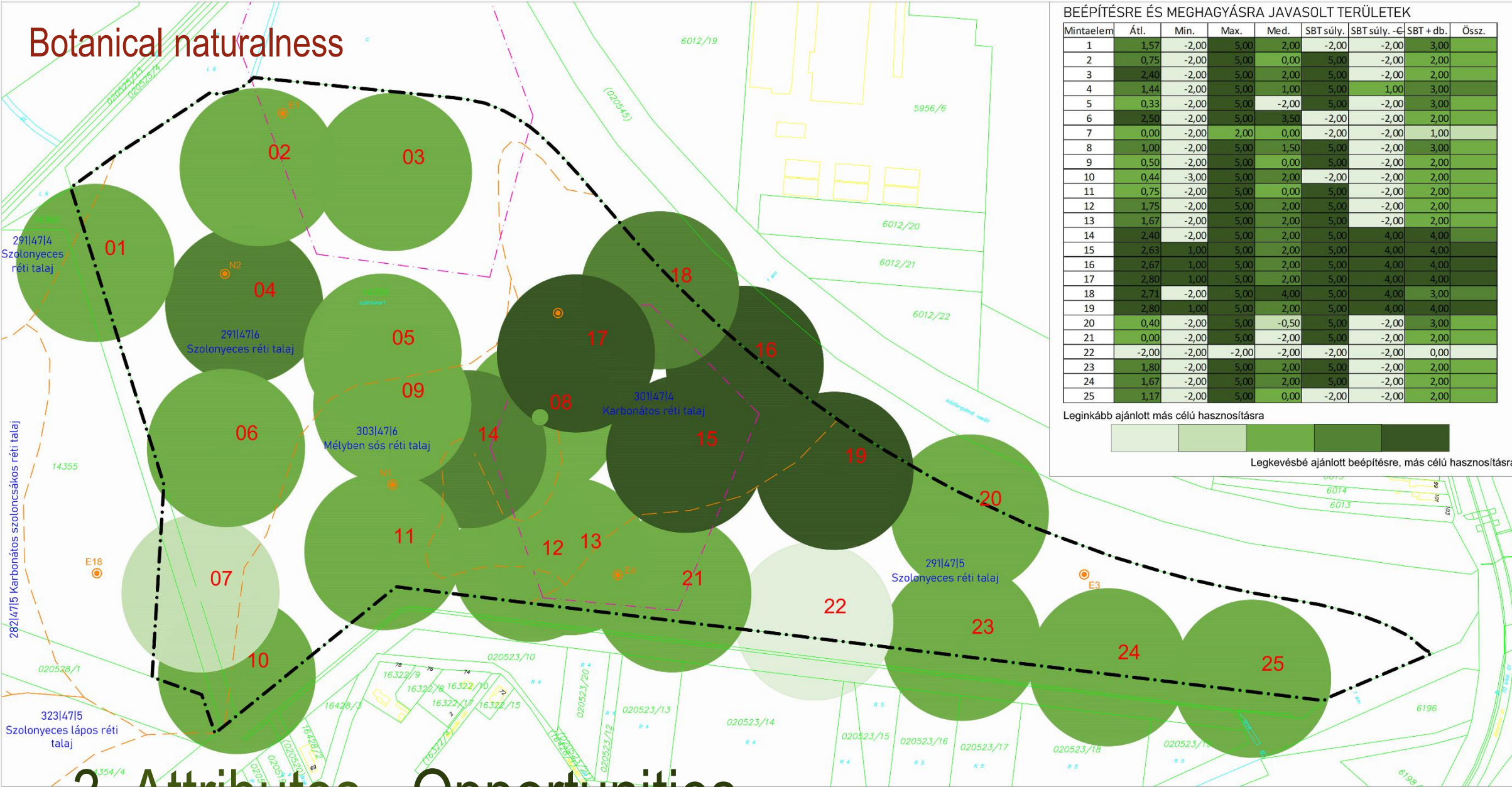
Habitat map by GIS category



3. Attributes

... highlighting the most relevant ones ...

Botanical naturalness



BEÉPÍTÉSRE ÉS MEGHAGYÁSRA JAVASOLT TERÜLETEK

Mintaelem	Átl.	Min.	Max.	Med.	SBT súly.	SBT súly. -C	SBT + db.	Össz.
1	1,57	-2,00	5,00	2,00	-2,00	-2,00	3,00	
2	0,75	-2,00	5,00	0,00	5,00	-2,00	2,00	
3	2,40	-2,00	5,00	2,00	5,00	-2,00	2,00	
4	1,44	-2,00	5,00	1,00	5,00	1,00	3,00	
5	0,33	-2,00	5,00	-2,00	5,00	-2,00	3,00	
6	2,50	-2,00	5,00	3,50	-2,00	-2,00	2,00	
7	0,00	-2,00	2,00	0,00	-2,00	-2,00	1,00	
8	1,00	-2,00	5,00	1,50	5,00	-2,00	3,00	
9	0,50	-2,00	5,00	0,00	5,00	-2,00	2,00	
10	0,44	-3,00	5,00	2,00	-2,00	-2,00	2,00	
11	0,75	-2,00	5,00	0,00	5,00	-2,00	2,00	
12	1,75	-2,00	5,00	2,00	5,00	-2,00	2,00	
13	1,67	-2,00	5,00	2,00	5,00	-2,00	2,00	
14	2,40	-2,00	5,00	2,00	5,00	4,00	4,00	
15	2,63	1,00	5,00	2,00	5,00	4,00	4,00	
16	2,67	1,00	5,00	2,00	5,00	4,00	4,00	
17	2,80	1,00	5,00	2,00	5,00	4,00	4,00	
18	2,71	-2,00	5,00	4,00	5,00	4,00	3,00	
19	2,80	1,00	5,00	2,00	5,00	4,00	4,00	
20	0,40	-2,00	5,00	-0,50	5,00	-2,00	3,00	
21	0,00	-2,00	5,00	-2,00	5,00	-2,00	2,00	
22	-2,00	-2,00	-2,00	-2,00	-2,00	-2,00	0,00	
23	1,80	-2,00	5,00	2,00	5,00	-2,00	2,00	
24	1,67	-2,00	5,00	2,00	5,00	-2,00	2,00	
25	1,17	-2,00	5,00	0,00	-2,00	-2,00	2,00	

Leginkább ajánlott más célú hasznosításra

Legkevésbé ajánlott beépítésre, más célú hasznosításra

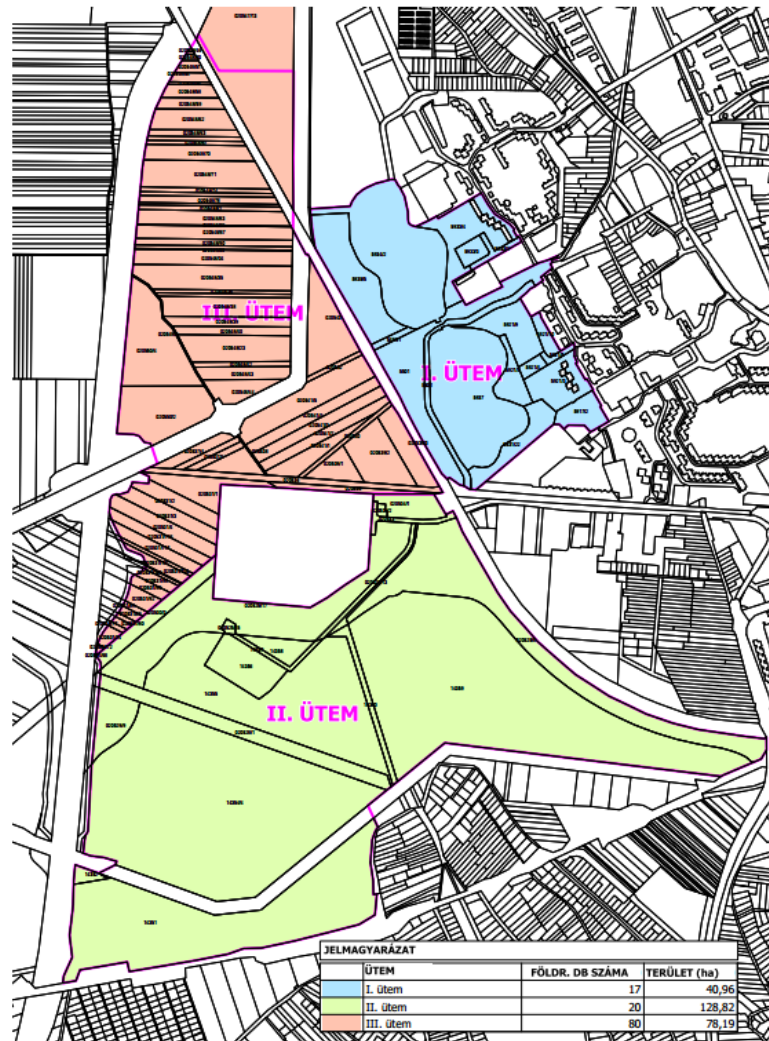
3. Attributes - Opportunities

... highlighting the most relevant ones ...

4. Planning programme 2016

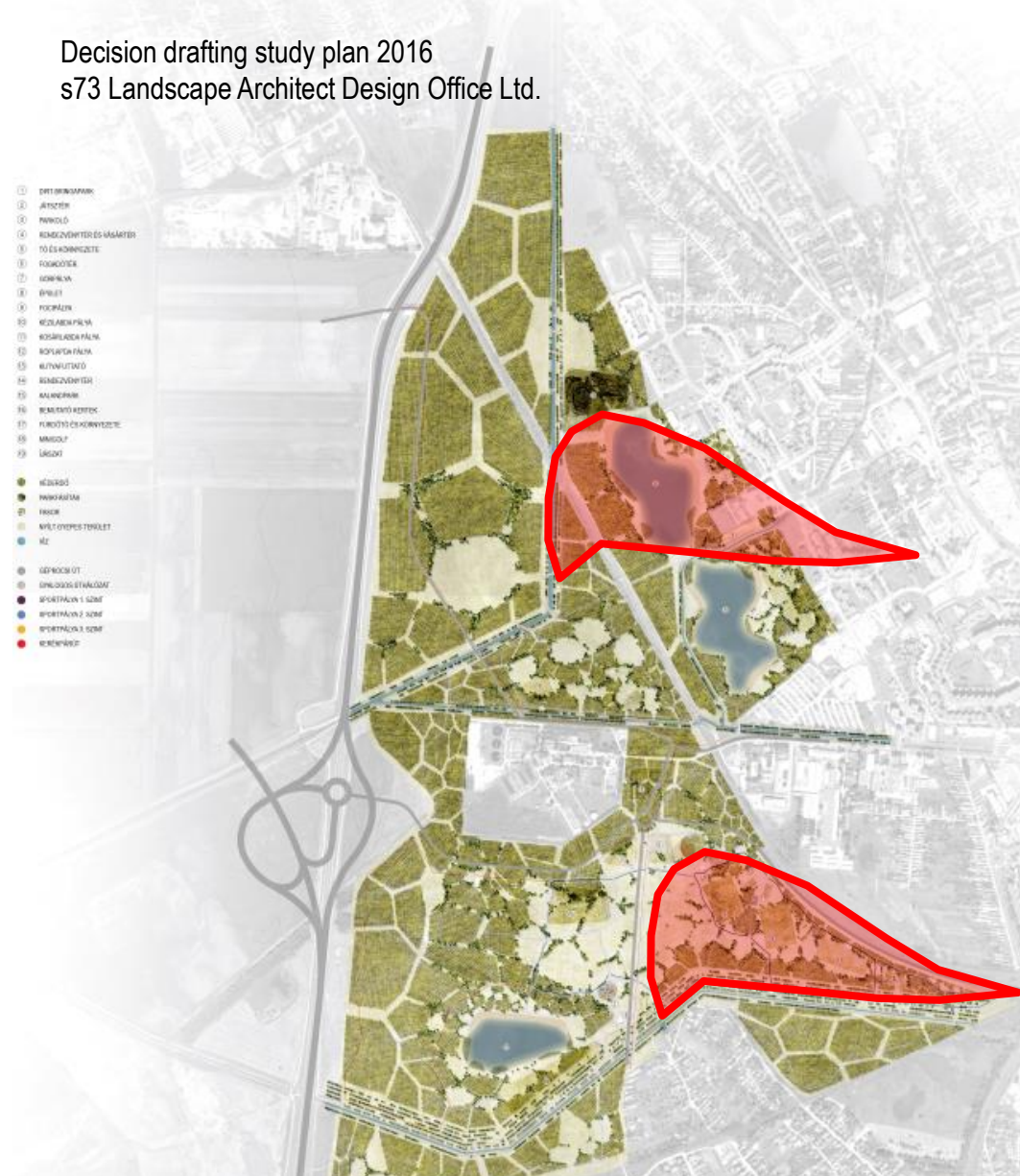
Decision drafting study plan 2016
s73 Landscape Architect Design Office Ltd.

2. melléklet - Ütemezés



Annex to the call for proposals

- ① DÖRÖMAGYAR
- ② ÁRTÓZER
- ③ PARKOLÓ
- ④ KÖZELKÖVETTERÉS VÁGÁRTER
- ⑤ TÖLÉSKÖRNYEZET
- ⑥ FÖVŐKÖR
- ⑦ KÖRNYEL
- ⑧ BÉNYEL
- ⑨ FÖVŐKÖR
- ⑩ KÖZELKÖVETTERÉS
- ⑪ KÖZELKÖVETTERÉS
- ⑫ KÖZELKÖVETTERÉS
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- ㊿ KÖZELKÖVETTERÉS



4. Planning programme 2016

4. melléklet - Akcióterület tervezett állapot

s73 Landscape Architect Design Office Ltd.
Decision drafting study plan 2016

- VÉDERDŐ
- PARKFÁSÍTÁS
- FASOR
- NYÍLT GYEPES TERÜLET
- VÍZ

- GÉPKOCSI ÚT
- GYALOGOS ÚTHÁLÓZAT
- SPORTPÁLYA 1. SZINT
- SPORTPÁLYA 2. SZINT
- SPORTPÁLYA 3. SZINT
- KERÉKPÁRÚT



- ① DIRT-BRINGAPARK
- ② JÁTSZTÉR
- ③ PARKOLÓ
- ④ RENDEZVÉNYTÉR ÉS VÁSÁRTÉR
- ⑤ TÓ ÉS KÖRNYEZETE
- ⑥ FOGADÓTÉR
- ⑦ GÖRPÁLYA
- ⑧ ÉPÜLET
- ⑨ FOCIPÁLYA
- ⑩ KÉZILABDA PÁLYA
- ⑪ KOSÁRLABDA PÁLYA
- ⑫ RÖPLABDA PÁLYA
- ⑬ KUTYAFUTTATÓ
- ⑭ RENDEZVÉNYTÉR
- ⑮ KALANDPARK
- ⑯ BEMUTATÓ KERTEK
- ⑰ FÜRDŐTŐ ÉS KÖRNYEZETE
- ⑱ MINIGOLF
- ⑲ ÍJÁSZAT

4. Planning programme 2020

Complex technical content:

- Construction of an access road and car park;
- construction of a reception building (200 m2) with service infrastructure;
- landscaping using landscaping methods around the building;
- afforestation using silvicultural methods;
- planting of trees using horticultural methods;
- construction of an internal promenade network;
- simple water management tasks.

Diverse solutions from builders and designers:

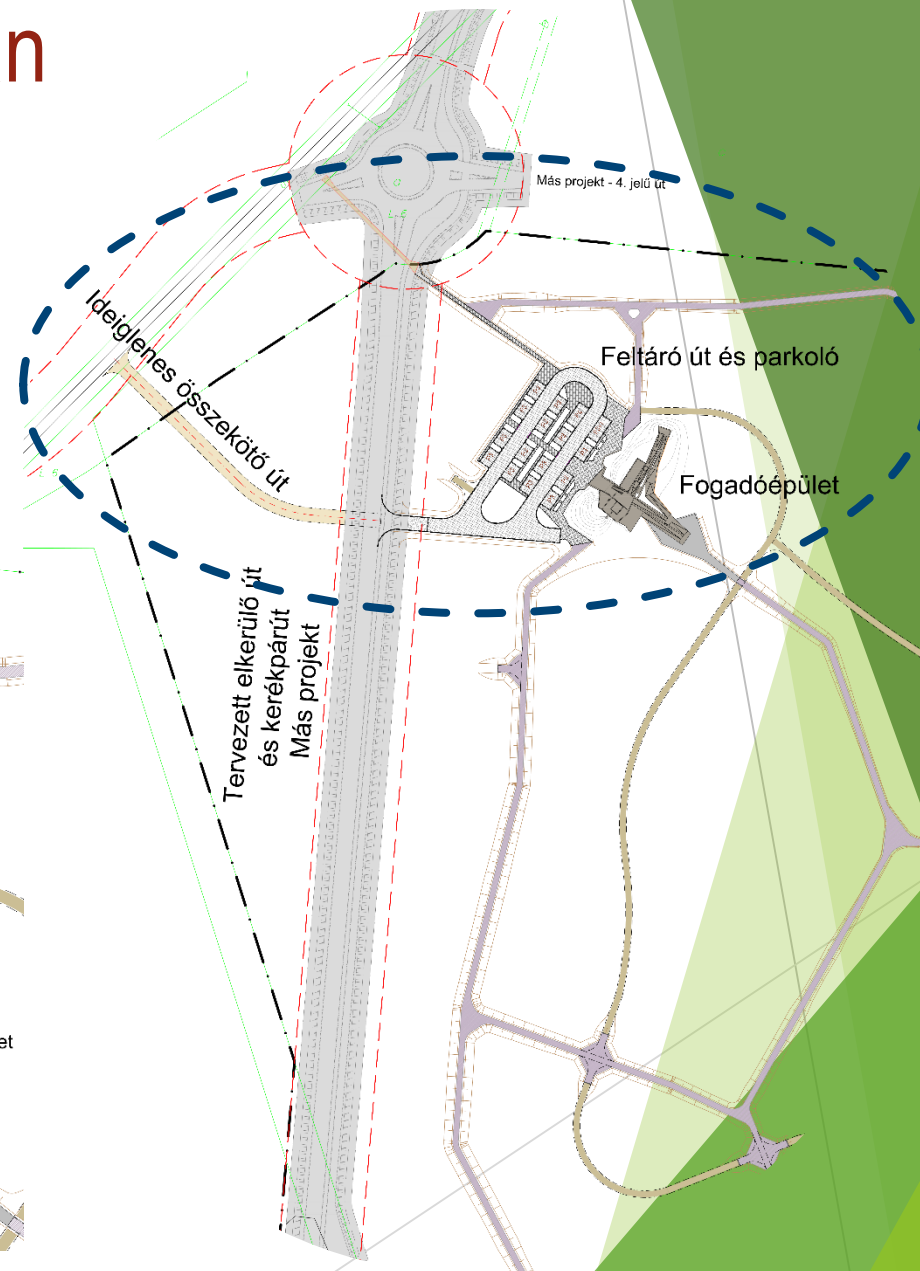
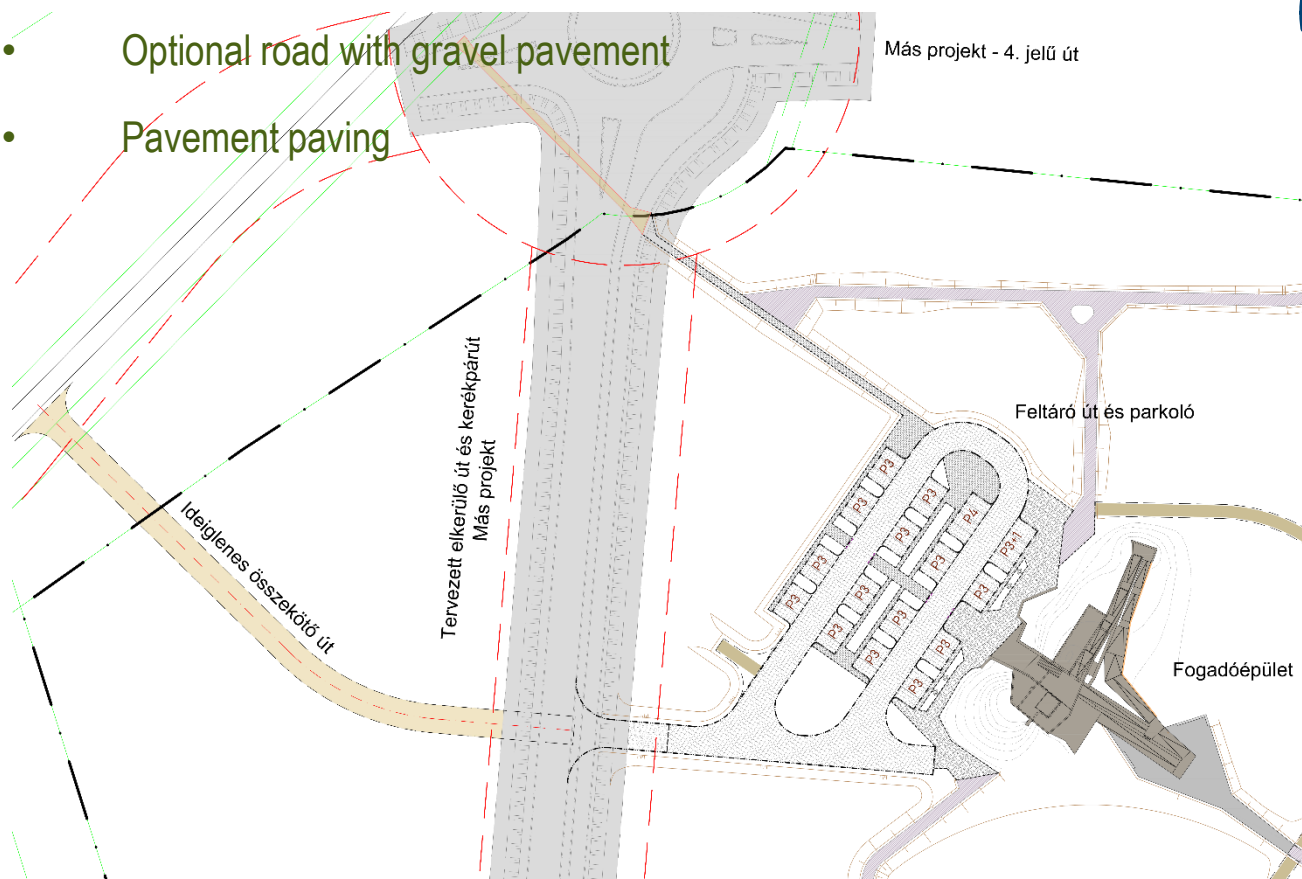
- climate risk reducing materials, products and technologies in building construction (solar panels, heat pumps, solar collectors, etc.)
- materials, products and technologies for climate risk reduction in outdoor architecture (permeable pavements, substructures; water retention; no irrigation, but ridge trellises can be installed with irrigation bags)
- use of native, salt- and drought-tolerant vegetation; no intensive, planted shrub layer; no intensive, planted perennial layer
- site-adapted grass seed mix and flowering lawn (annual/evergreen) seed mix based on botanical survey
- mains lighting only in the building environment, other locations with solar candelabra
- etc.

4. Planning programme 2020



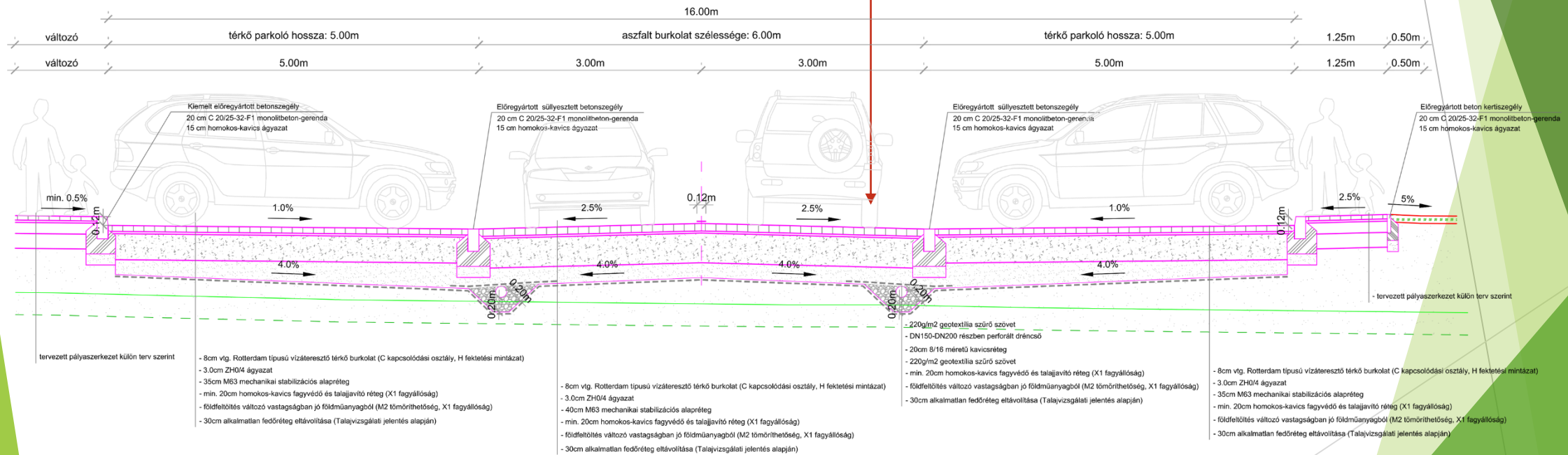
5. Access road and parking - Site plan

- Water permeable cladding for substructures
- Connecting asphalt road
- Eco-stone paved access road and parking
- Optional road with gravel pavement
- Pavement paving

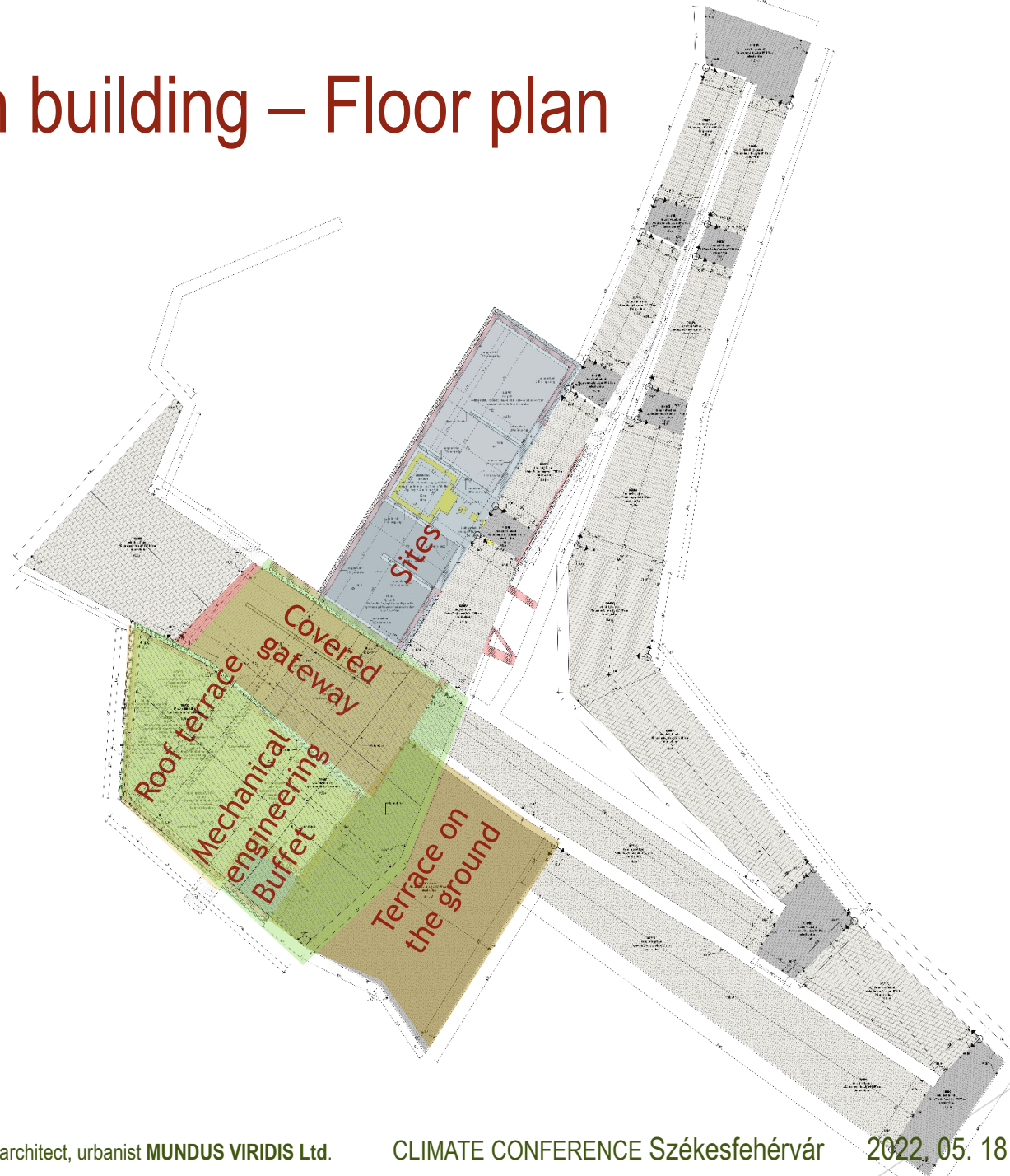


5. Access road and parking – Cross section

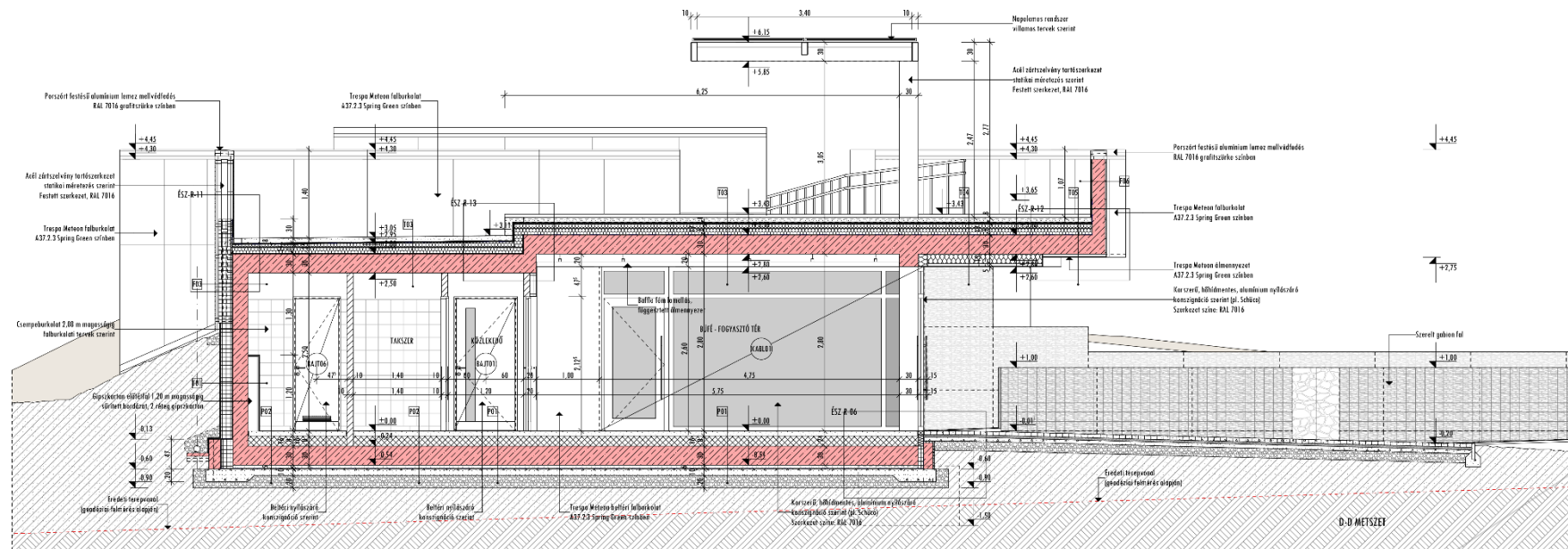
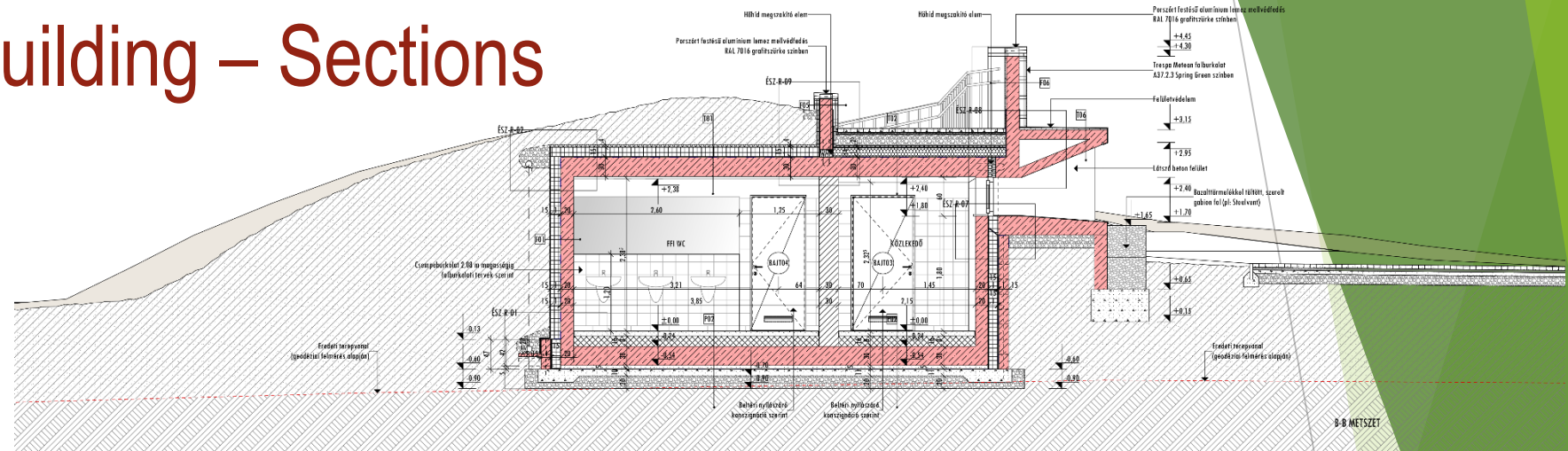
8 cm thick ECO paving stone, on a permeable substructure across the entire cross-section



6. Reception building – Floor plan

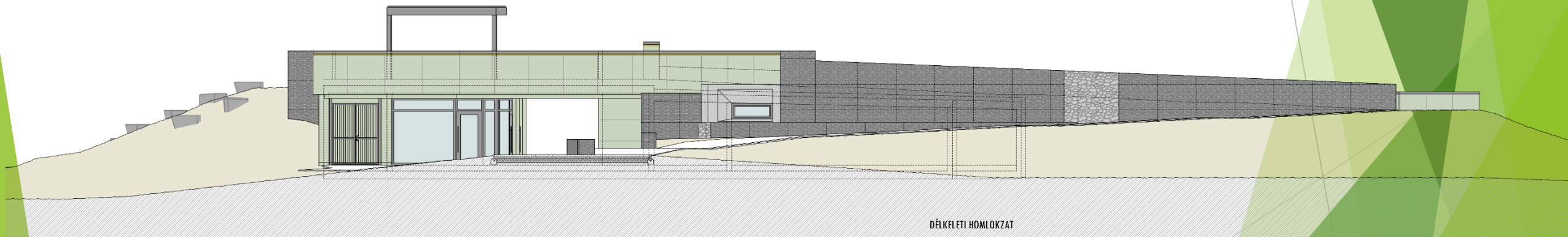
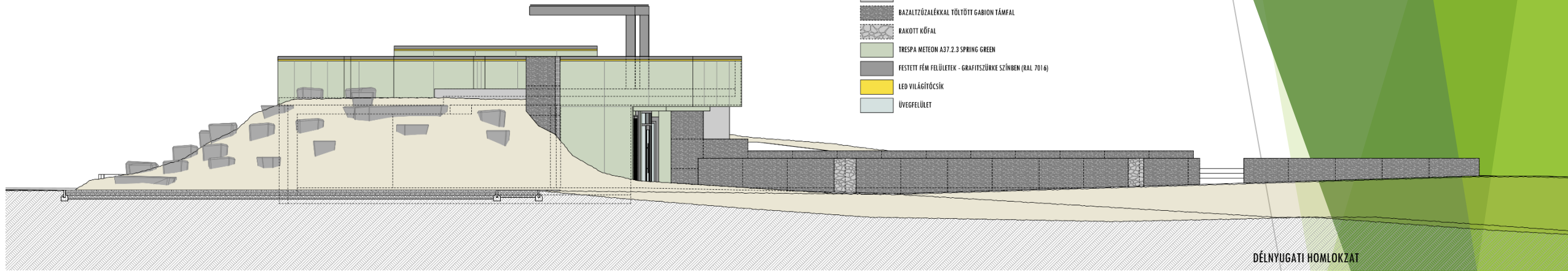


6. Reception building – Sections

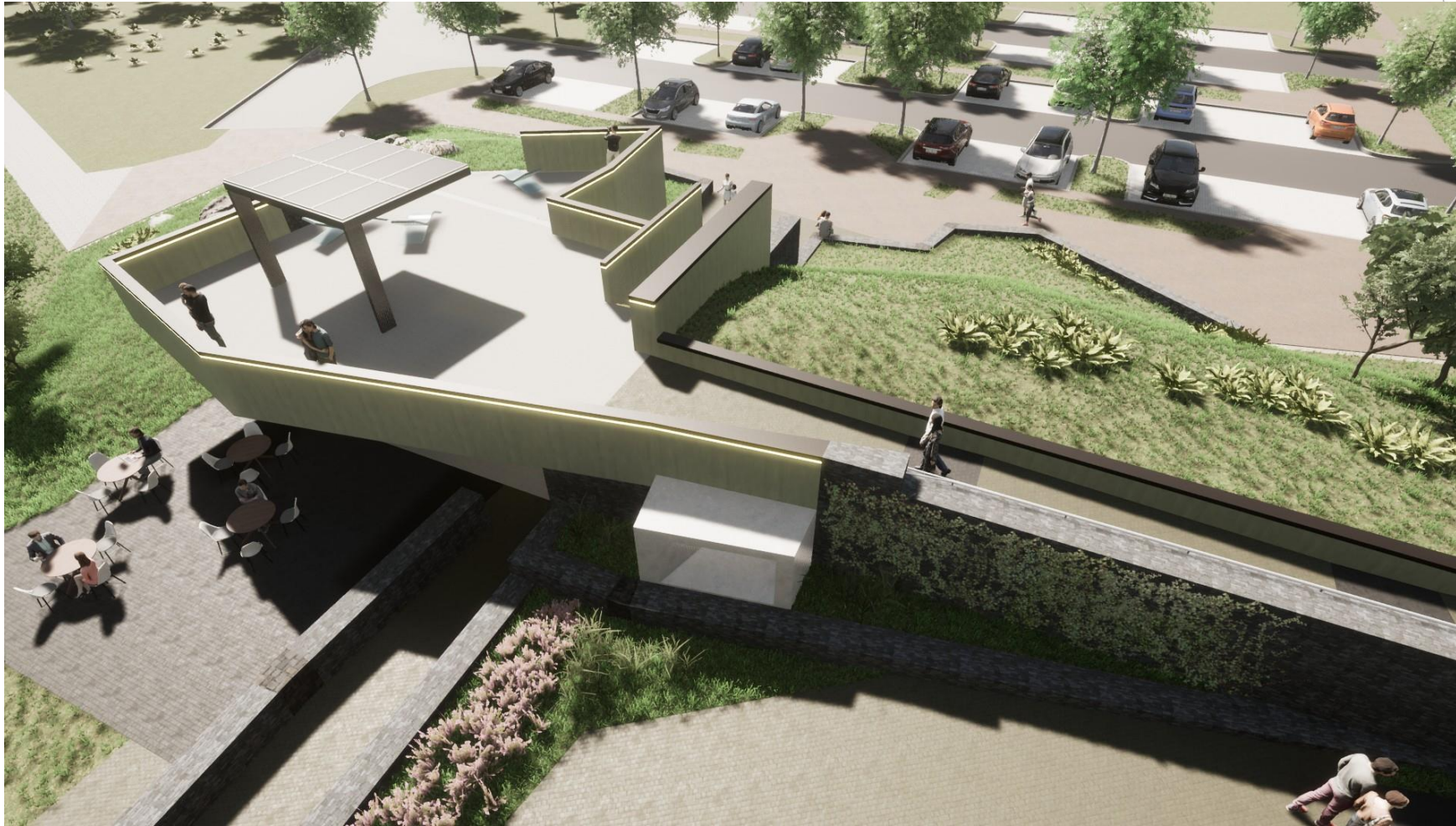


6. Reception building – Facades

- LÁTSZÓ BETON FELÜLET
- BAZALTÖZALÉKKAL TÖLTÖTT GABION TÁMFAL
- RAKOTT KŐFAL
- TRESPA METEON A37.2.3 SPRING GREEN
- FESTETT FÉM FELÜLETEK - GRAFITSZÜRKE SZÍNBEN (RAL 7016)
- LED VILÁGÍTÓCSÍK
- ÜVEGFELÜLET



6. Reception building – Visualisation

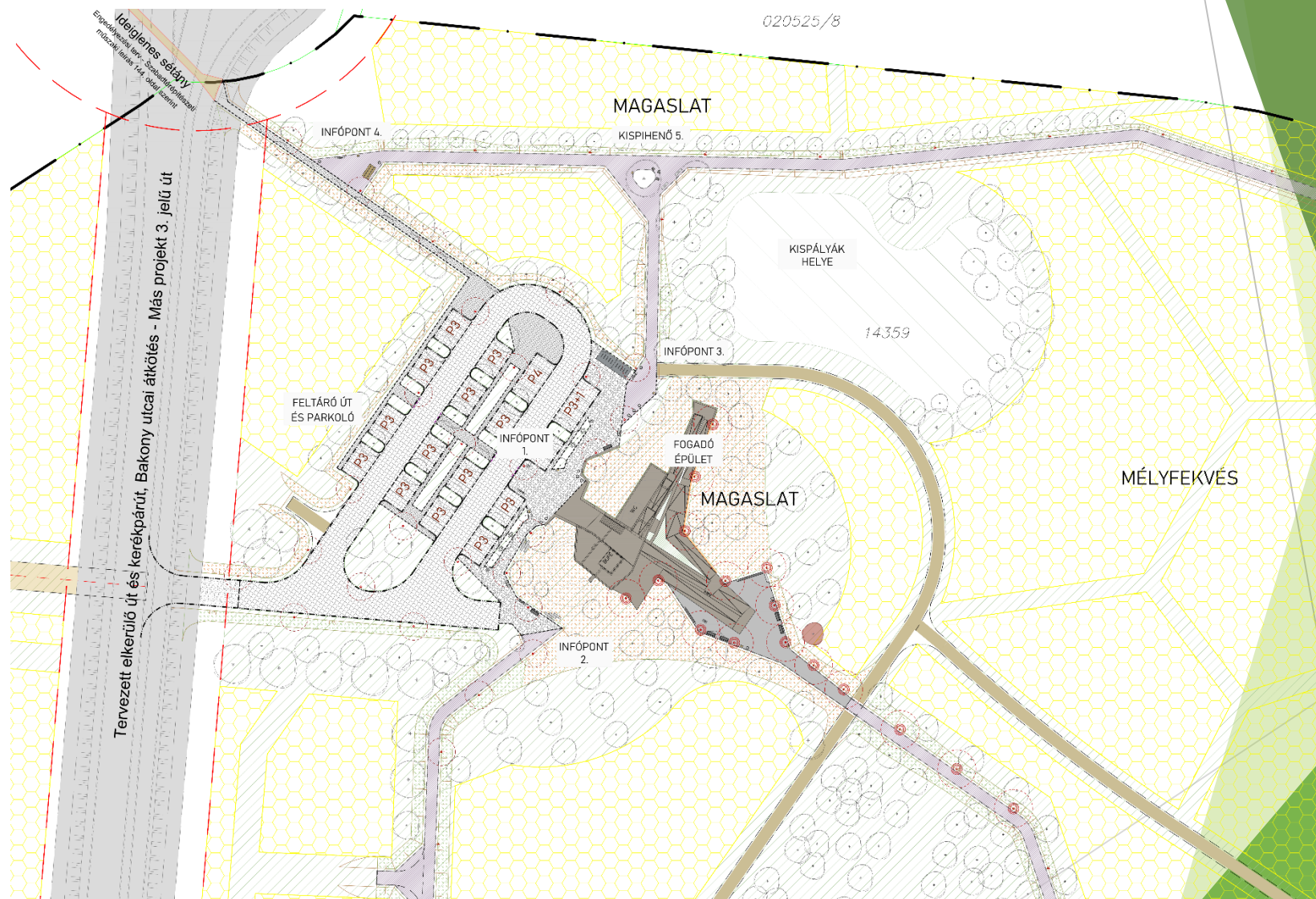


ARCHITECTURE STUDIO KFT.

7. Surroundings of the reception building

HIERARCHY

- ▶ Use of materials
- ▶ Product
- ▶ Technology
- ▶ Green space
- ▶ Footpath network



7. Surroundings of the reception building



8. The footpath network for access

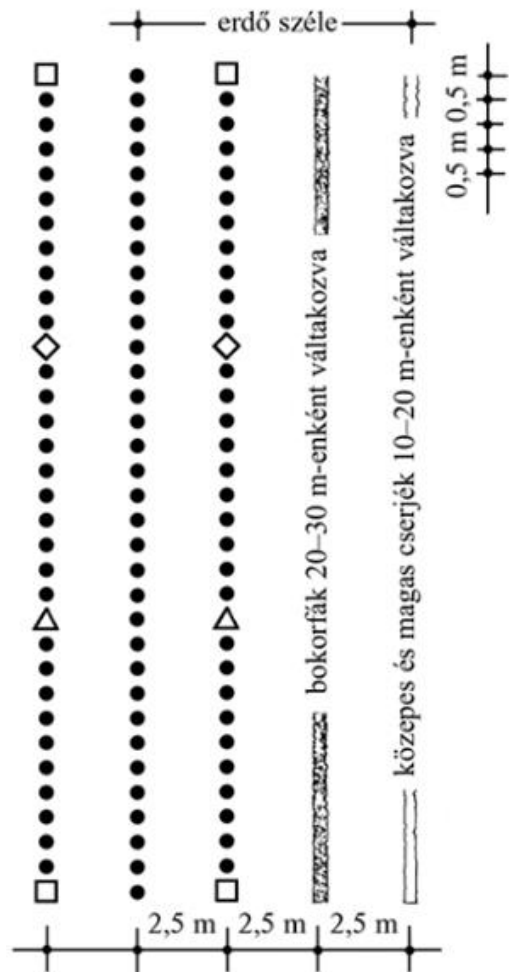


9. Afforestation



TOTAL. "SOLON'EC"	98017	m2
TOTAL CARBONATE	25482	m2
TOTAL DEEP SALINE	26508	m2
GRANDTOTAL	150007	m2
PLANNING AREA	311300	m2
AFFORESTATION NET	48,19	%
FORESTRY GAPS	40010	m2
FOREST GRANDTOTAL	190017	m2
AFFORESTATION GROSS	61,04	%
PLANTING WOODLAND FRINGES	8223	m

9. Afforestation



Main species – dominant species:

- Forest hybrids of white poplar (*Populus alba*) and/or poplar (*Populus sp.*), if the Green City criterion allows...
- Grey poplar (*Populus x canescens*), if the Green City criterion allows

Mixed trees – precursor species:

- ◇ Hungarian ash (*Fraxinus angustifolia* subsp. *pannonica*)
- △ Field elm (*Ulmus minor*)
- Common willow (*Salix sp.*)

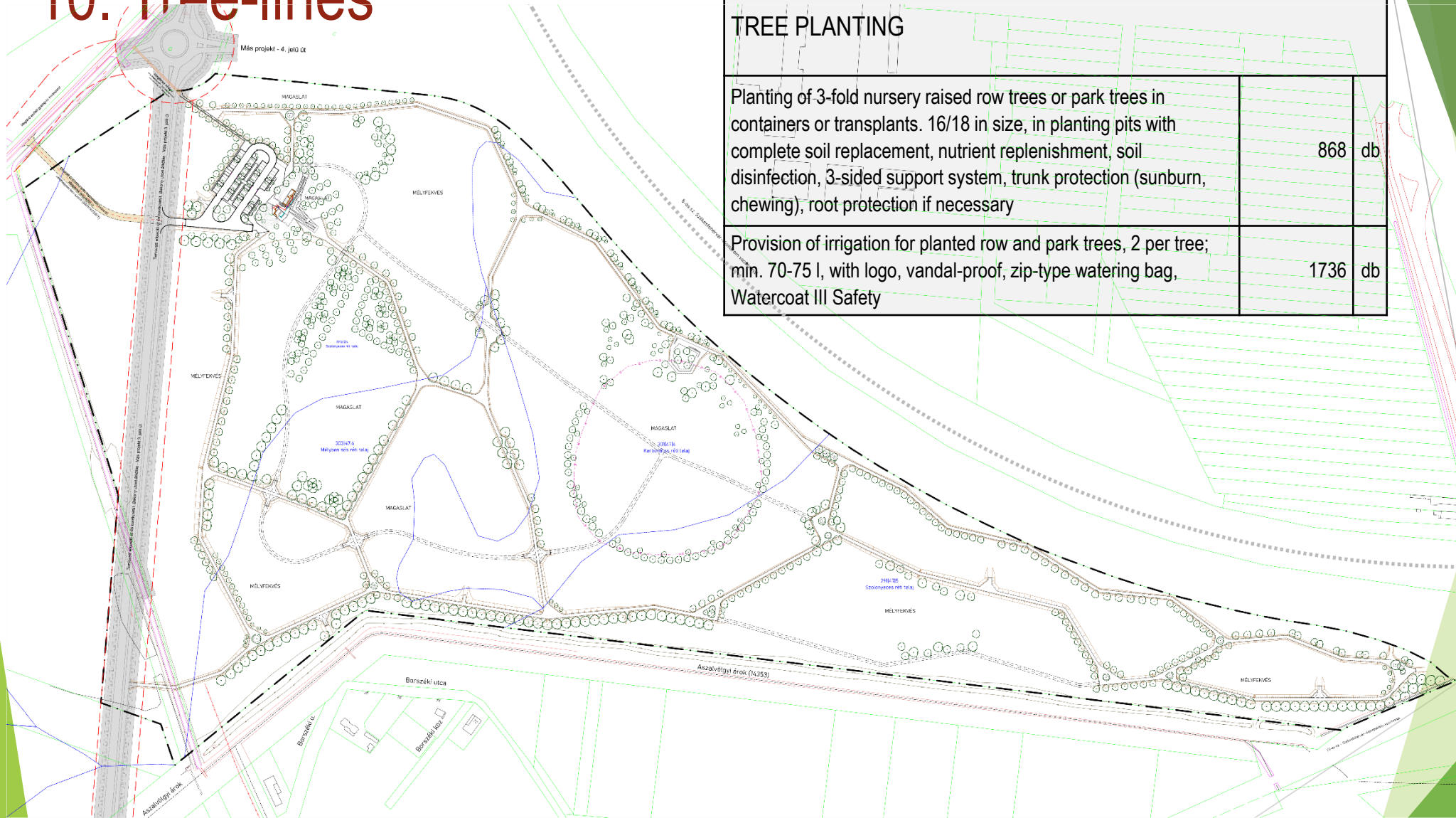
Fringing shrubberies:

- Field maple (*Acer campestre*)
- Common birch (*Betula pendula*)
- Wild pear (*Pyrus pyraster*)

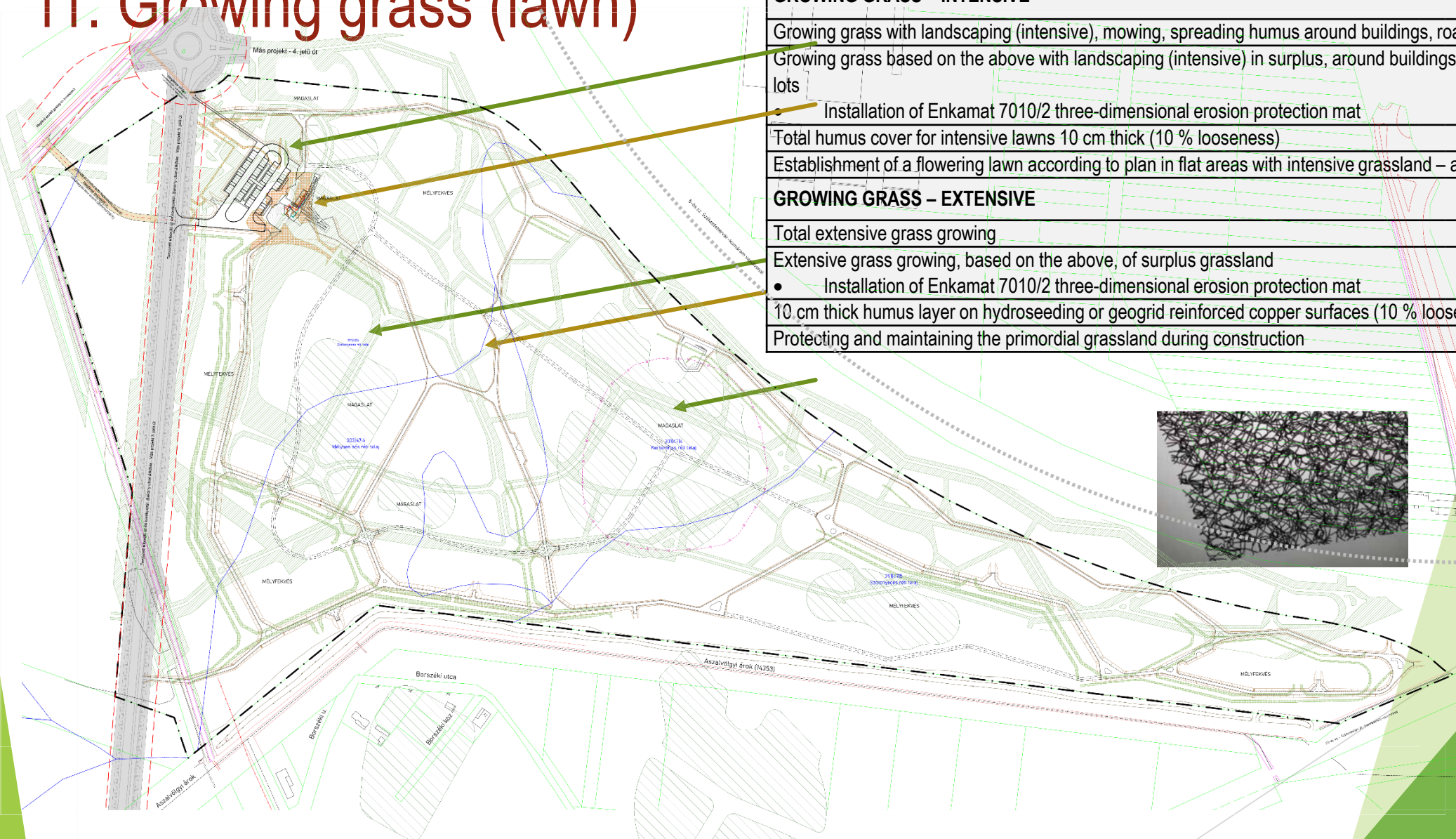
Bushes:

- European barberry (*Berberis vulgaris*)
- Fleshy cornel (*Cornus mas*)
- Common „blood-ring” cornel (*Cornus sanguinea*)
- Common hazelnut (*Corylus avellana*)
- Hawthorne (*Crataegus laevigata*)

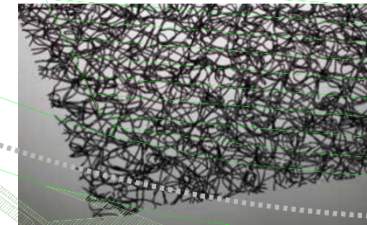
10. Tree-lines



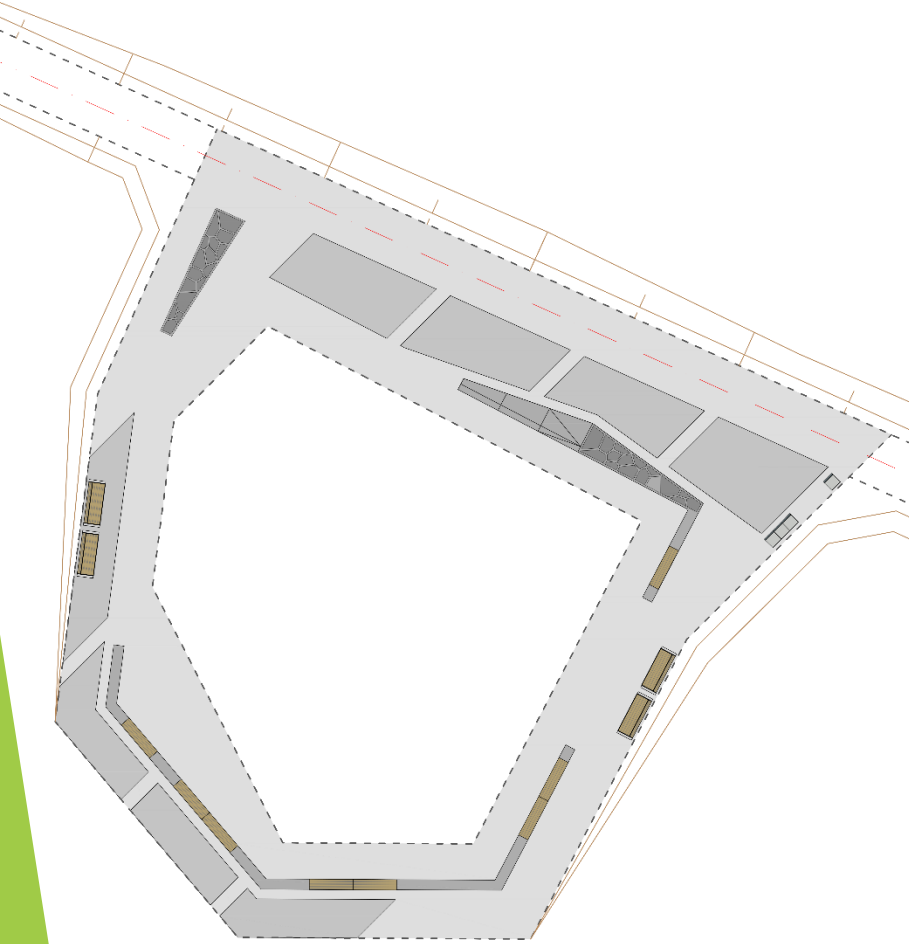
11. Growing grass (lawn)



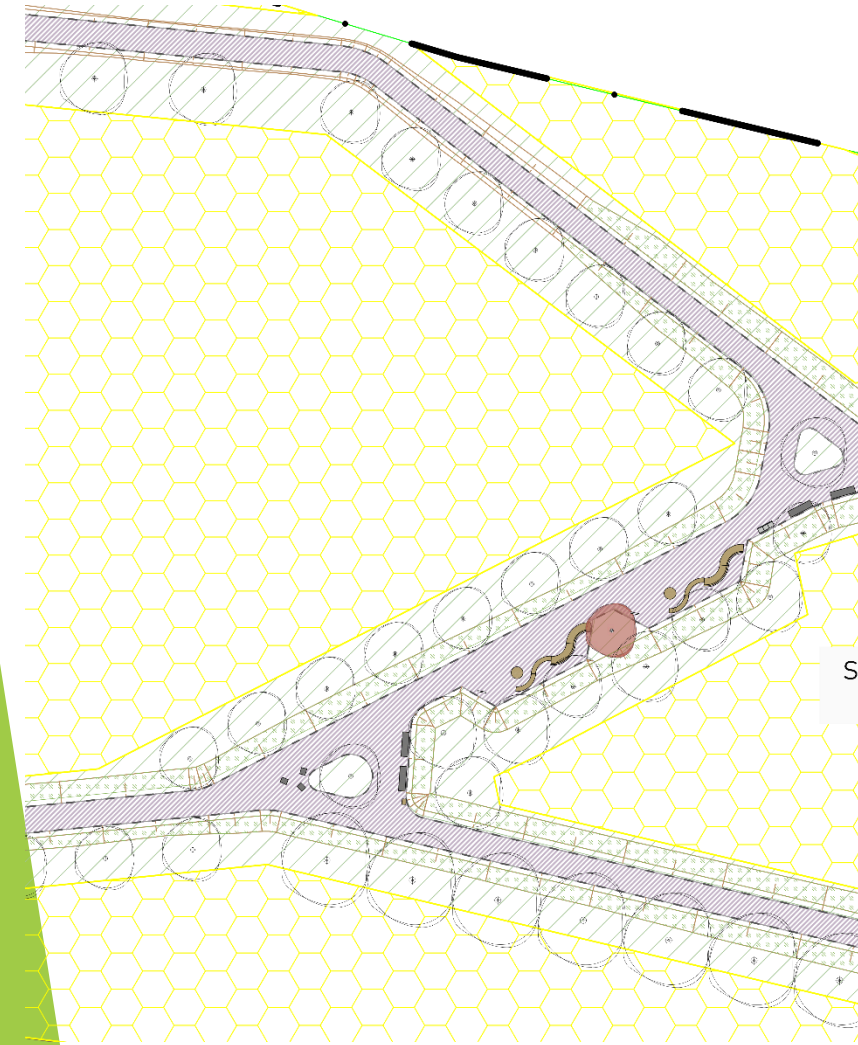
GROWING GRASS – INTENSIVE		
Growing grass with landscaping (intensive), mowing, spreading humus around buildings, roads and parking lots	6136	m2
Growing grass based on the above with landscaping (intensive) in surplus, around buildings, roads and parking lots		
• Installation of Enkamat 7010/2 three-dimensional erosion protection mat	2706	m2
Total humus cover for intensive lawns 10 cm thick (10 % looseness)	675	m3
Establishment of a flowering lawn according to plan in flat areas with intensive grassland – at extra cost	4000	m2
GROWING GRASS – EXTENSIVE		
Total extensive grass growing	74783	m2
Extensive grass growing, based on the above, of surplus grassland	10945	m2
• Installation of Enkamat 7010/2 three-dimensional erosion protection mat		
10 cm thick humus layer on hydroseeding or geogrid reinforced copper surfaces (10 % loosening)	1290	m3
Protecting and maintaining the primordial grassland during construction	37026	m2



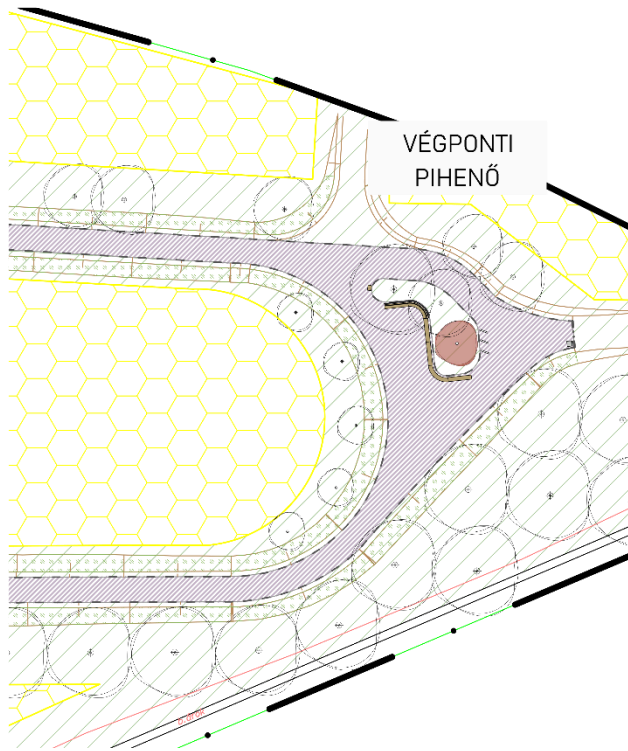
12. Rest Areas – Centre of Gravity Rest Area



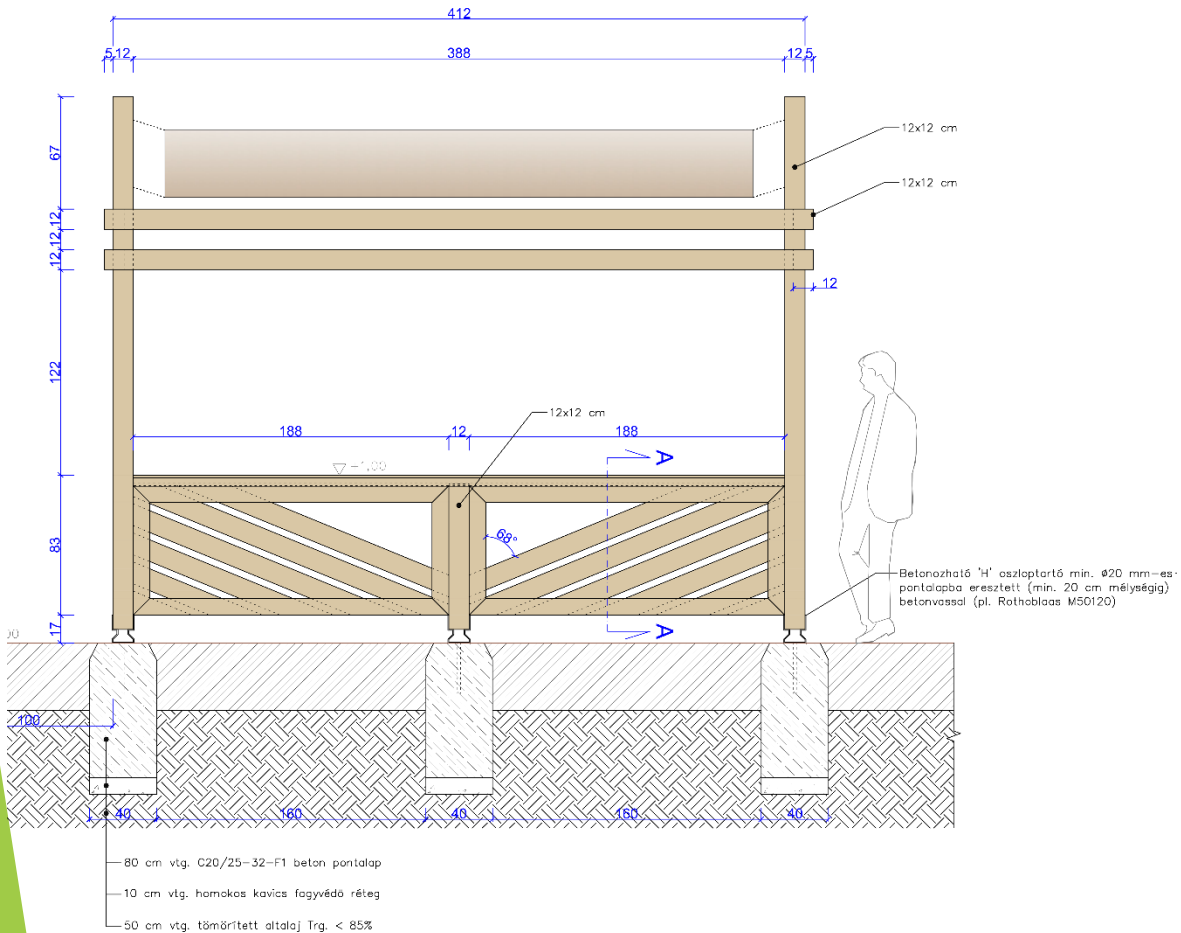
12. Rest Areas – Rest Area by the Foot-path



12. Rest Areas – Terminal Point Rest Area



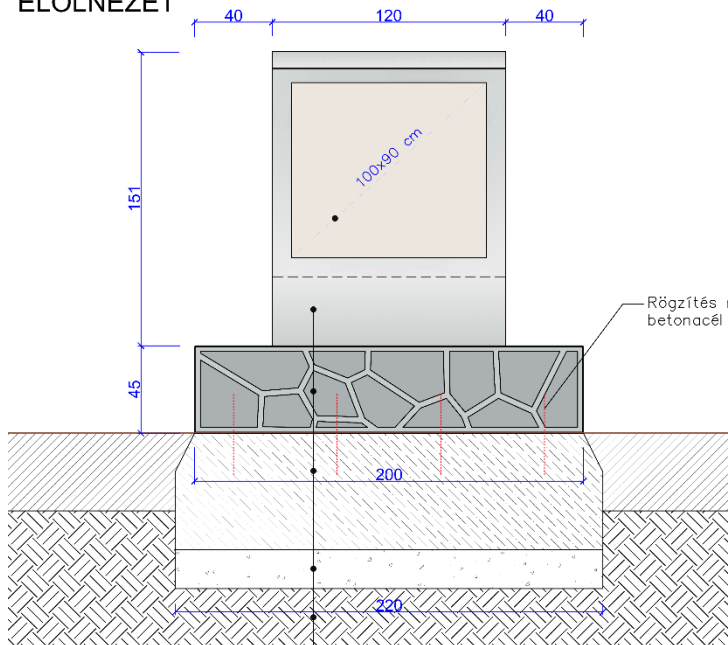
13. Gateway and individual furniture



13. Gateway and individual furniture

INFORMÁCIÓS TÁBLA

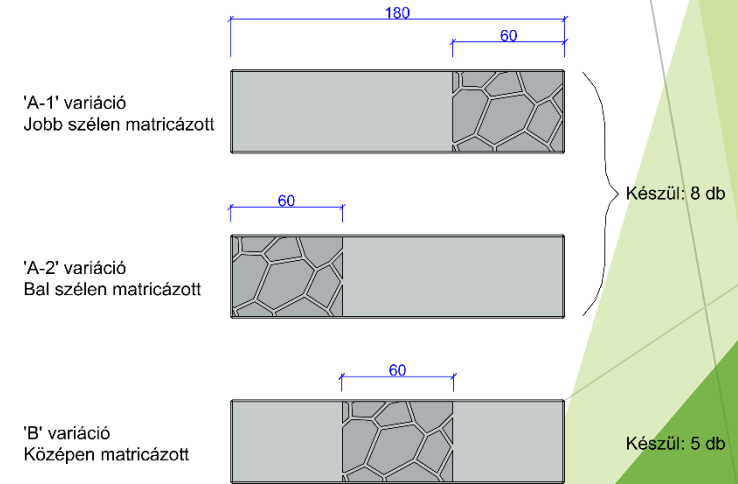
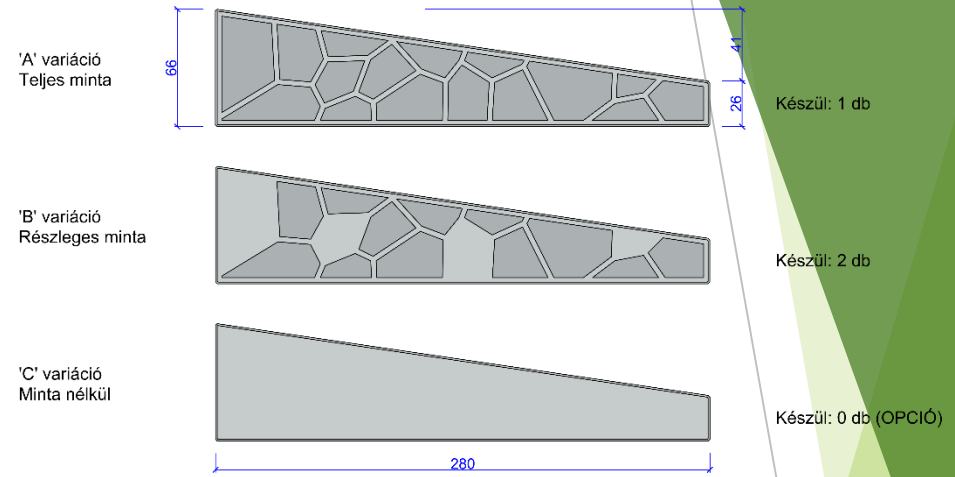
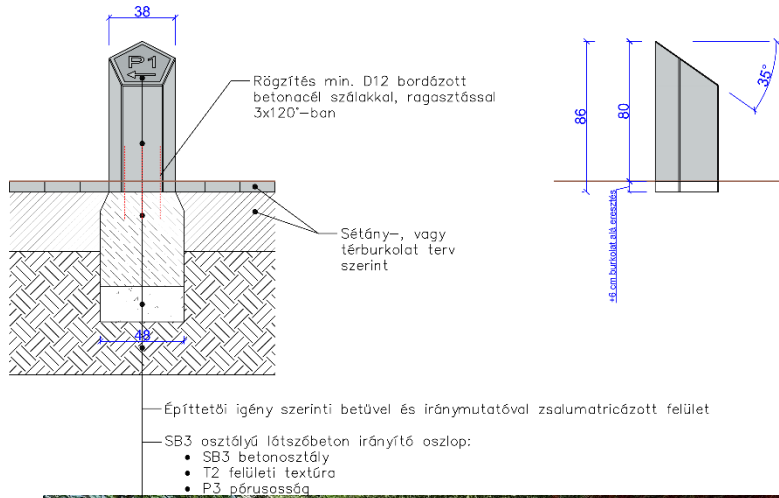
ELŐLNÉZET



- Információhordozó felület: 100x90 cm
- 8 mm vastag szálcsiszolt rozsdamentes acél le
- SB3 osztályú látszóbeton tömb előről sejtmintá
 - SB3 betonosztály
 - T2 felületi textúra
 - P3 pórusosság
 - E2 egyenletesség
 - AF3 munka- és zsalufugák
 - SHK2 zsaluhéj osztály
 - Kötelező próbafelület készíttéssel
- 60 cm vtg. C20/25–32–F1 beton sávalap
- 20 cm vtg. homokos kavics fagyvédő réteg
- 50 cm vtg. tömörített altalaj Trg. < 85%



13. Gateway and individual furniture



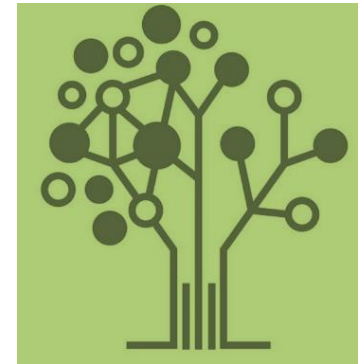
14. Conclusion – Climate risk reduction in planning

- The green focus is stable, with 60% forest even in the face of risks...
- Use of materials - waste (bulk building materials from local mines, locally available fill for slopes/banks, gabion walls with local fill, etc.)
- Use of materials - live (native, drought-tolerant, salt-tolerant woody stem vegetation; site-optimised seed mix in grass growing, etc.)
- Finished products (few individual products; solar panels, heat pump, solar collector; solar candelabras, irrigation bags, etc.)
- Technologies, know-how (optimised transport routes; permeable pavement substructure systems, etc.)
- Economically sound decisions in the preparation and planning of construction, responsible allocation of resources...
- Planning maintenance, providing resources for sustainability...
- etc.

15. Conclusion and acknowledgements

- The thoroughness of the locally prepared/commissioned groundwork (landscaping plan, project plan, a clear setting and breakdown of project objectives; a responsible prior knowledge of risks; forestry expertise - Dr. András Bidló, open space construction study design - s73 Ltd., etc.).
- Competent and responsible contact persons.
- Professionalism and collegiality in cooperation.
- A request: please turn a green eye in construction, as well (technical inspection, design supervision, technical supervision)!

Mitigating climate risks and fighting climate change is a **shared concern.**



THANK YOU FOR YOUR COOPERATION AND ATTENTION!