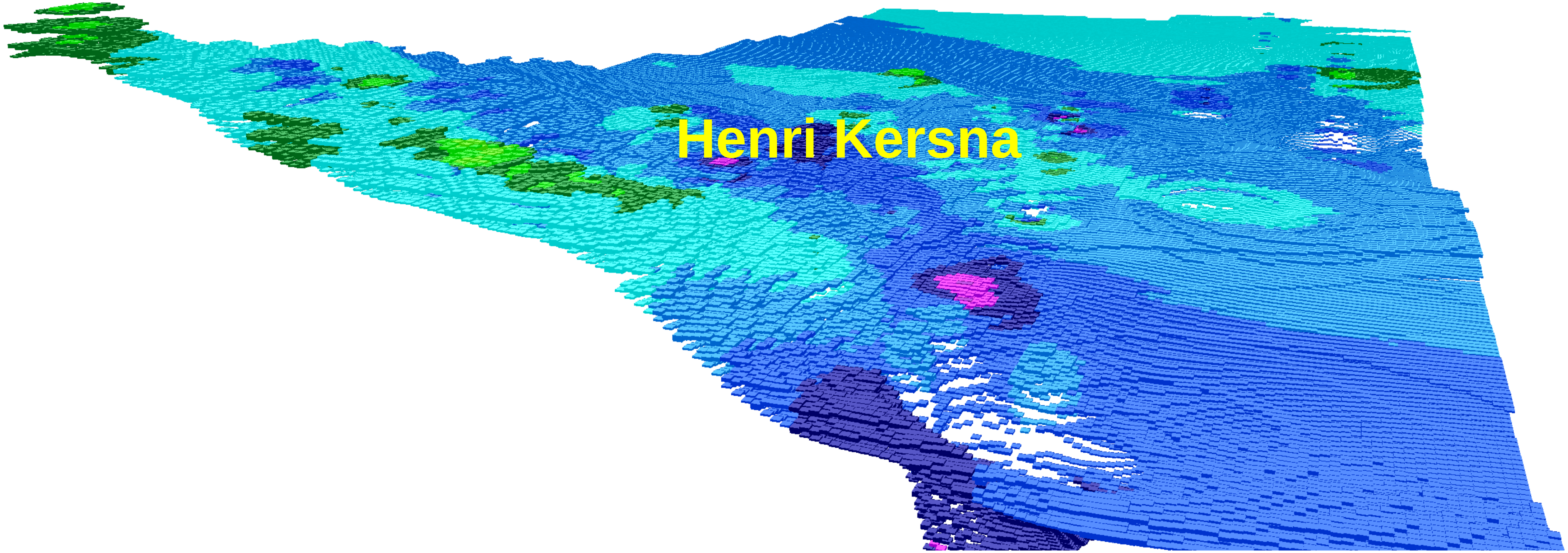
Geoloogiline modelleerimine ja mäetööde simulatsioonid

Henri Kersna



Narva-Jõesuu
2014

Eesti Energia

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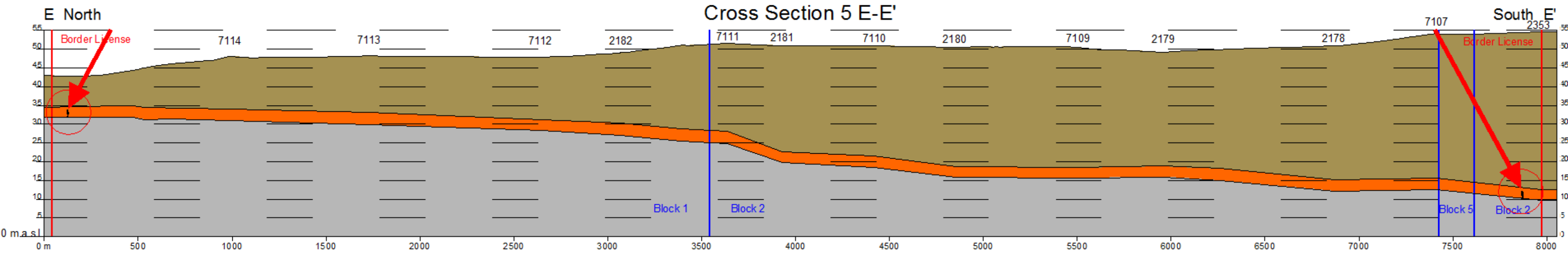

Eesti Energia

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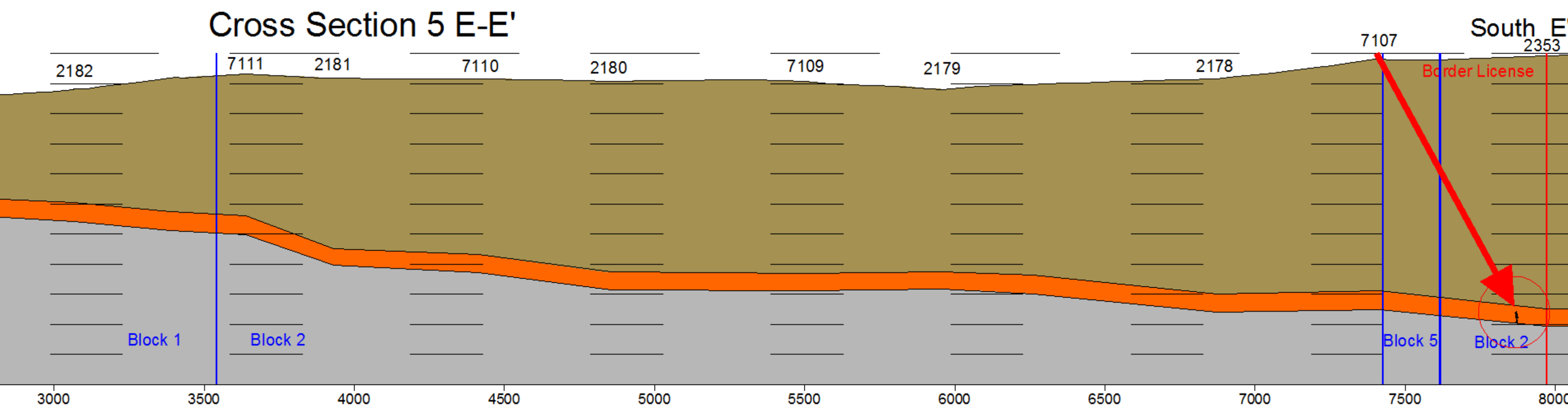

Eesti Energia

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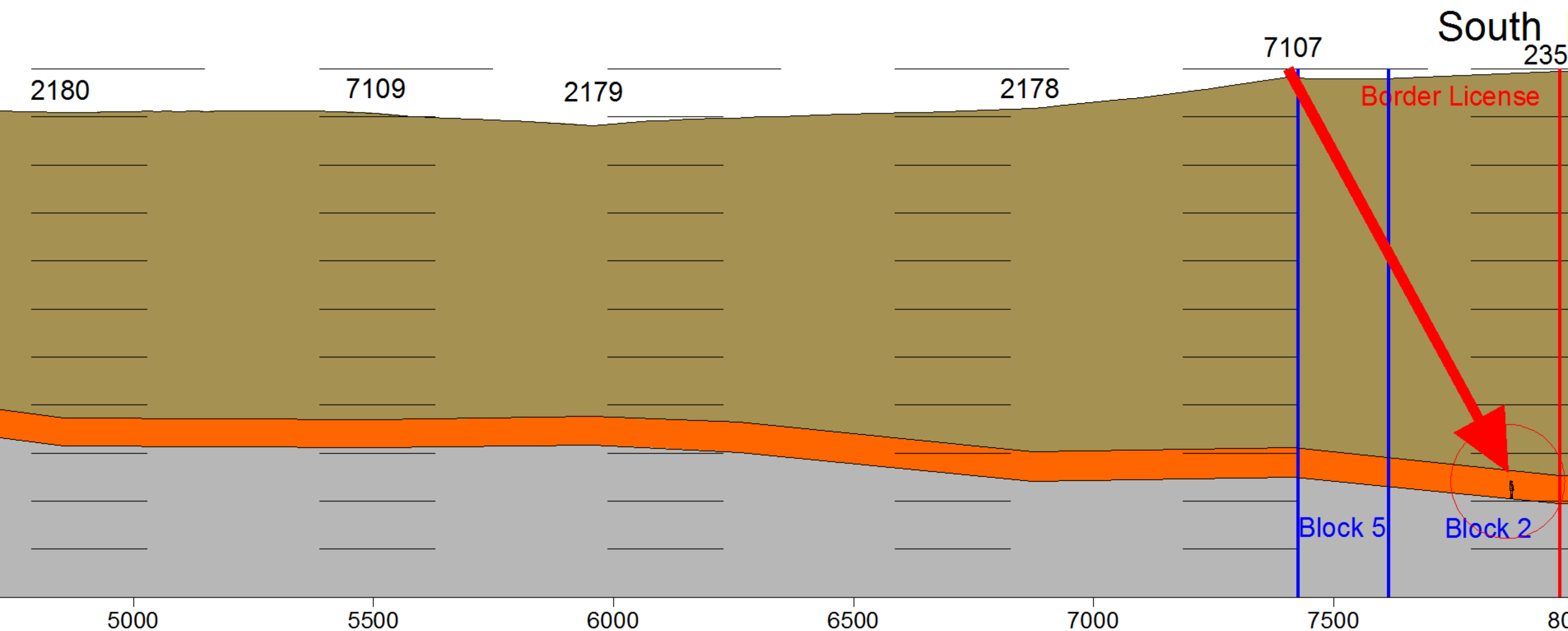

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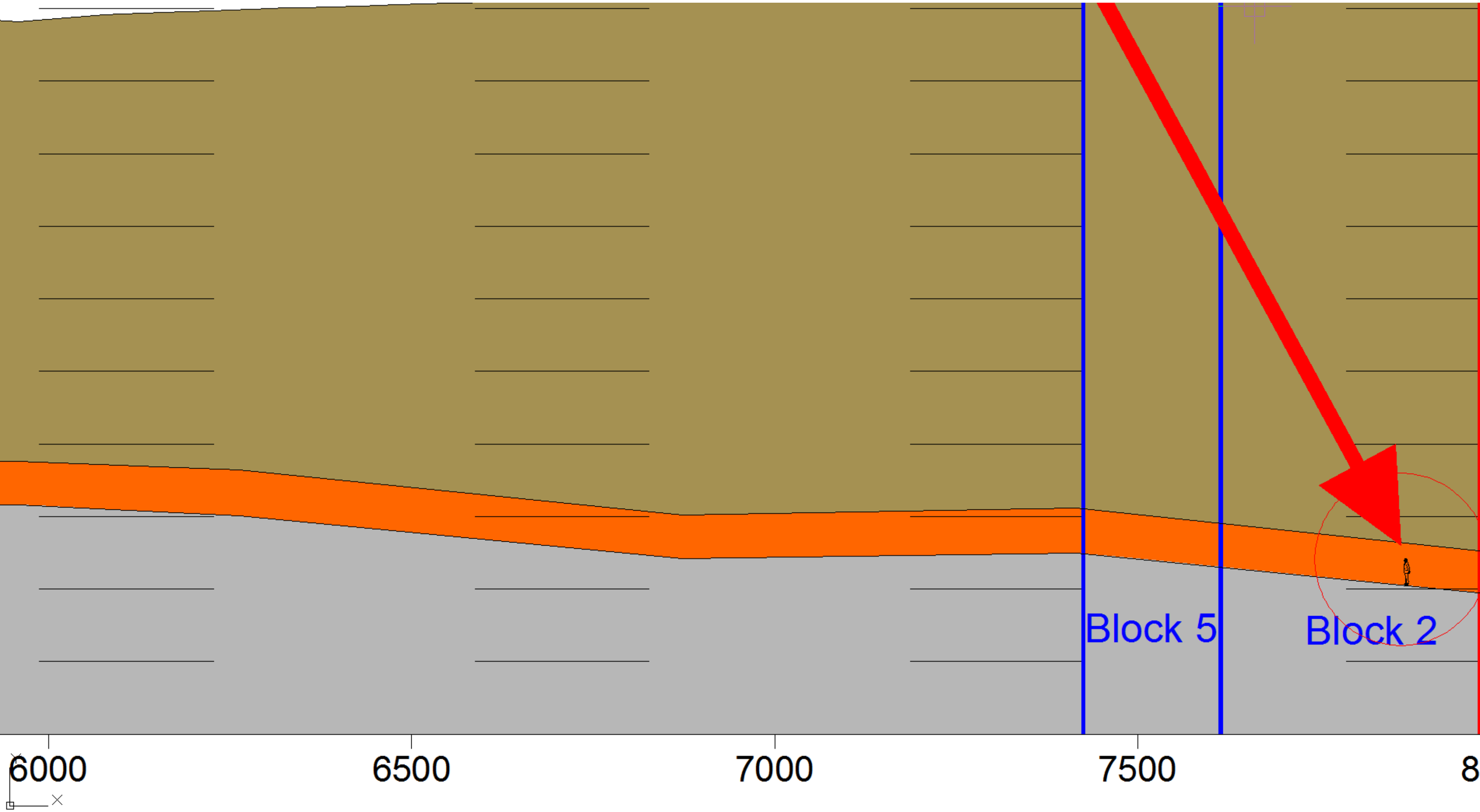

Eesti Energia

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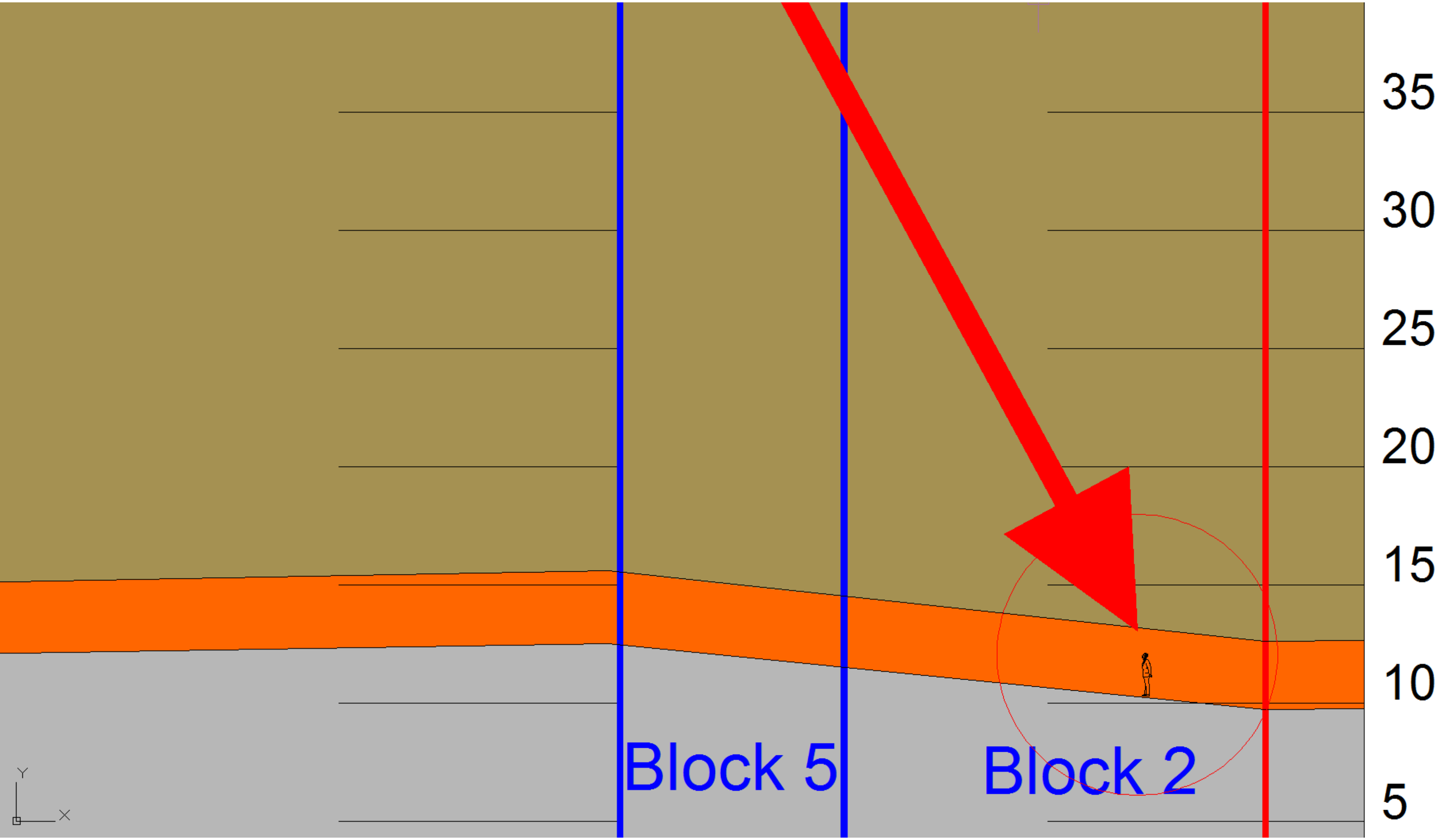

Eesti Energia

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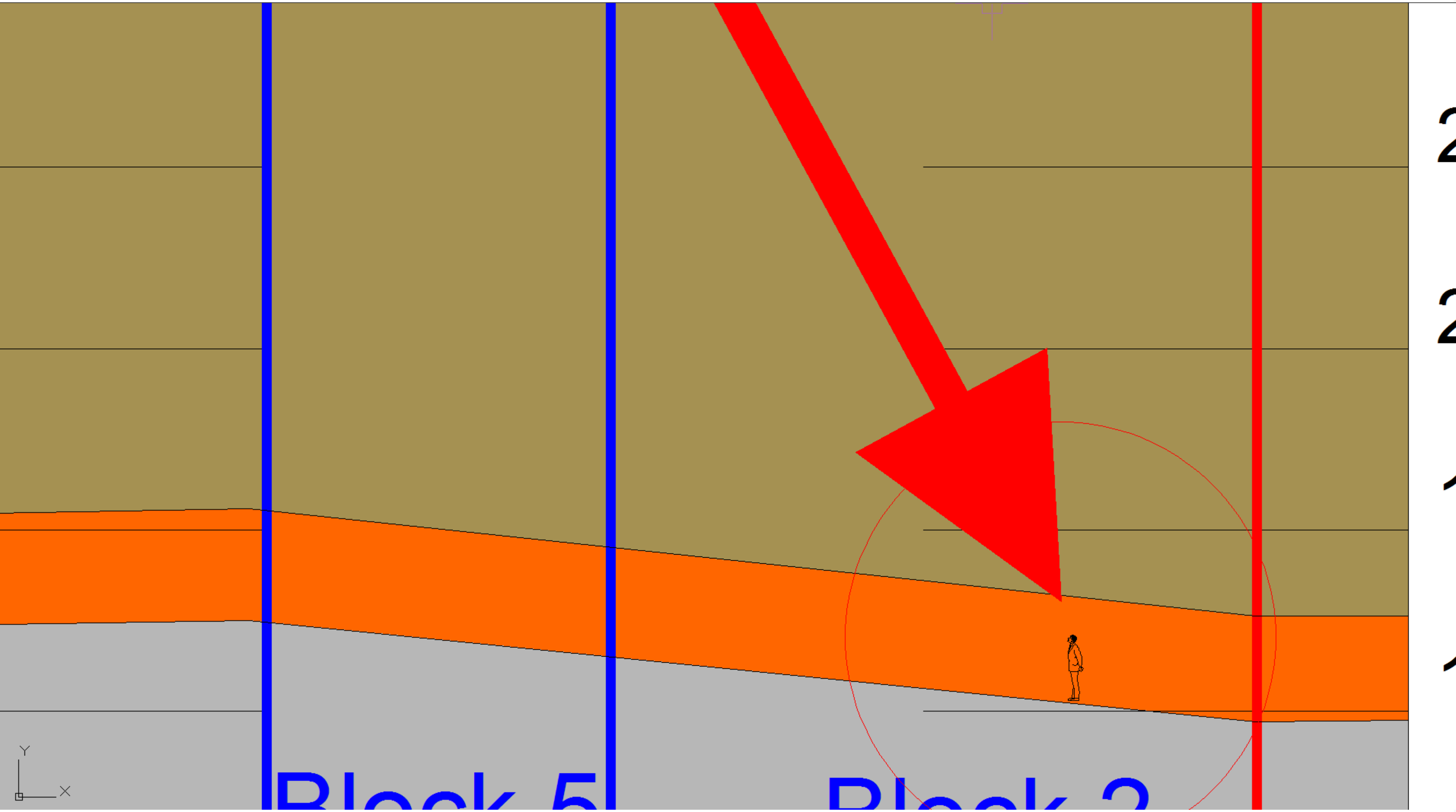

Eesti Energia

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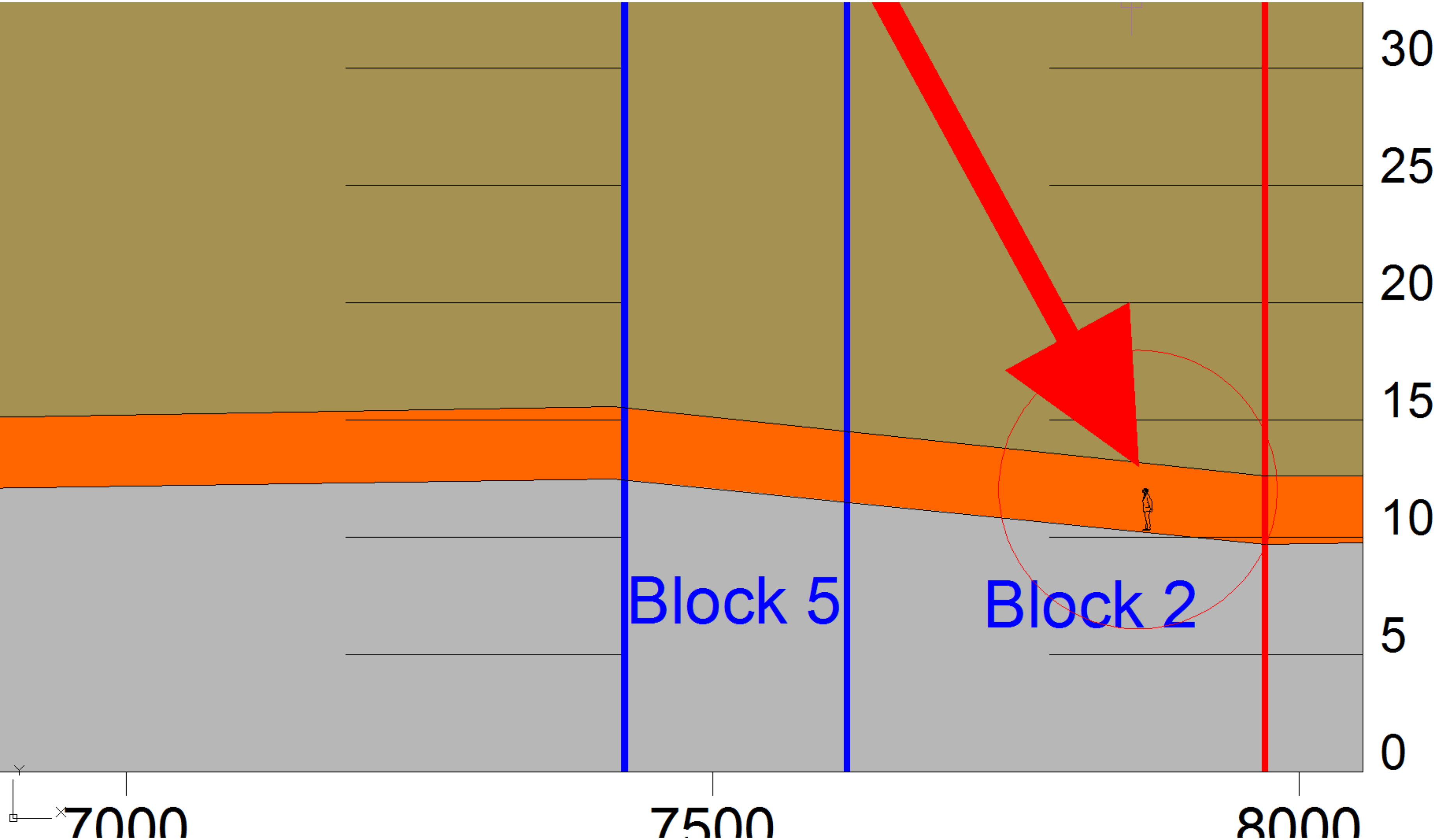

Eesti Energia

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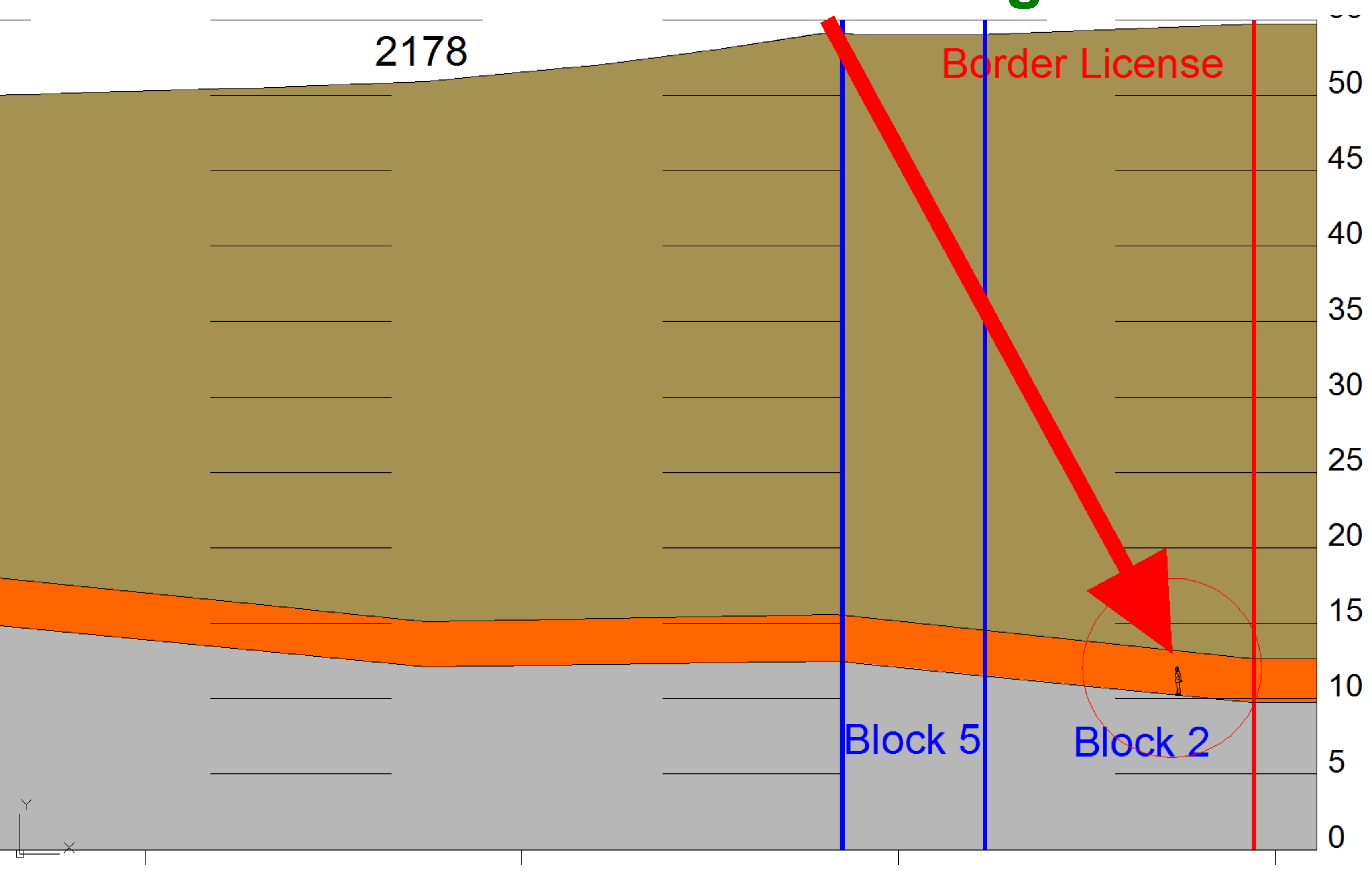

Eesti Energia

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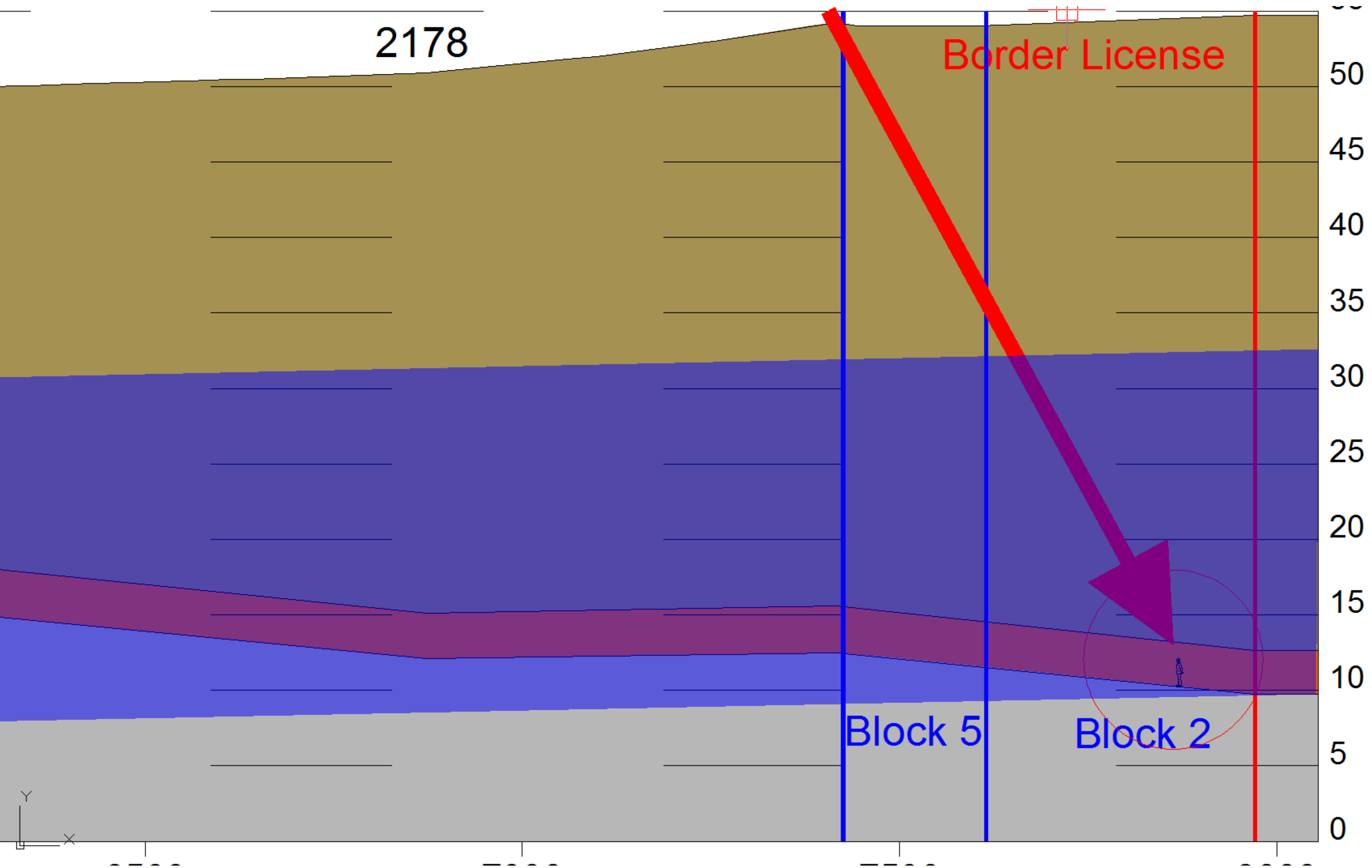

Eesti Energia

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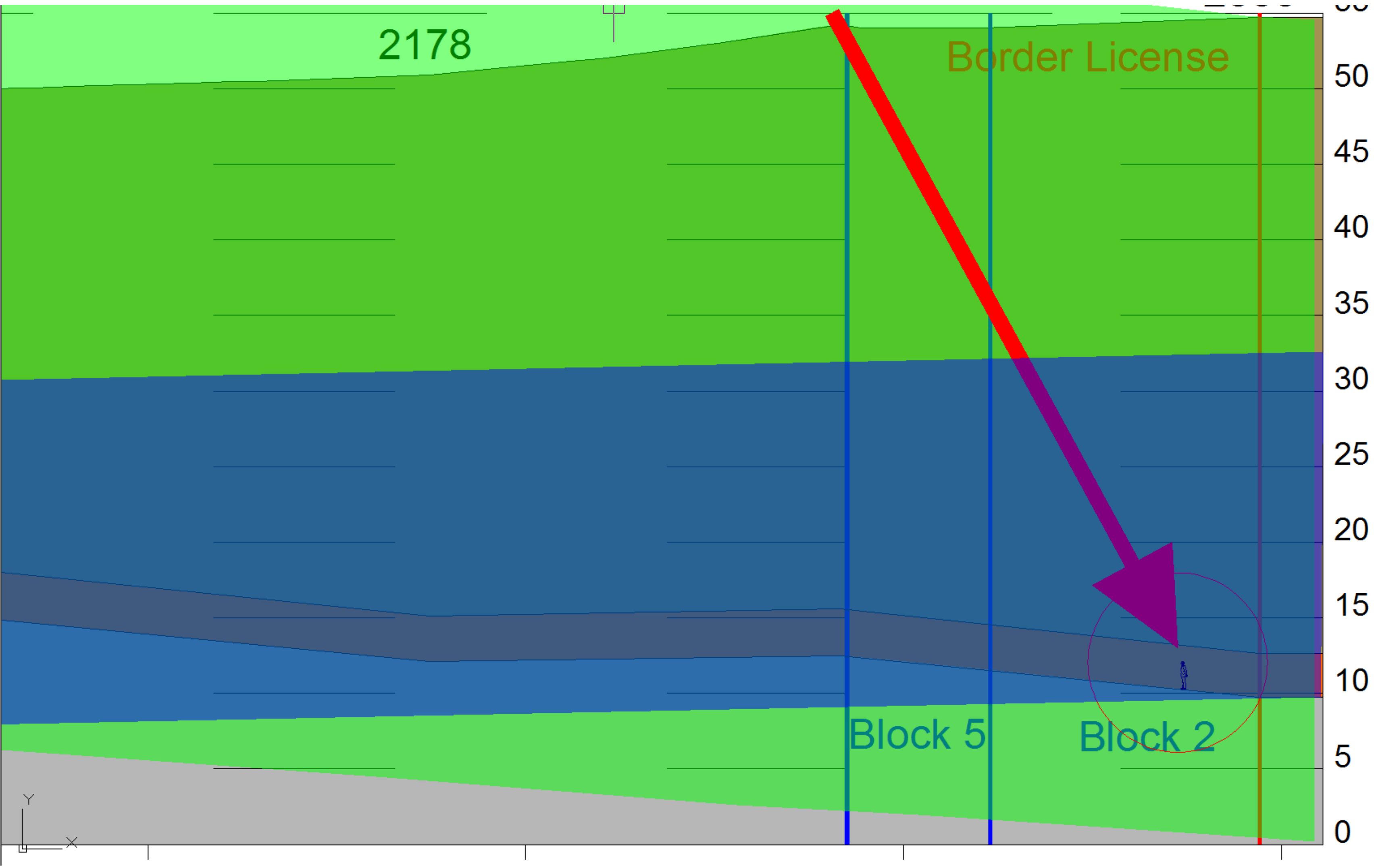

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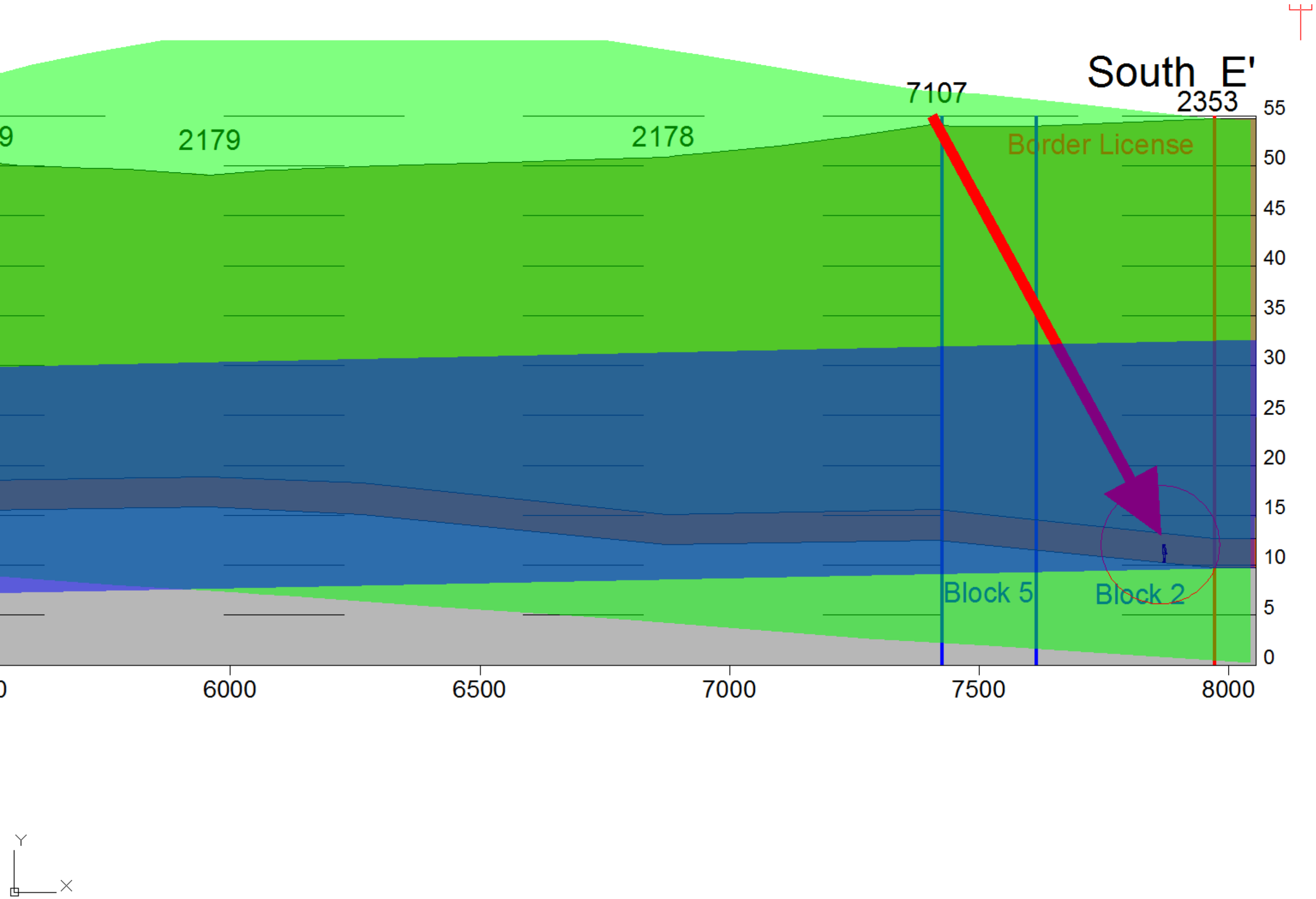

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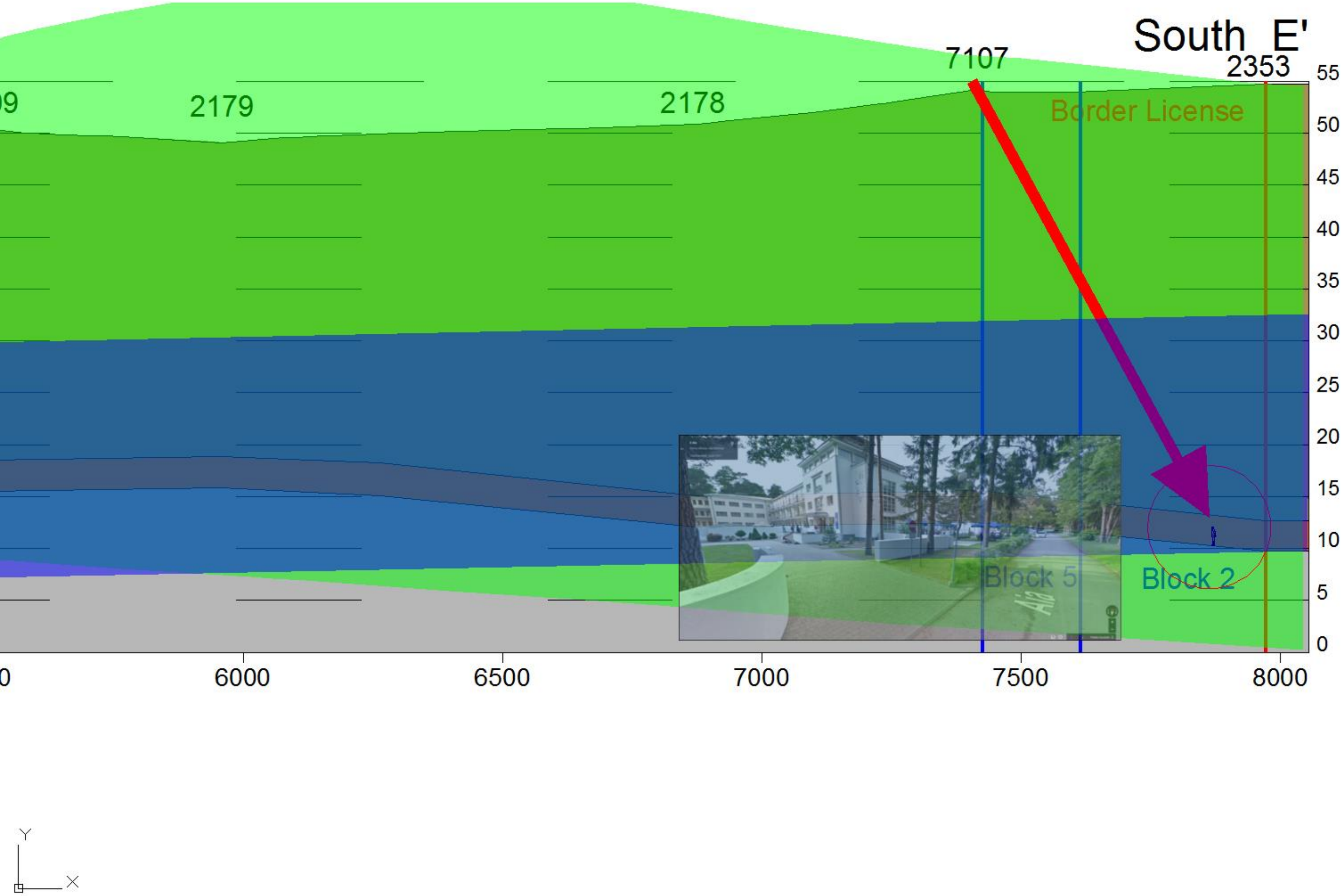

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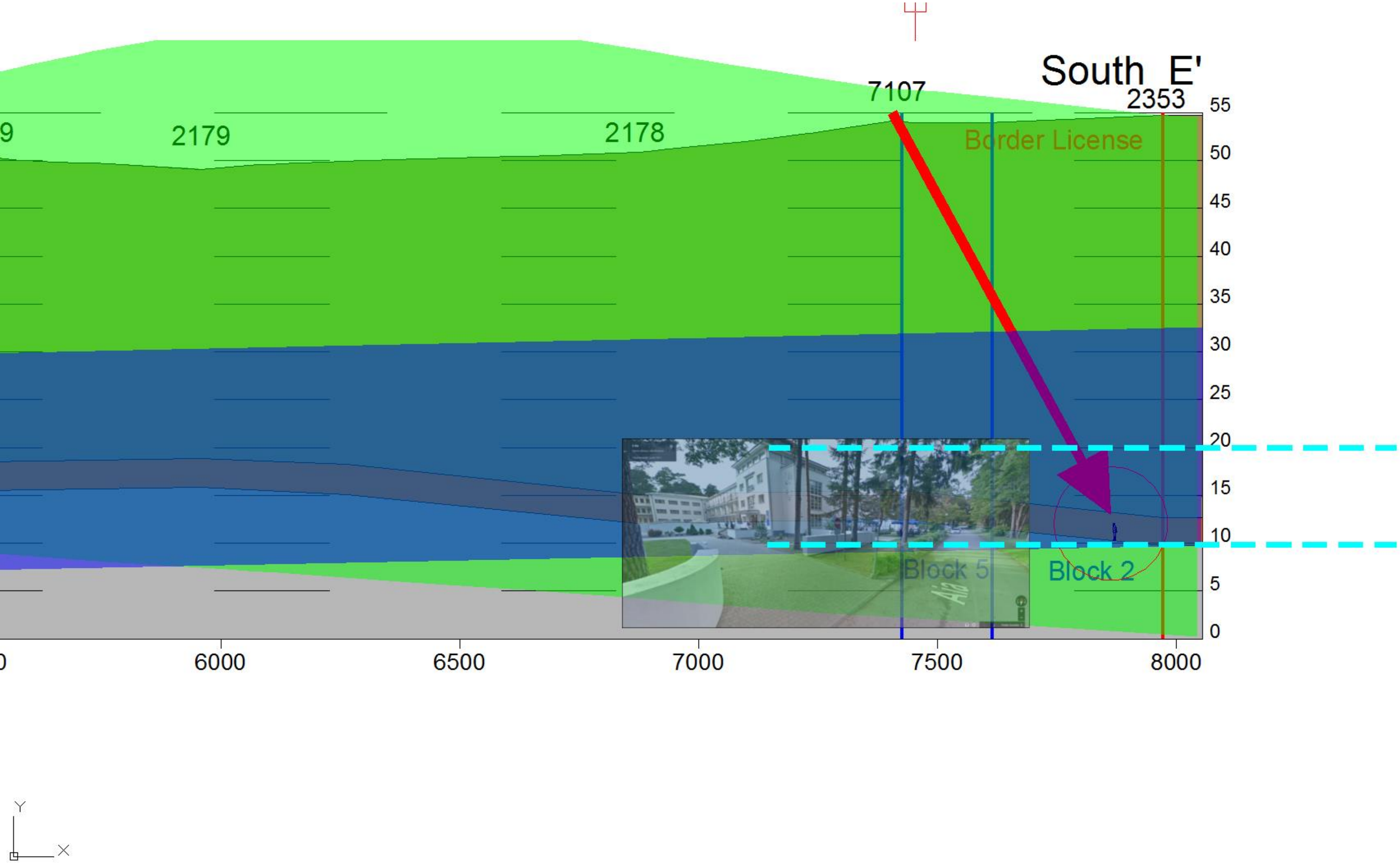

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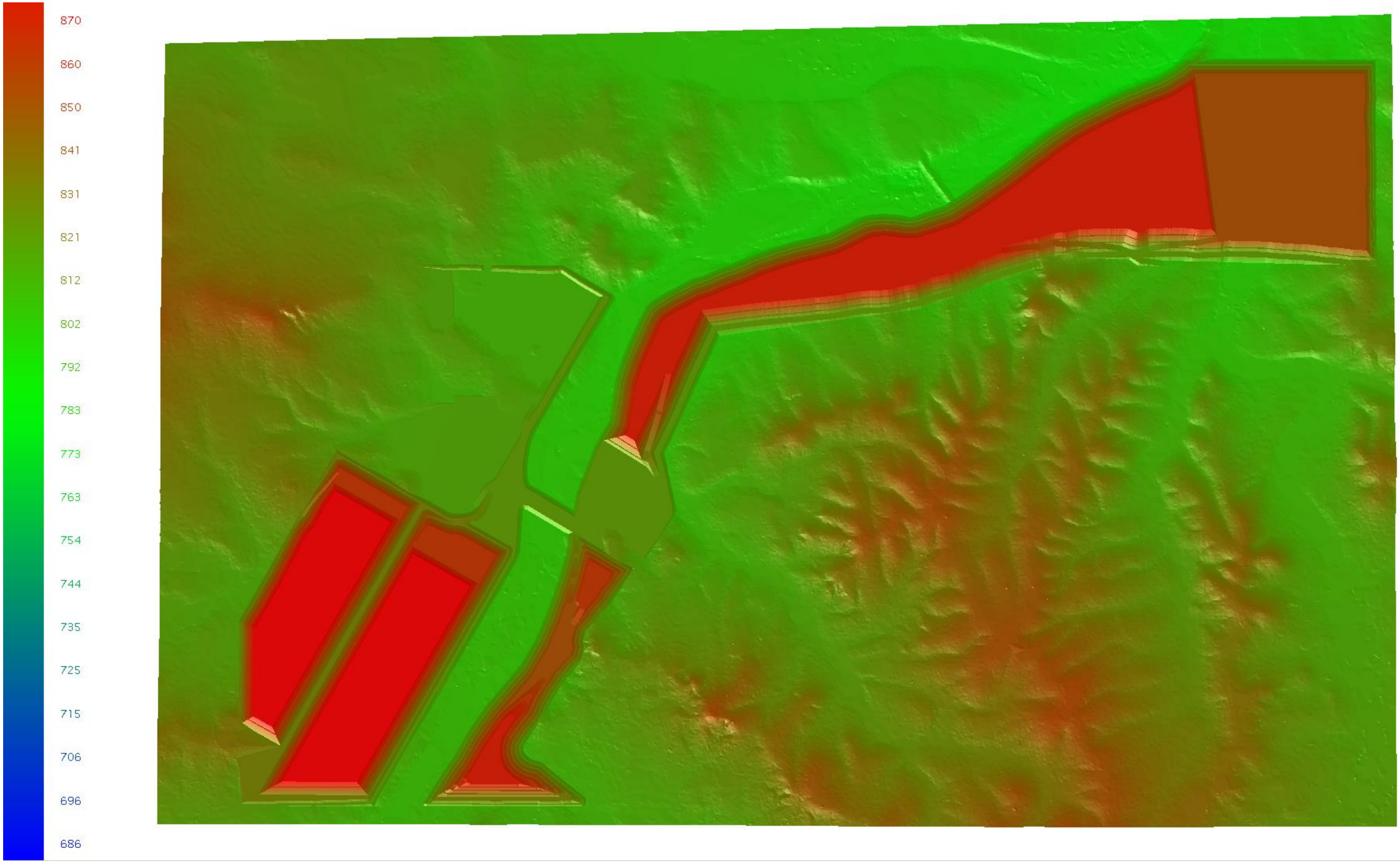

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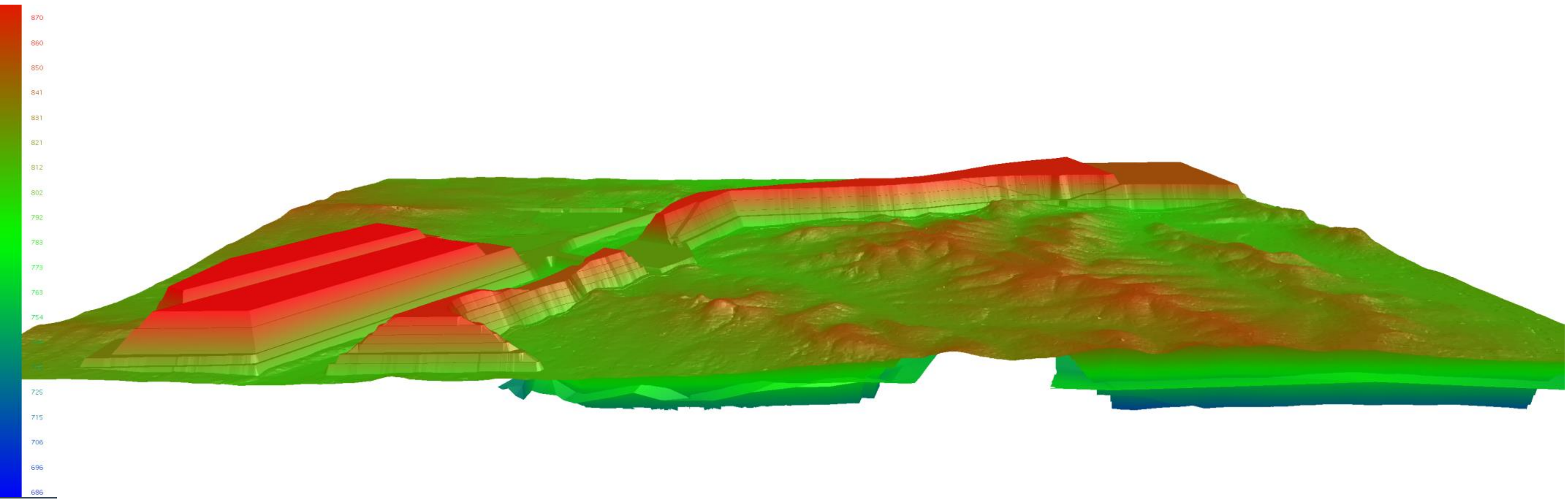

Eesti Energia

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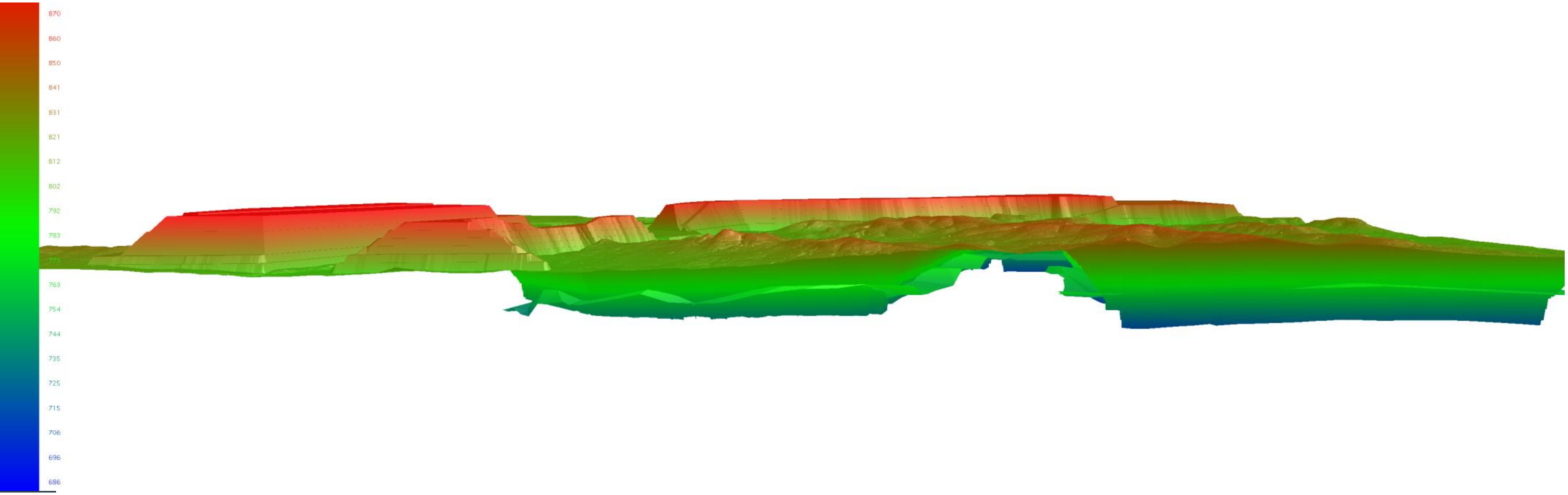
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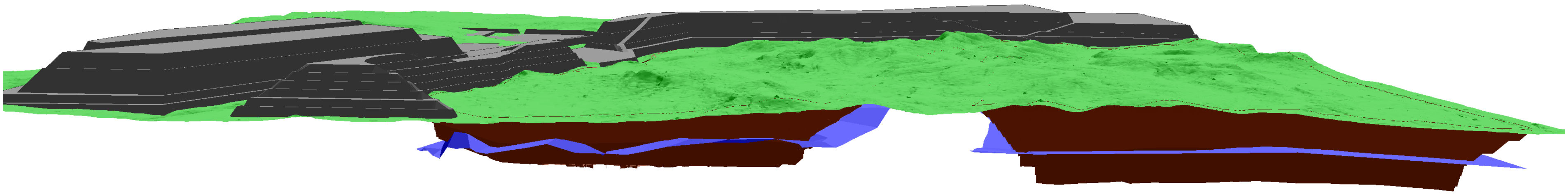

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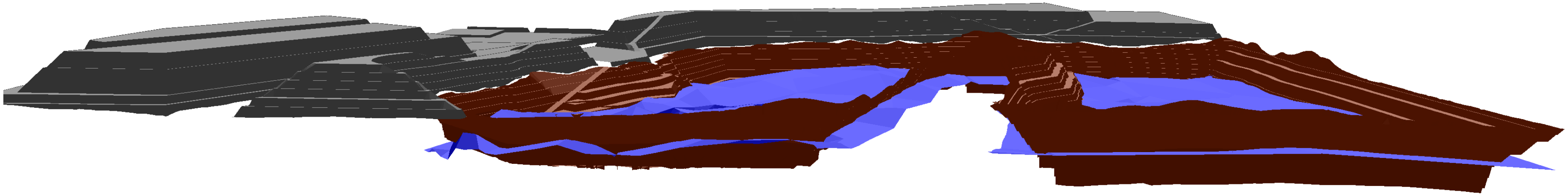

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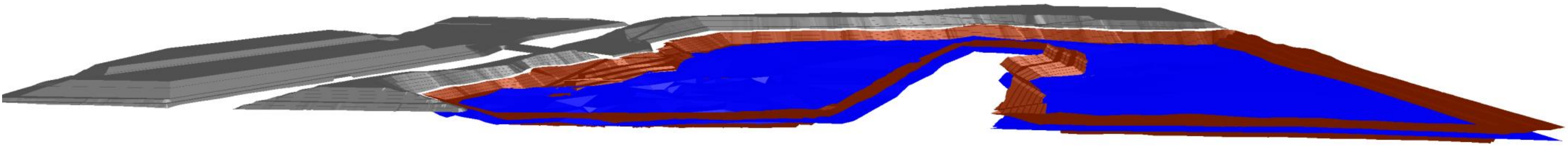

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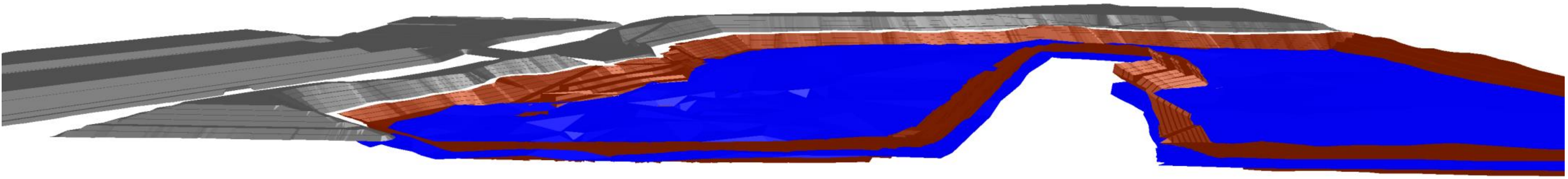

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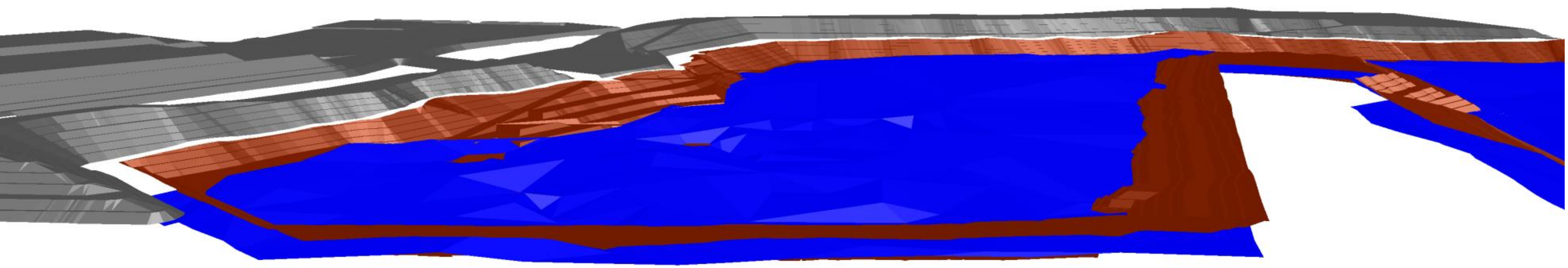

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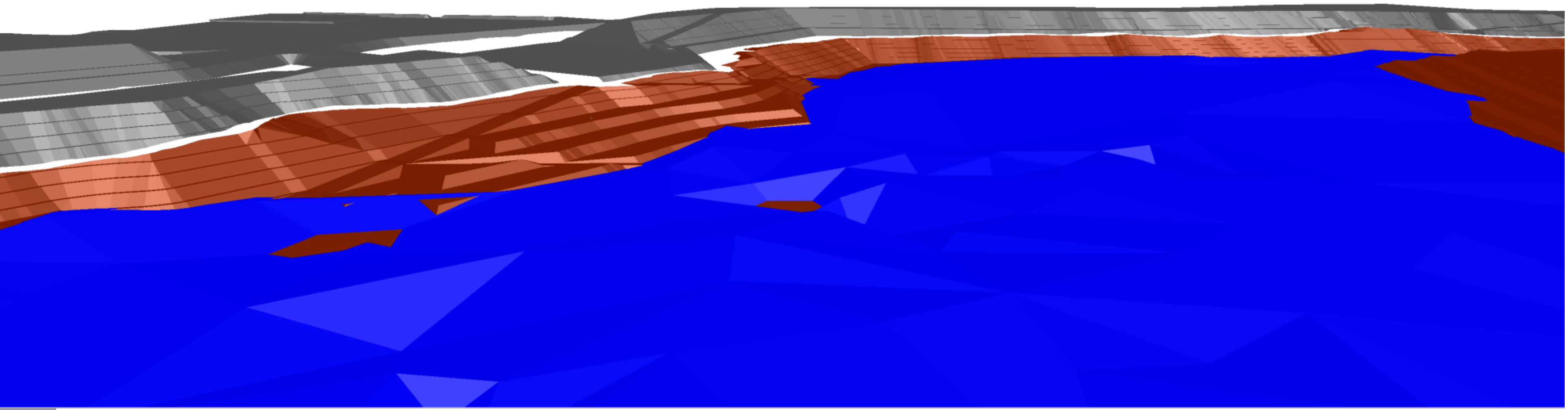

Eesti Energia

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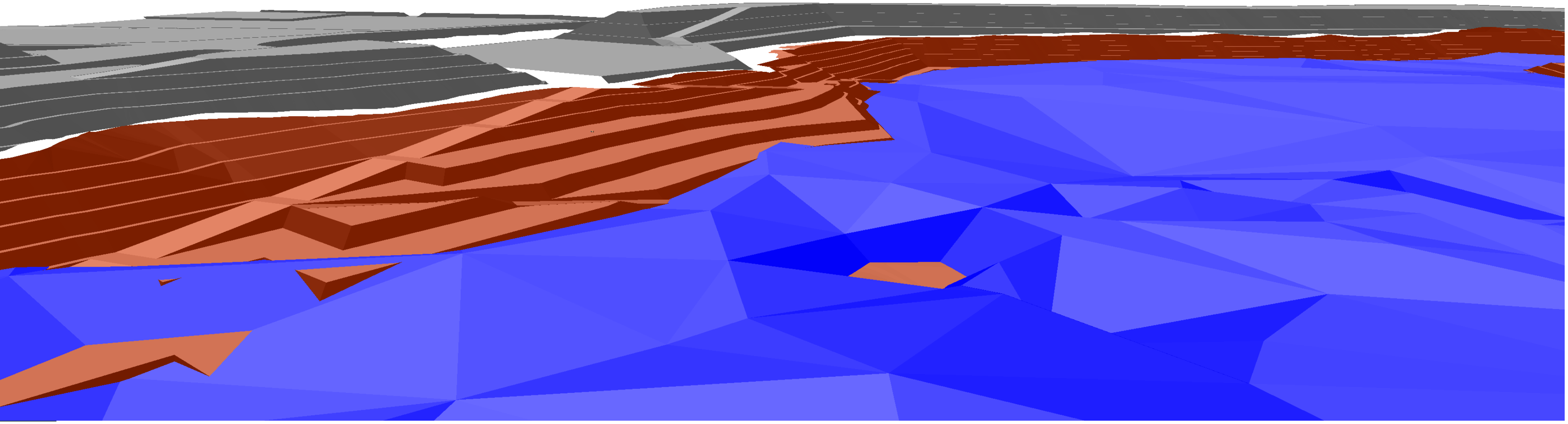

Eesti Energia

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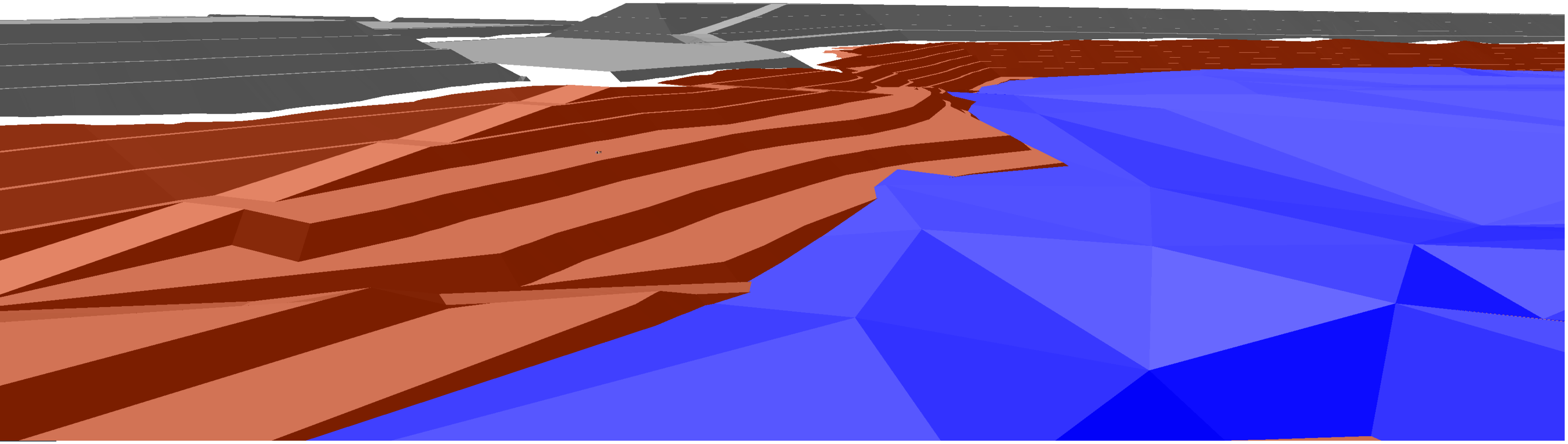

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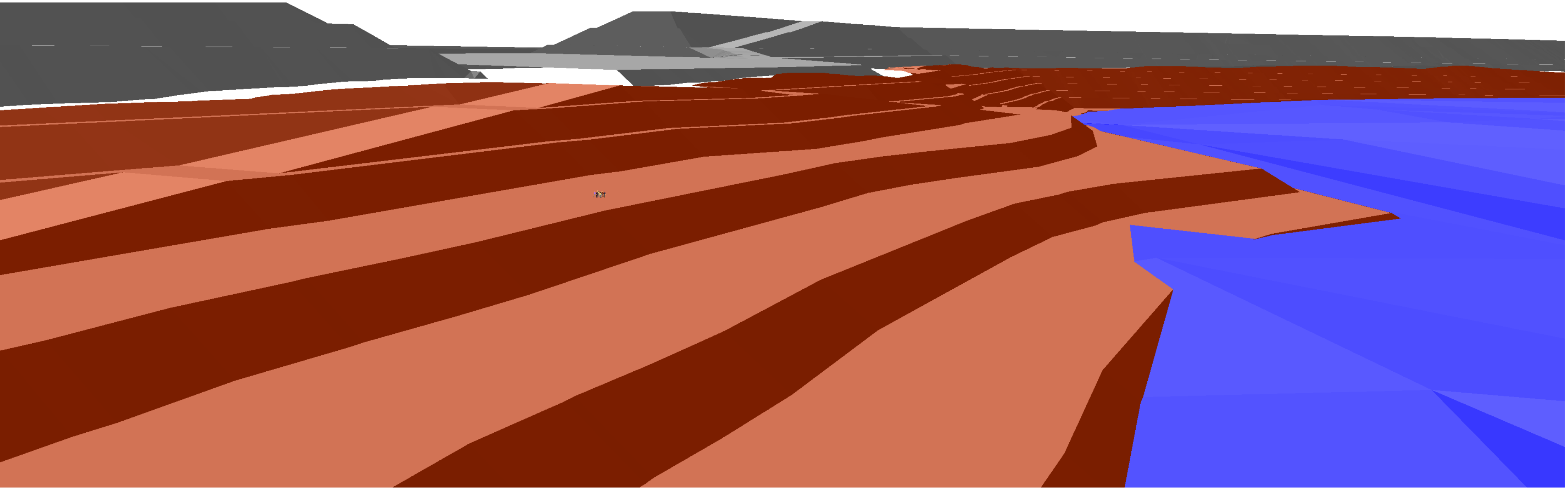

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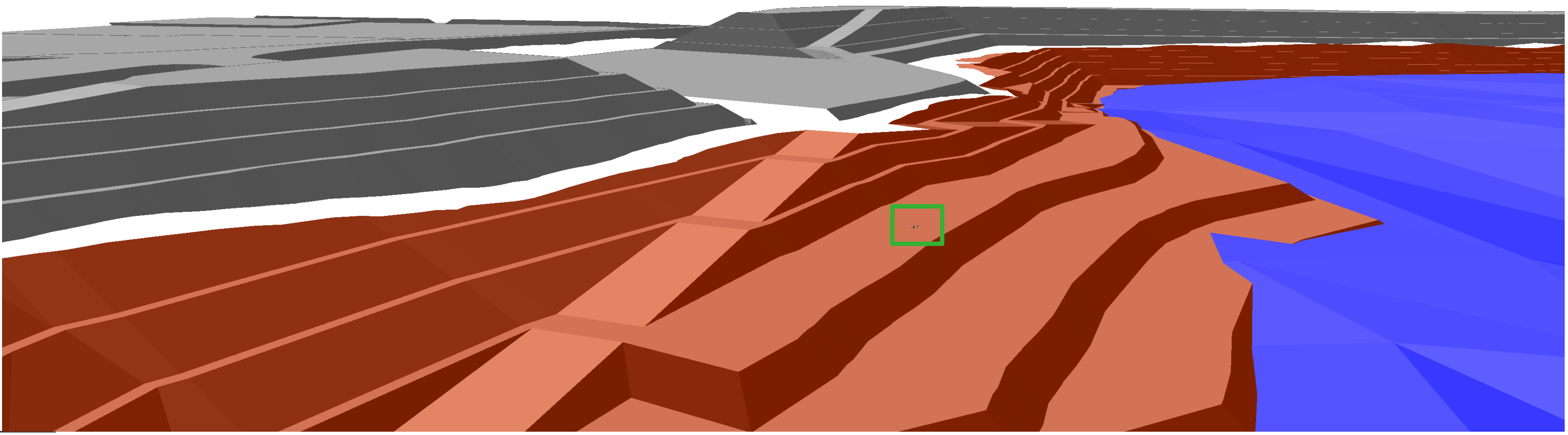
Eesti Energia

Põlevkivi



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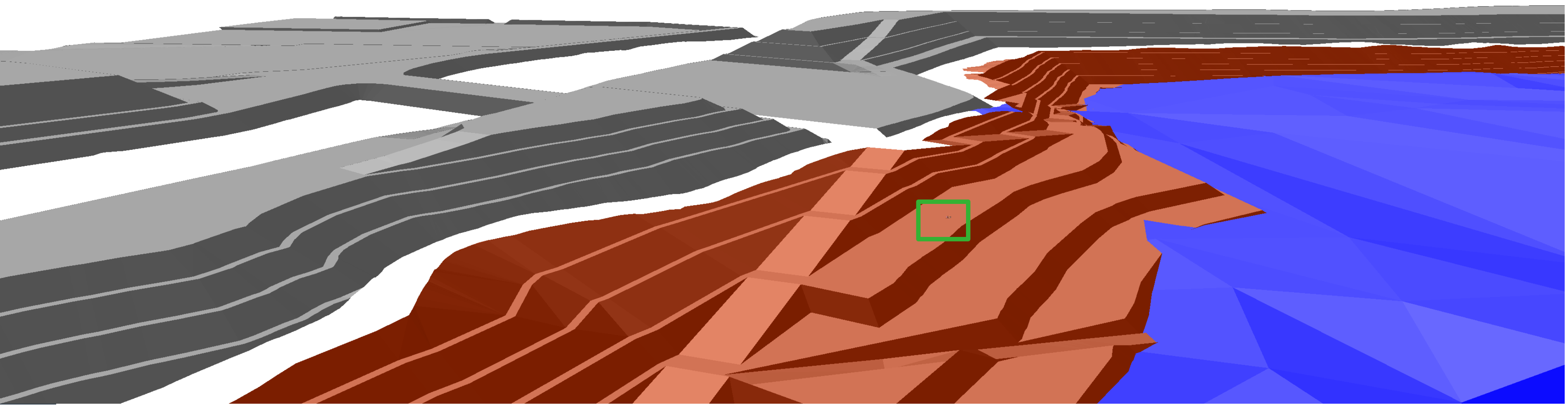

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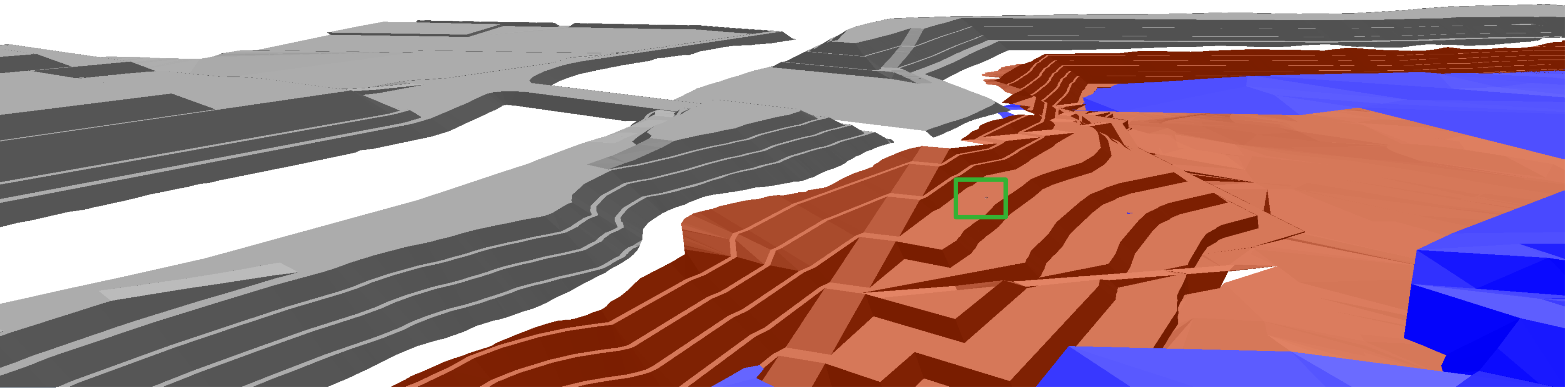

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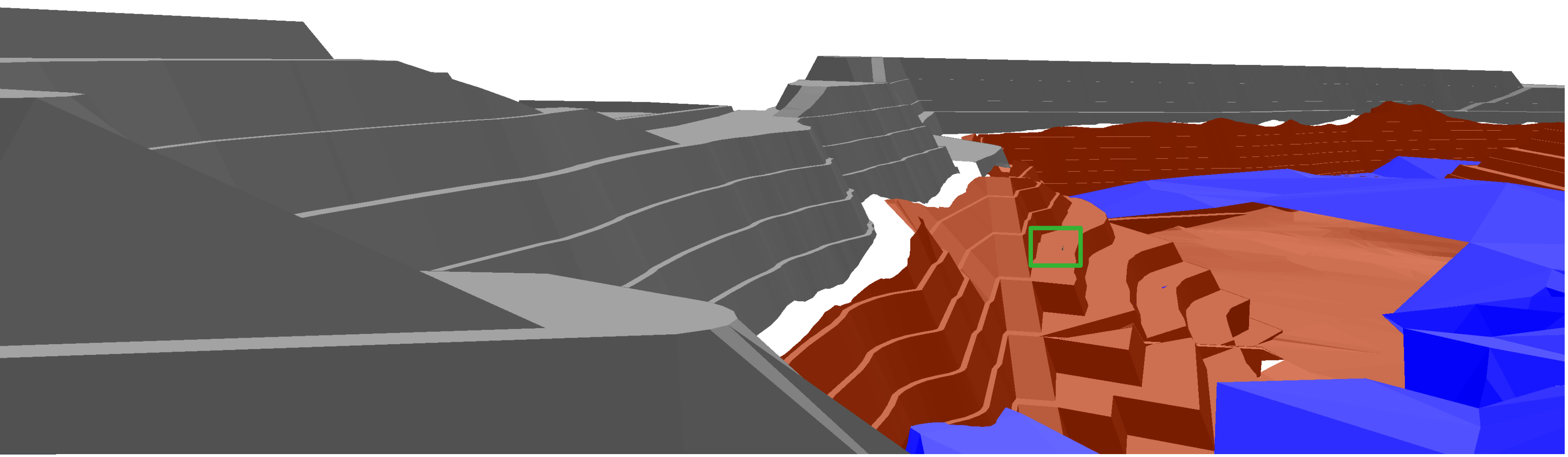

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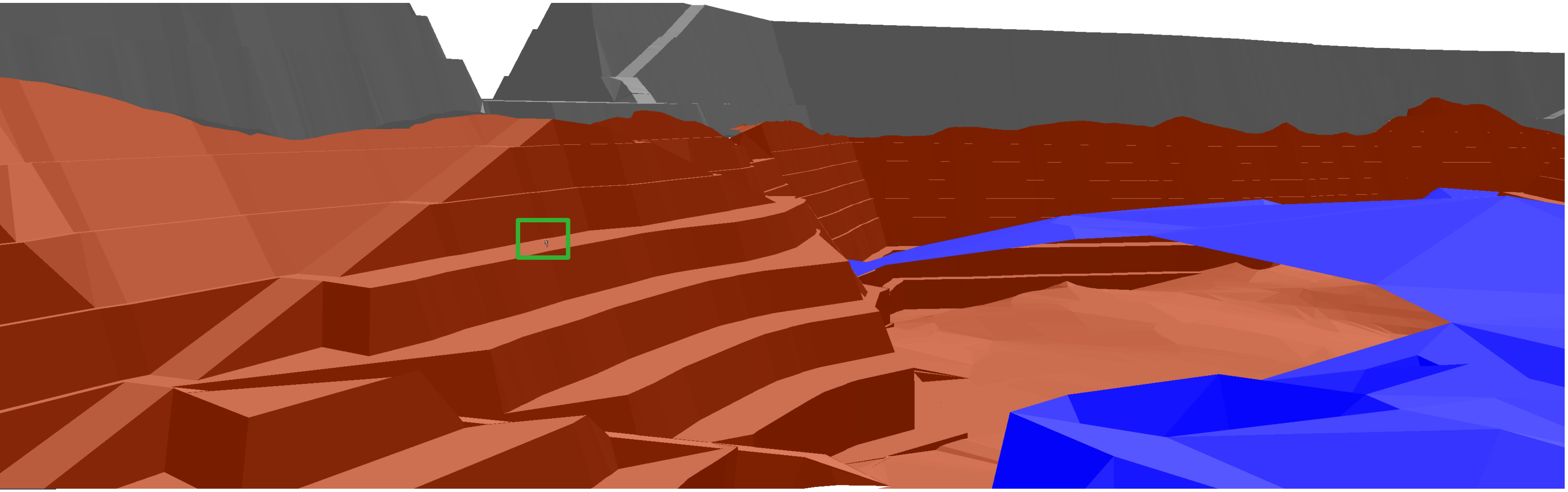

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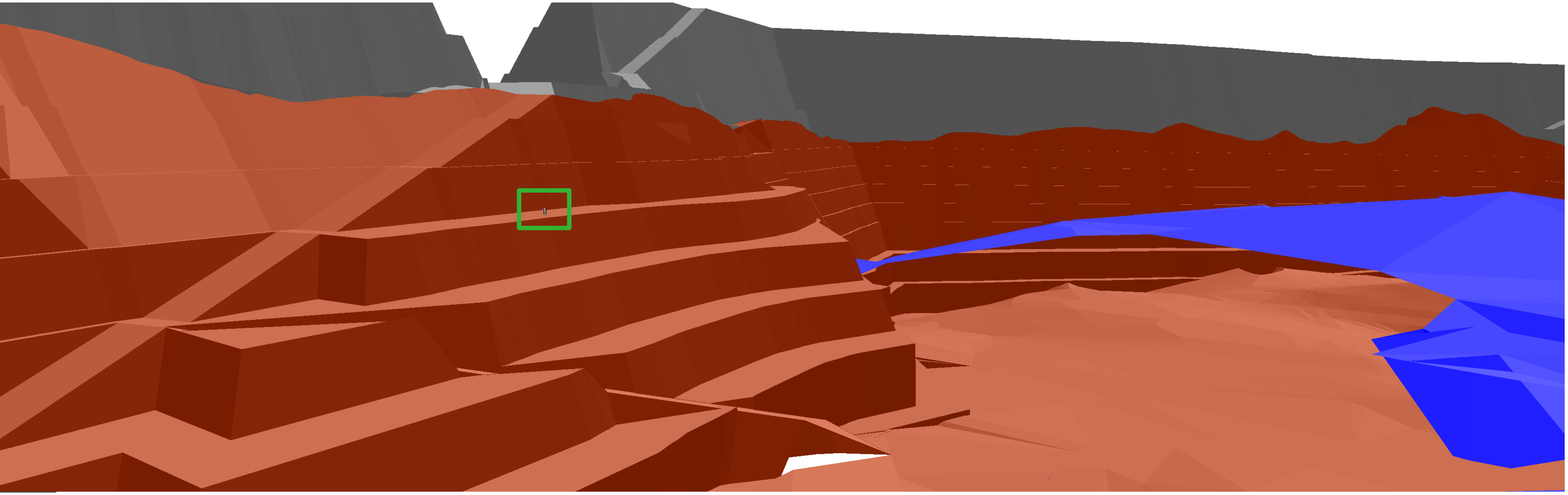

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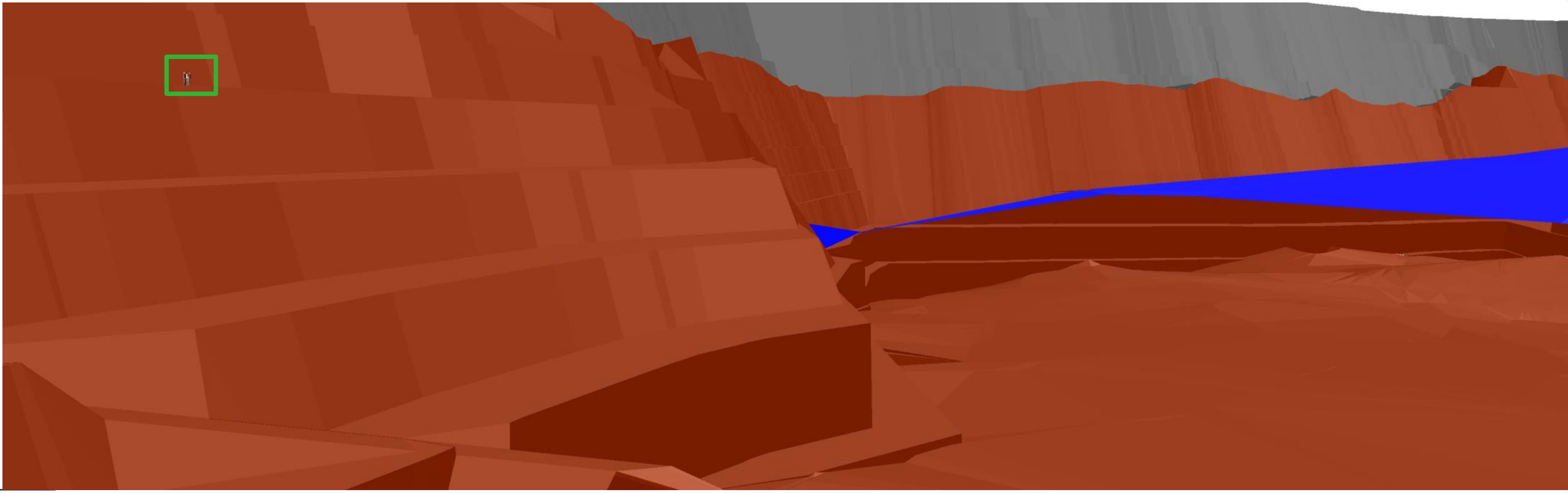

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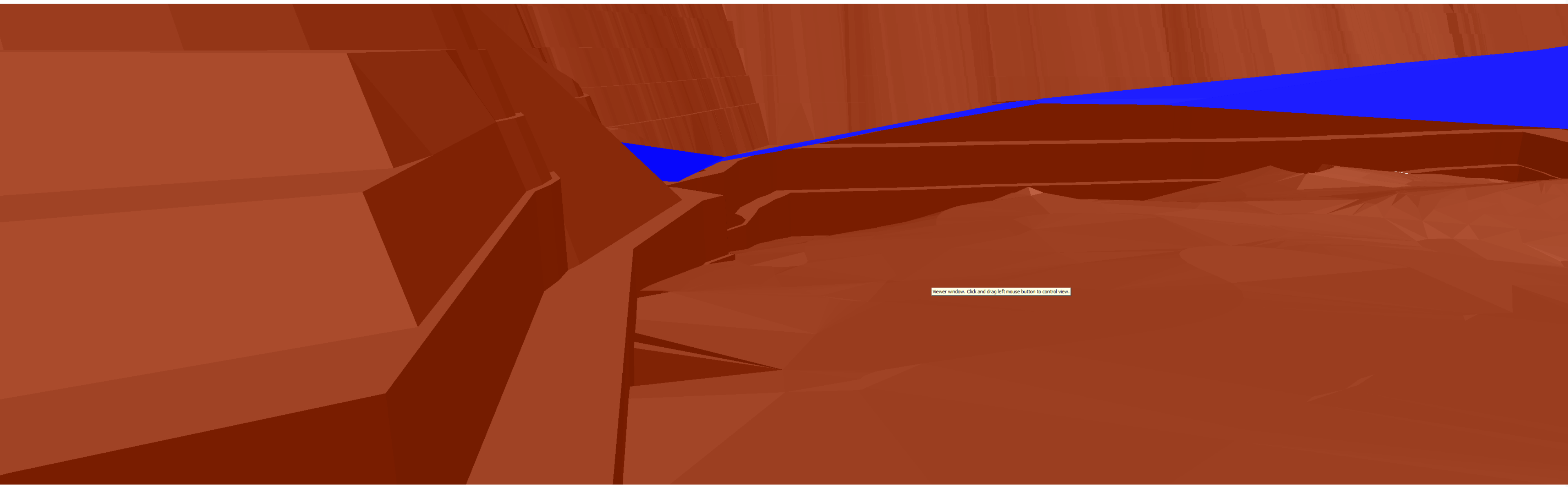
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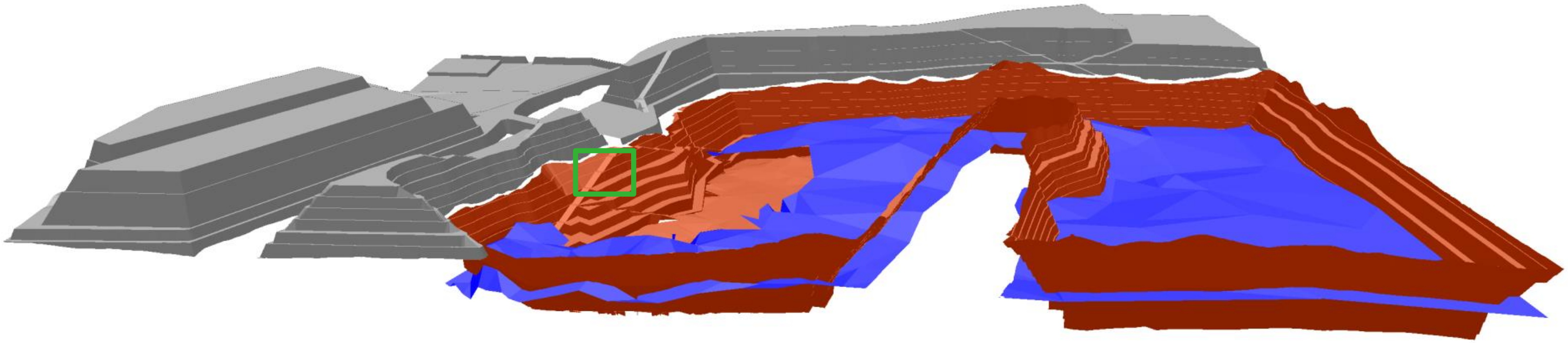

Eesti Energia

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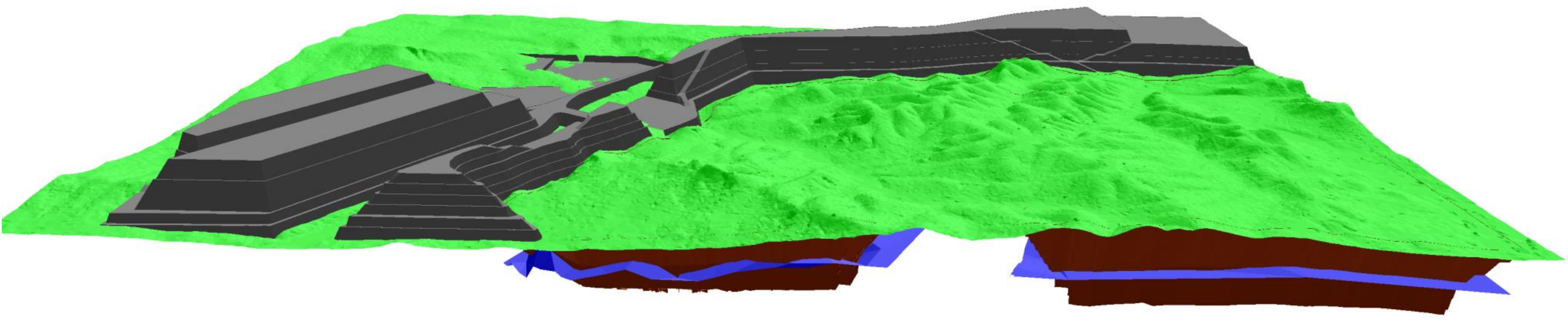

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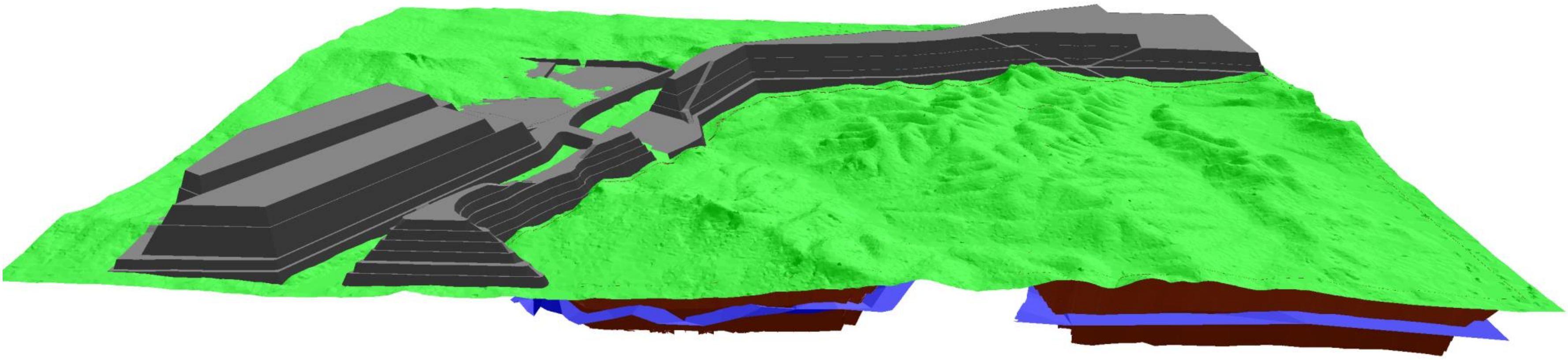

Eesti Energia

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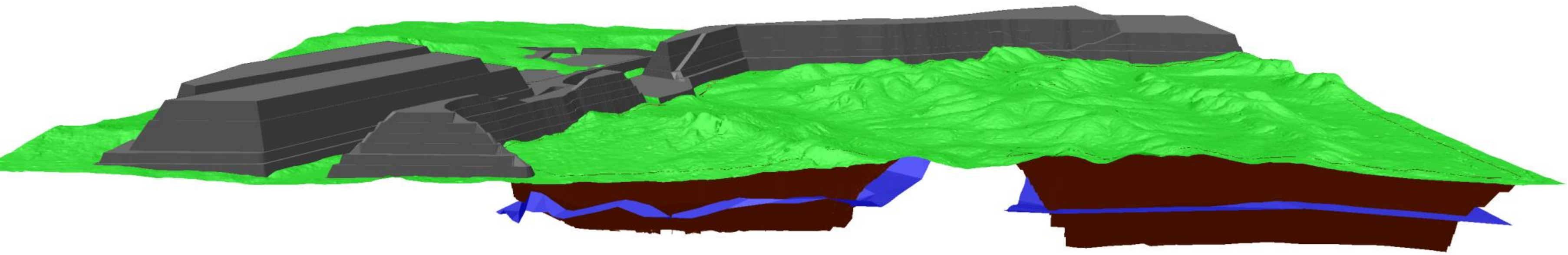

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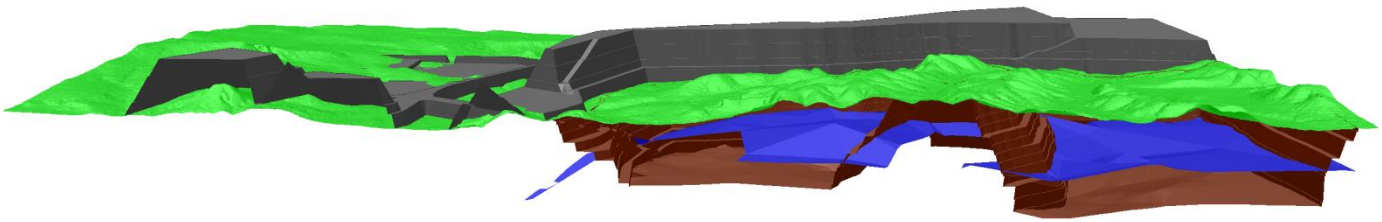

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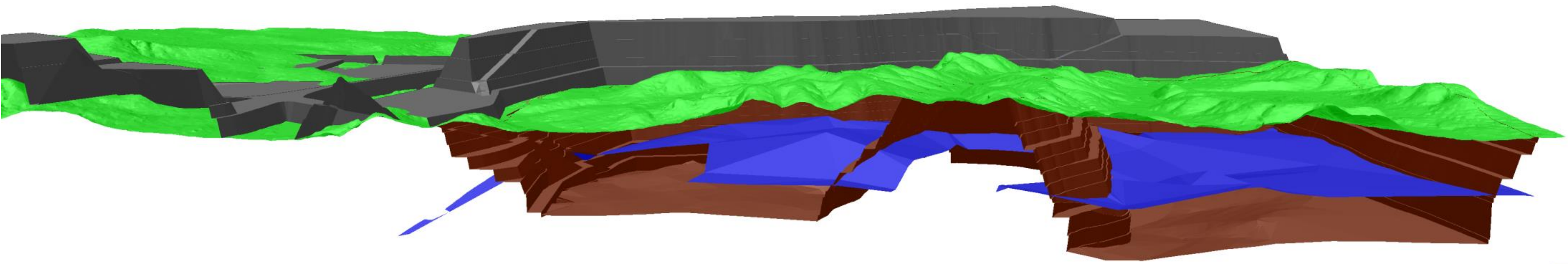

Eesti Energia

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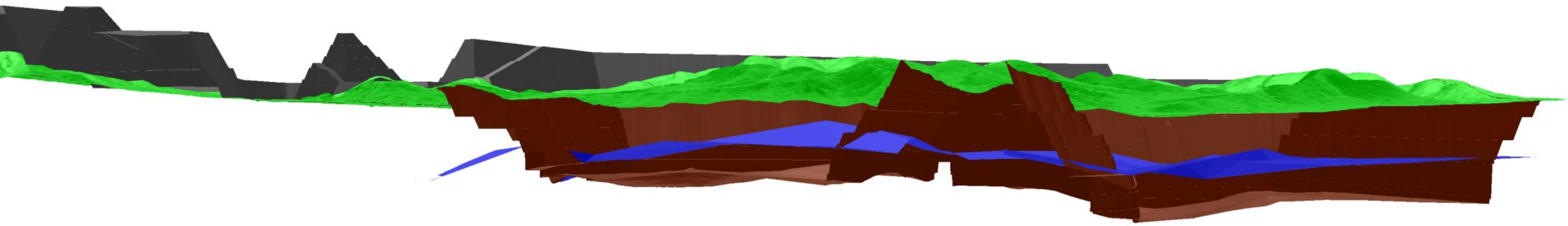

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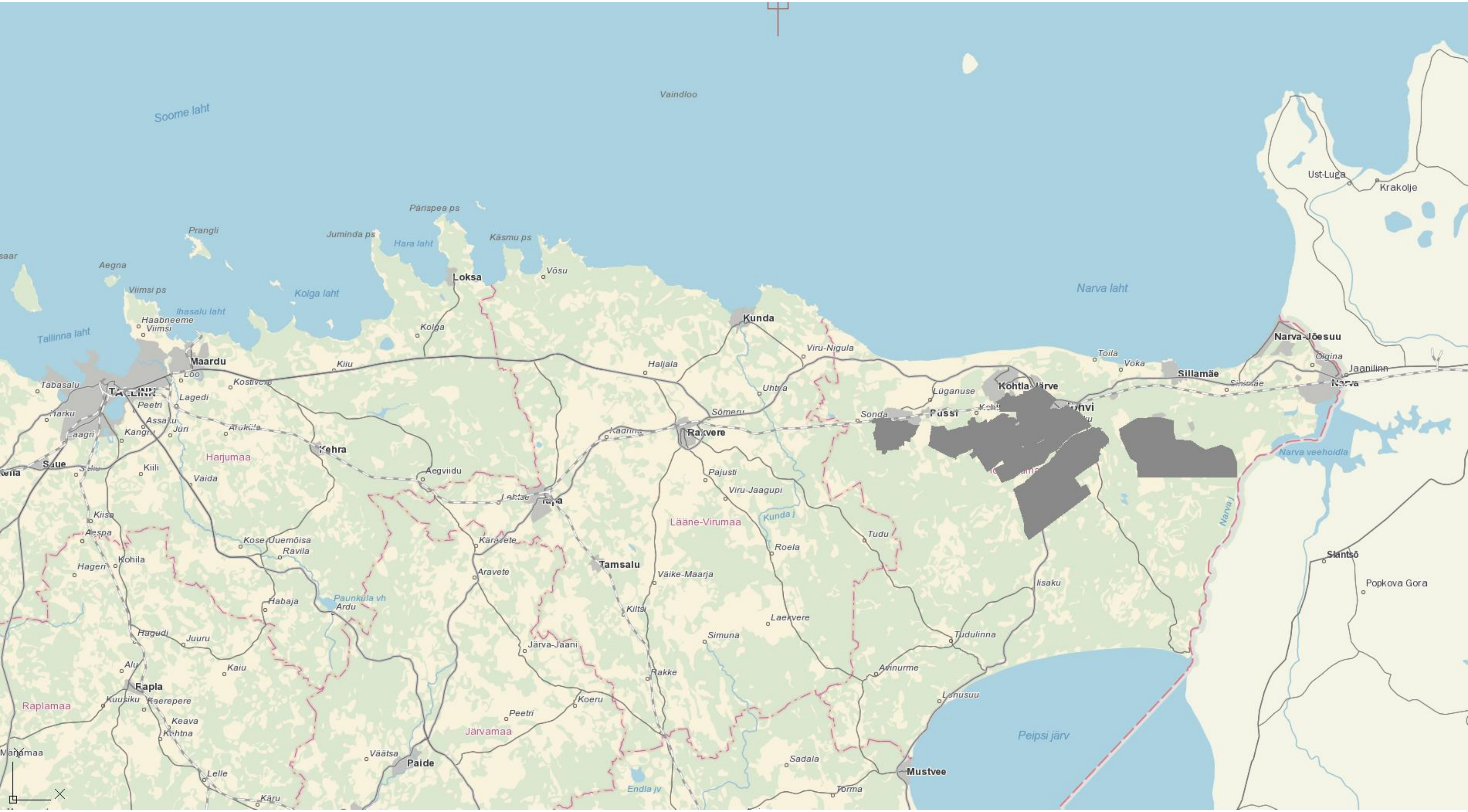

Eesti Energia

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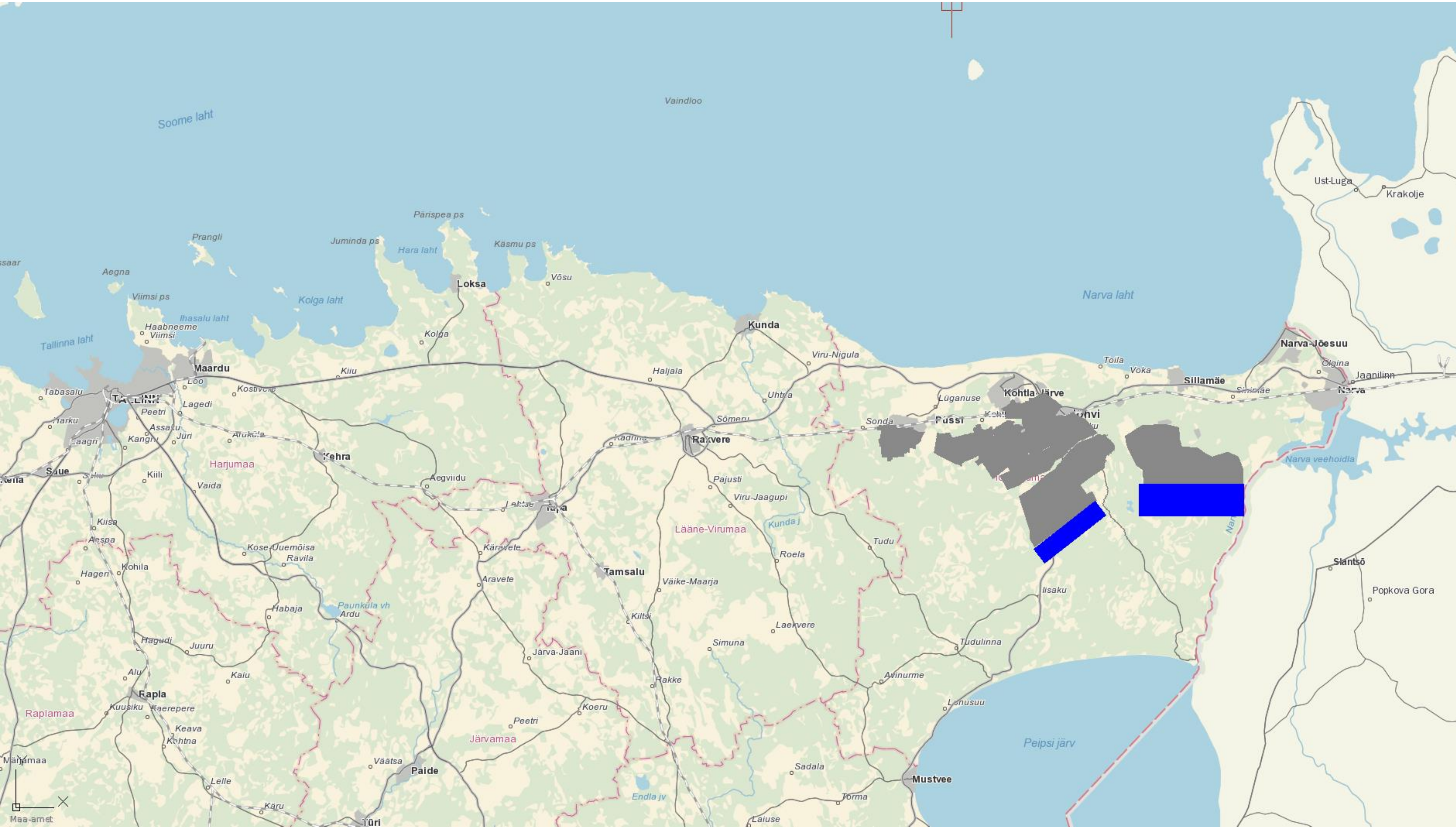

Eesti Energia

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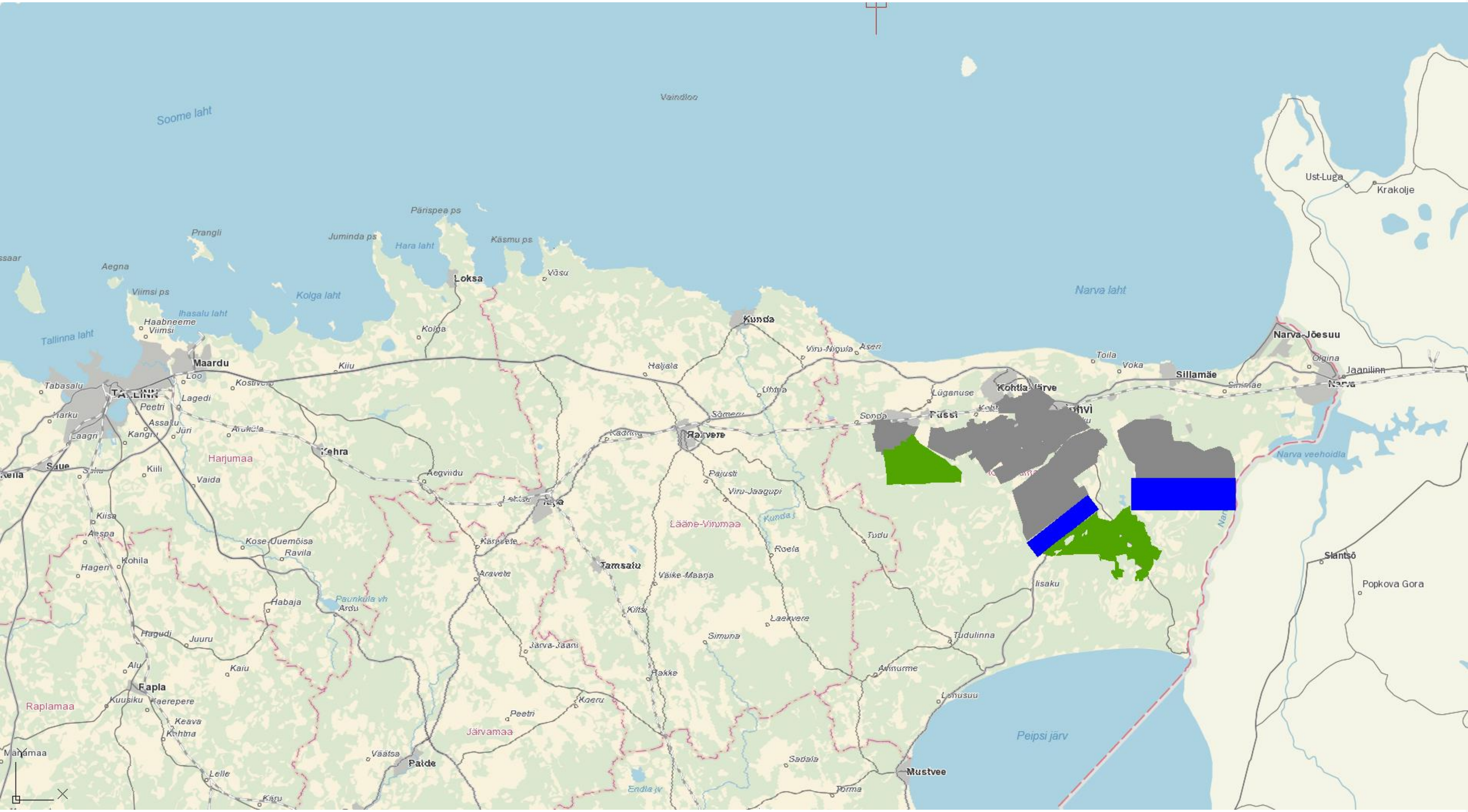

Eesti Energia

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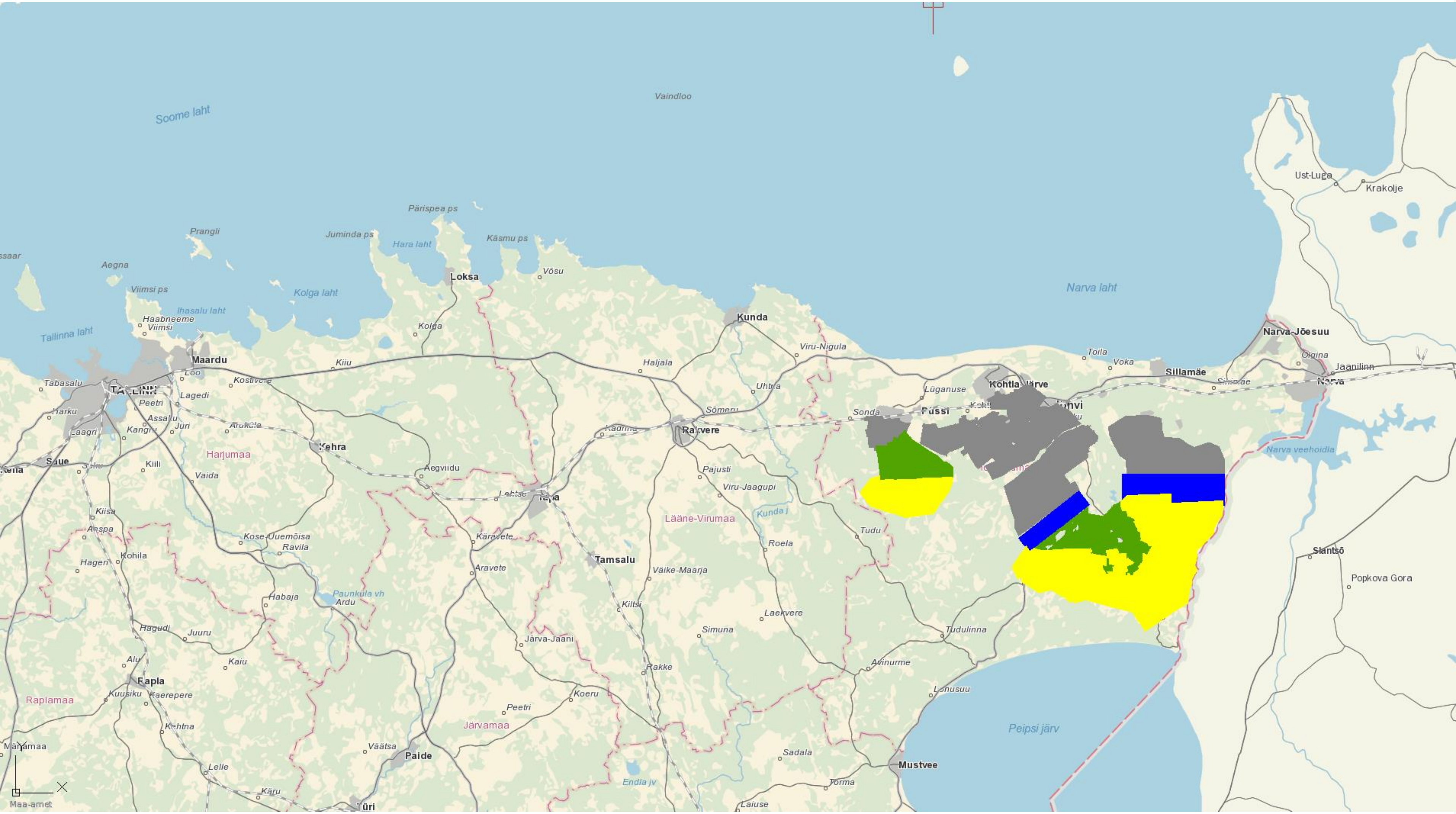

Eesti Energia

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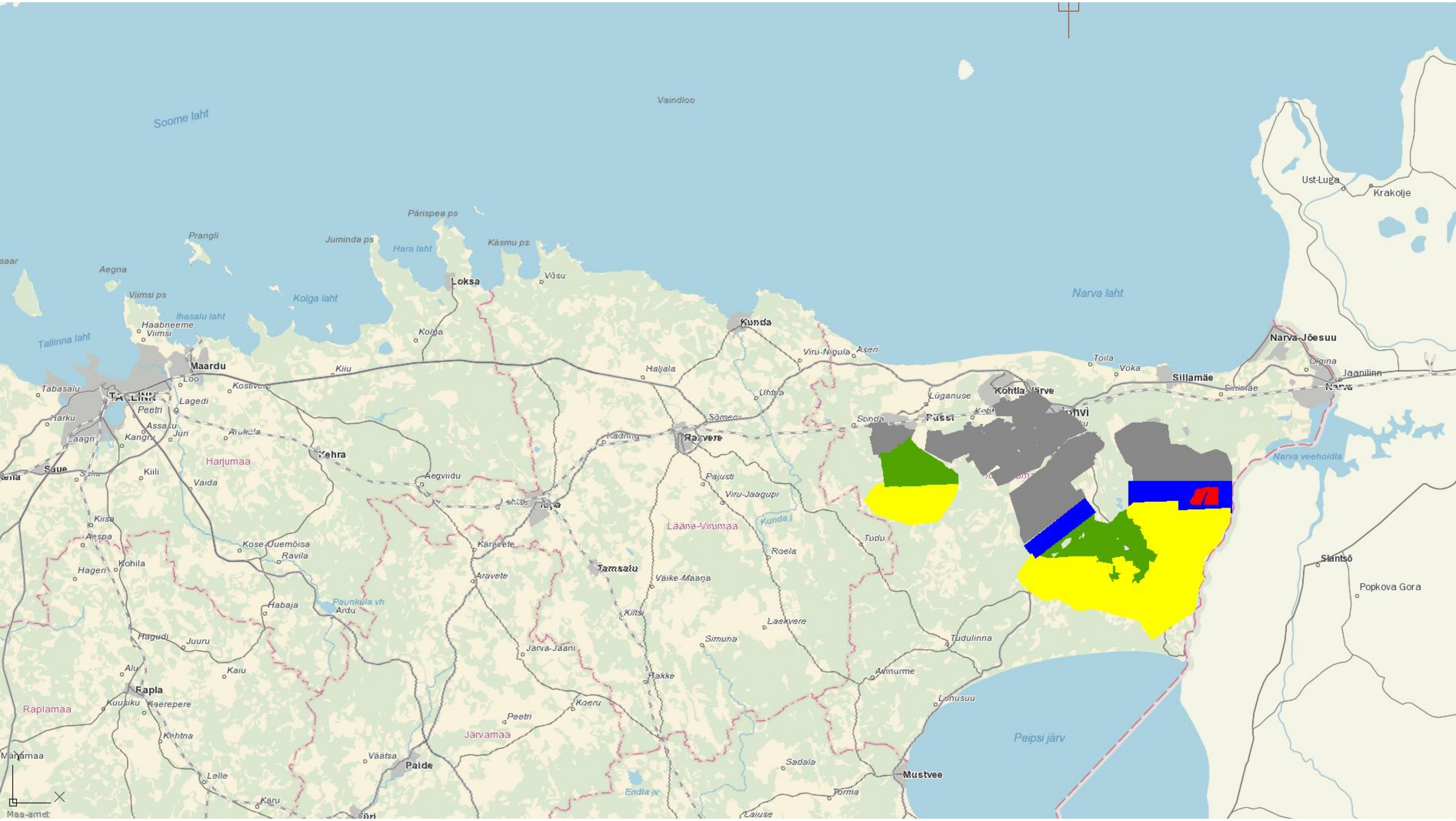

Eesti Energia

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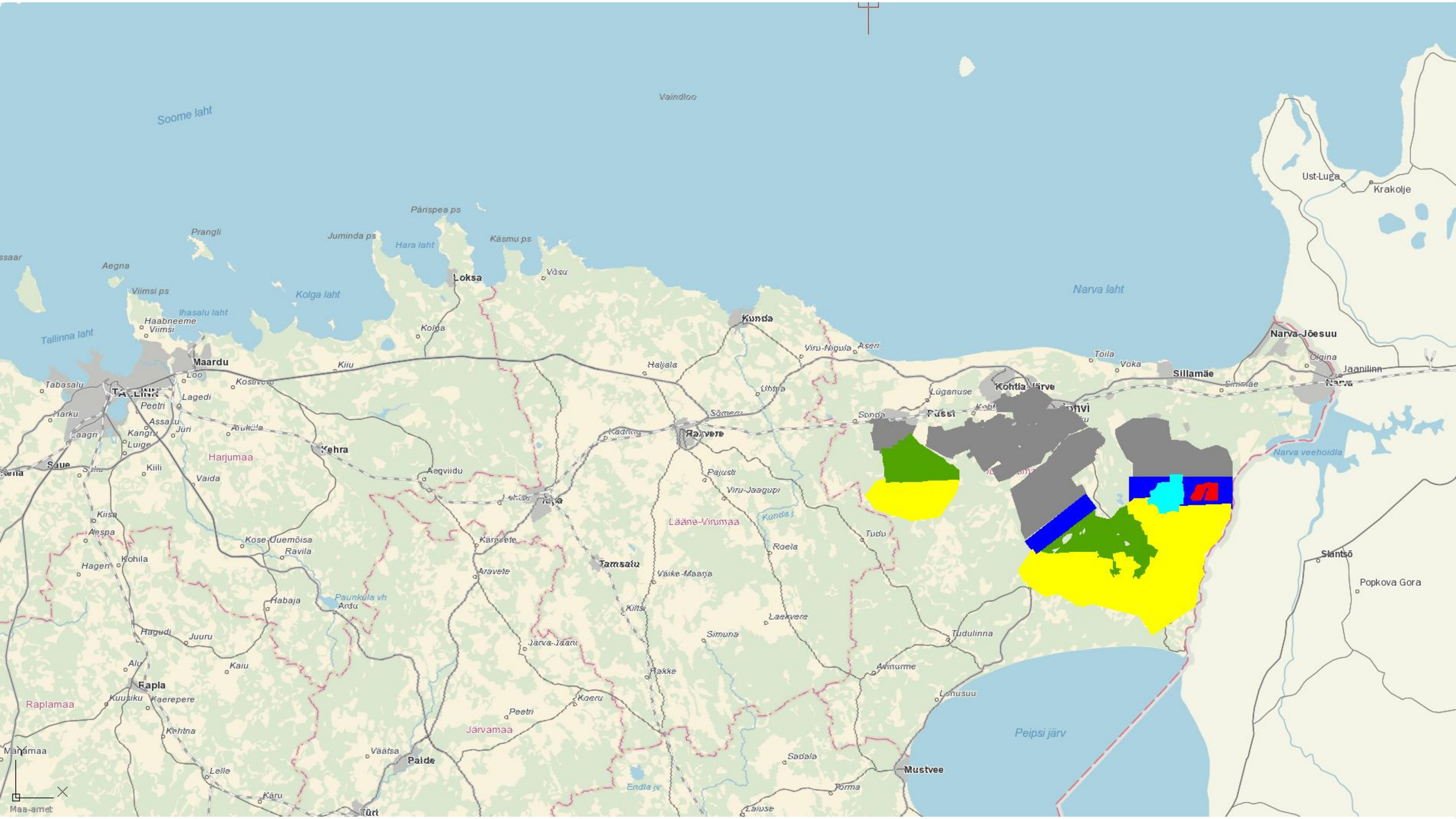

Eesti Energia

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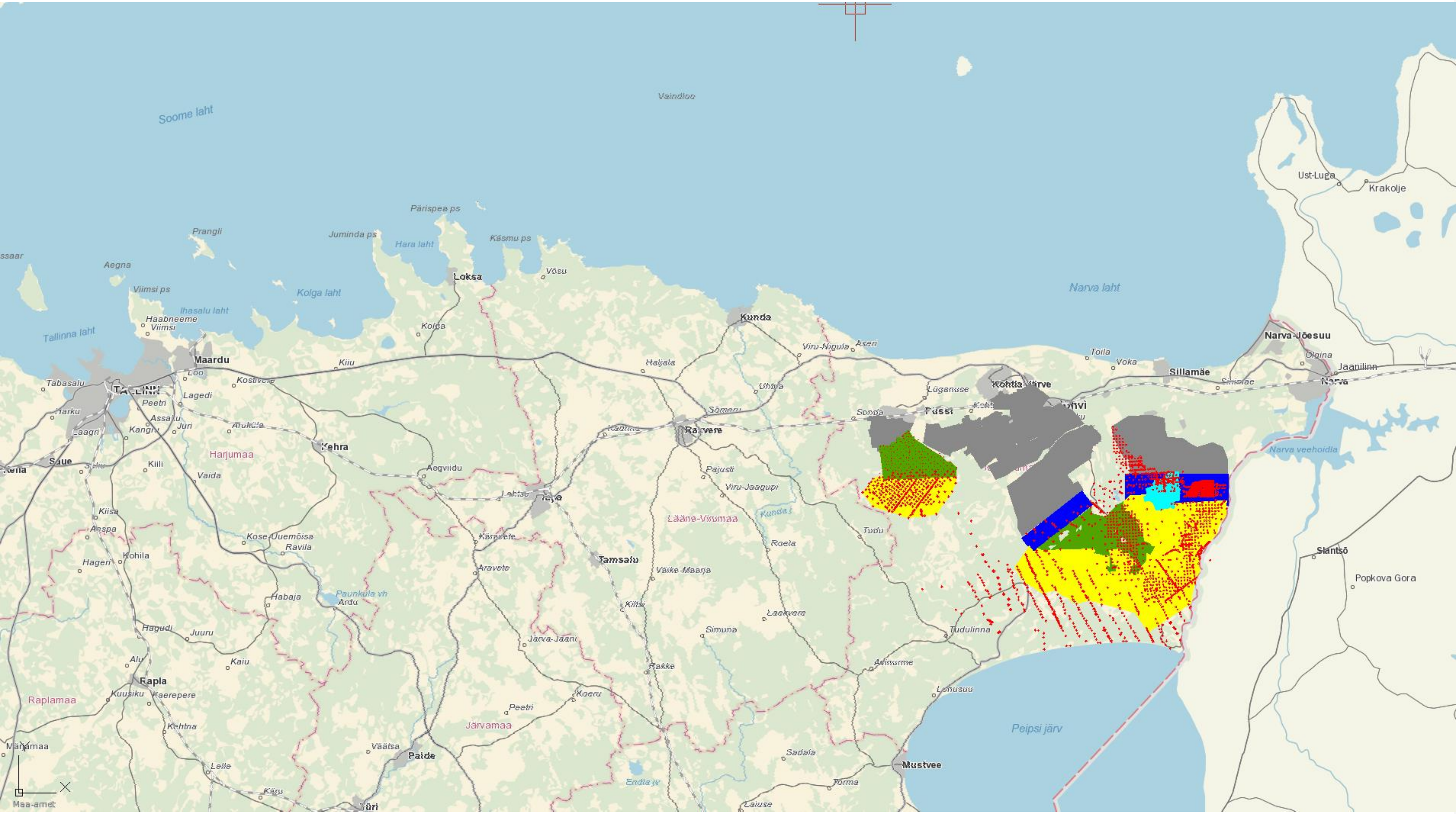

Eesti Energia

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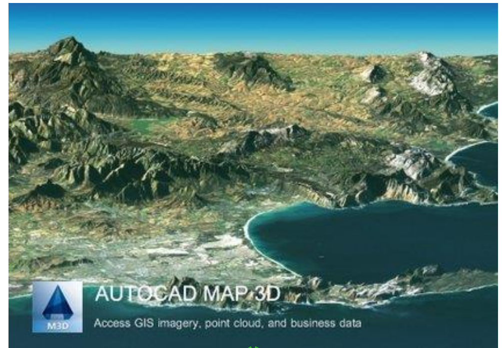
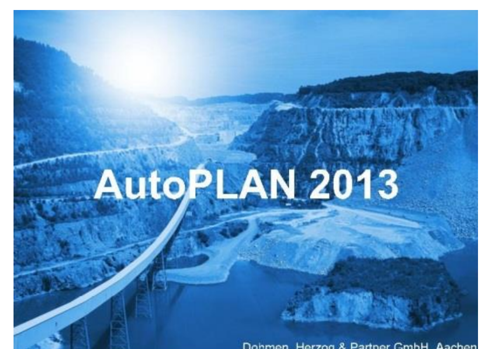


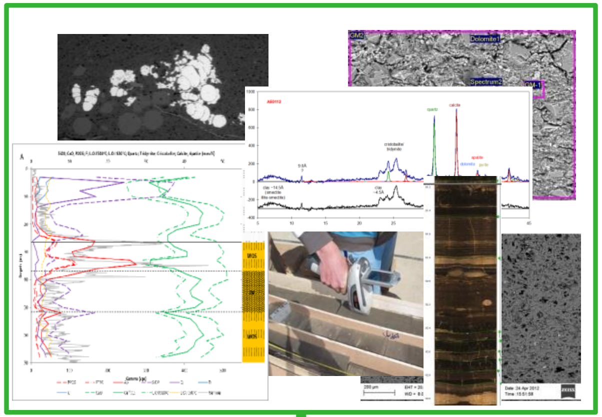


Moduls DTM and DTOOLS

Modul GEOMO

Andmesüsteemi ülesehitus

Geokeemia ja mineraloogia (SEM, XRD, XRF)



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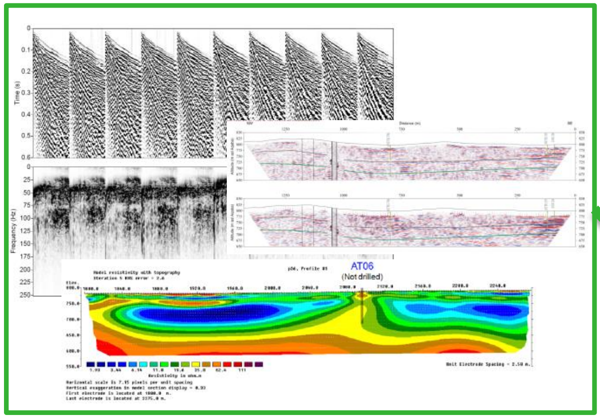

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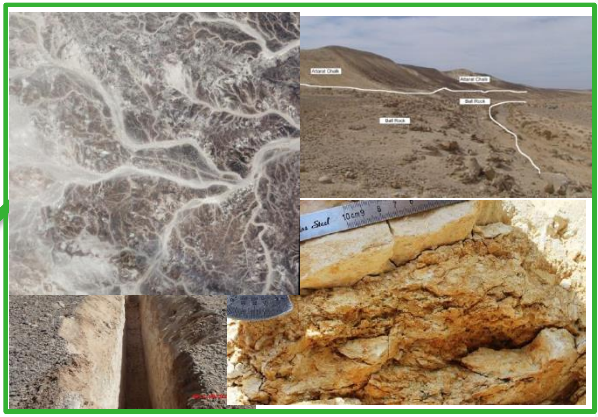

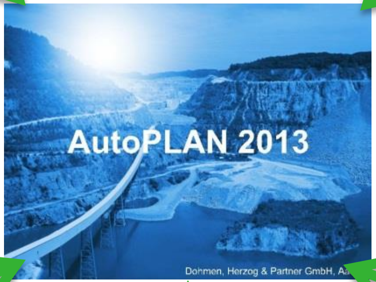

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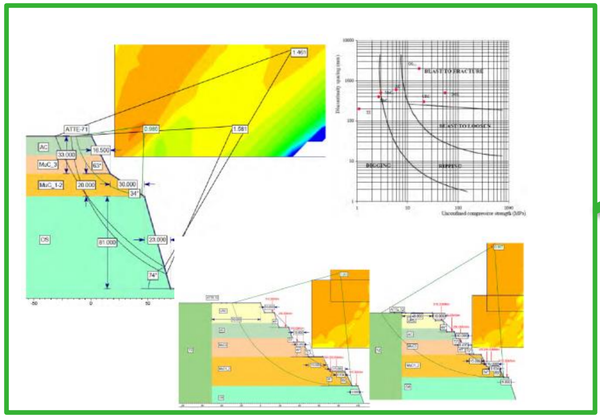
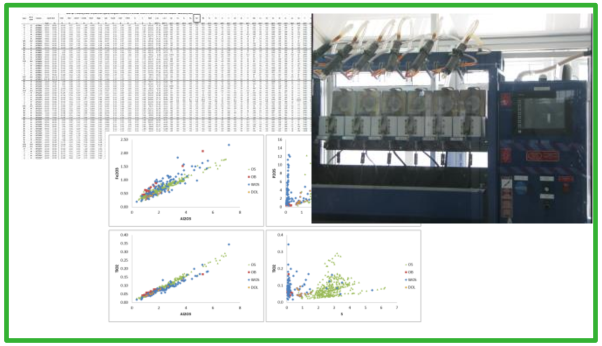


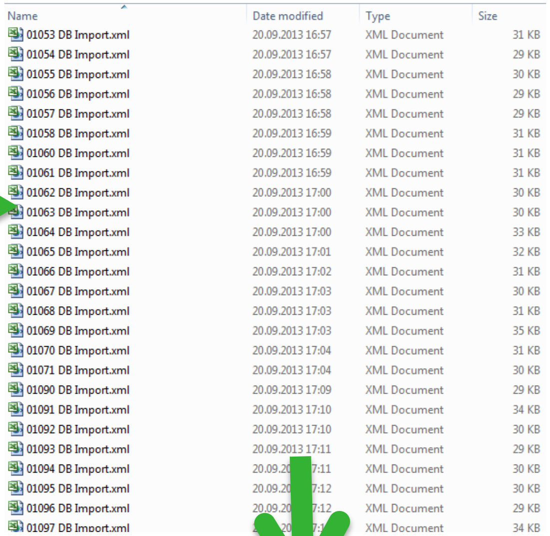
Puurimine

Laboratoorsed analüüsid



Eesti Energia

Andmesüsteemi ülesehitus



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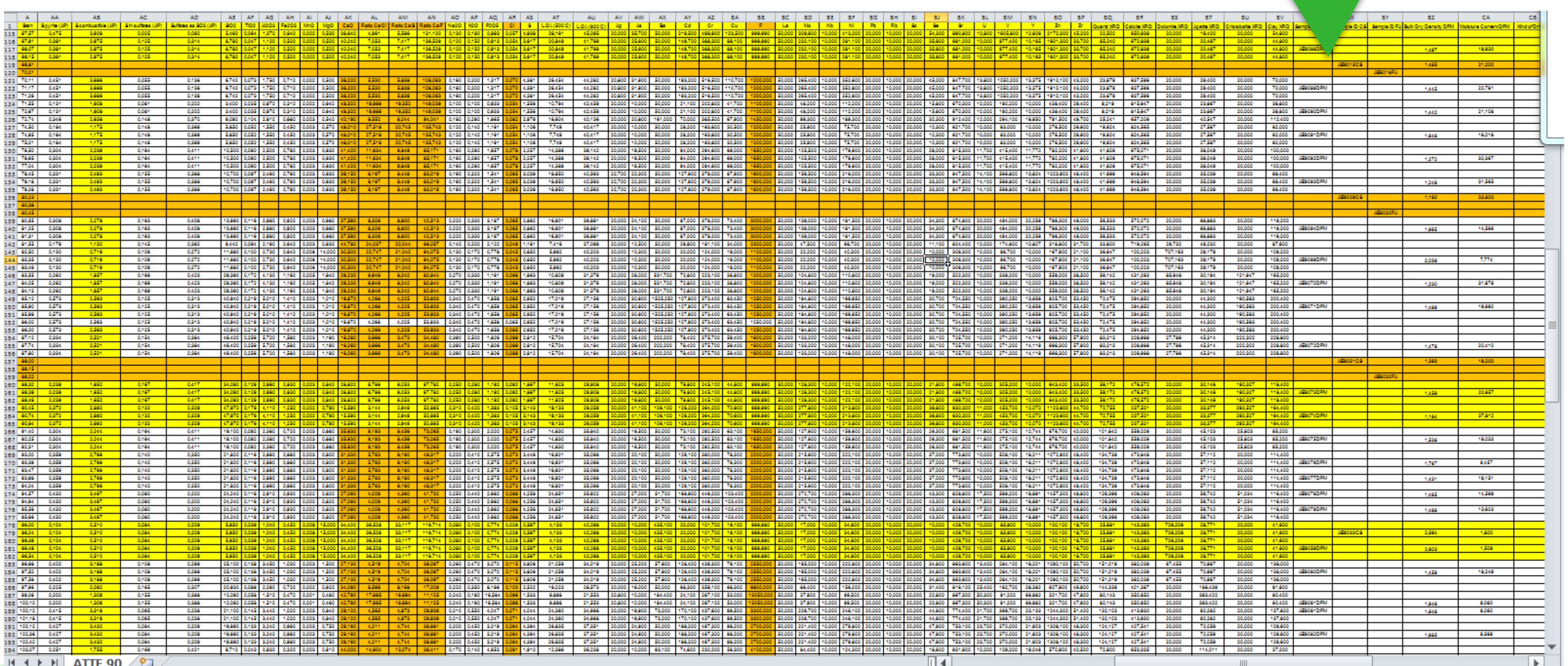

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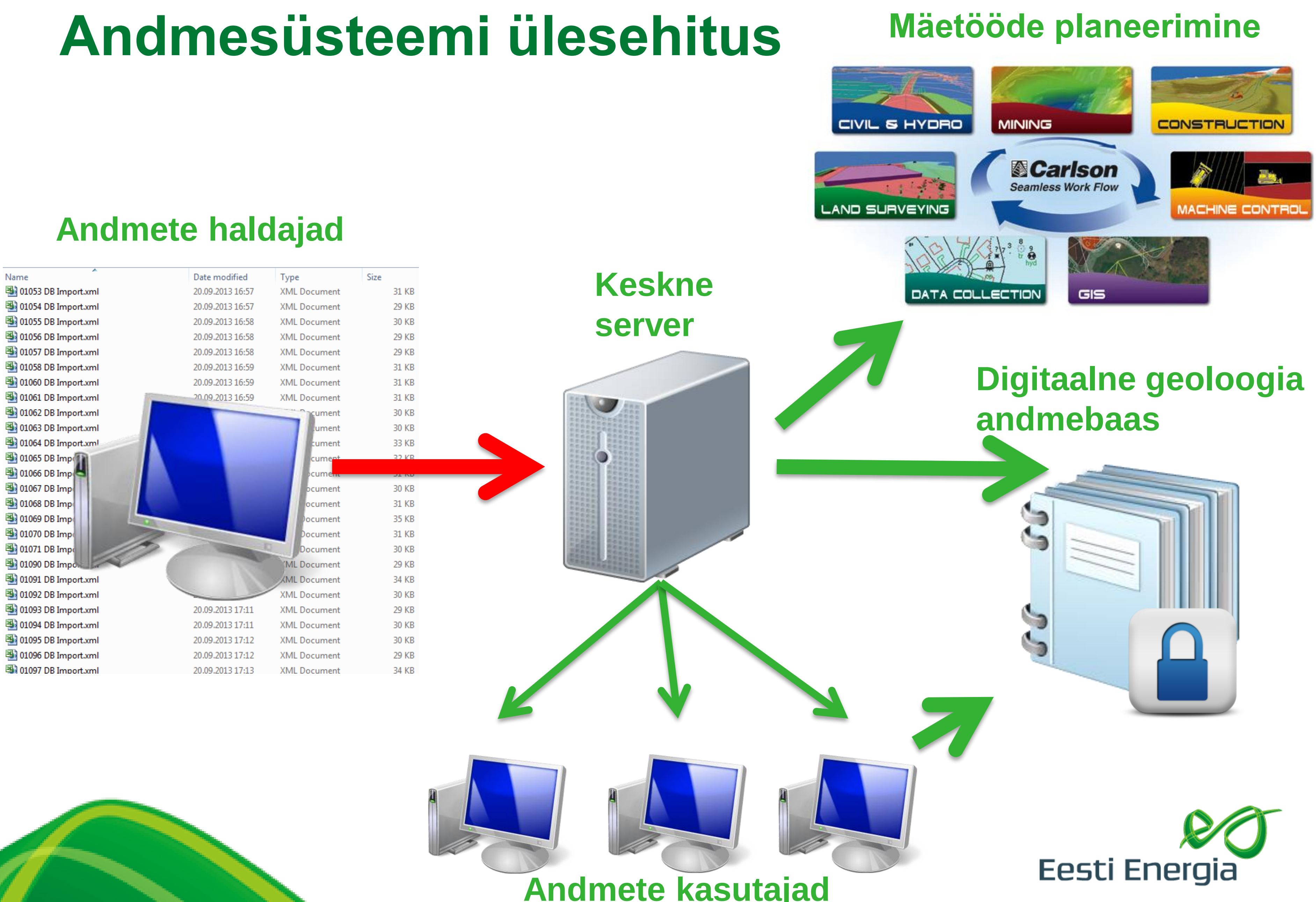
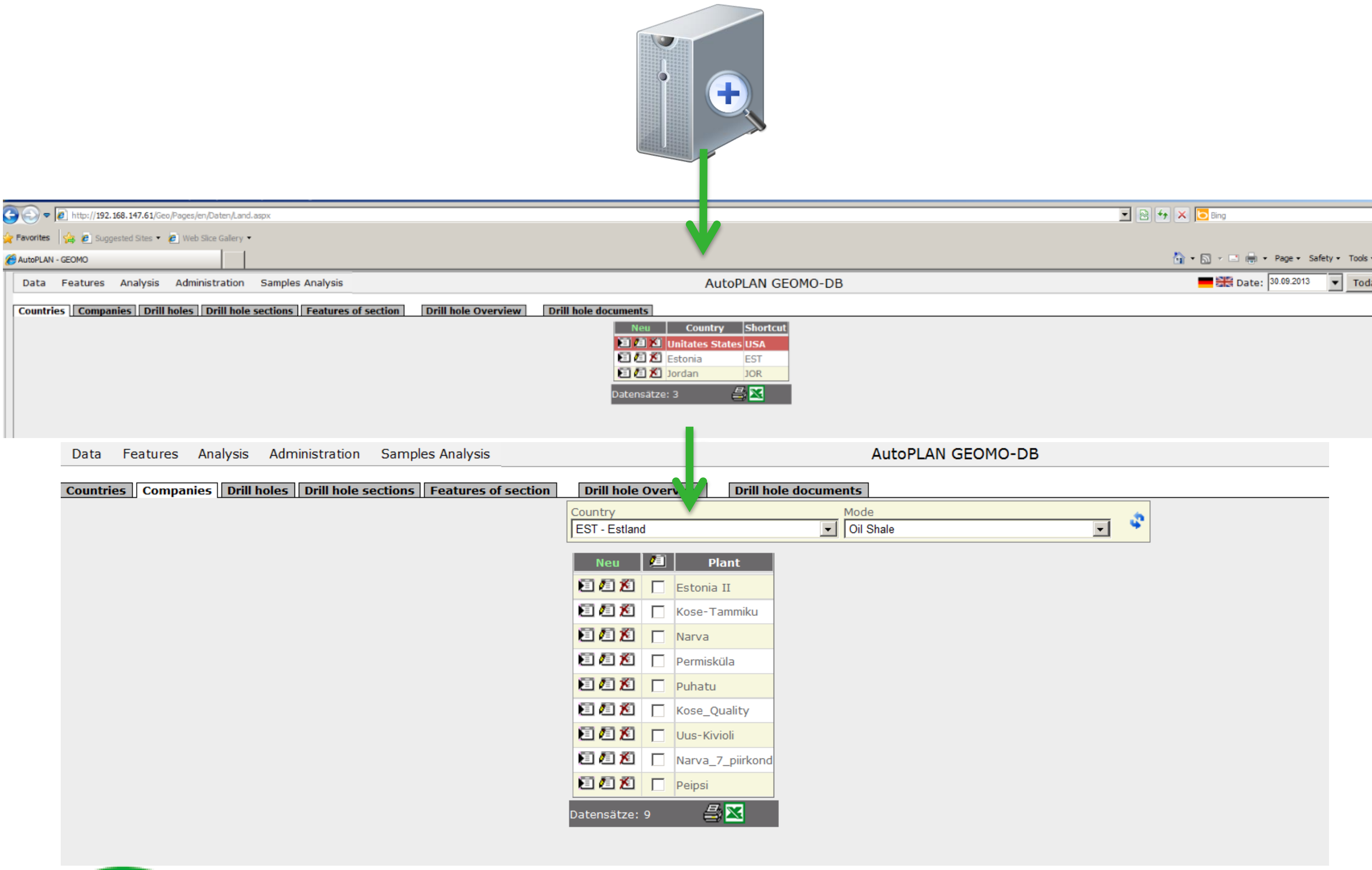
Andmesüsteemi ülesehitus



Eesti Energia

Andmesüsteemi ülesehitus



Eesti Energia

Andmesüsteemi ülesehitus

AutoPLAN - GEOMO - Microsoft Internet Explorer provided by Eesti Energia

http://192.168.147.61/Geo/Pages/en/Daten/Bohrloecher.aspx?SelectAll=True

Data | Features | Analysis | Administration | Samples Analysis

AutoPLAN GEOMO-DB

Date: 30.09.2013 Today

Countries | Companies | Drill holes | Drill hole sections | Features of section | Drillhole Overview | Drill hole documents

Plant: Narva | Drill hole group: All | Deposit area: All | Kind of Drilling: All

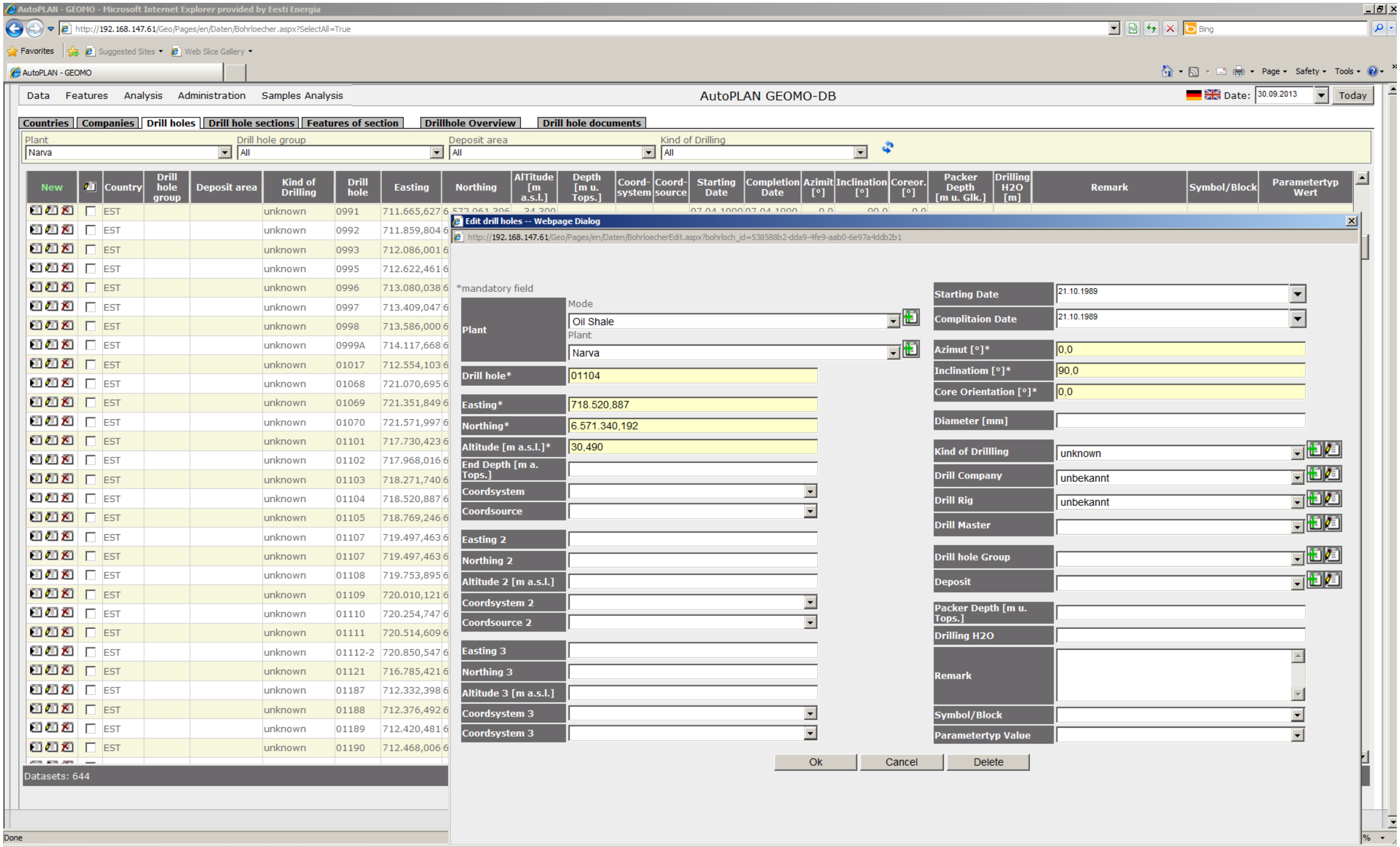
New		Country	Drill hole group	Deposit area	Kind of Drilling	Drill hole	Easting	Northing	AlTitude [m a.s.l.]	Depth [m u. Tops.]	Coord-system	Coord-source	Starting Date	Completion Date	Azimit [°]	Inclination [°]	Coreor. [°]	Packer Depth [m u. Glk.]	Drilling H2O [m]	Remark	Symbol/Block	Parametertyp Wert
		EST			unknown	01110	720.254,747	6.571.464,884	30,550				06.10.1990	06.10.1990	0,0	90,0	0,0					
		EST			unknown	01111	720.514,609	6.571.473,653	29,940				09.06.1990	09.06.1990	0,0	90,0	0,0					
		EST			unknown	01112-2	720.850,547	6.571.488,804	29,940				18.10.1990	18.10.1990	0,0	90,0	0,0					
		EST			unknown	01121	716.785,421	6.570.272,156	31,550				18.05.1989	18.05.1989	0,0	90,0	0,0					
		EST			unknown	01187	712.332,398	6.572.934,333	33,290				06.09.1989	06.09.1989	0,0	90,0	0,0					
		EST			unknown	01188	712.376,492	6.572.911,680	33,350				24.08.1989	24.08.1989	0,0	90,0	0,0					
		EST			unknown	01189	712.420,481	6.572.891,355	33,460				19.08.1989	19.08.1989	0,0	90,0	0,0					
		EST			unknown	01190	712.468,006	6.572.870,537	33,620				05.09.1989	05.09.1989	0,0	90,0	0,0					
		EST			unknown	01191	712.514,367	6.572.852,240	33,560				04.09.1989	04.09.1989	0,0	90,0	0,0					
		EST			unknown	01193	712.608,889	6.572.818,138	33,580				07.09.1989	07.09.1989	0,0	90,0	0,0					
		EST			unknown	01194	712.656,116	6.572.800,851	33,550				08.09.1989	08.09.1989	0,0	90,0	0,0					
		EST			unknown	01196	712.936,472	6.572.689,303	32,950				06.09.1989	06.09.1989	0,0	90,0	0,0					
		EST			unknown	01206	716.449,657	6.570.255,079	32,280				08.09.1989	08.09.1989	0,0	90,0	0,0					
		EST			unknown	01210	718.885,817	6.570.411,353	31,330				19.09.1989	19.09.1989	0,0	90,0	0,0					
		EST			unknown	01214	718.740,191	6.570.393,214	30,870				19.09.1989	19.09.1989	0,0	90,0	0,0					
		EST			unknown	01225	711.856,655	6.572.775,149	34,050				23.09.1989	23.09.1989	0,0	90,0	0,0					
		EST			unknown	01237	711.859,247	6.572.725,217	33,990				08.10.1989	08.10.1989	0,0	90,0	0,0					
		EST			unknown	01242	710.443,312	6.573.032,002	35,960				01.03.1990	01.03.1990	0,0	90,0	0,0					
		EST			unknown	01243	710.477,203	6.573.008,733	36,100				02.03.1990	02.03.1990	0,0	90,0	0,0					
		EST			unknown	01244	710.292,955	6.573.946,679	33,320				02.03.1990	02.03.1990	0,0	90,0	0,0					
		EST			unknown	01273	713.505,780	6.572.155,878	30,270				20.05.1990	20.05.1990	0,0	90,0	0,0					
		EST			unknown	01279	711.852,237	6.572.526,645	33,650				22.11.1990	22.11.1990	0,0	90,0	0,0					
		EST			unknown	01280	711.864,271	6.572.470,139	33,570				22.01.1991	22.01.1991	0,0	90,0	0,0					
		EST			unknown	2393	712.261,163	6.573.931,799	31,900				22.05.1953	22.05.1953	0,0	90,0	0,0					
		EST			unknown	2396	714.106,316	6.571.956,143	30,000				23.05.1953	23.05.1953	0,0	90,0	0,0					
		EST			unknown	2407	720.494,004	6.570.372,573	29,600				16.05.1953	16.05.1953	0,0	90,0	0,0					
		EST			unknown	2408	720.121,826	6.572.070,729	28,800				15.05.1953	15.05.1953	0,0	90,0	0,0					
		EST			unknown	2445	703.672,052	6.581.433,028	44,930				27.10.1953	27.10.1953	0,0	90,0	0,0					
		EST			unknown	2457	703.692,558	6.580.944,930	45,320				03.11.1953	03.11.1953	0,0	90,0	0,0					

Datasets: 644

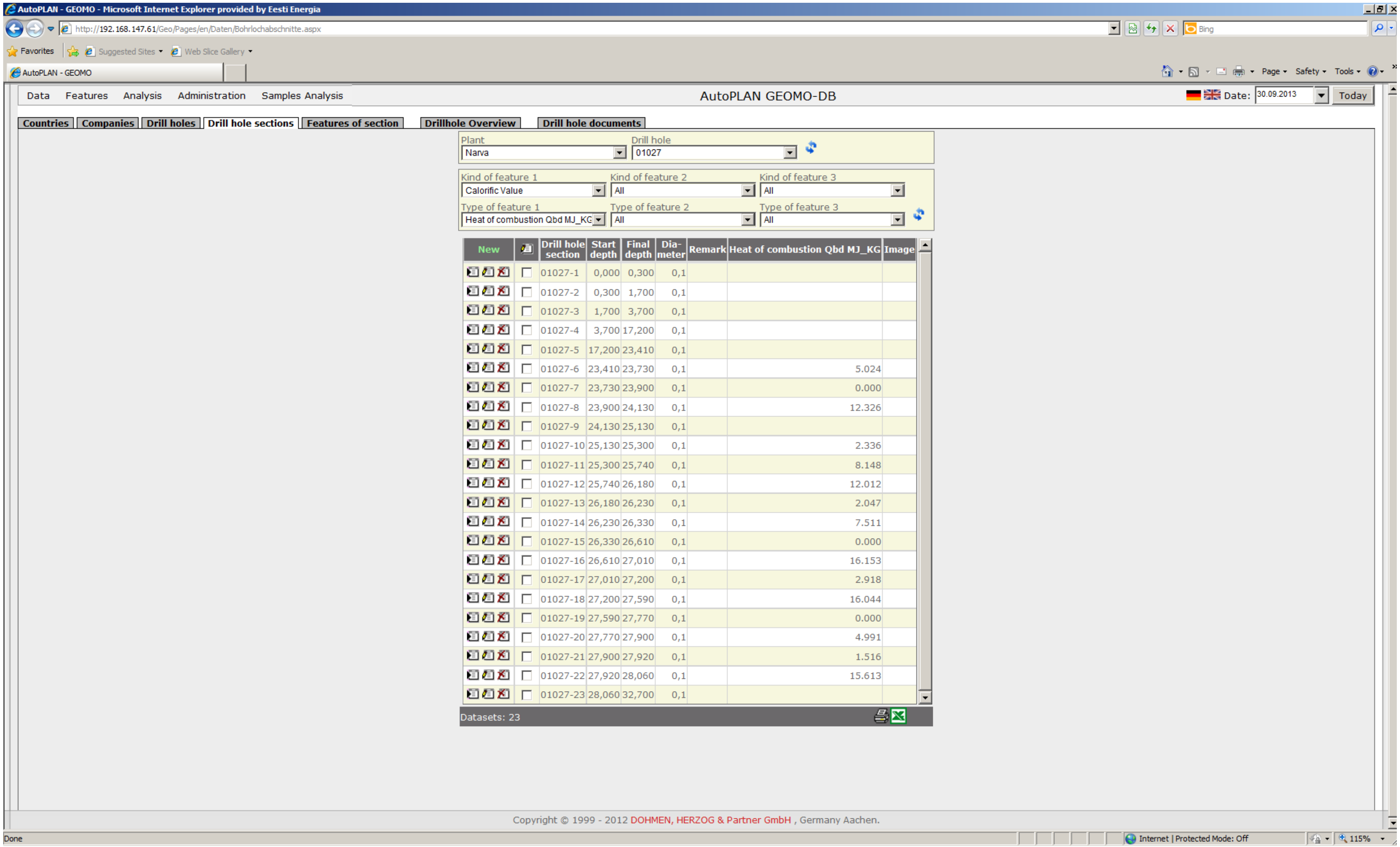
Internet | Protected Mode: Off 115%

Eesti Energia

Andmesüsteemi ülesehitus



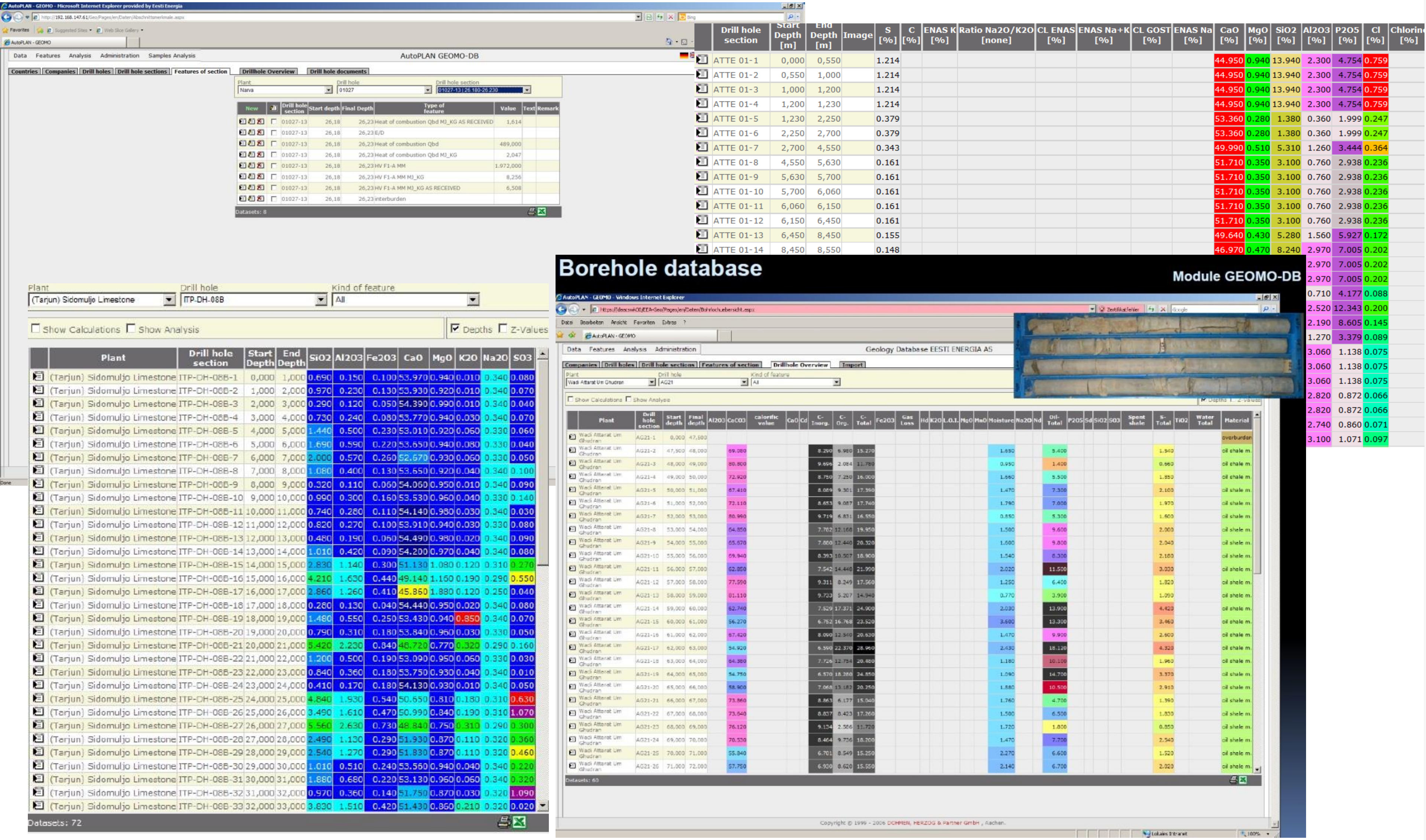
Andmesüsteemi ülesehitus



New		Drill hole section	Start depth	Final depth	Dia-meter	Remark	Heat of combustion Qbd MJ_KG	Image
		01027-1	0,000	0,300	0,1			
		01027-2	0,300	1,700	0,1			
		01027-3	1,700	3,700	0,1			
		01027-4	3,700	17,200	0,1			
		01027-5	17,200	23,410	0,1			
		01027-6	23,410	23,730	0,1		5.024	
		01027-7	23,730	23,900	0,1		0.000	
		01027-8	23,900	24,130	0,1		12.326	
		01027-9	24,130	25,130	0,1			
		01027-10	25,130	25,300	0,1		2.336	
		01027-11	25,300	25,740	0,1		8.148	
		01027-12	25,740	26,180	0,1		12.012	
		01027-13	26,180	26,230	0,1		2.047	
		01027-14	26,230	26,330	0,1		7.511	
		01027-15	26,330	26,610	0,1		0.000	
		01027-16	26,610	27,010	0,1		16.153	
		01027-17	27,010	27,200	0,1		2.918	
		01027-18	27,200	27,590	0,1		16.044	
		01027-19	27,590	27,770	0,1		0.000	
		01027-20	27,770	27,900	0,1		4.991	
		01027-21	27,900	27,920	0,1		1.516	
		01027-22	27,920	28,060	0,1		15.613	
		01027-23	28,060	32,700	0,1			

Datasets: 23

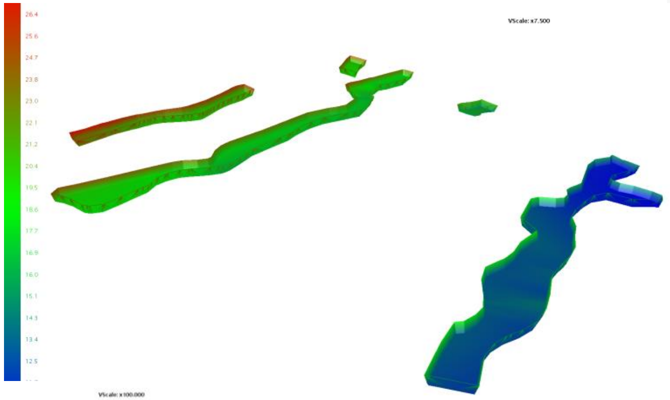
Andmete töötlemine ja valideerimine

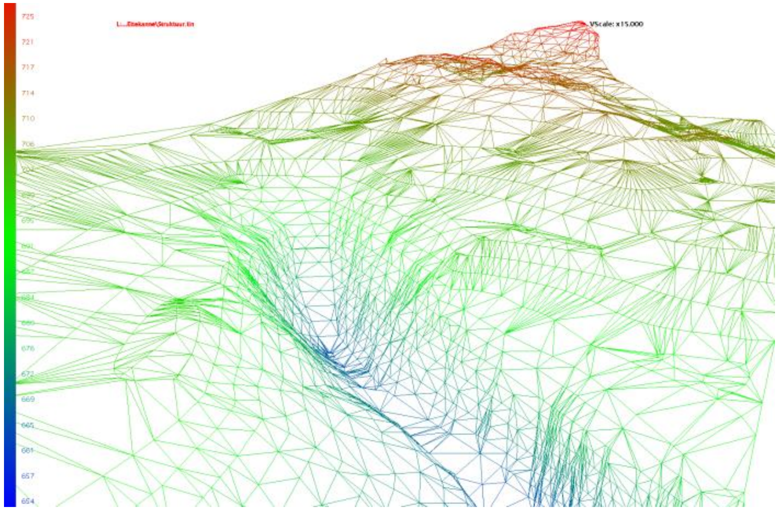


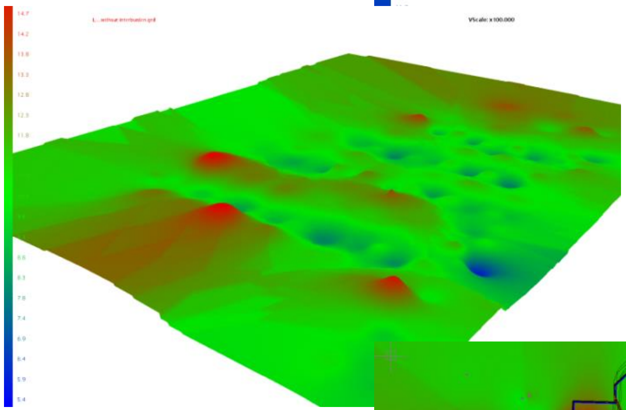
Eesti Energia

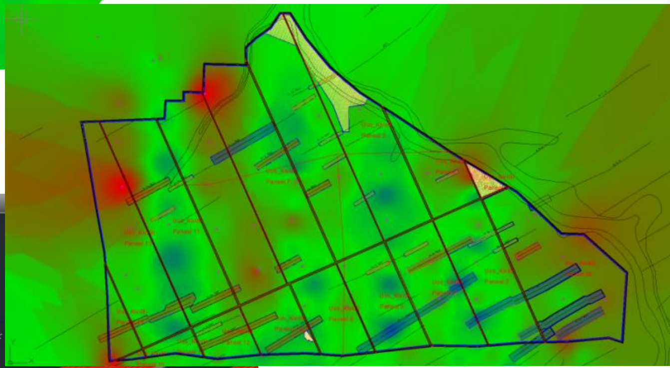
Andmete töötlemine ja valideerimine:

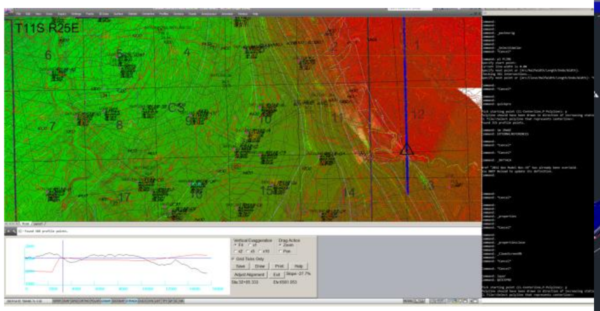
- Struktuursed rikked ja anomaaliad
- Erinevused kasutatud standardites
- Inimlikud eksimused

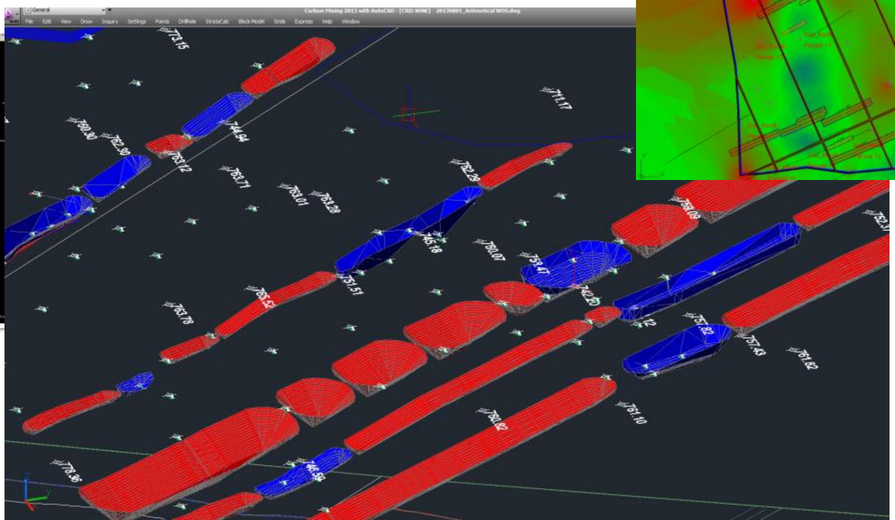






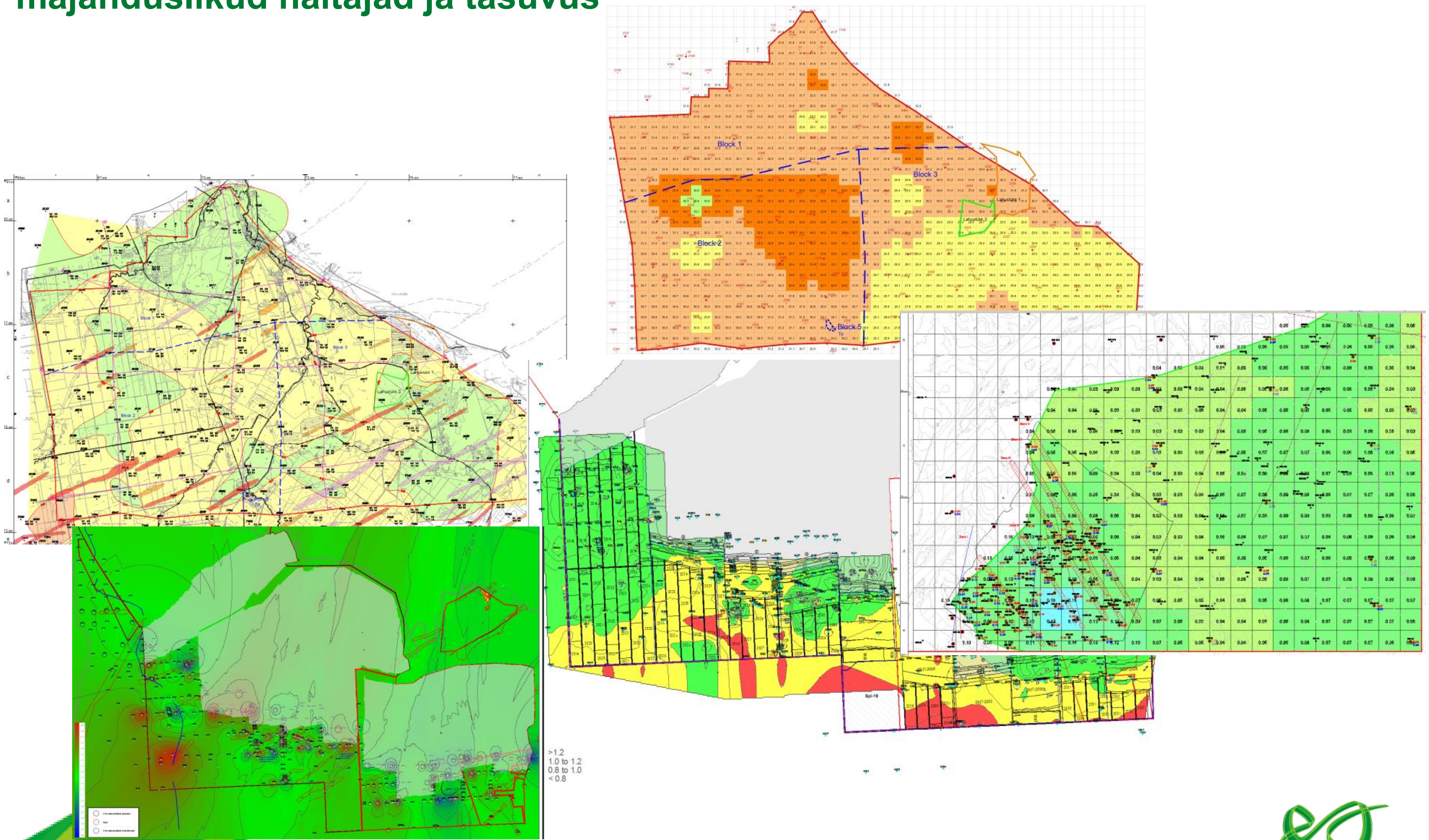






Eesti Energia

Geoloogilised väljavõtted:
***leiukoha stratigraafia (pinnad, paksused, katenditegurid jpm)**
***maht, tonnid ja kvaliteet (keemia ja mineraloogia)**
***majanduslikud näitajad ja tasuvus**

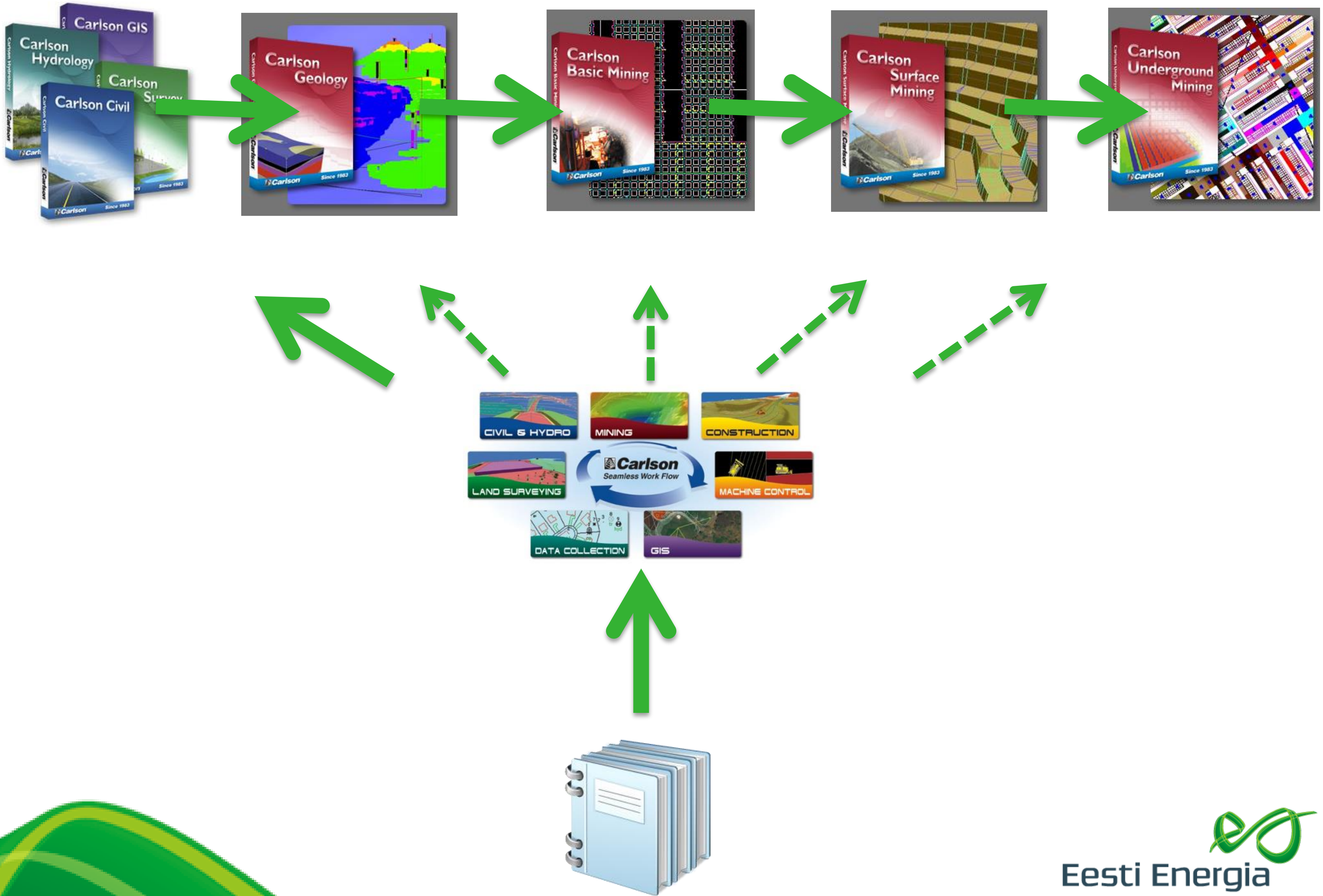


Eesti Energia

Keskne server

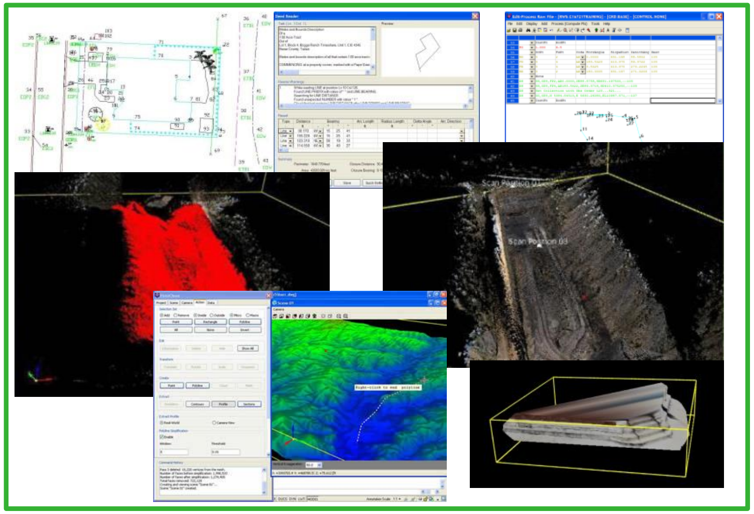
Digitaalne geoloogia andmebaas

Eesti Energia

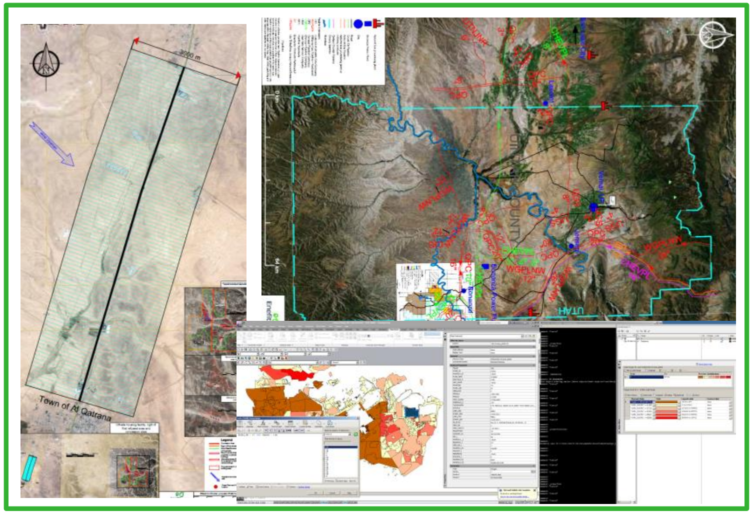


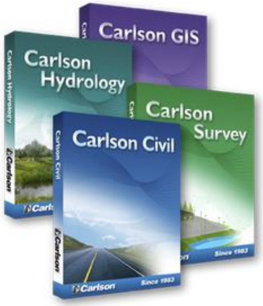
Eesti Energia

Geodeesia

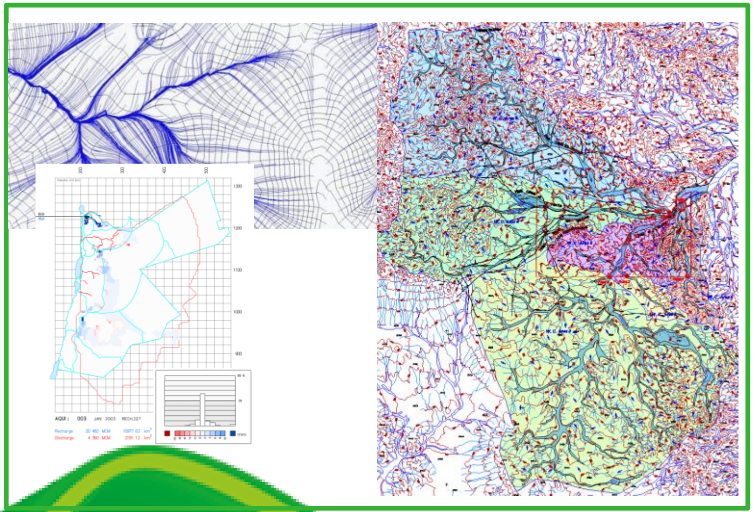


Geoinfosüsteemid

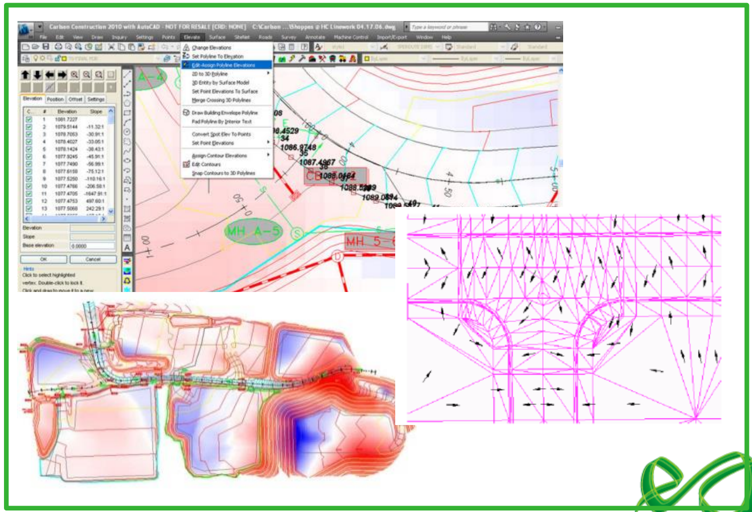




Hüdroloogia

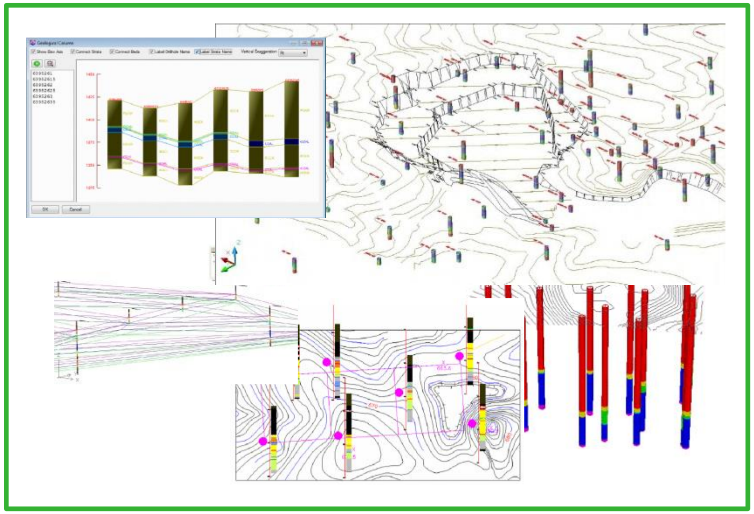


Tsiviilehitus

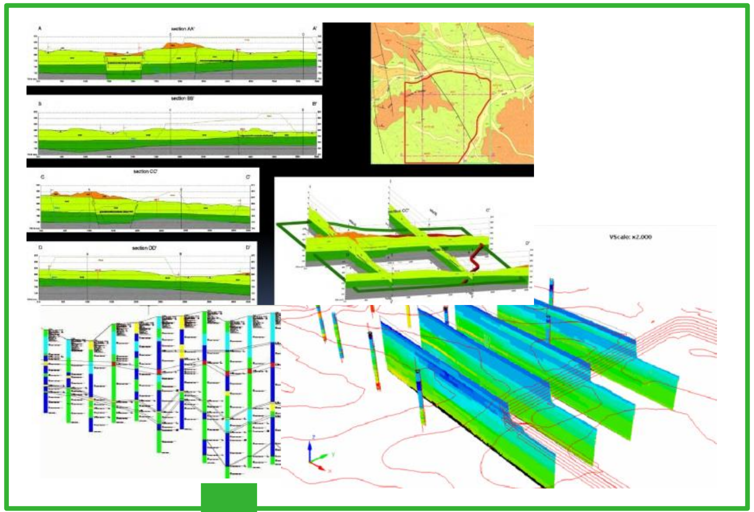


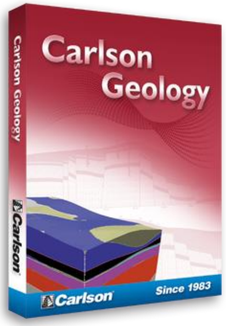
Eesti Energia

Puuraugud

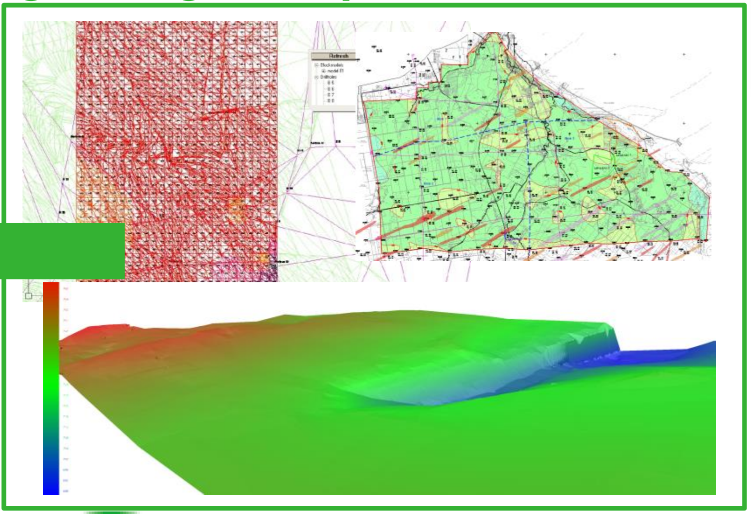


Geoloogilised läbilõiked

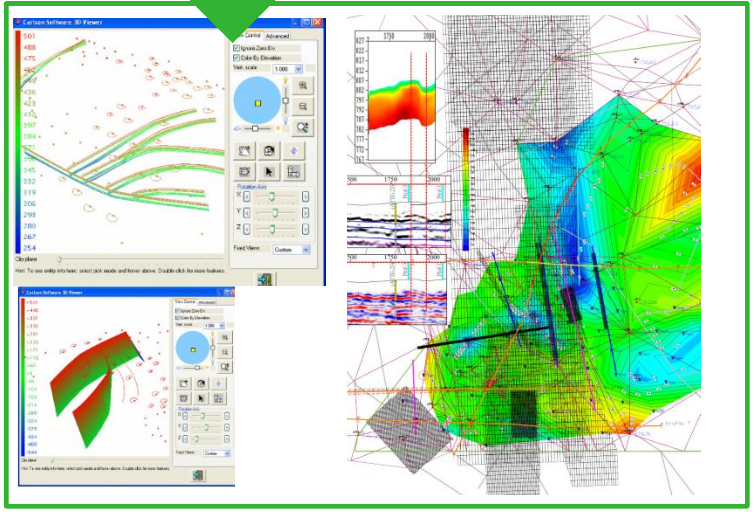




Geoloogiline modelleerimine/ geoloogilised pinnad

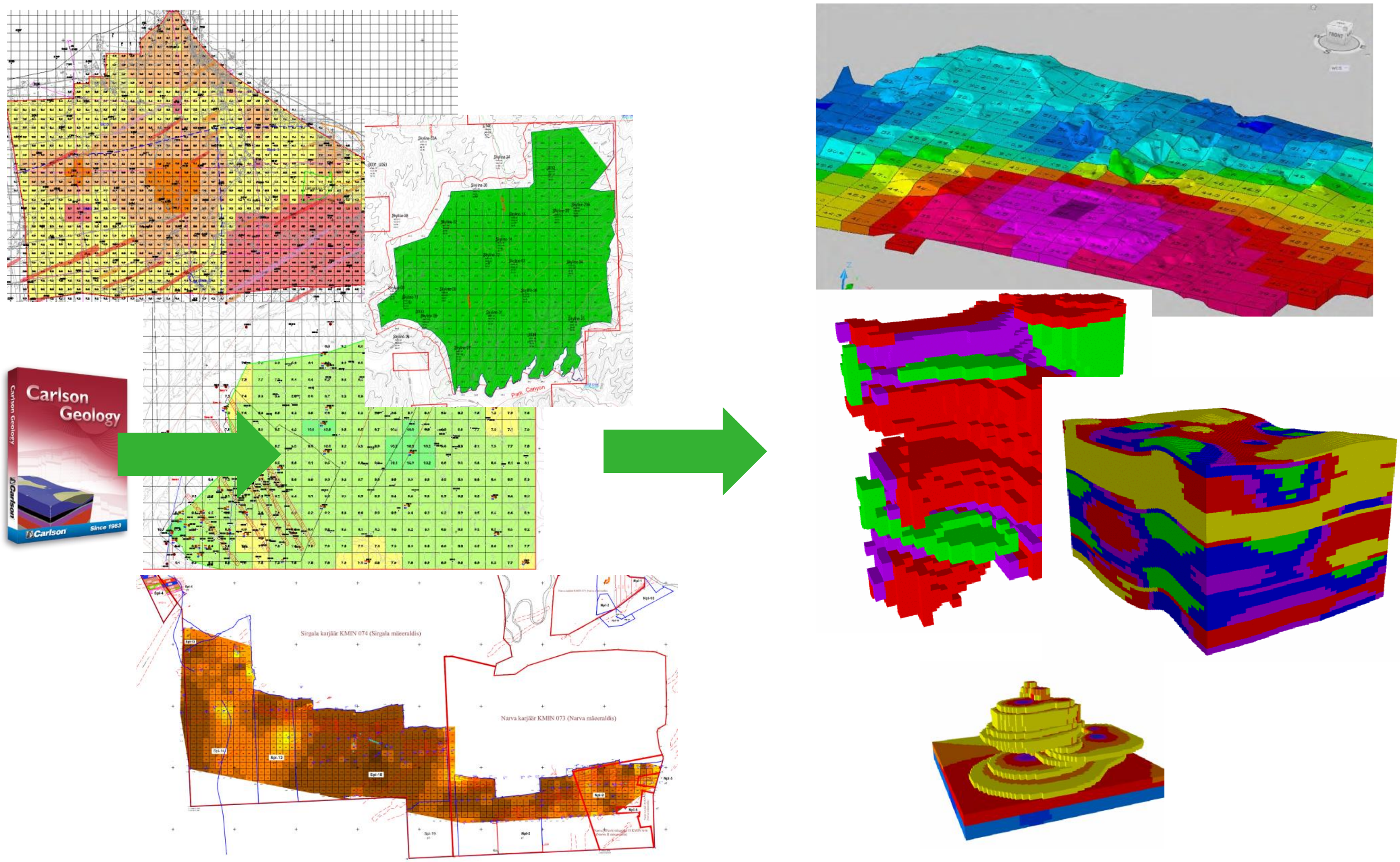


Struktuursed rikked



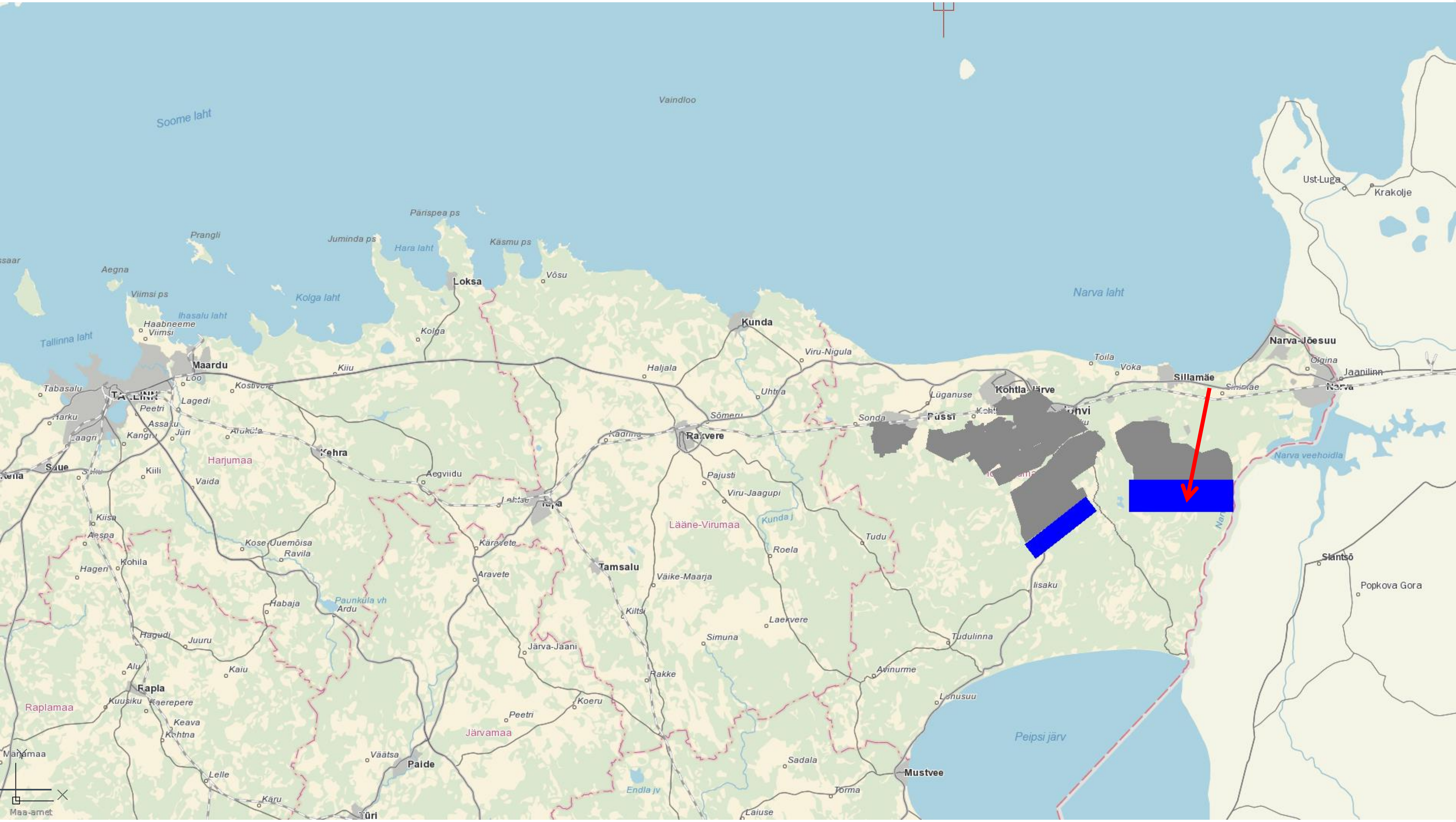
Eesti Energia

Geoloogiline modelleerimine



Eesti Energia

Põlevkivi



Eesti Energia

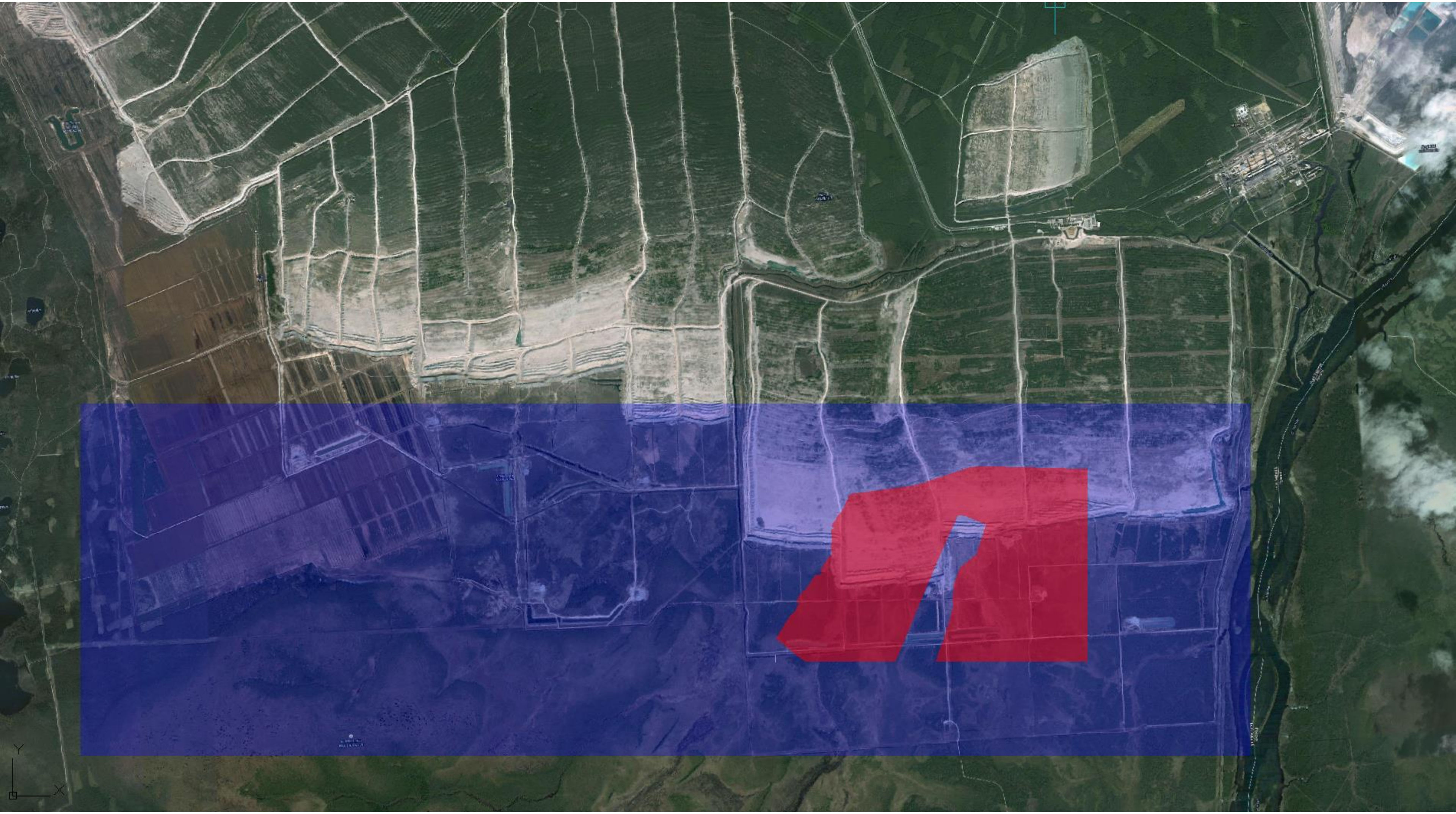
Carlson Basic mining, Surface ja Underground

Eesti Energia

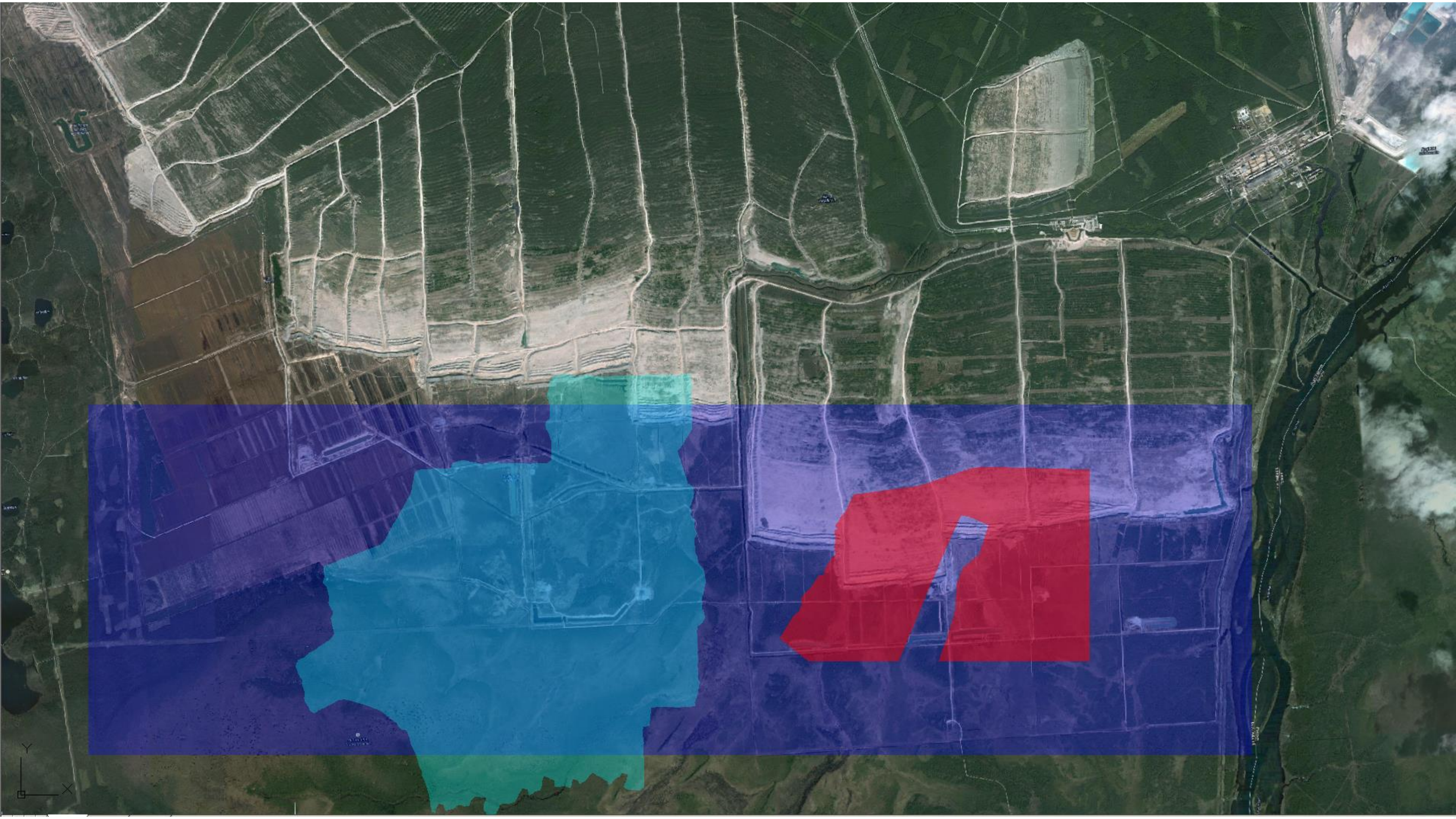
Carlson Basic mining, Surface ja Underground

Eesti Energia

Carlson Basic mining, Surface ja Underground

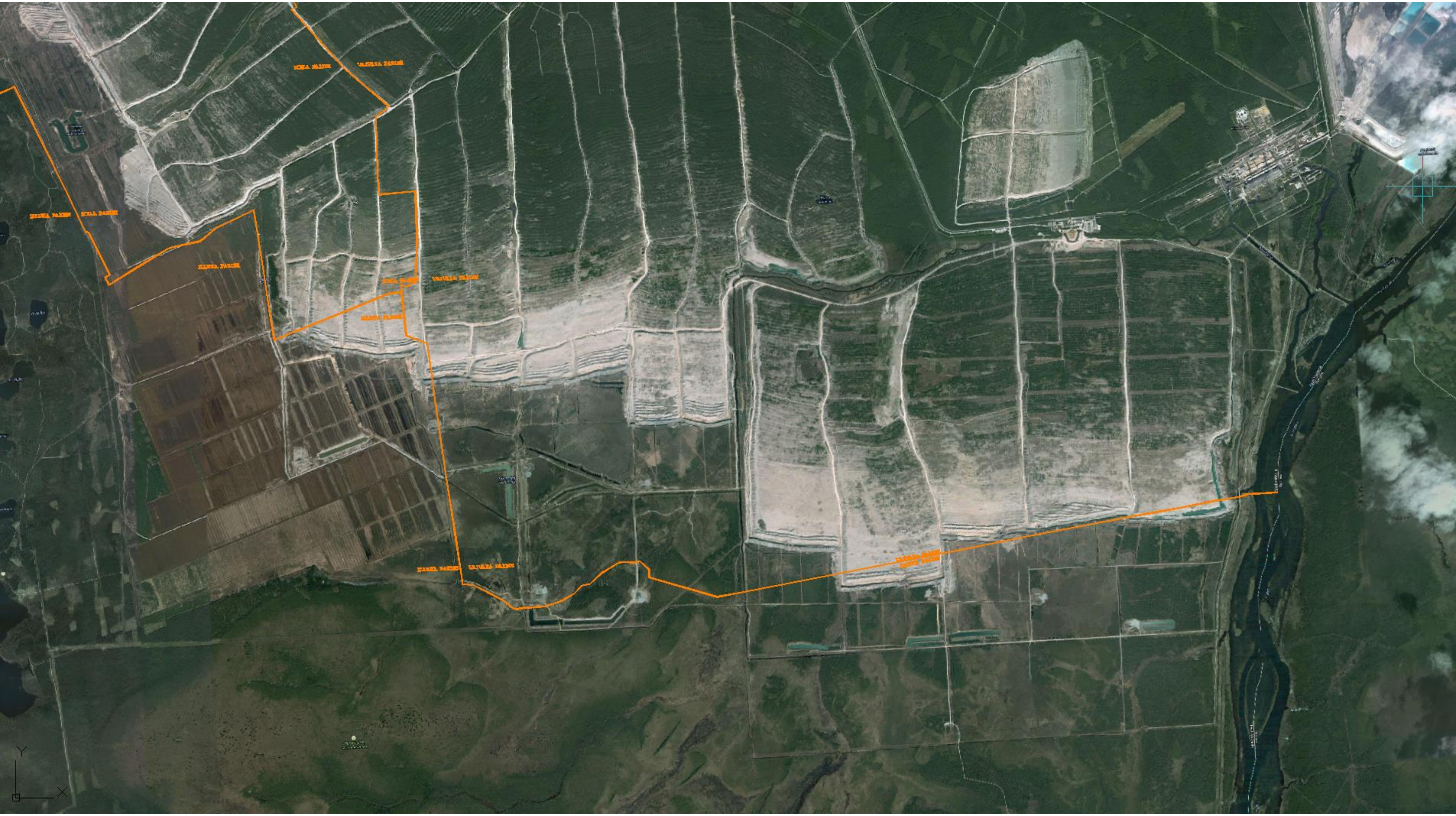


Carlson Basic mining, Surface ja Underground

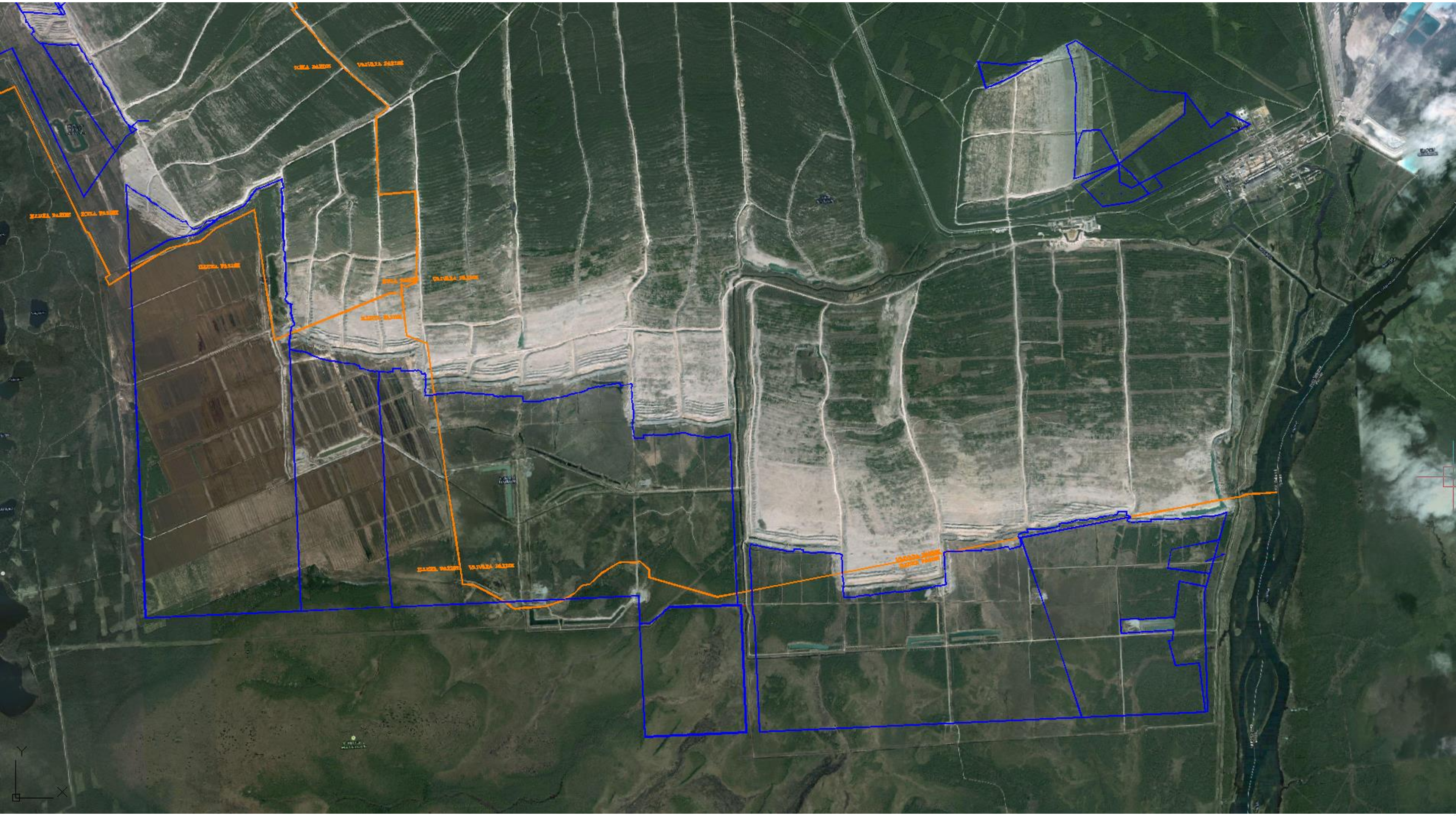


Eesti Energia

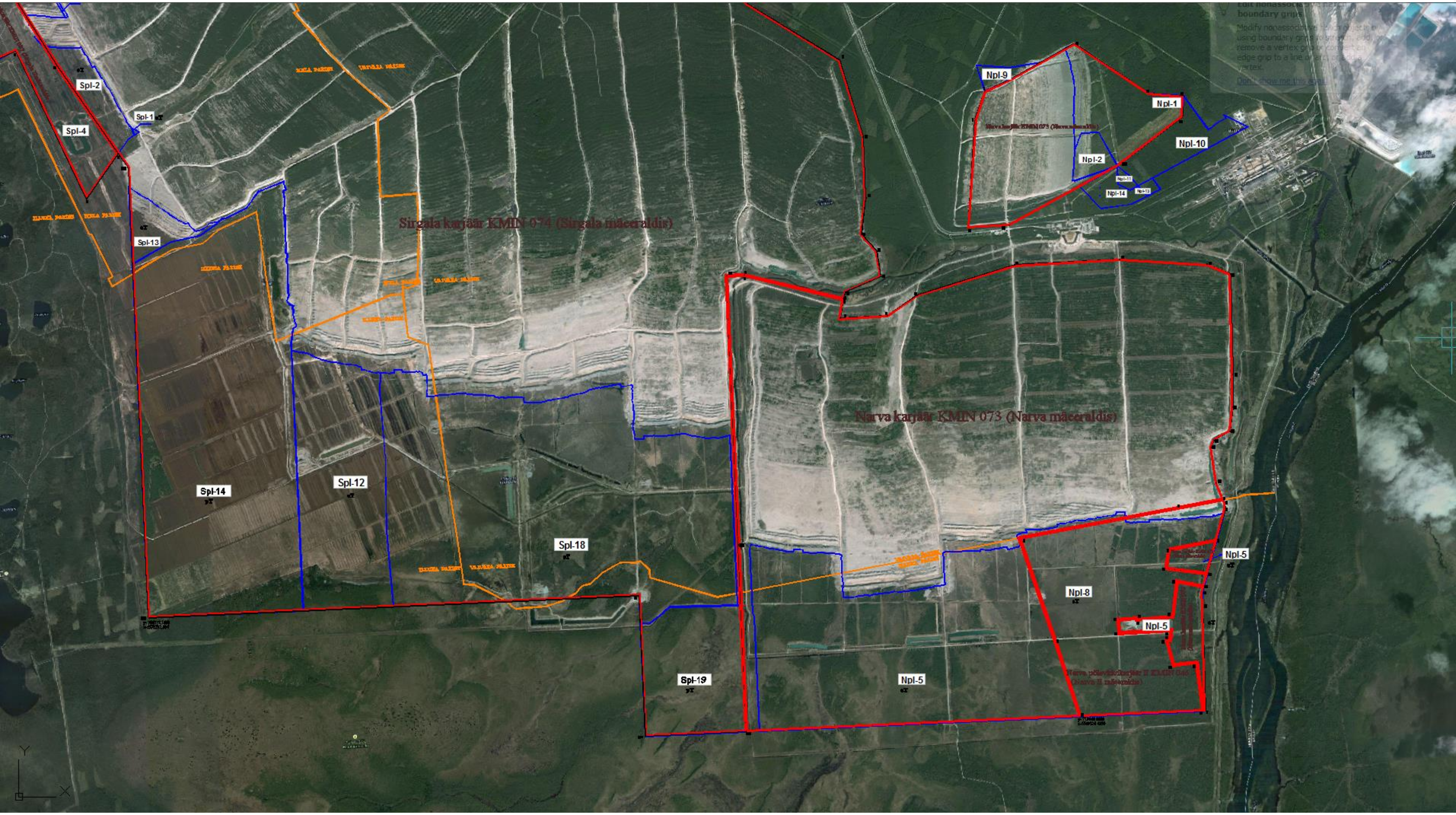
Carlson Basic mining, Surface ja Underground



Carlson Basic mining, Surface ja Underground

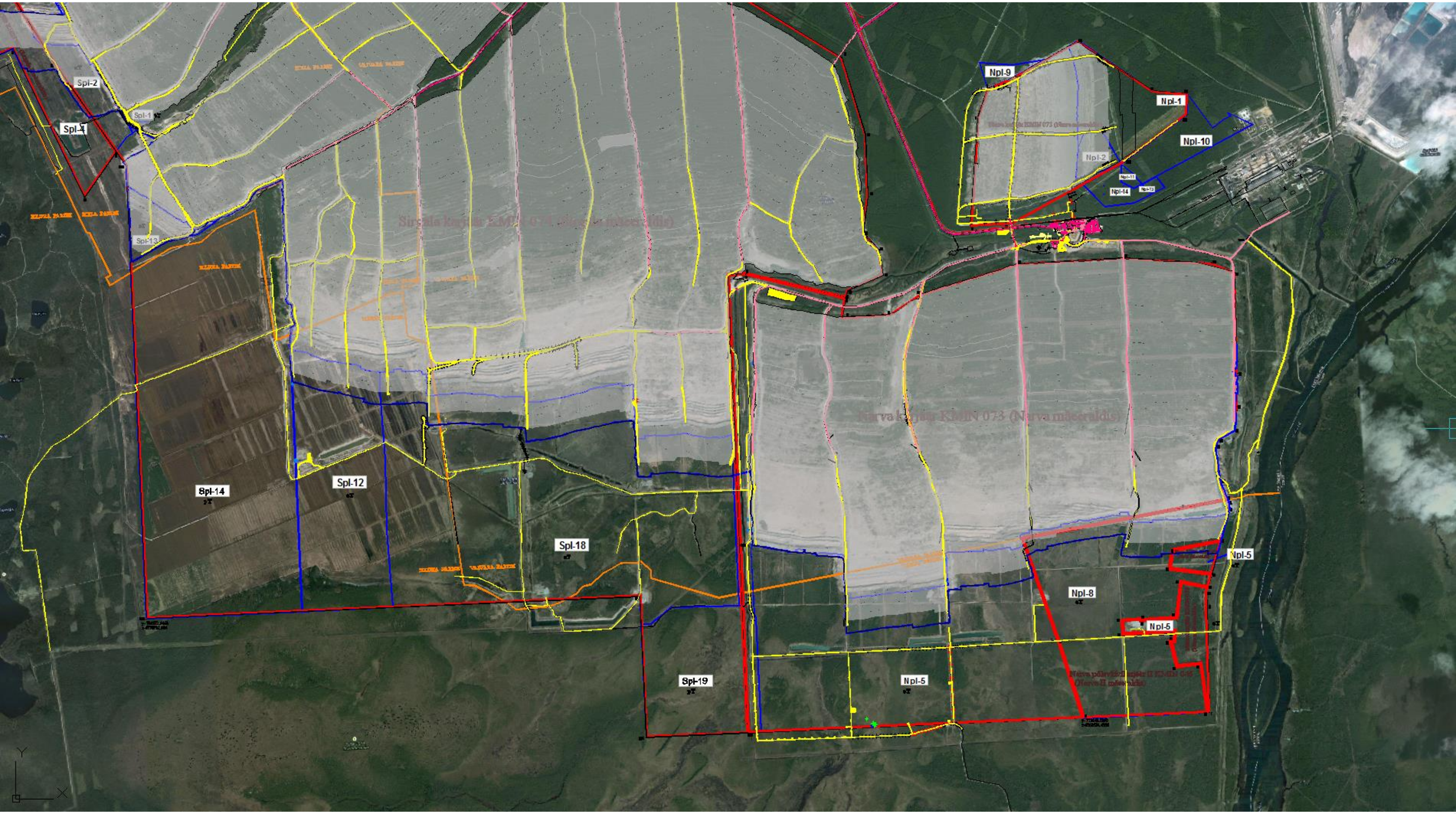


Carlson Basic mining, Surface ja Underground



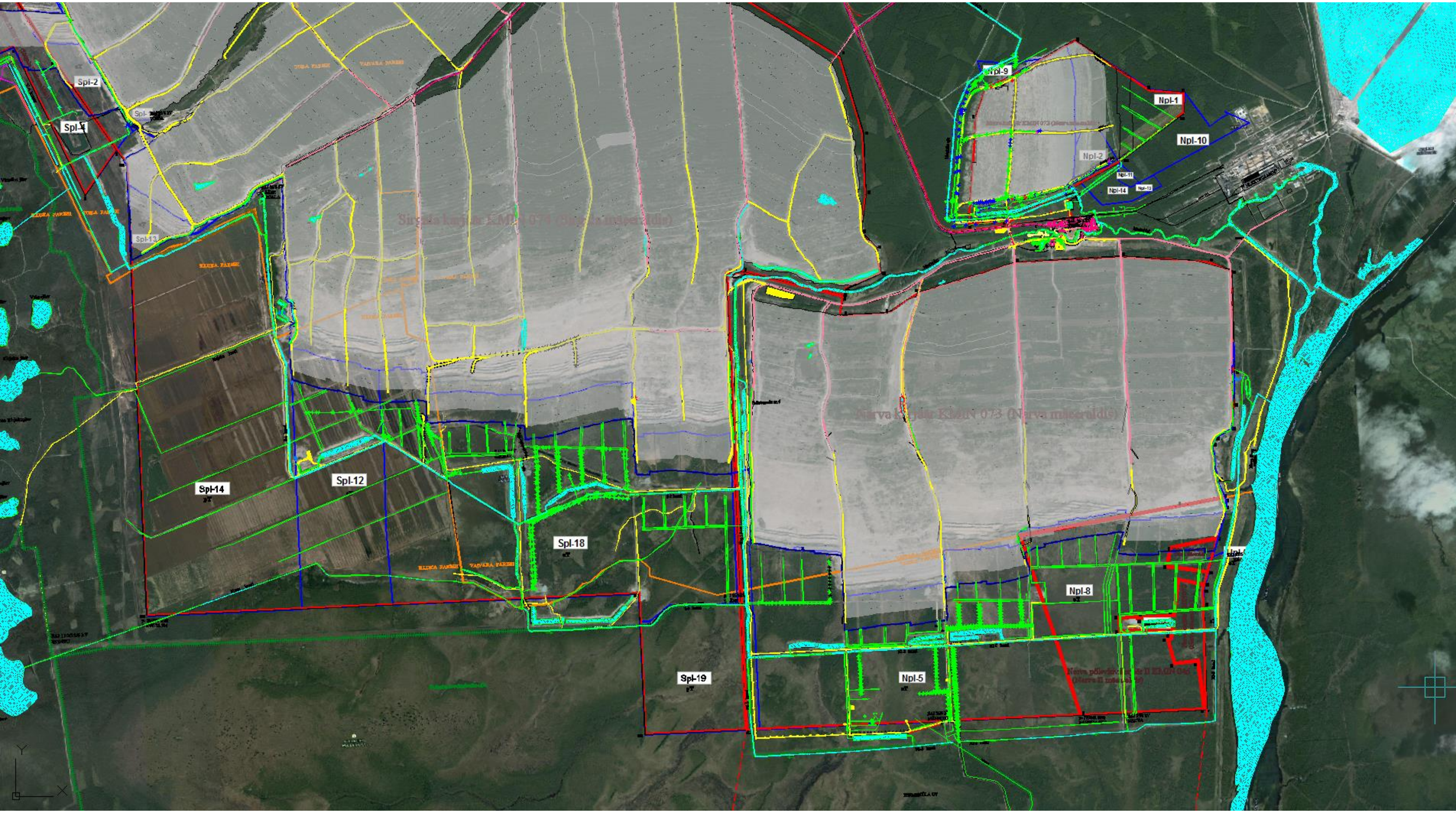
Eesti Energia

Carlson Basic mining, Surface ja Underground



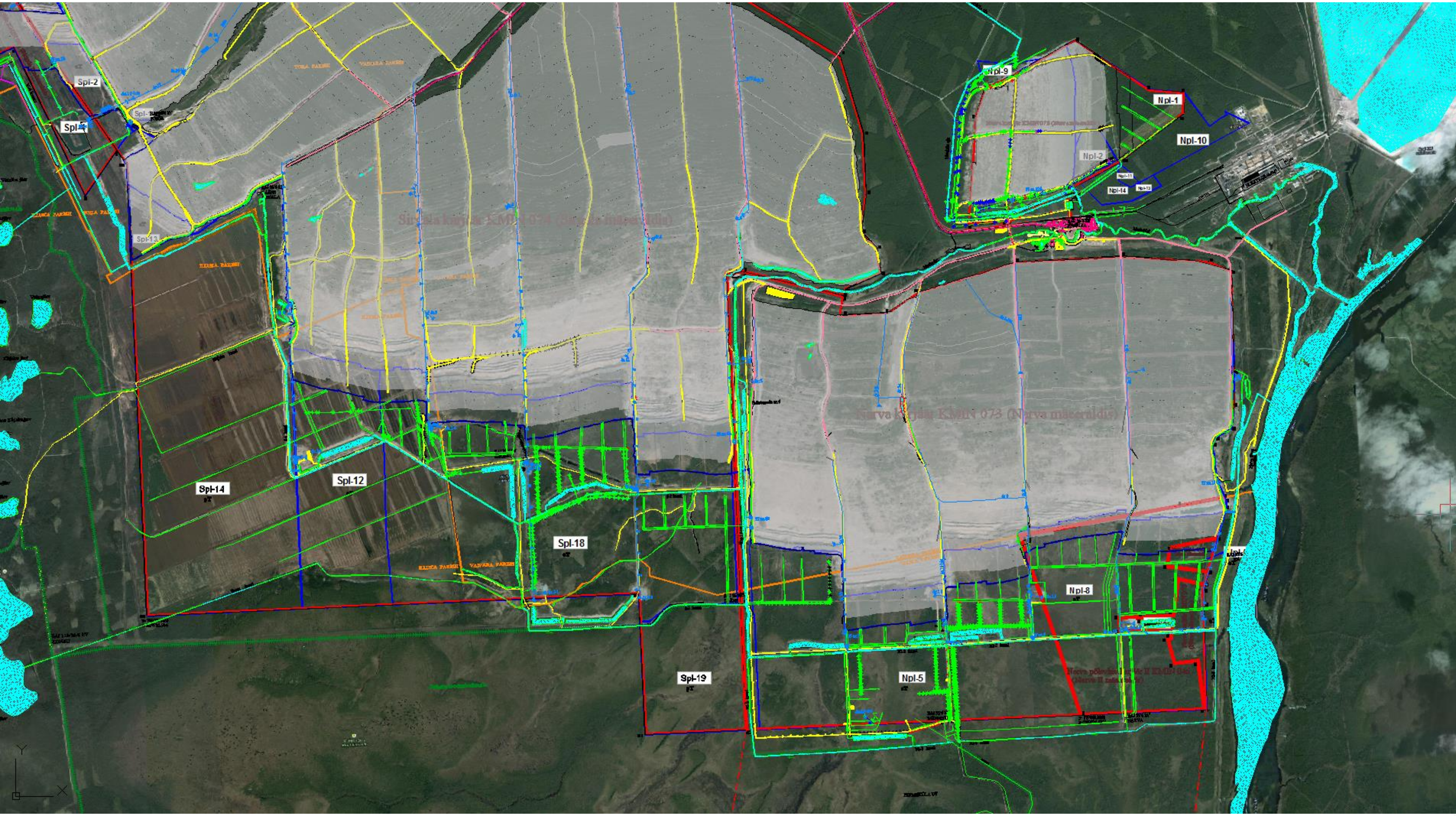
Eesti Energia

Carlson Basic mining, Surface ja Underground



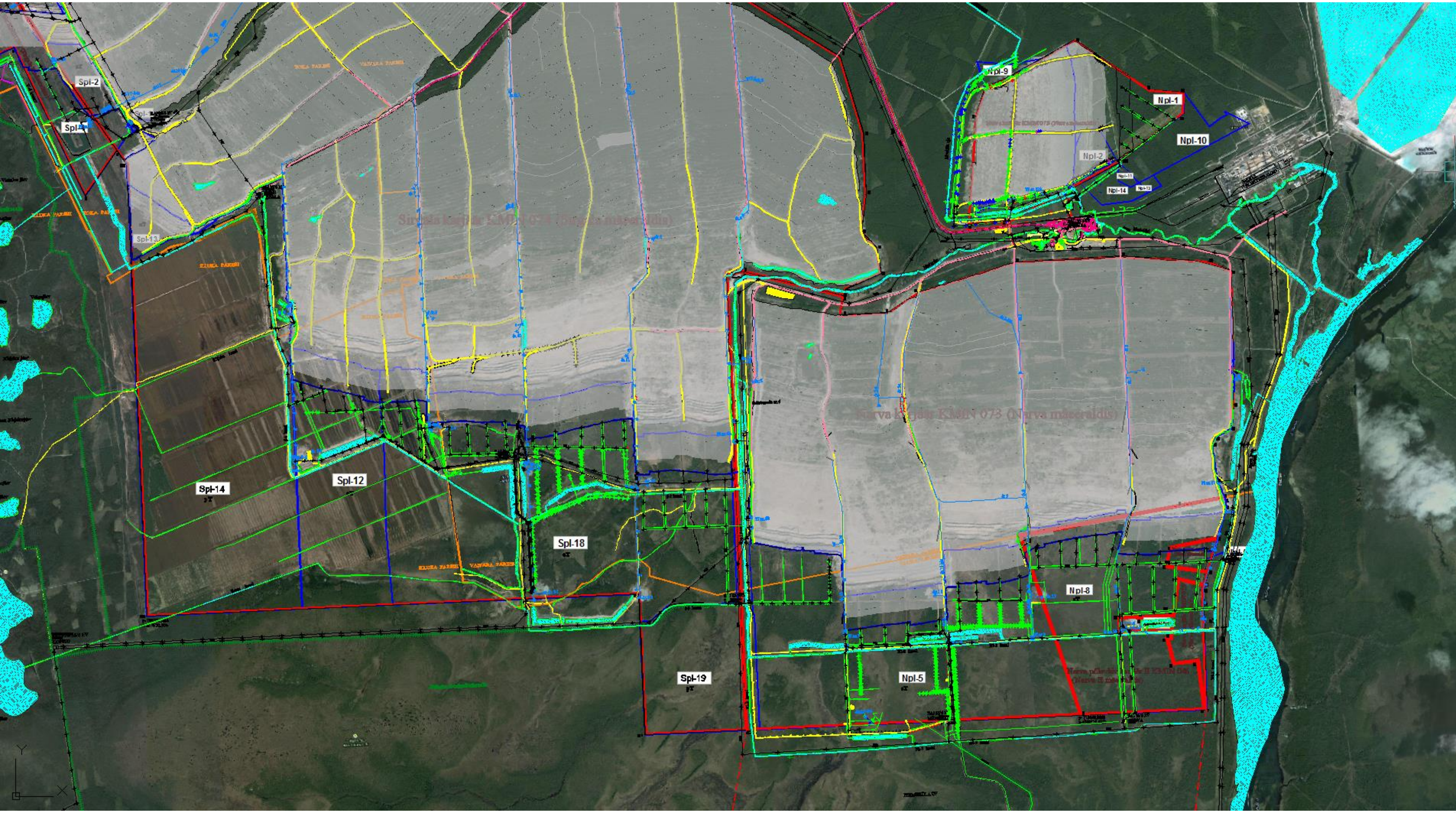
Eesti Energia

Carlson Basic mining, Surface ja Underground



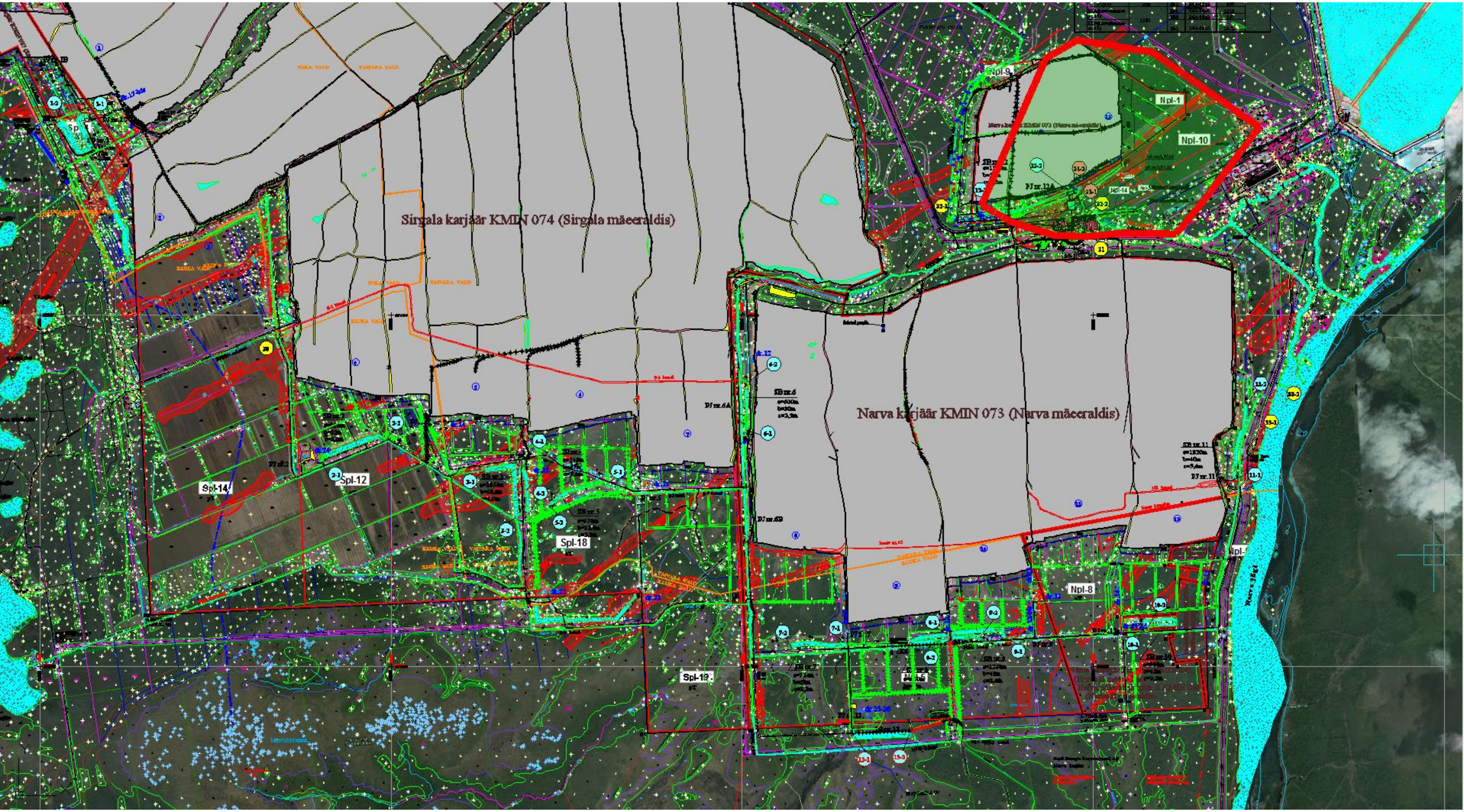
Eesti Energia

Carlson Basic mining, Surface ja Underground



Eesti Energia

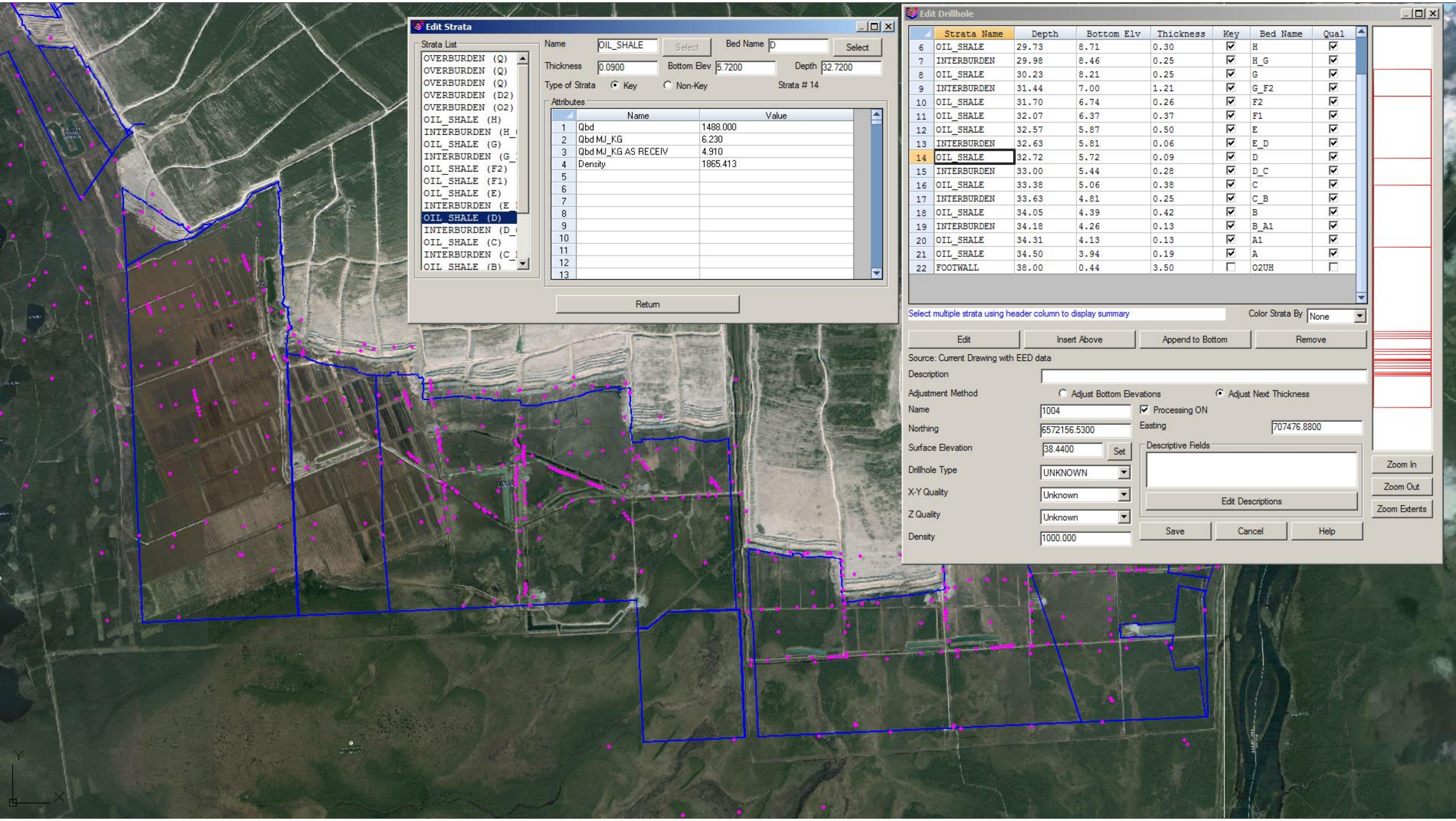
Carlson Basic mining, Surface ja Underground



Carlson Basic mining, Surface ja Underground

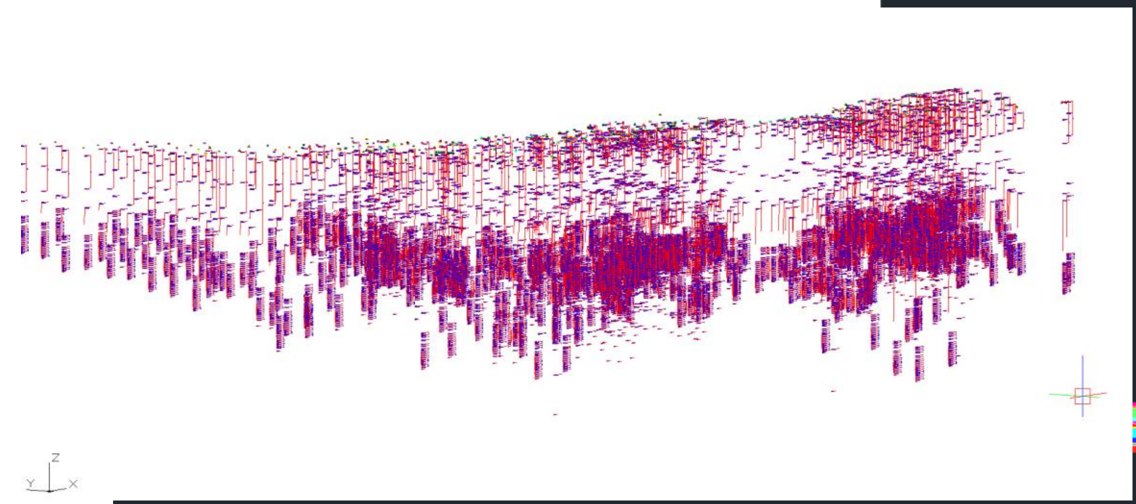
Eesti Energia

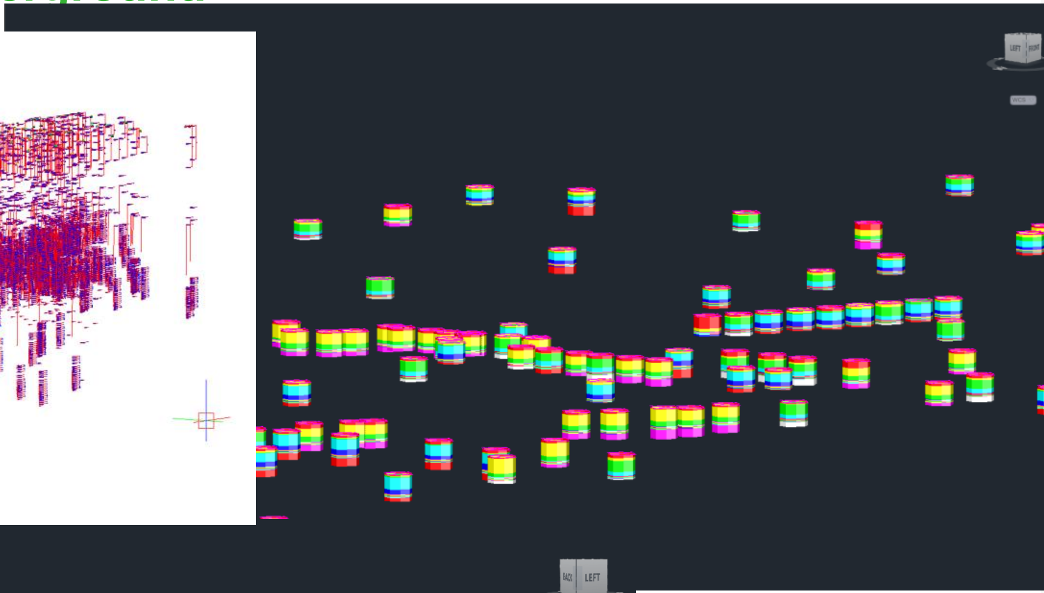
Carlson Basic mining, Surface ja Underground

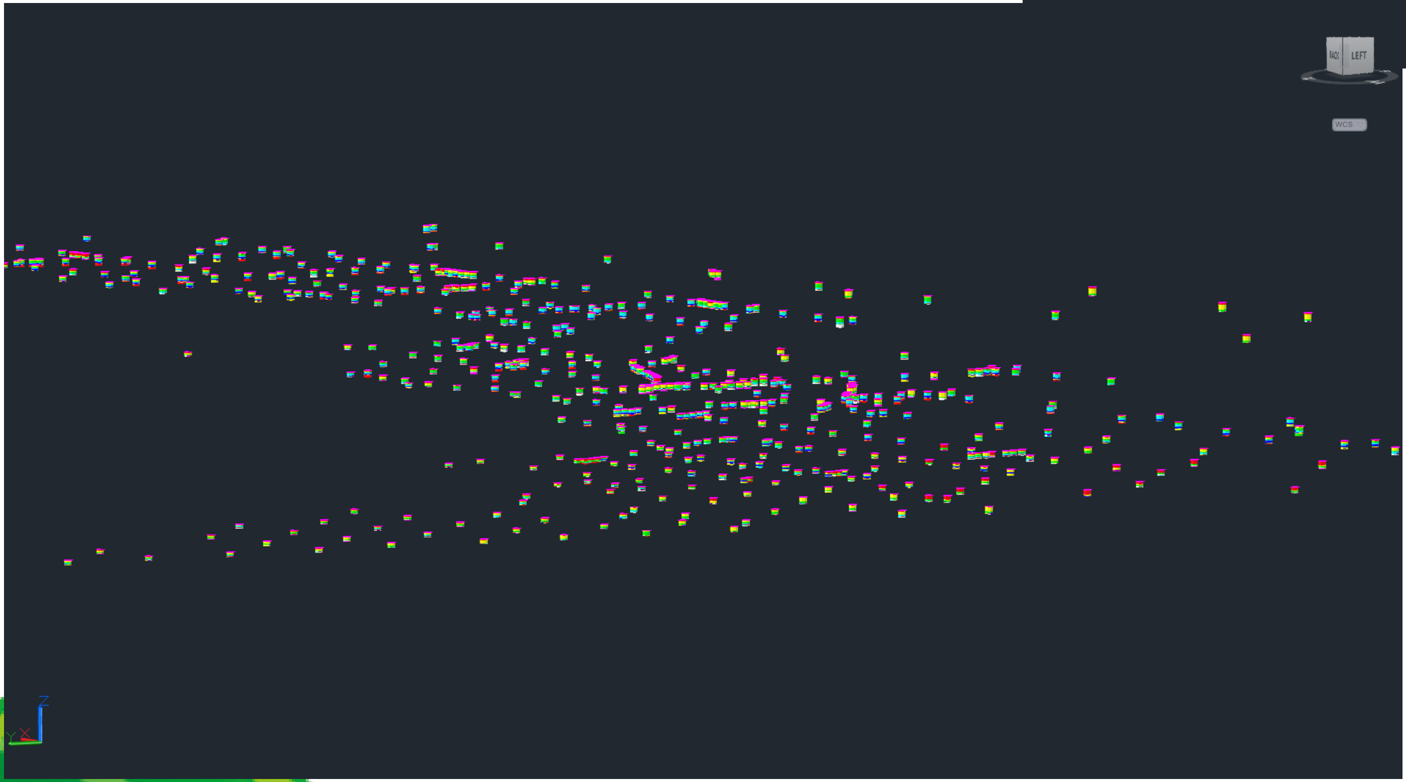


Eesti Energia

Carlson Basic mining, Surface ja Underground





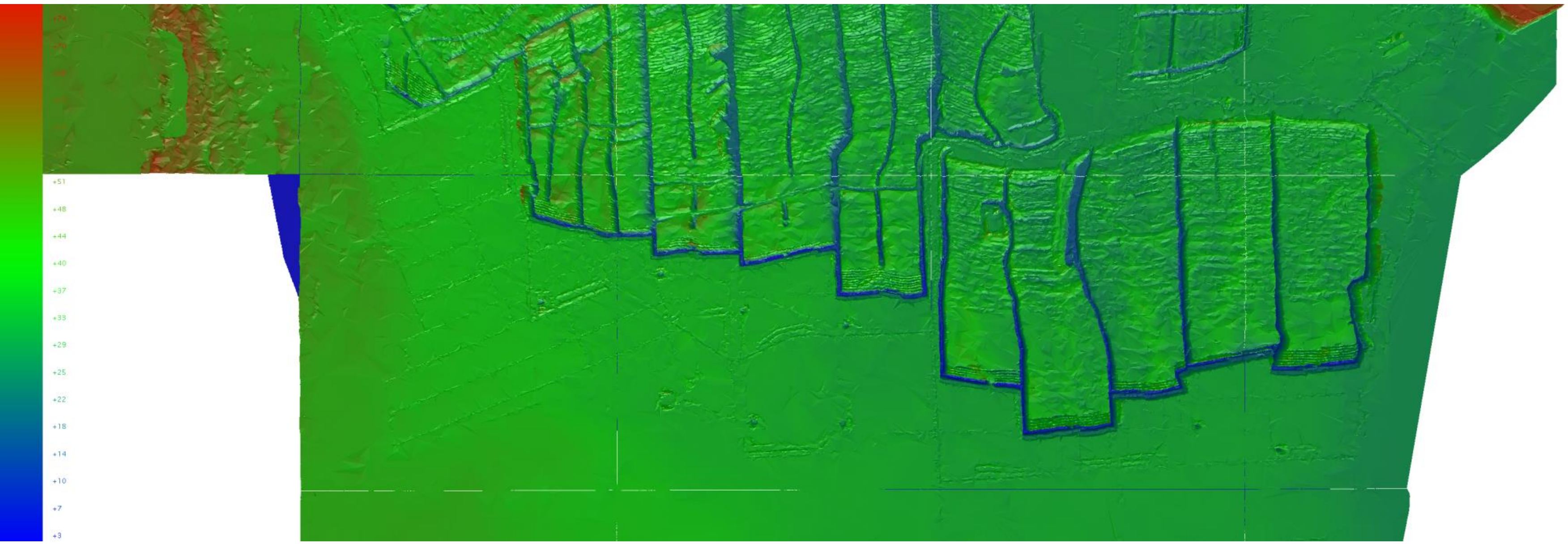


Eesti Energia

Carlson Basic mining, Surface ja Underground

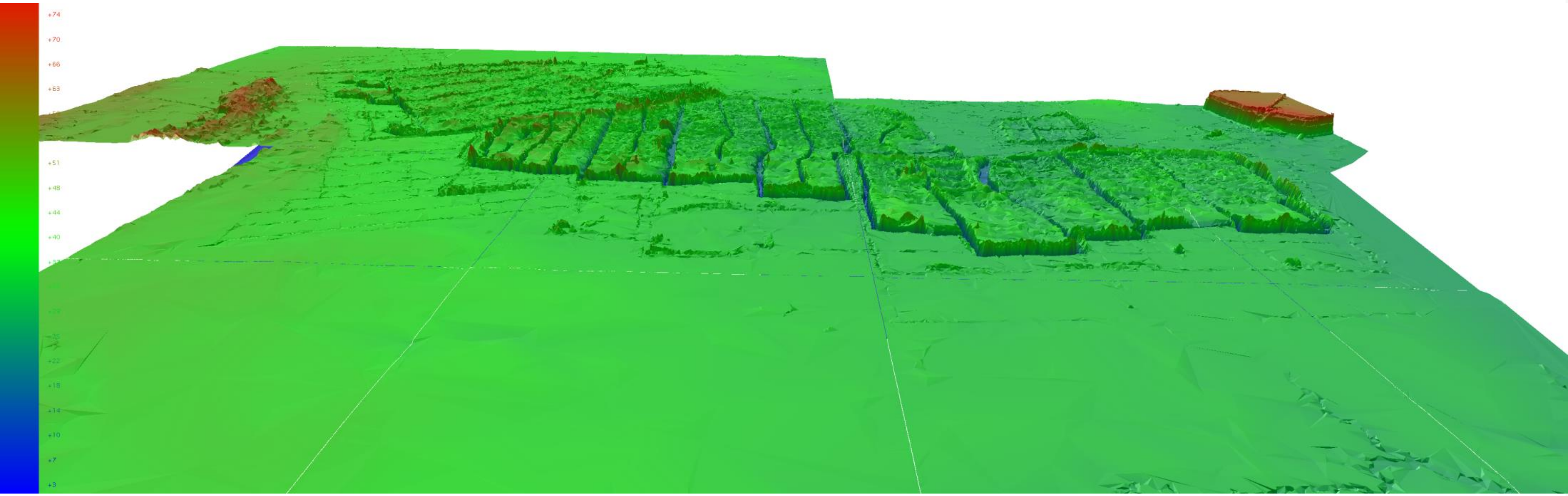
Eesti Energia

Carlson Basic mining, Surface ja Underground

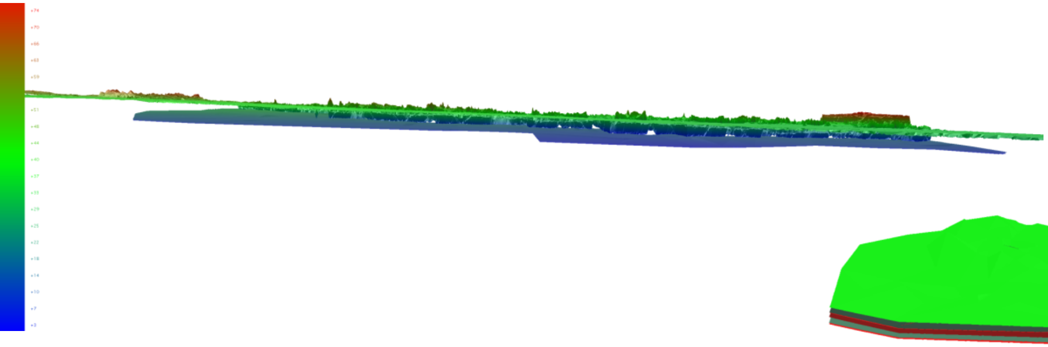


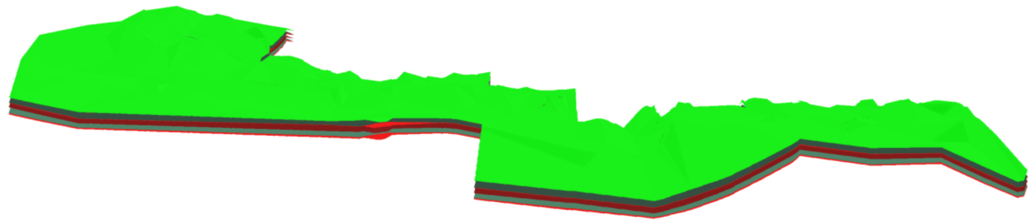
Eesti Energia

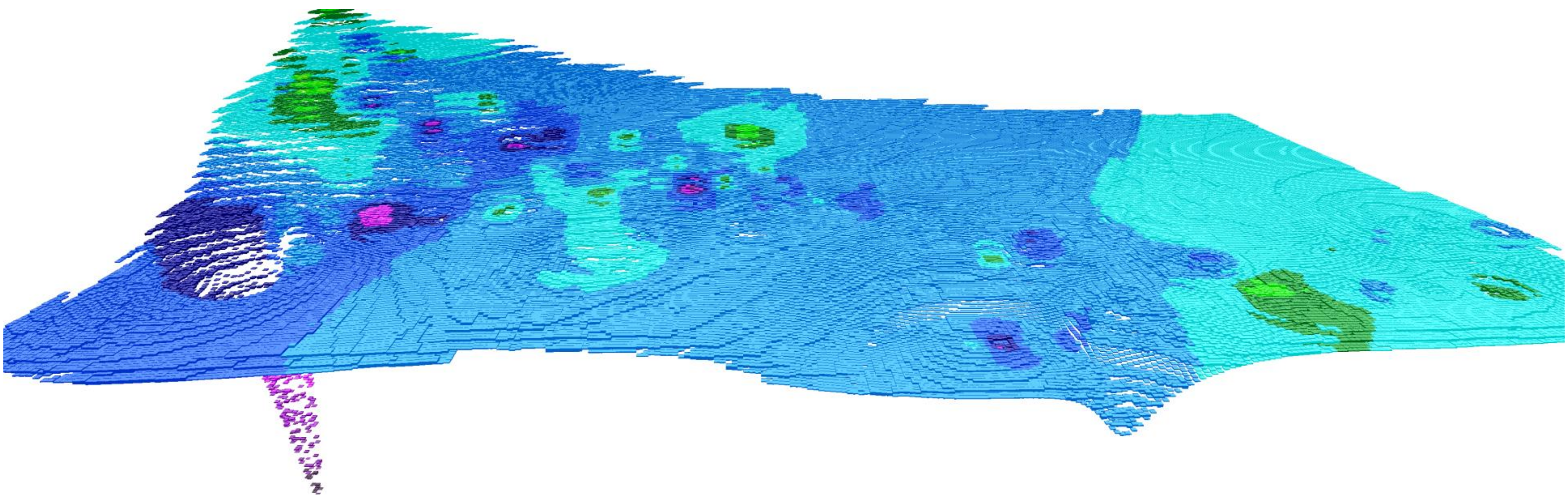
Carlson Basic mining, Surface ja Underground



Carlson Basic mining, Surface ja Underground

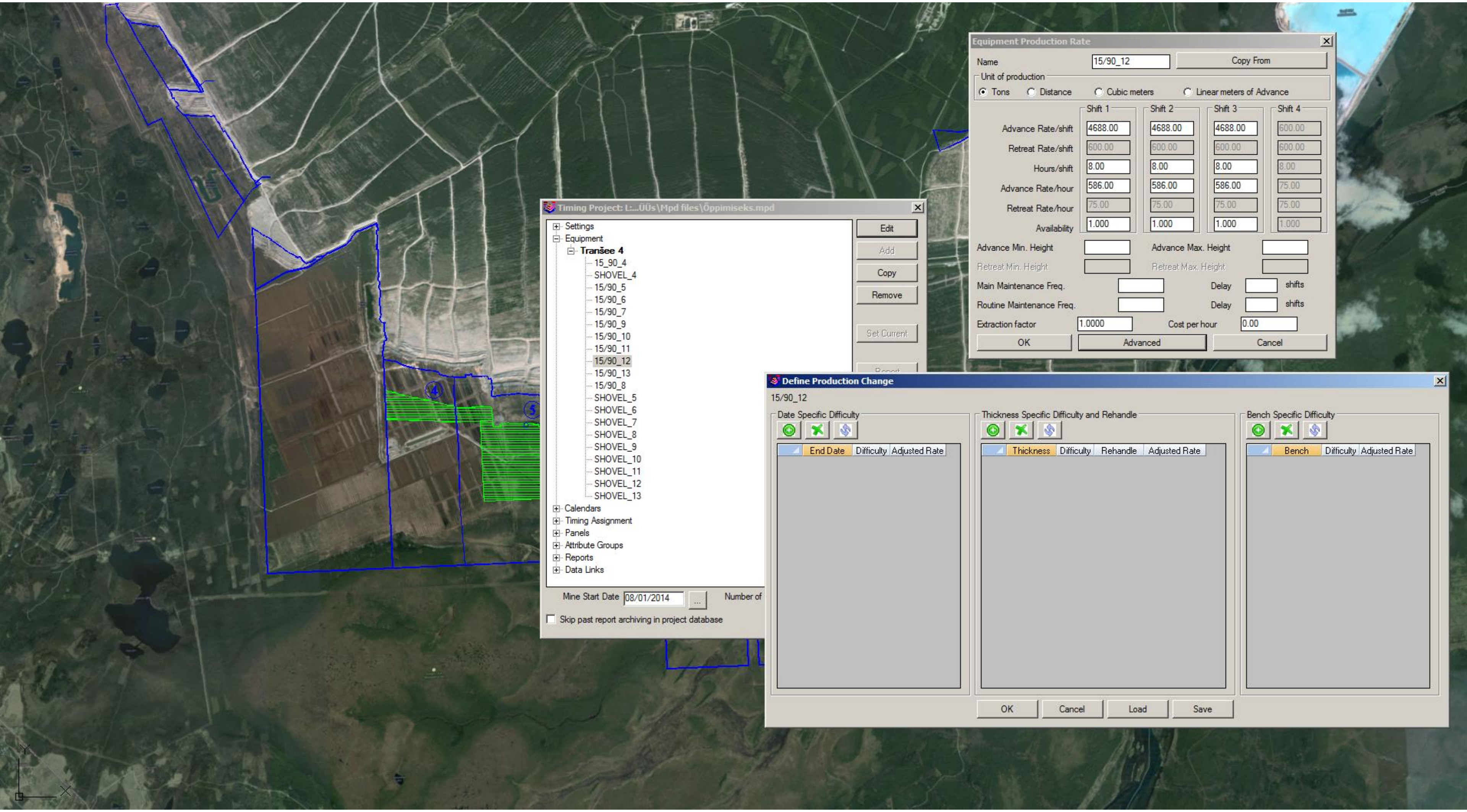






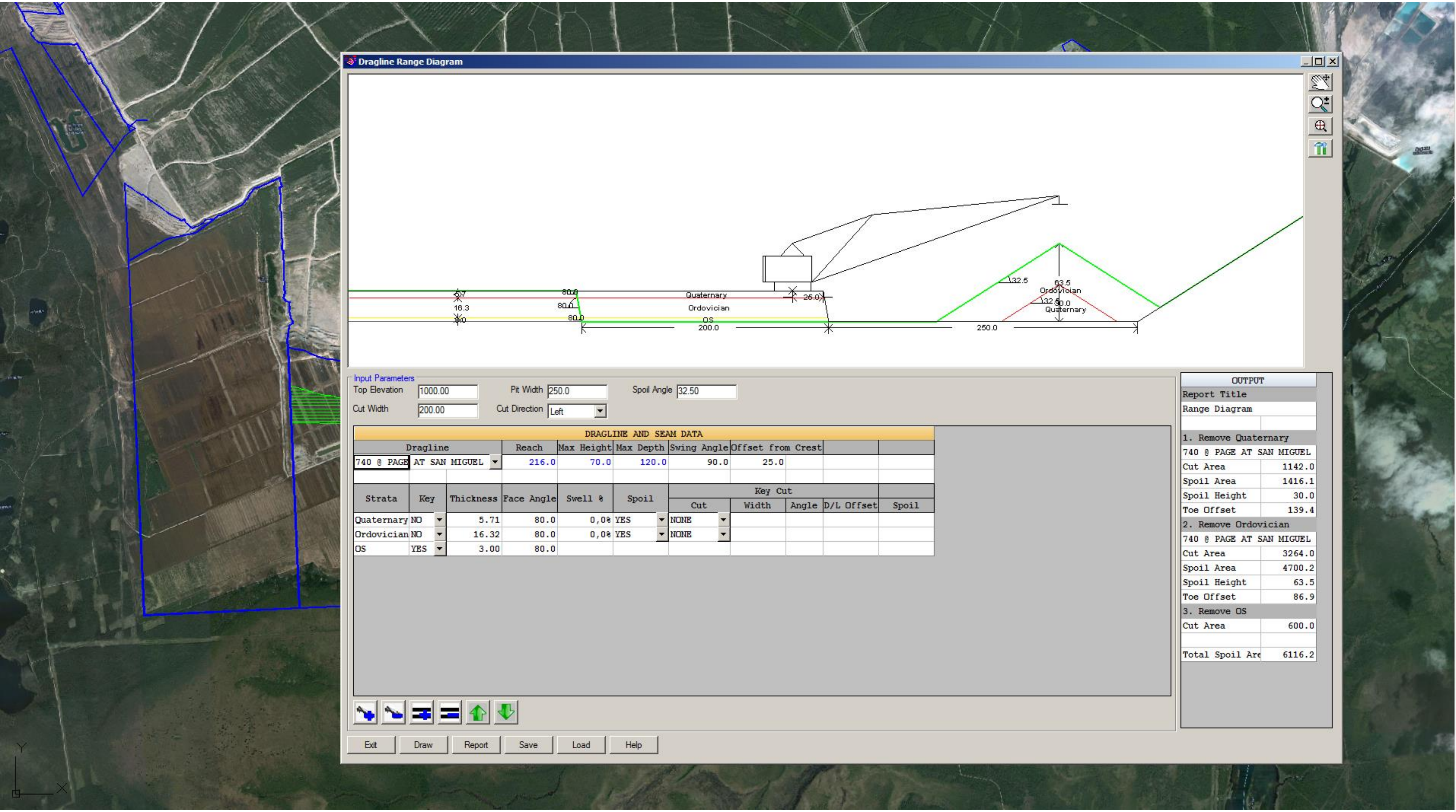
Eesti Energia

Carlson Basic mining, Surface ja Underground



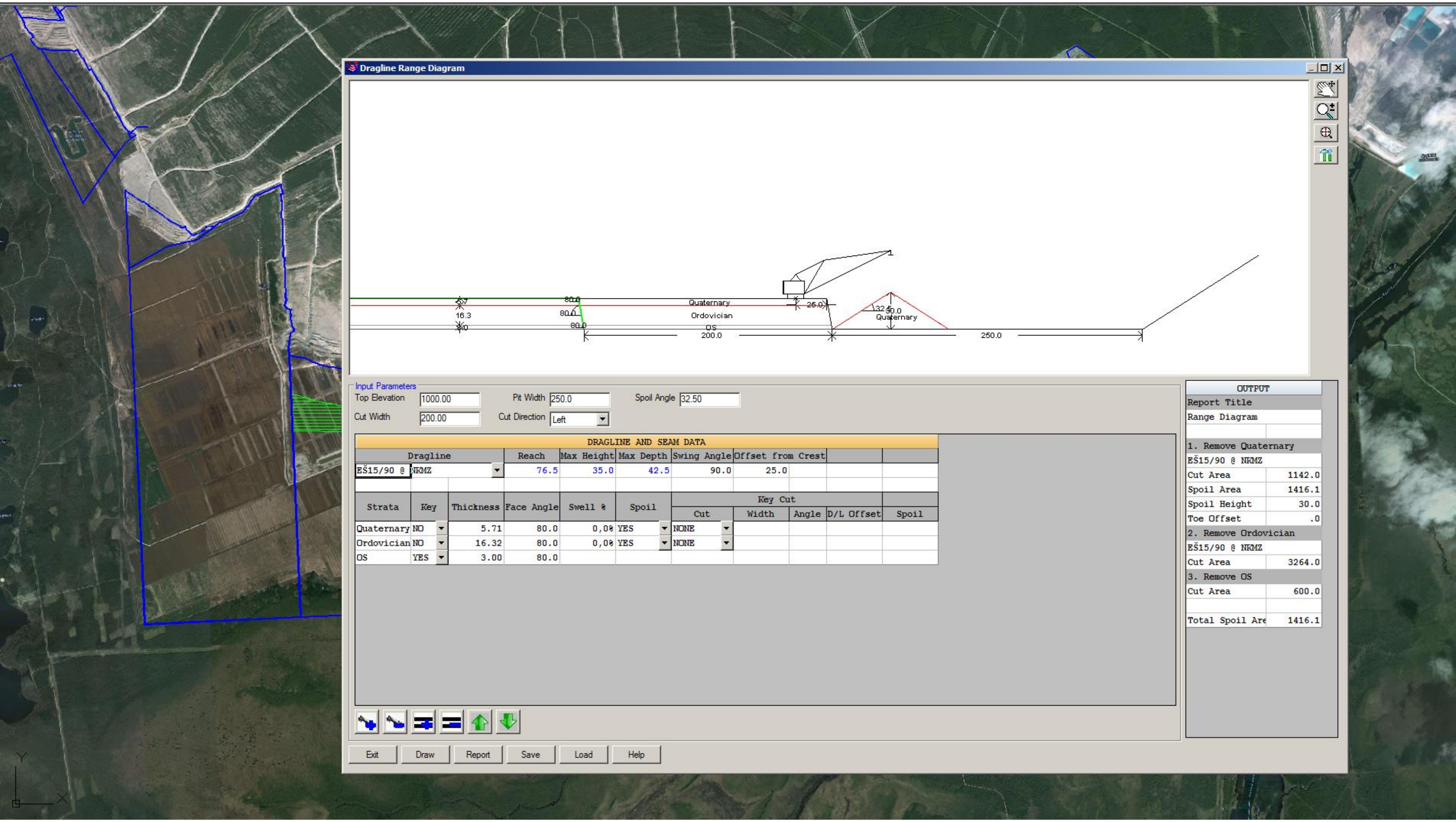
Eesti Energia

Carlson Basic mining, Surface ja Underground



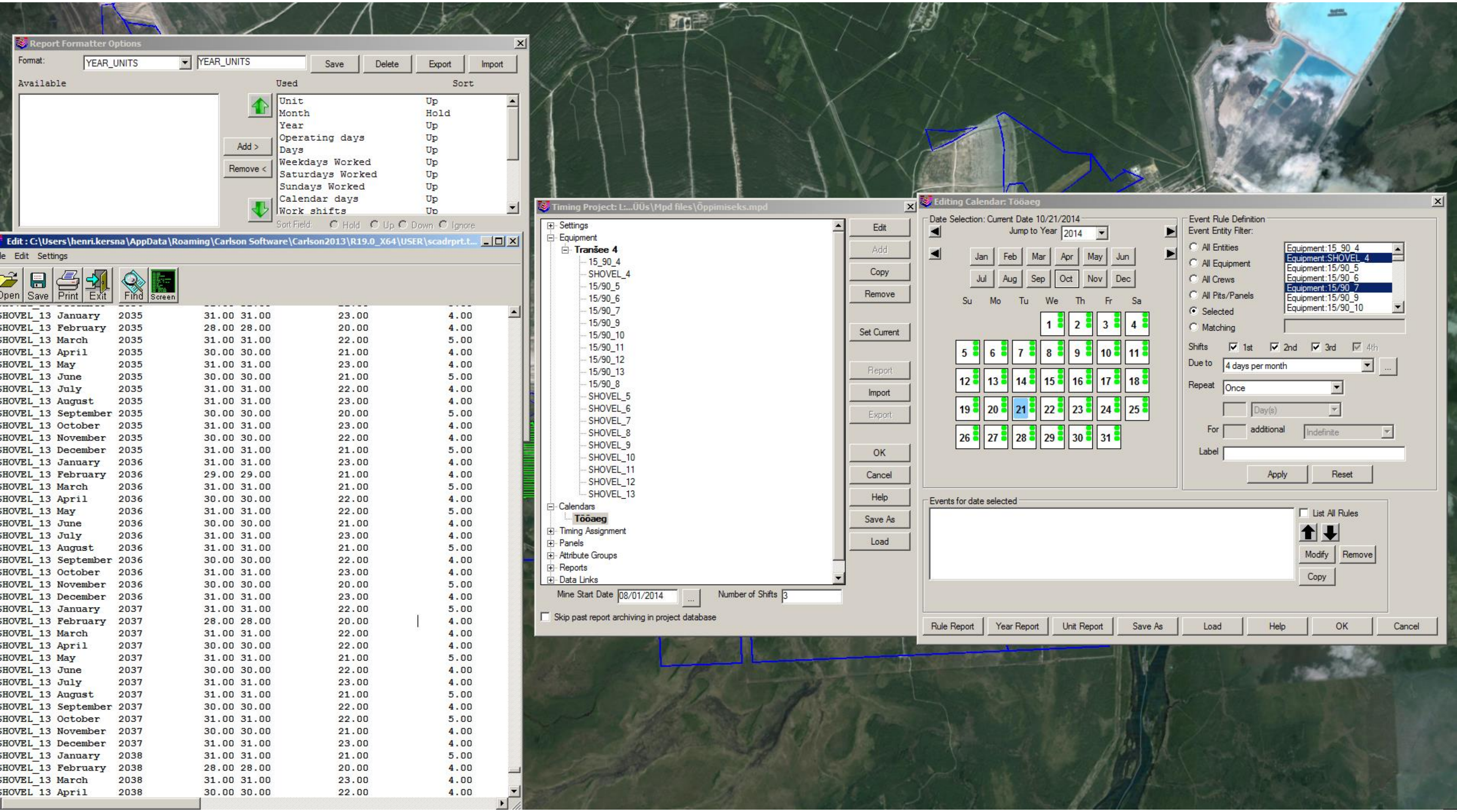
Eesti Energia

Carlson Basic mining, Surface ja Underground



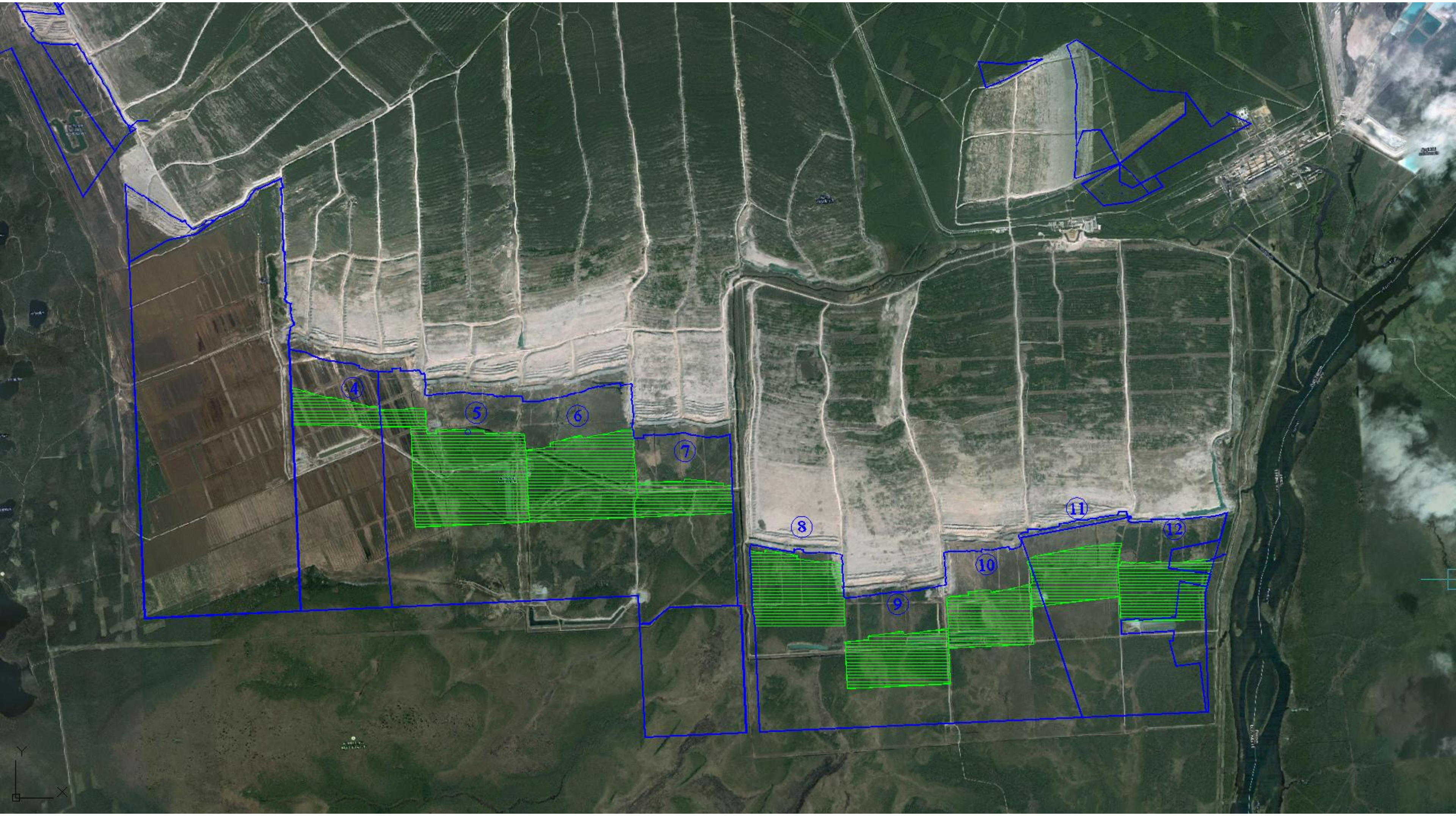
Eesti Energia

Carlson Basic mining, Surface ja Underground



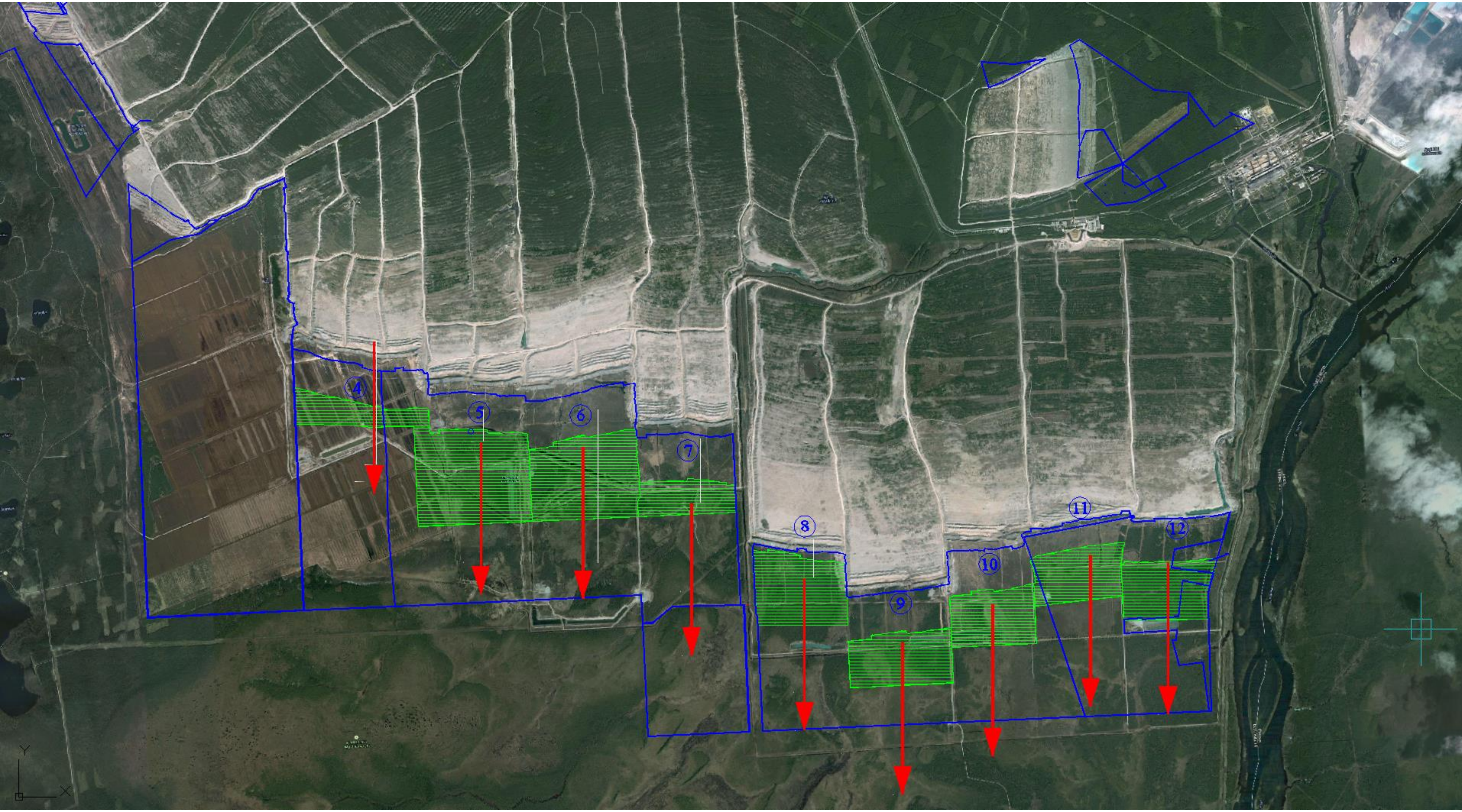
Eesti Energia

Carlson Basic mining, Surface ja Underground



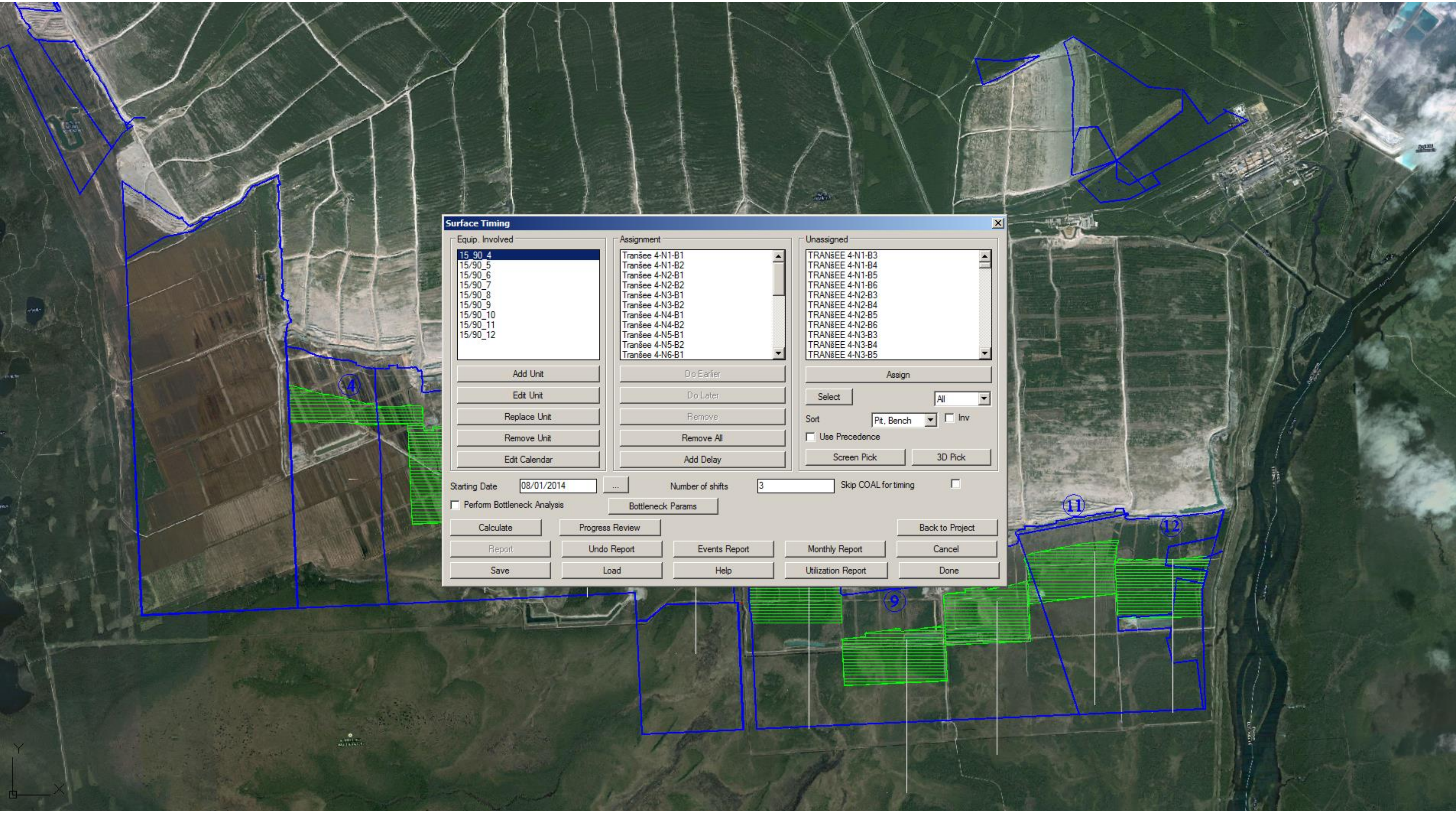
Eesti Energia

Carlson Basic mining, Surface ja Underground



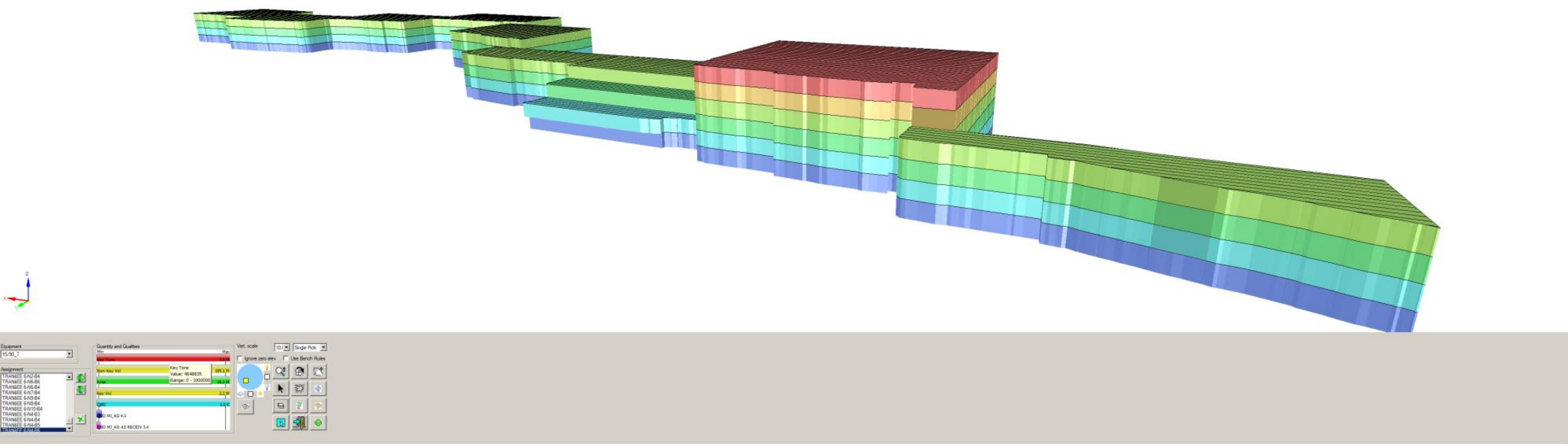
Eesti Energia

Carlson Basic mining, Surface ja Underground



Eesti Energia

Carlson Basic mining, Surface ja Underground



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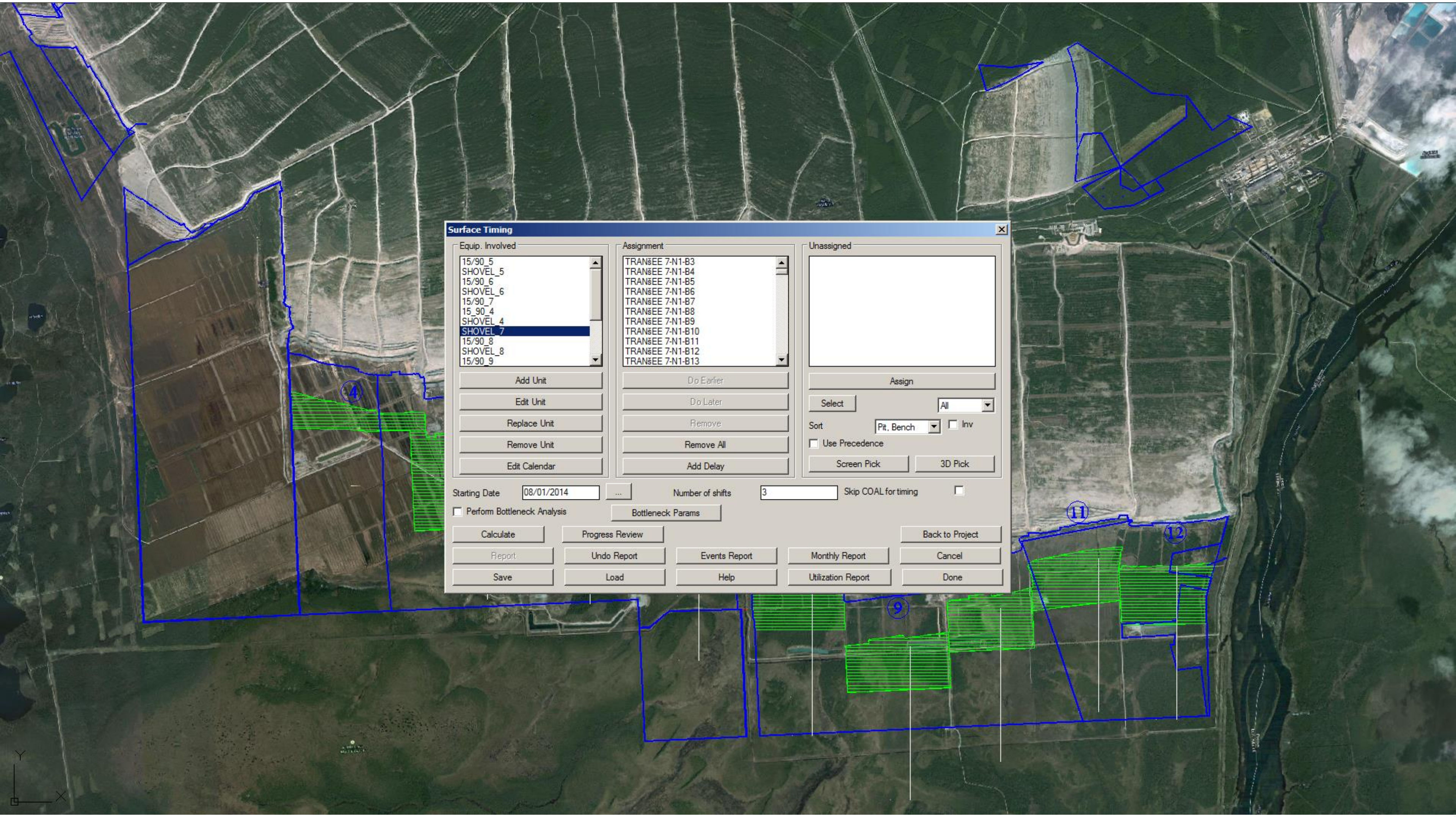
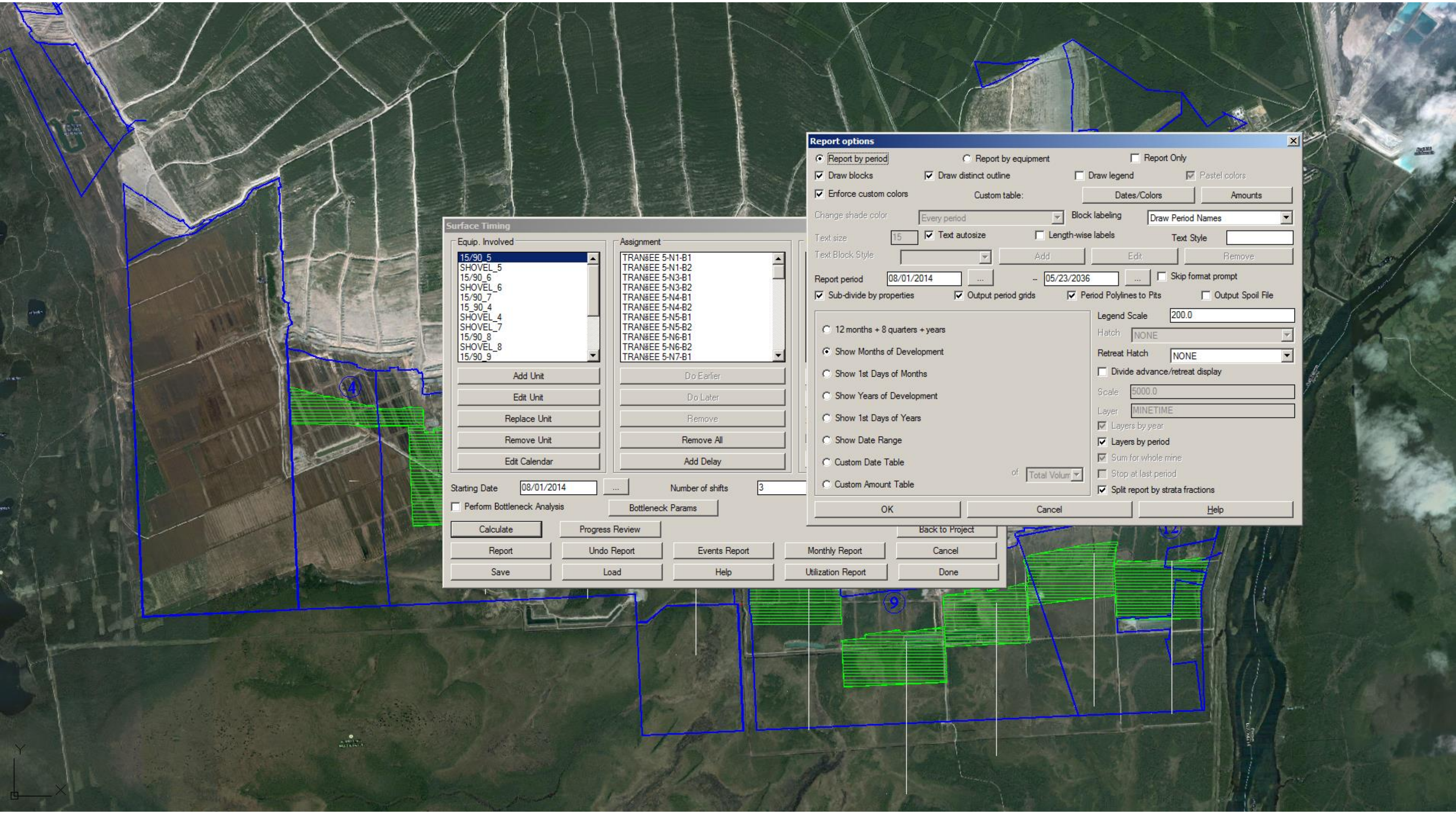


Eesti Energia

Carlson Basic mining, Surface ja Underground



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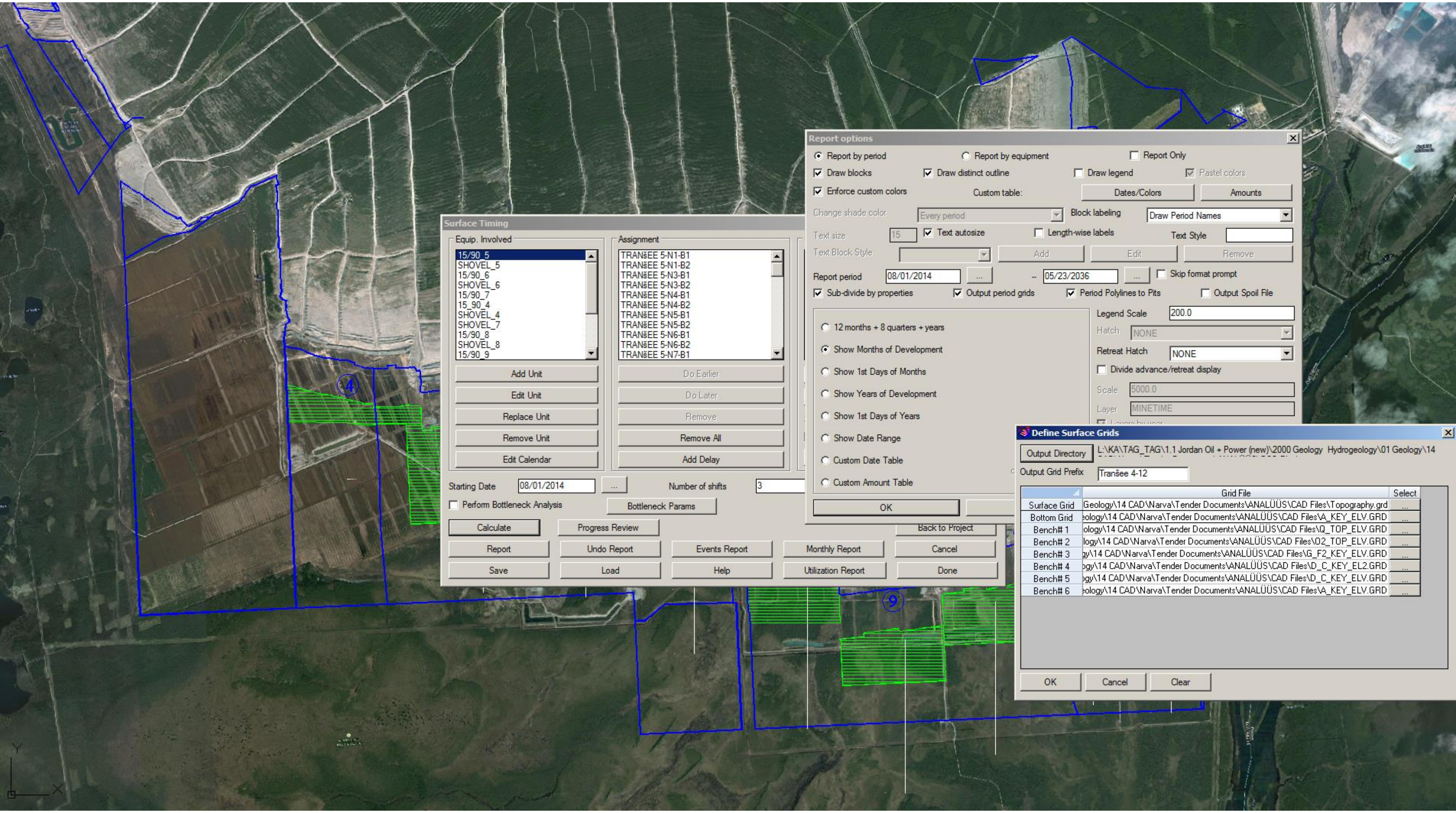
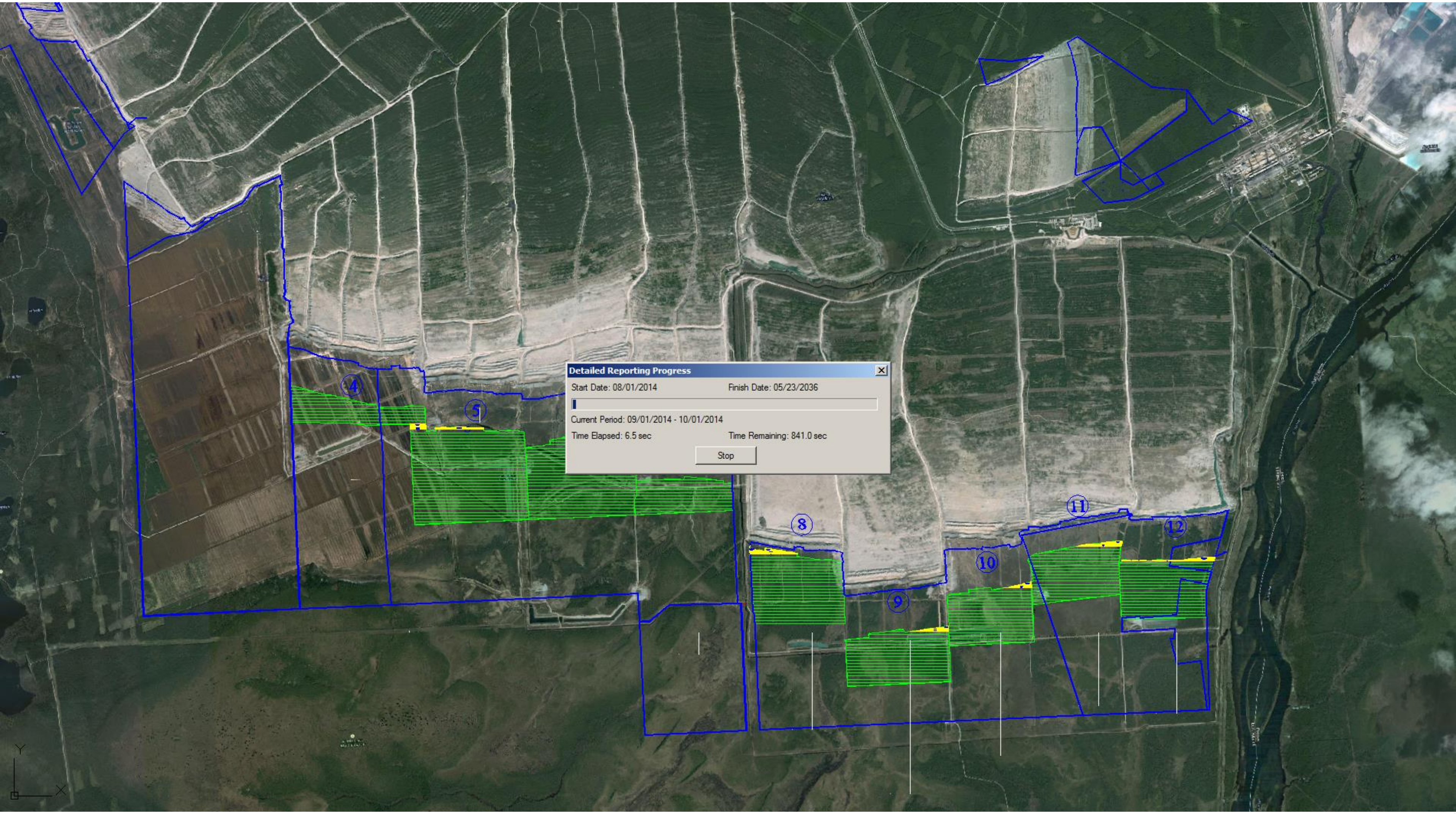
Carlson Basic mining, Surface ja Underground



Eesti Energia

Carlson Basic mining, Surface ja Underground



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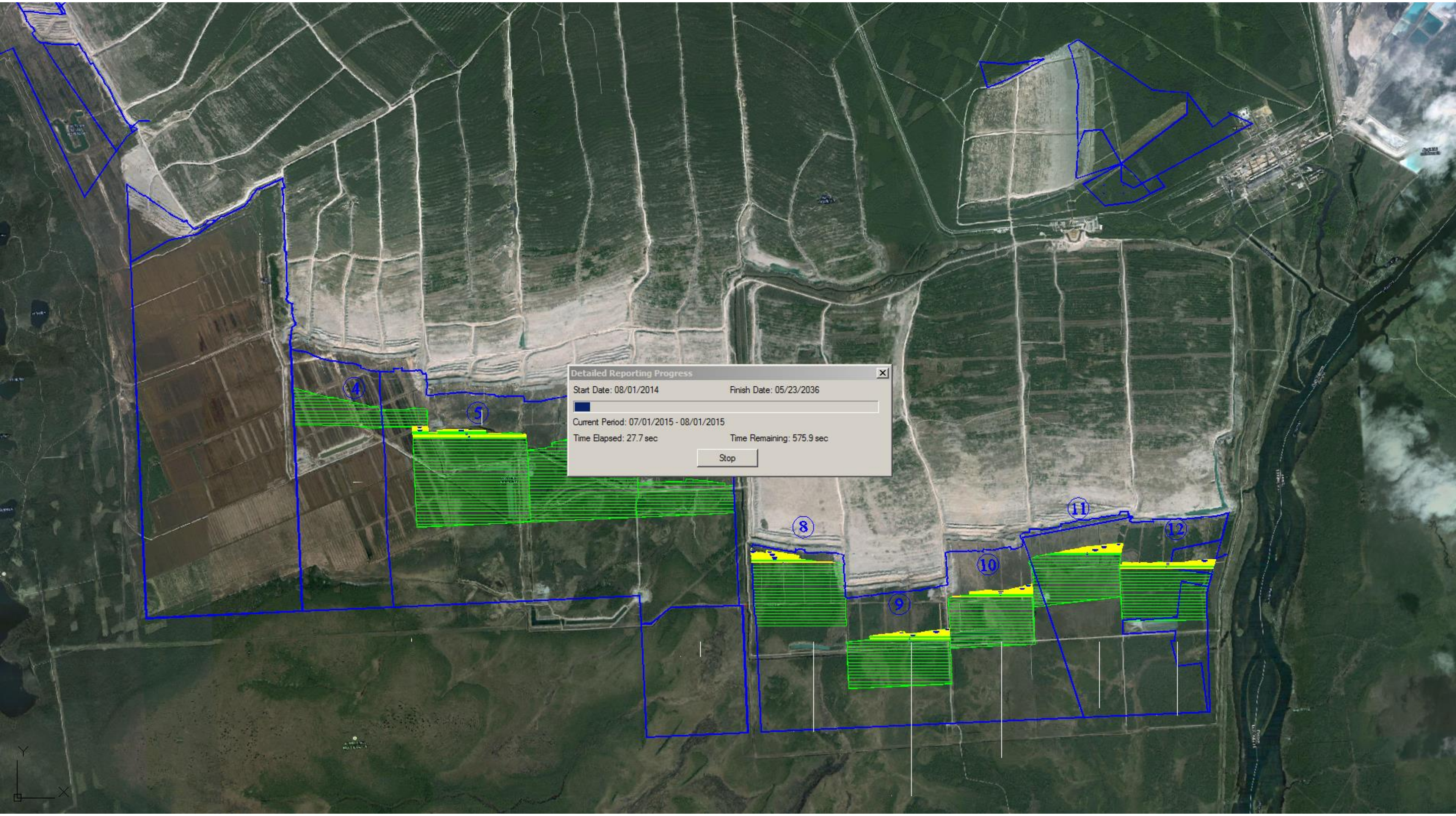
Carlson Basic mining, Surface ja Underground



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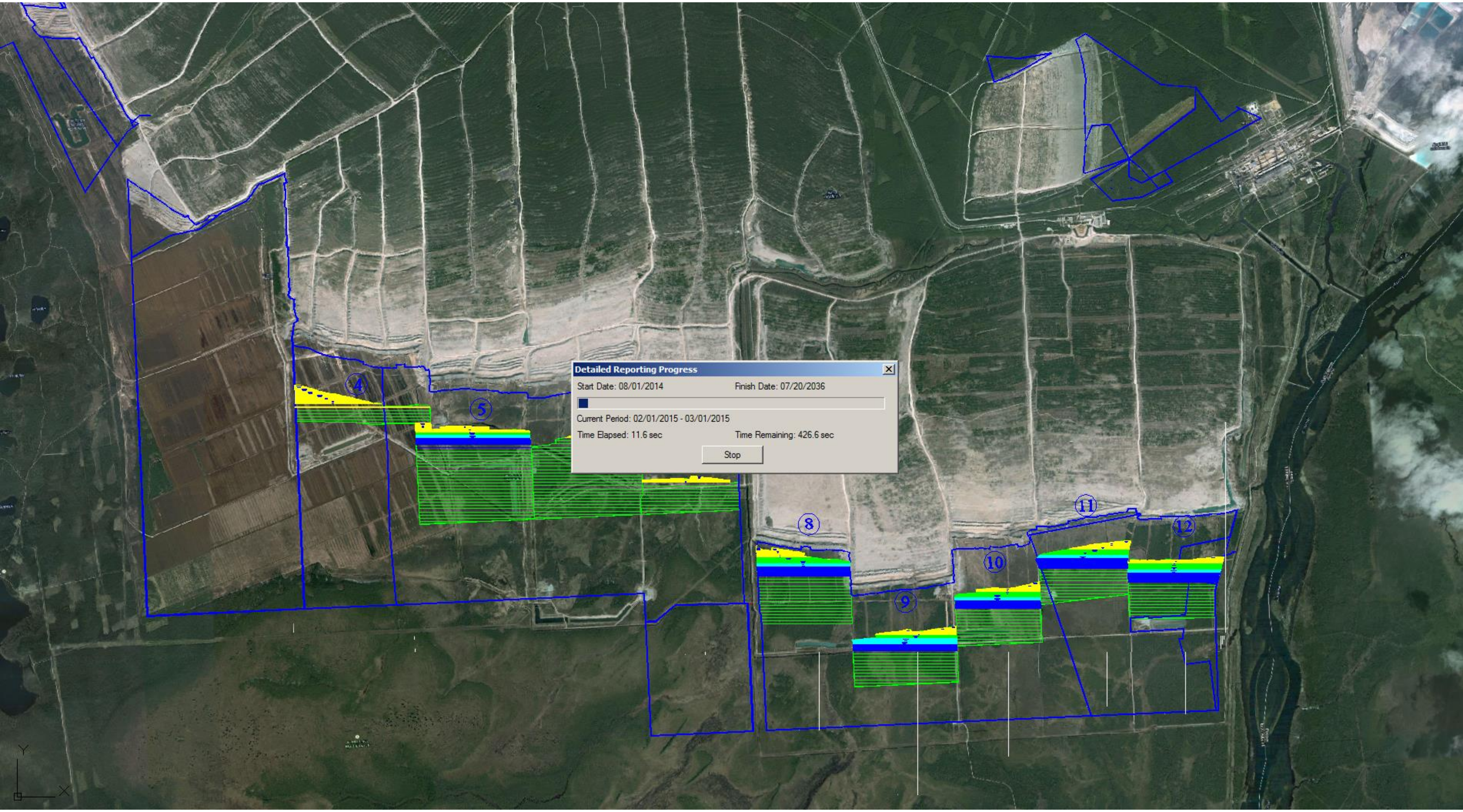
Carlson Basic mining, Surface ja Underground



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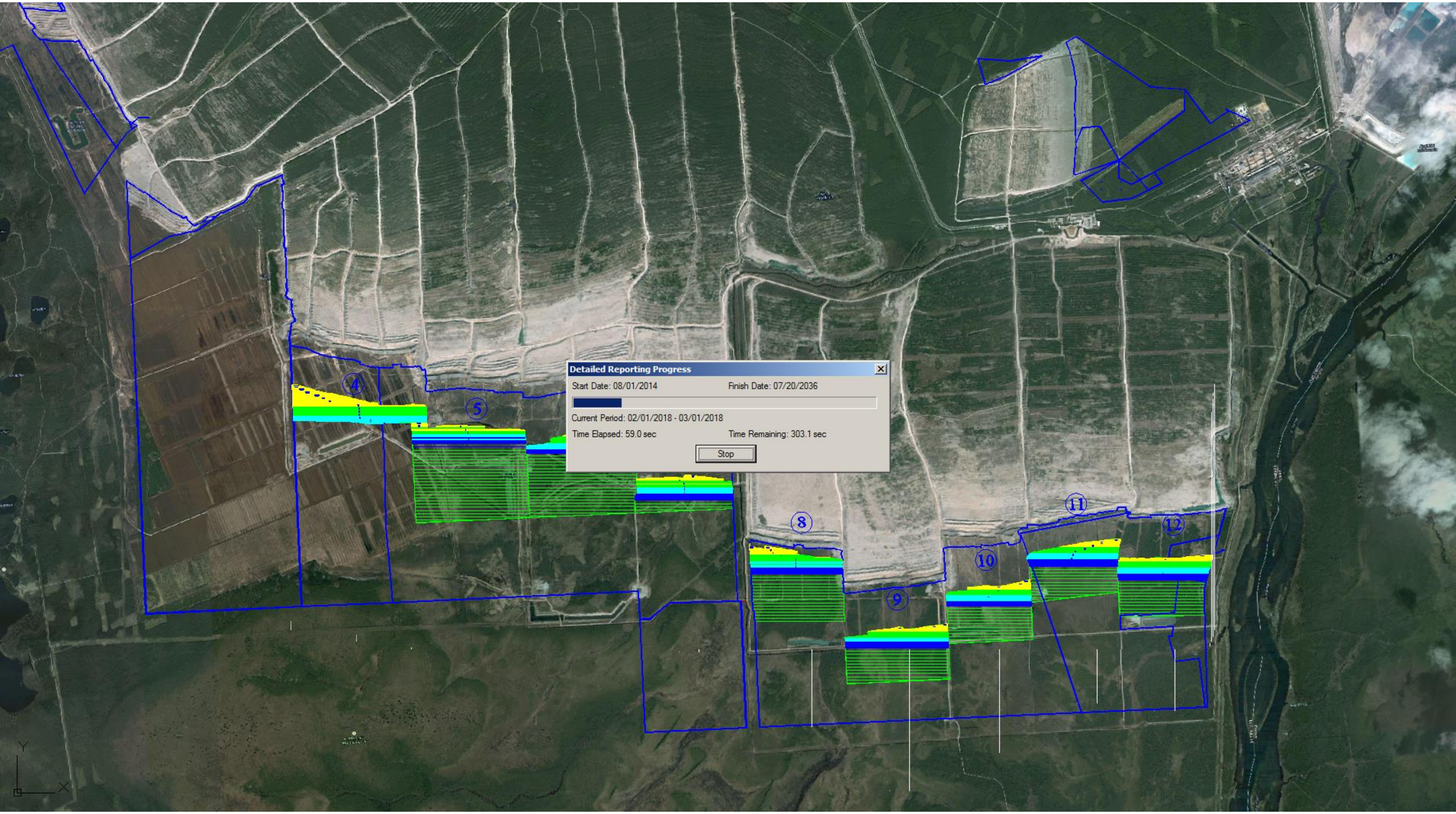
Carlson Basic mining, Surface ja Underground



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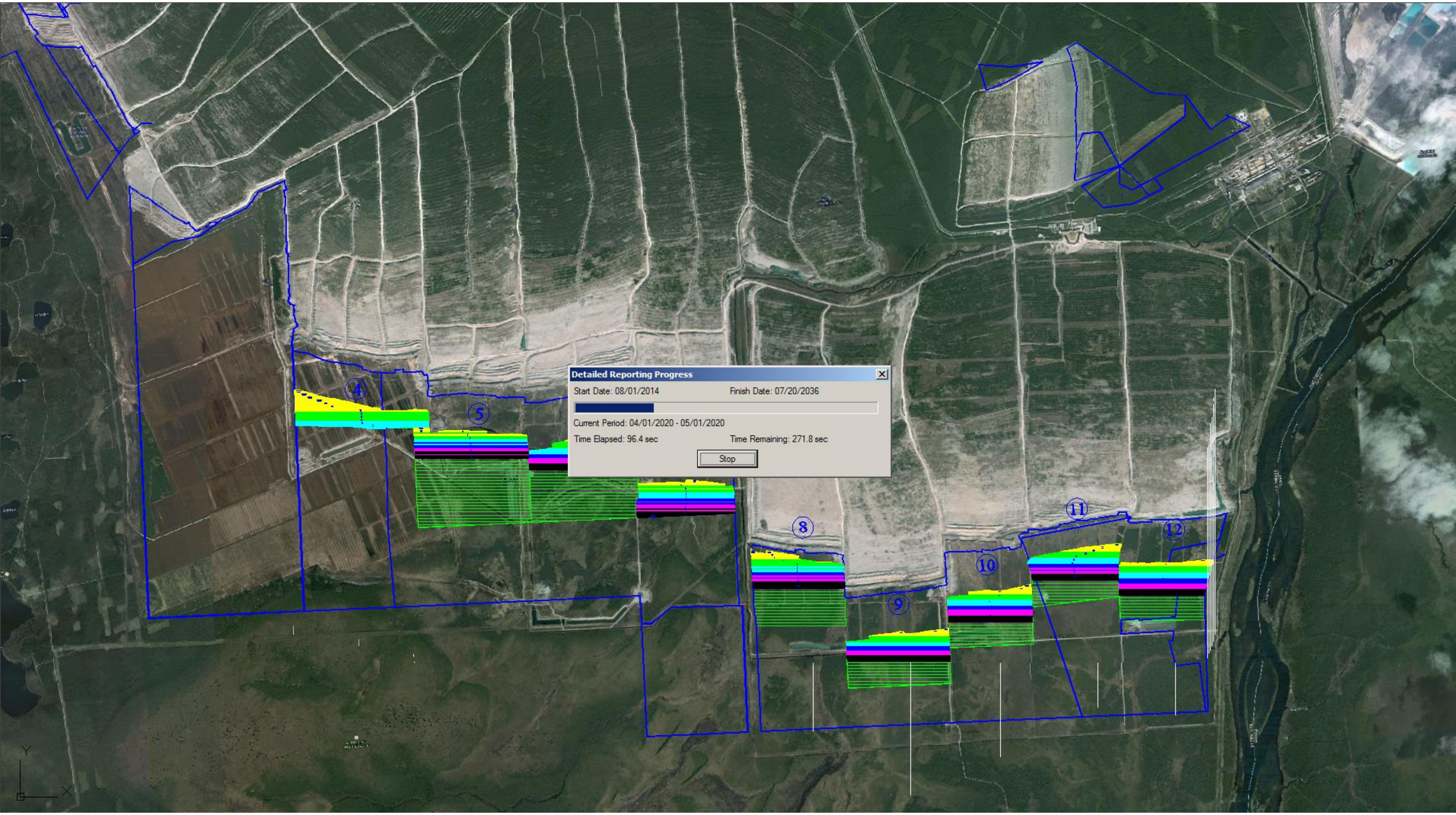
Carlson Basic mining, Surface ja Underground



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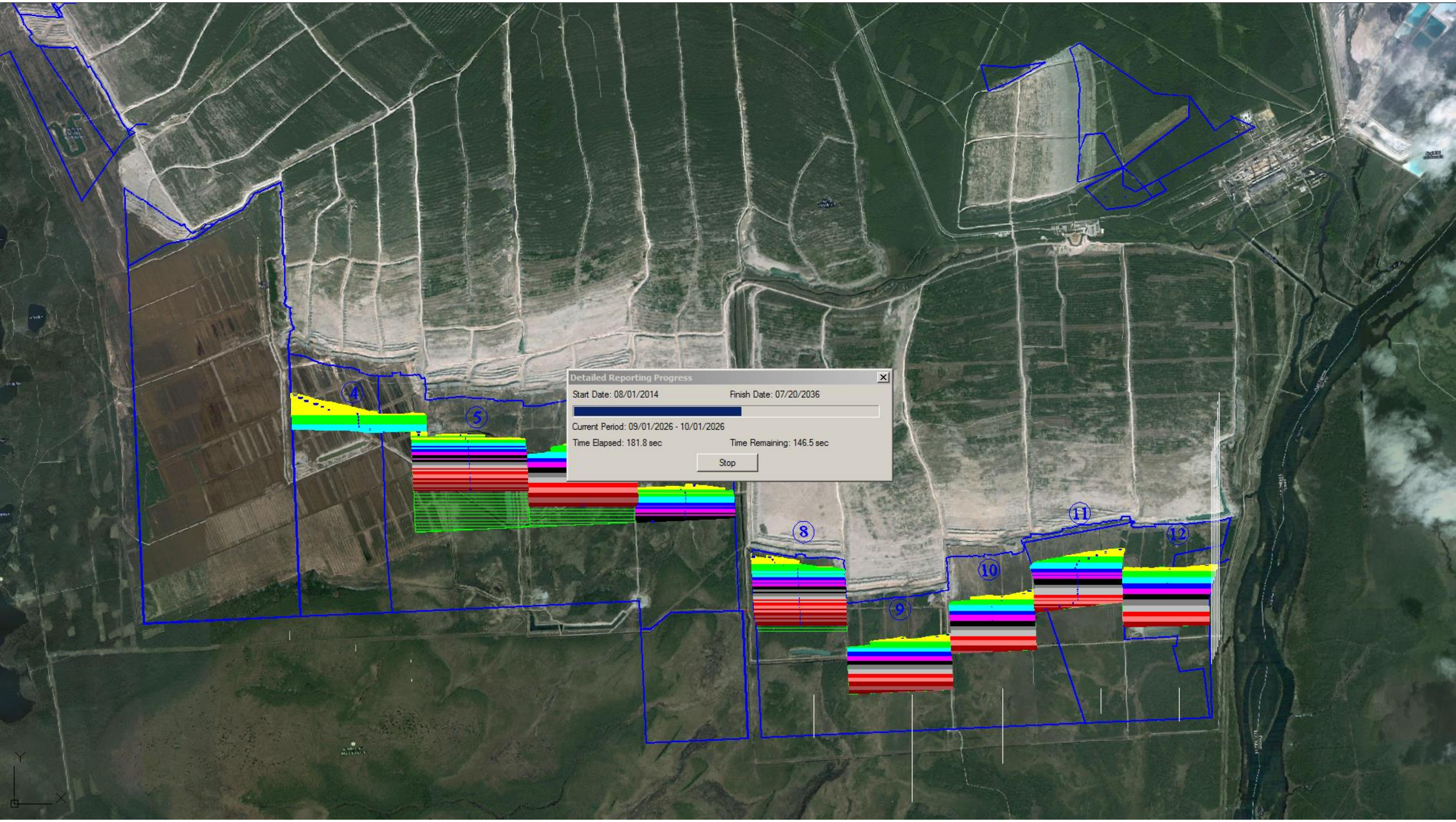
Carlson Basic mining, Surface ja Underground



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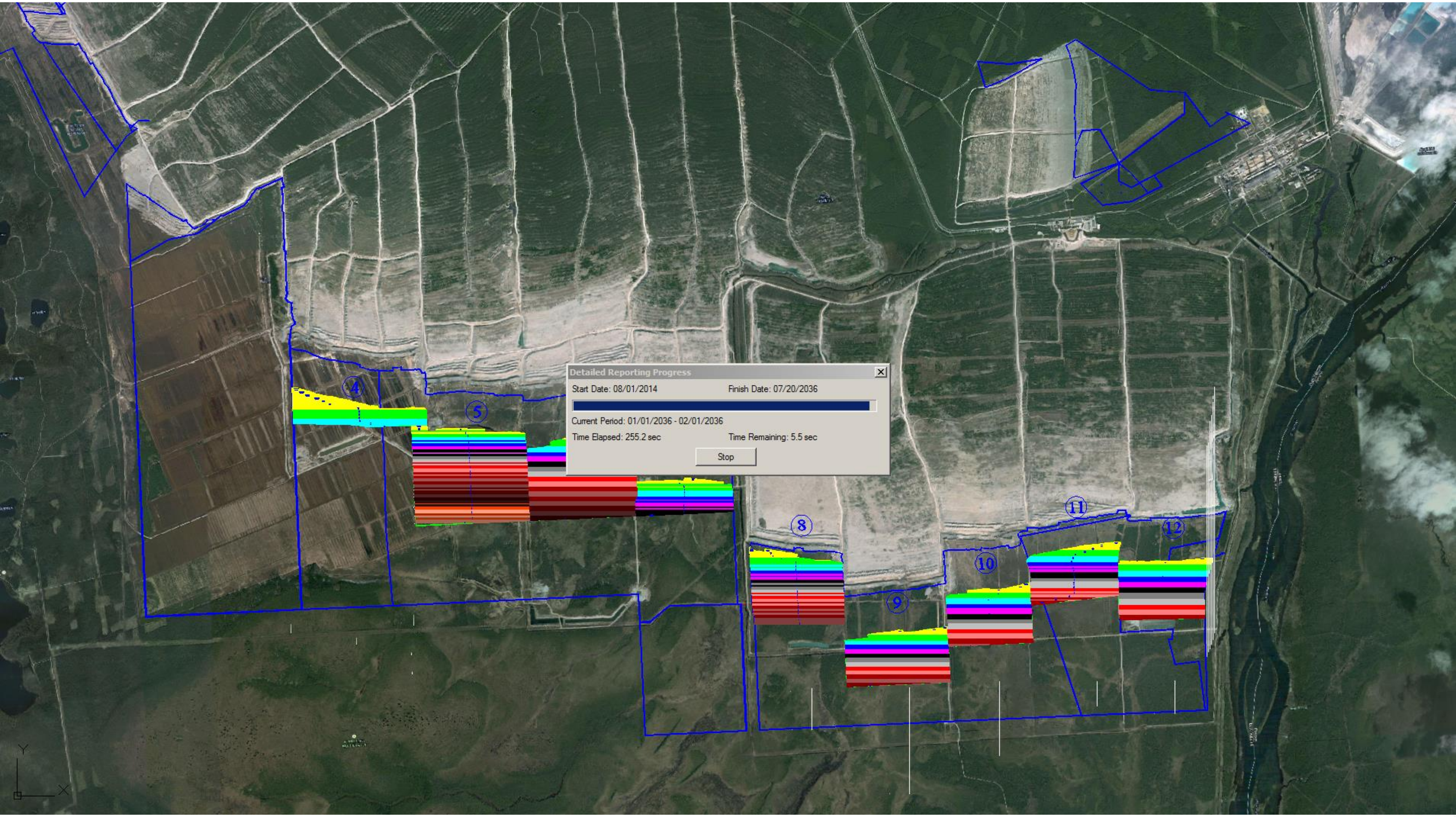
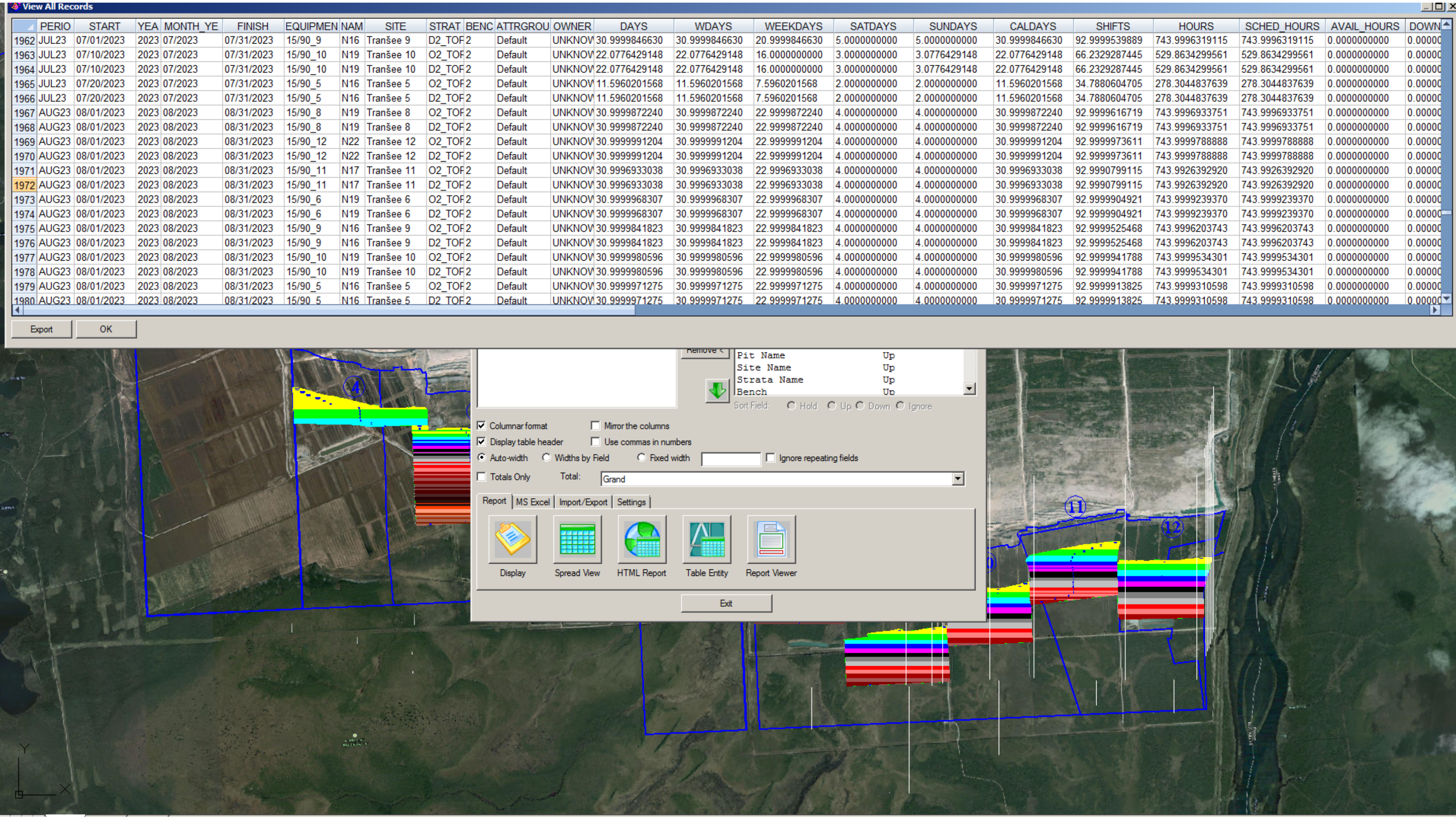
Carlson Basic mining, Surface ja Underground



Eesti Energia

Carlson Basic mining, Surface ja Underground



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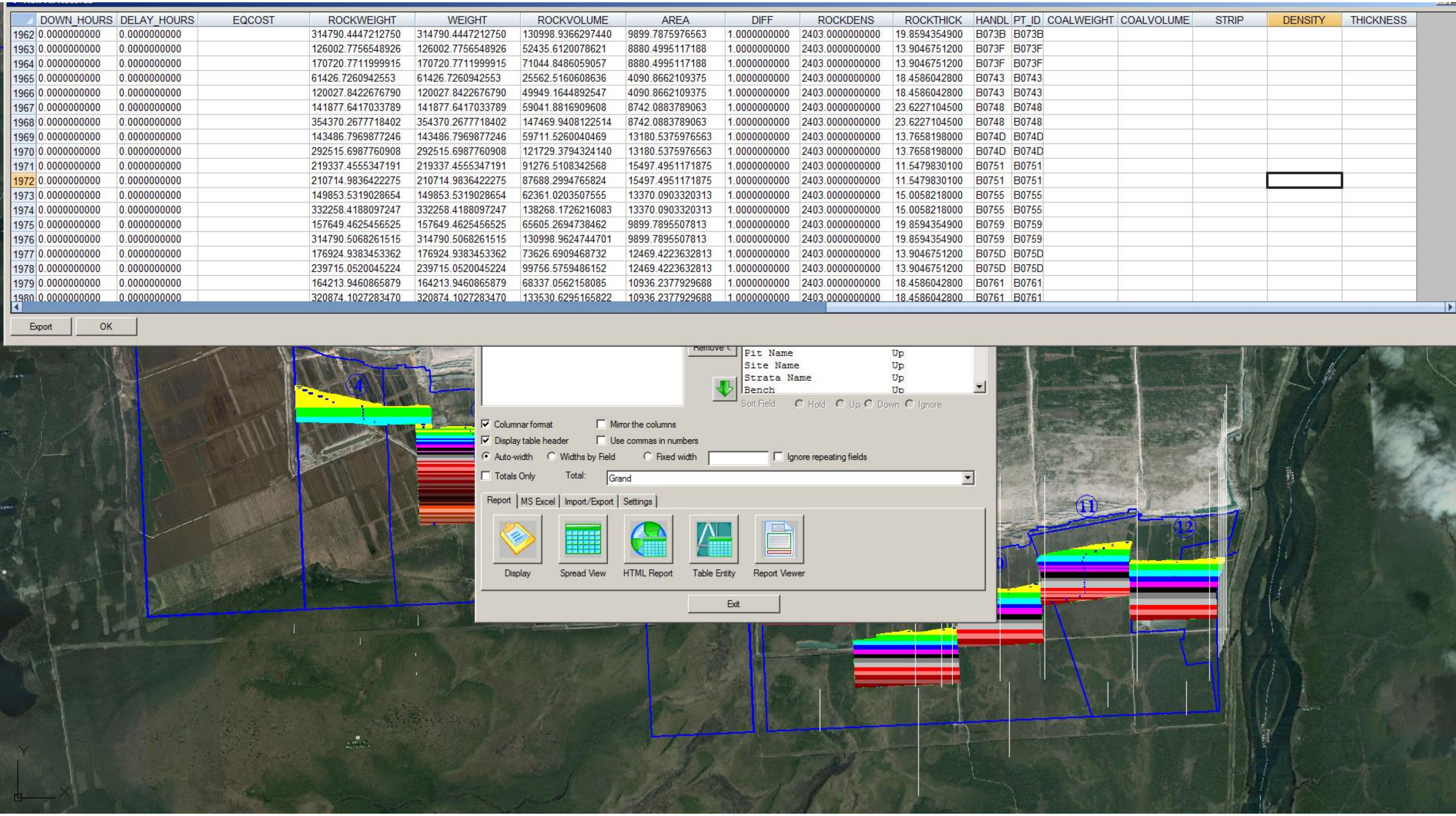
	PERIO	START	YEA	MONTH_YE	FINISH	EQUIPMEN	NAM	SITE	STRAT	BENC	ATTRGROU	OWNER	DAYS	WDAYS	WEEKDAYS	SATDAYS	SUNDAYS	CALDAYS	SHIFTS	HOURS	SCHED_HOURS	AVAIL_HOURS	DOWN
1962	JUL23	07/01/2023	2023	07/2023	07/31/2023	15/90_9	N16	Tranšee 9	D2_TOF	2	Default	UNKNOV	30.9999846630	30.9999846630	20.9999846630	5.0000000000	5.0000000000	30.9999846630	92.9999539889	743.9996319115	743.9996319115	0.0000000000	0.0000
1963	JUL23	07/10/2023	2023	07/2023	07/31/2023	15/90_10	N19	Tranšee 10	O2_TOF	2	Default	UNKNOV	22.0776429148	22.0776429148	16.0000000000	3.0000000000	3.0776429148	22.0776429148	66.2329287445	529.8634299561	529.8634299561	0.0000000000	0.0000
1964	JUL23	07/10/2023	2023	07/2023	07/31/2023	15/90_10	N19	Tranšee 10	D2_TOF	2	Default	UNKNOV	22.0776429148	22.0776429148	16.0000000000	3.0000000000	3.0776429148	22.0776429148	66.2329287445	529.8634299561	529.8634299561	0.0000000000	0.0000
1965	JUL23	07/20/2023	2023	07/2023	07/31/2023	15/90_5	N16	Tranšee 5	O2_TOF	2	Default	UNKNOV	11.5960201568	11.5960201568	7.5960201568	2.0000000000	2.0000000000	11.5960201568	34.7880604705	278.3044837639	278.3044837639	0.0000000000	0.0000
1966	JUL23	07/20/2023	2023	07/2023	07/31/2023	15/90_5	N16	Tranšee 5	D2_TOF	2	Default	UNKNOV	11.5960201568	11.5960201568	7.5960201568	2.0000000000	2.0000000000	11.5960201568	34.7880604705	278.3044837639	278.3044837639	0.0000000000	0.0000
1967	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_8	N19	Tranšee 8	O2_TOF	2	Default	UNKNOV	30.9999872240	30.9999872240	22.9999872240	4.0000000000	4.0000000000	30.9999872240	92.9999616719	743.9996933751	743.9996933751	0.0000000000	0.0000
1968	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_8	N19	Tranšee 8	D2_TOF	2	Default	UNKNOV	30.9999872240	30.9999872240	22.9999872240	4.0000000000	4.0000000000	30.9999872240	92.9999616719	743.9996933751	743.9996933751	0.0000000000	0.0000
1969	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_12	N22	Tranšee 12	O2_TOF	2	Default	UNKNOV	30.9999991204	30.9999991204	22.9999991204	4.0000000000	4.0000000000	30.9999991204	92.9999973611	743.9999788888	743.9999788888	0.0000000000	0.0000
1970	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_12	N22	Tranšee 12	D2_TOF	2	Default	UNKNOV	30.9999991204	30.9999991204	22.9999991204	4.0000000000	4.0000000000	30.9999991204	92.9999973611	743.9999788888	743.9999788888	0.0000000000	0.0000
1971	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_11	N17	Tranšee 11	O2_TOF	2	Default	UNKNOV	30.9996933038	30.9996933038	22.9996933038	4.0000000000	4.0000000000	30.9996933038	92.9990799115	743.9926392920	743.9926392920	0.0000000000	0.0000
1972	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_11	N17	Tranšee 11	D2_TOF	2	Default	UNKNOV	30.9996933038	30.9996933038	22.9996933038	4.0000000000	4.0000000000	30.9996933038	92.9990799115	743.9926392920	743.9926392920	0.0000000000	0.0000
1973	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_6	N19	Tranšee 6	O2_TOF	2	Default	UNKNOV	30.9999968307	30.9999968307	22.9999968307	4.0000000000	4.0000000000	30.9999968307	92.9999904921	743.9999239370	743.9999239370	0.0000000000	0.0000
1974	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_6	N19	Tranšee 6	D2_TOF	2	Default	UNKNOV	30.9999968307	30.9999968307	22.9999968307	4.0000000000	4.0000000000	30.9999968307	92.9999904921	743.9999239370	743.9999239370	0.0000000000	0.0000
1975	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_9	N16	Tranšee 9	O2_TOF	2	Default	UNKNOV	30.9999841823	30.9999841823	22.9999841823	4.0000000000	4.0000000000	30.9999841823	92.9999525468	743.9996203743	743.9996203743	0.0000000000	0.0000
1976	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_9	N16	Tranšee 9	D2_TOF	2	Default	UNKNOV	30.9999841823	30.9999841823	22.9999841823	4.0000000000	4.0000000000	30.9999841823	92.9999525468	743.9996203743	743.9996203743	0.0000000000	0.0000
1977	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_10	N19	Tranšee 10	O2_TOF	2	Default	UNKNOV	30.9999980596	30.9999980596	22.9999980596	4.0000000000	4.0000000000	30.9999980596	92.9999941788	743.9999534301	743.9999534301	0.0000000000	0.0000
1978	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_10	N19	Tranšee 10	D2_TOF	2	Default	UNKNOV	30.9999980596	30.9999980596	22.9999980596	4.0000000000	4.0000000000	30.9999980596	92.9999941788	743.9999534301	743.9999534301	0.0000000000	0.0000
1979	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_5	N16	Tranšee 5	O2_TOF	2	Default	UNKNOV	30.9999971275	30.9999971275	22.9999971275	4.0000000000	4.0000000000	30.9999971275	92.9999913825	743.9999310598	743.9999310598	0.0000000000	0.0000
1980	AUG23	08/01/2023	2023	08/2023	08/31/2023	15/90_5	N16	Tranšee 5	D2_TOF	2	Default	UNKNOV	30.9999971275	30.9999971275	22.9999971275	4.0000000000	4.0000000000	30.9999971275	92.9999913825	743.9999310598	743.9999310598	0.0000000000	0.0000

Carlson Basic mining, Surface ja Underground



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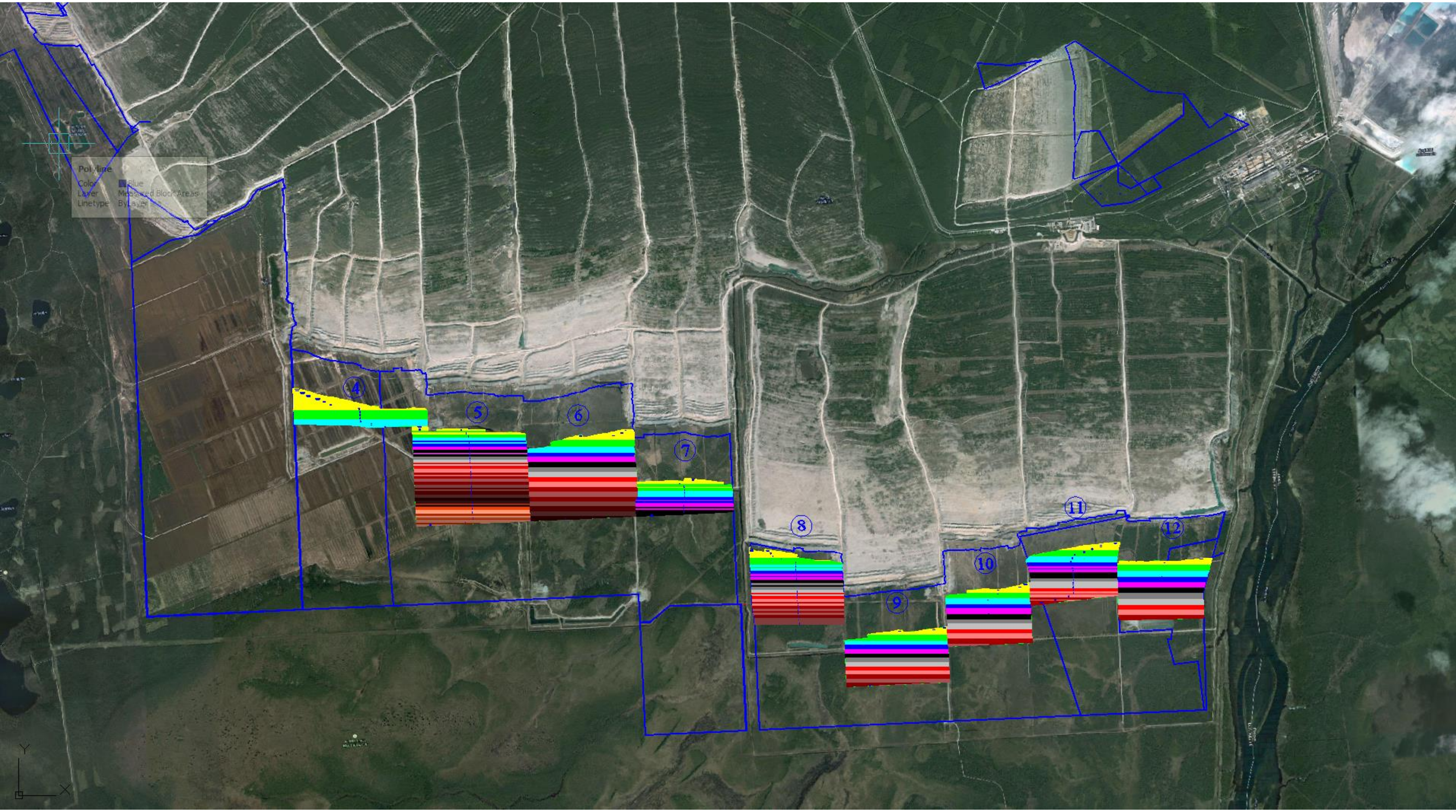
1962	0.0000000000	0.0000000000		314790.4447212750	314790.4447212750	130998.9366297440	9899.7875976563	1.0000000000	2403.0000000000	19.8594354900	B073B	B073B					
1963	0.0000000000	0.0000000000		126002.7756548926	126002.7756548926	52435.6120078621	8880.4995117188	1.0000000000	2403.0000000000	13.9046751200	B073F	B073F					
1964	0.0000000000	0.0000000000		170720.7711999915	170720.7711999915	71044.8486059057	8880.4995117188	1.0000000000	2403.0000000000	13.9046751200	B073F	B073F					
1965	0.0000000000	0.0000000000		61426.7260942553	61426.7260942553	25562.5160608636	4090.8662109375	1.0000000000	2403.0000000000	18.4586042800	B0743	B0743					
1966	0.0000000000	0.0000000000		120027.8422676790	120027.8422676790	49949.1644892547	4090.8662109375	1.0000000000	2403.0000000000	18.4586042800	B0743	B0743					
1967	0.0000000000	0.0000000000		141877.6417033789	141877.6417033789	59041.8816909608	8742.0883789063	1.0000000000	2403.0000000000	23.6227104500	B0748	B0748					
1968	0.0000000000	0.0000000000		354370.2677718402	354370.2677718402	147469.9408122514	8742.0883789063	1.0000000000	2403.0000000000	23.6227104500	B0748	B0748					
1969	0.0000000000	0.0000000000		143486.7969877246	143486.7969877246	59711.5260040469	13180.5375976563	1.0000000000	2403.0000000000	13.7658198000	B074D	B074D					
1970	0.0000000000	0.0000000000		292515.6987760908	292515.6987760908	121729.3794324140	13180.5375976563	1.0000000000	2403.0000000000	13.7658198000	B074D	B074D					
1971	0.0000000000	0.0000000000		219337.4555347191	219337.4555347191	91276.5108342568	15497.4951171875	1.0000000000	2403.0000000000	11.5479830100	B0751	B0751					
1972	0.0000000000	0.0000000000		210714.9836422275	210714.9836422275	87688.2994765824	15497.4951171875	1.0000000000	2403.0000000000	11.5479830100	B0751	B0751					
1973	0.0000000000	0.0000000000		149853.5319028654	149853.5319028654	62361.0203507555	13370.0903320313	1.0000000000	2403.0000000000	15.0058218000	B0755	B0755					
1974	0.0000000000	0.0000000000		332258.4188097247	332258.4188097247	138268.1726216083	13370.0903320313	1.0000000000	2403.0000000000	15.0058218000	B0755	B0755					
1975	0.0000000000	0.0000000000		157649.4625456525	157649.4625456525	65605.2694738462	9899.7895507813	1.0000000000	2403.0000000000	19.8594354900	B0759	B0759					
1976	0.0000000000	0.0000000000		314790.5068261515	314790.5068261515	130998.9624744701	9899.7895507813	1.0000000000	2403.0000000000	19.8594354900	B0759	B0759					
1977	0.0000000000	0.0000000000		176924.9383453362	176924.9383453362	73626.6909468732	12469.4223632813	1.0000000000	2403.0000000000	13.9046751200	B075D	B075D					
1978	0.0000000000	0.0000000000		239715.0520045224	239715.0520045224	99756.5759486152	12469.4223632813	1.0000000000	2403.0000000000	13.9046751200	B075D	B075D					
1979	0.0000000000	0.0000000000		164213.9460865879	164213.9460865879	68337.0562158085	10936.2377929688	1.0000000000	2403.0000000000	18.4586042800	B0761	B0761					
1980	0.0000000000	0.0000000000		320874.1027283470	320874.1027283470	133530.6295165822	10936.2377929688	1.0000000000	2403.0000000000	18.4586042800	B0761	B0761					

Eesti Energia

Carlson Basic mining, Surface ja Underground



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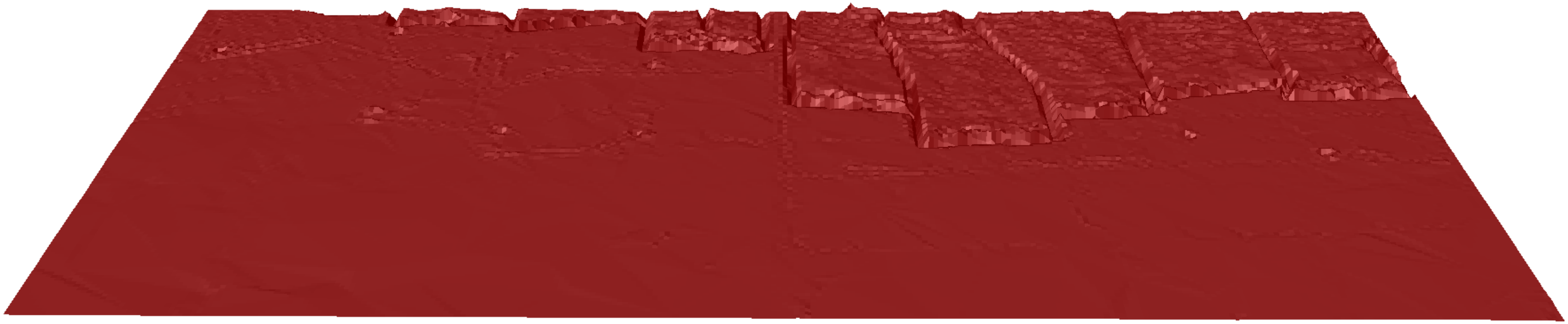
Carlson Basic mining, Surface ja Underground

Carlson Basic mining, Surface ja Underground



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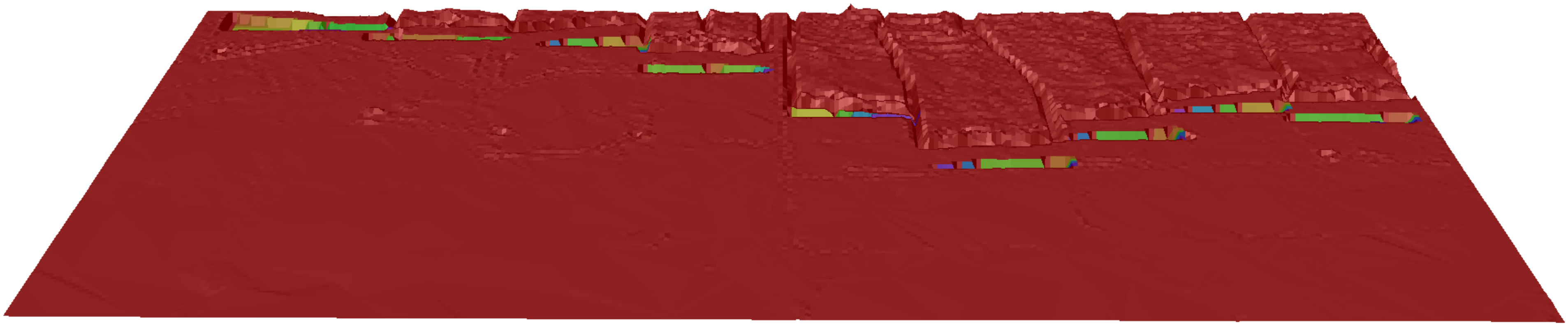
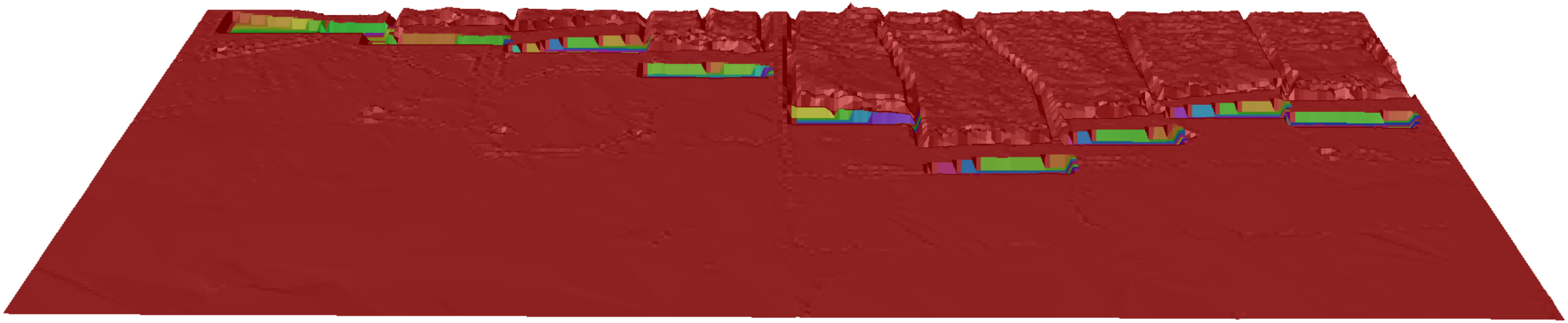
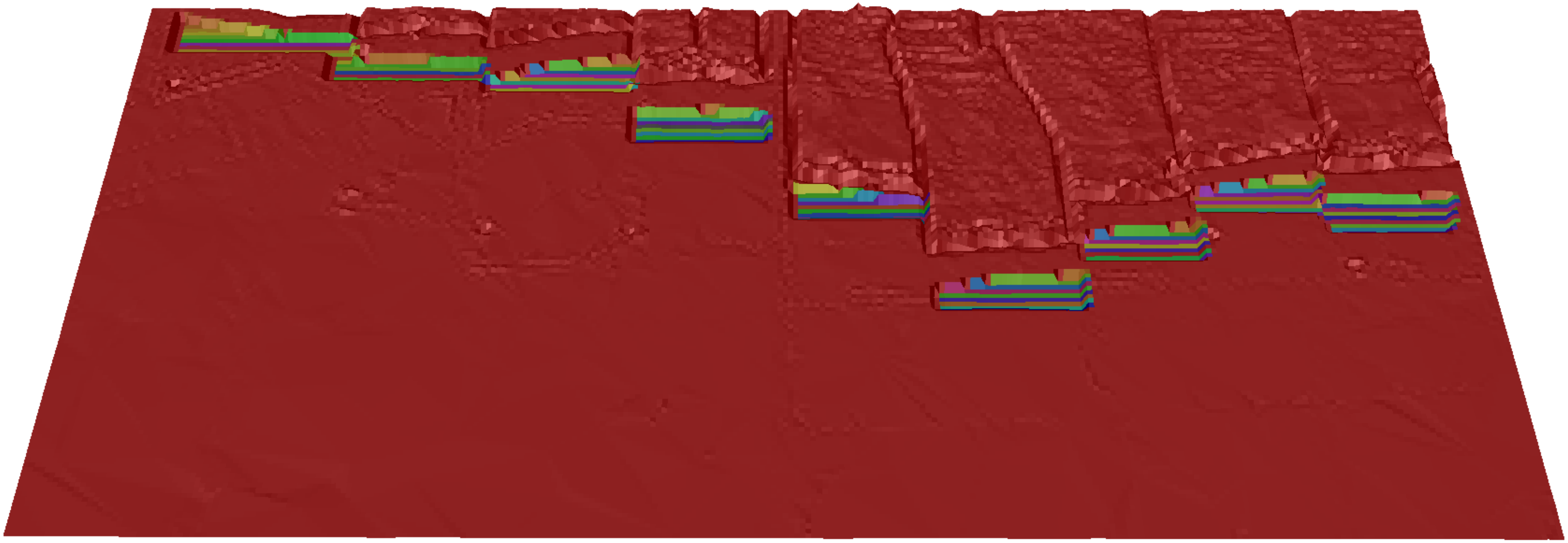


Carlson Basic mining, Surface ja Underground



Carlson Basic mining, Surface ja Underground



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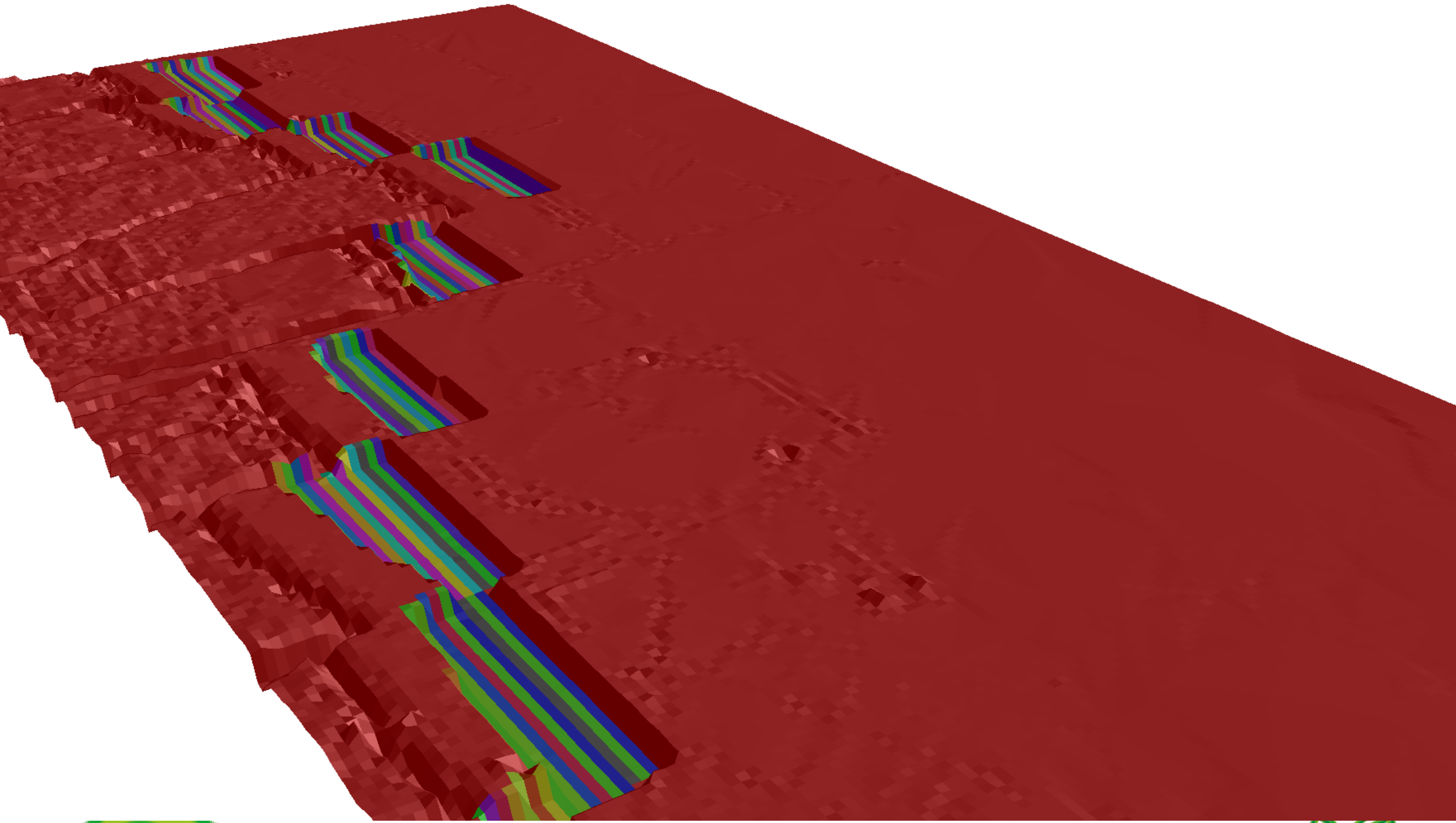

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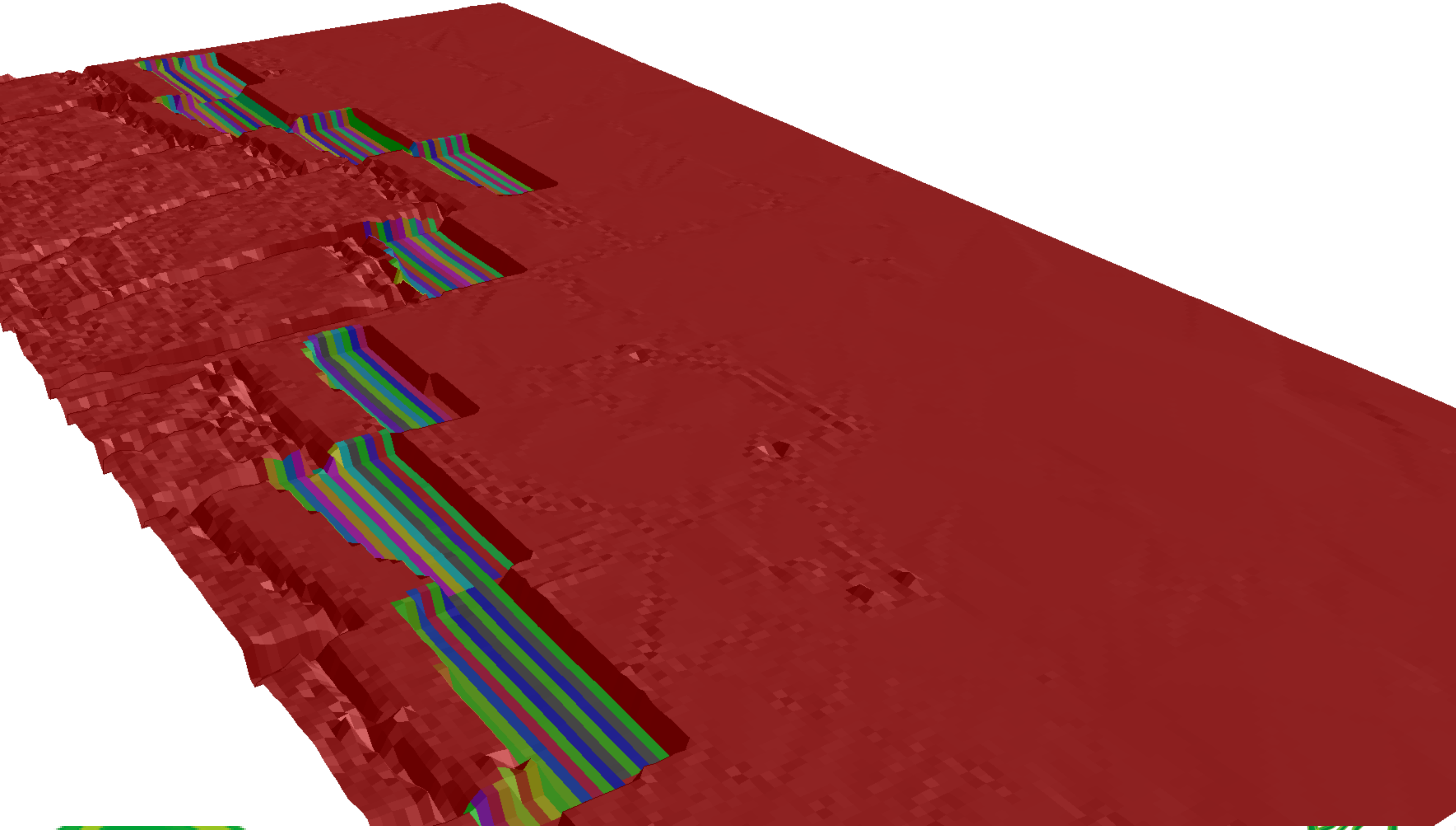
Carlson Basic mining, Surface ja Underground



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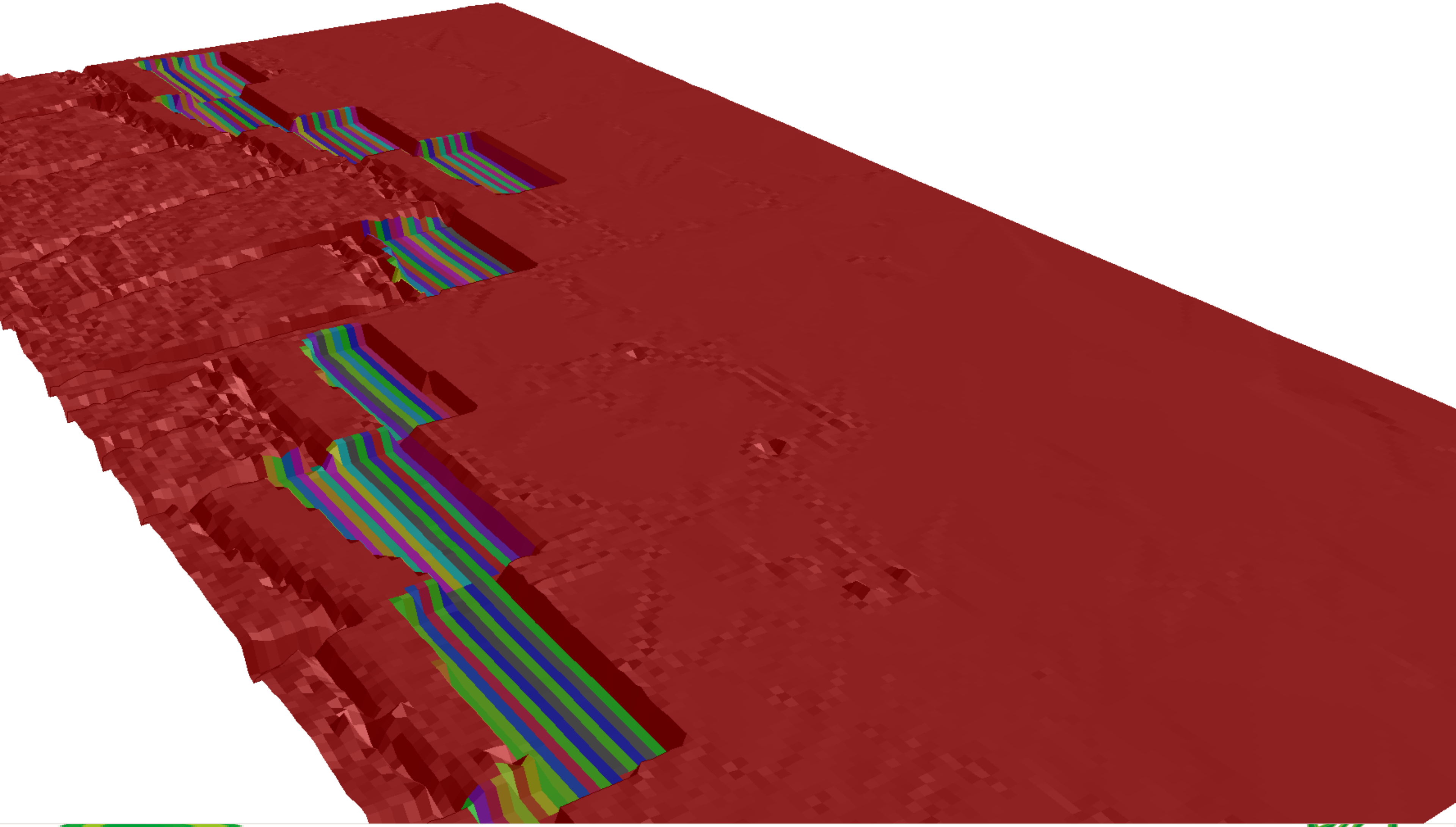
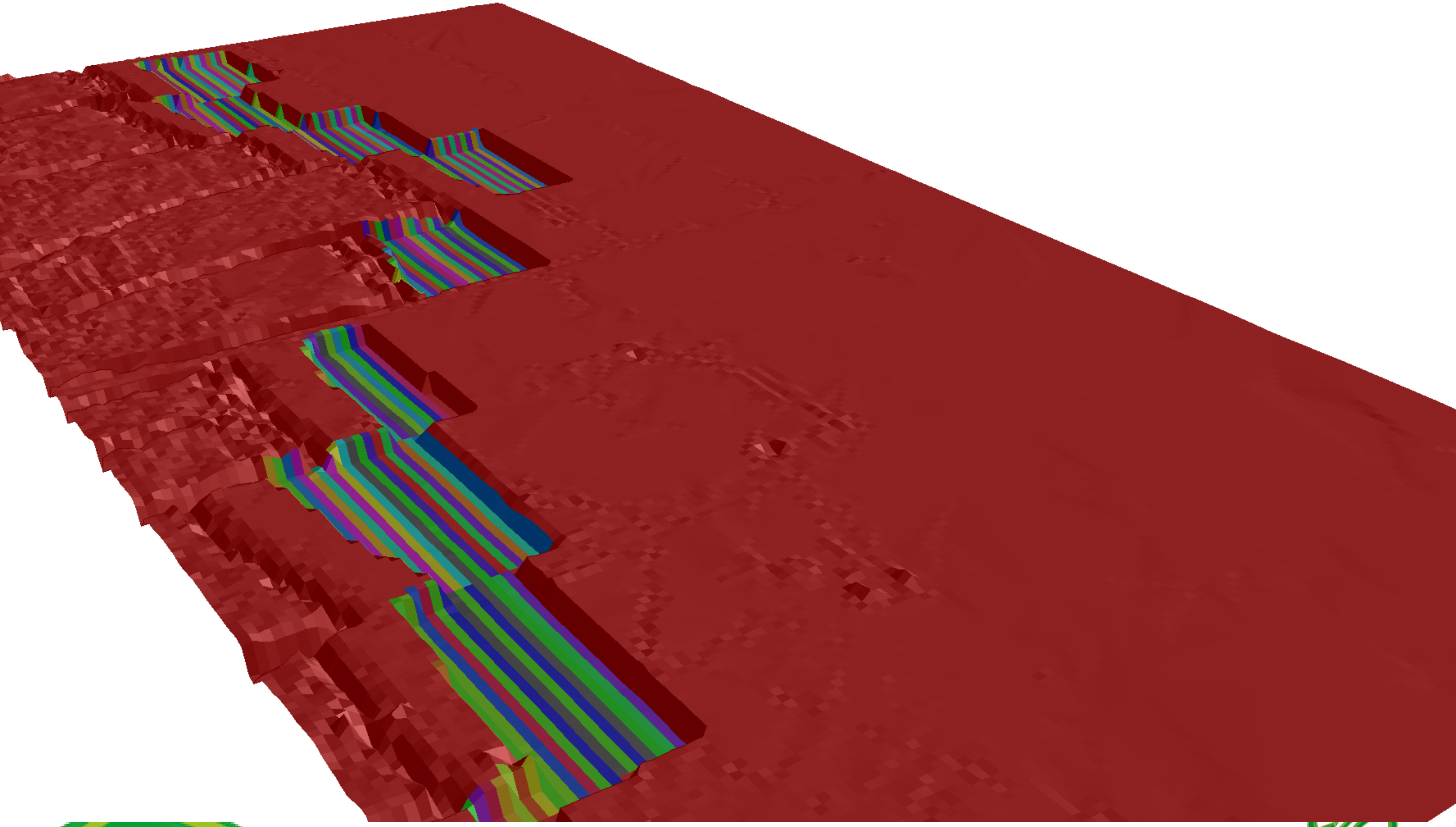


Carlson Basic mining, Surface ja Underground



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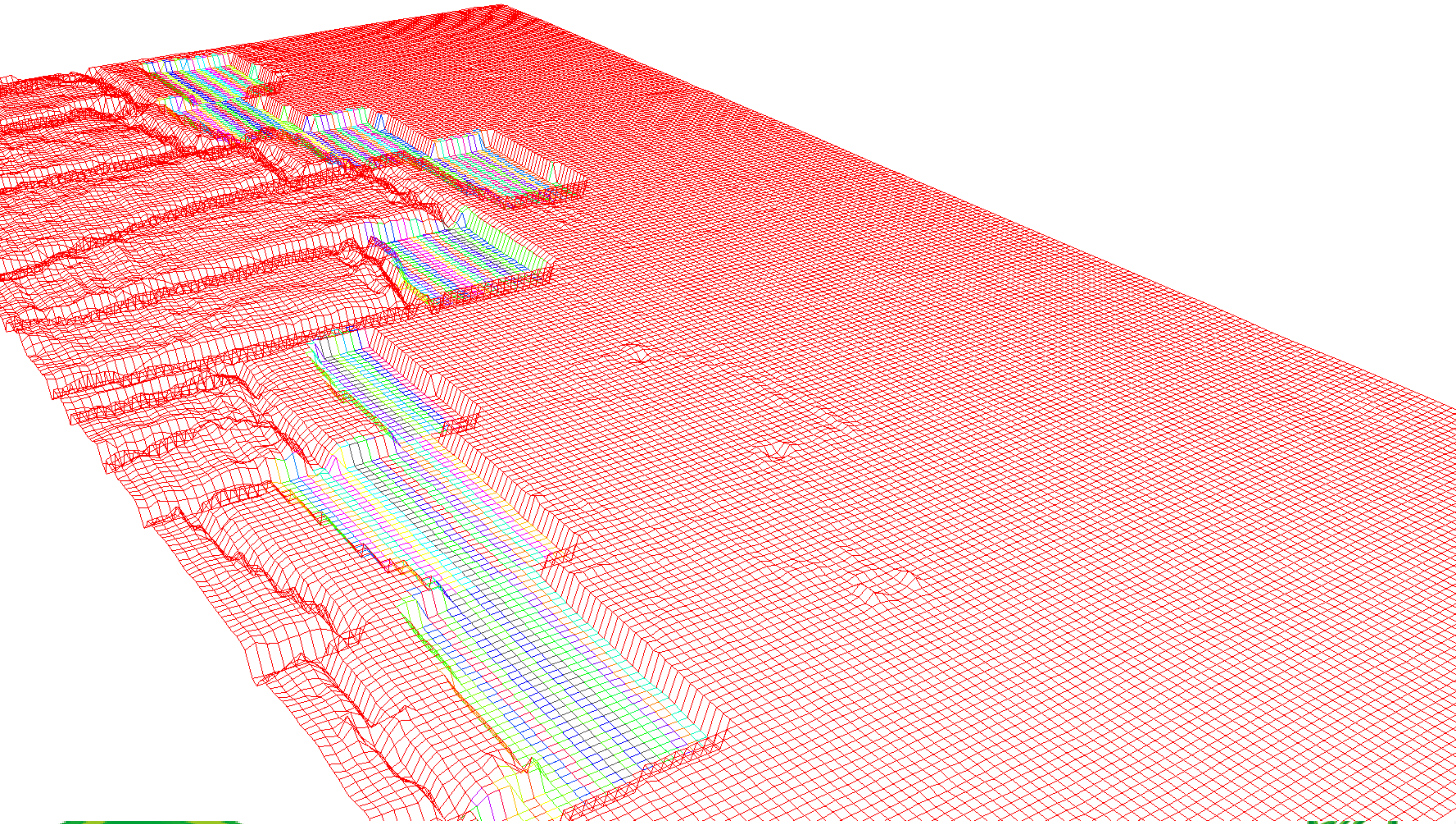

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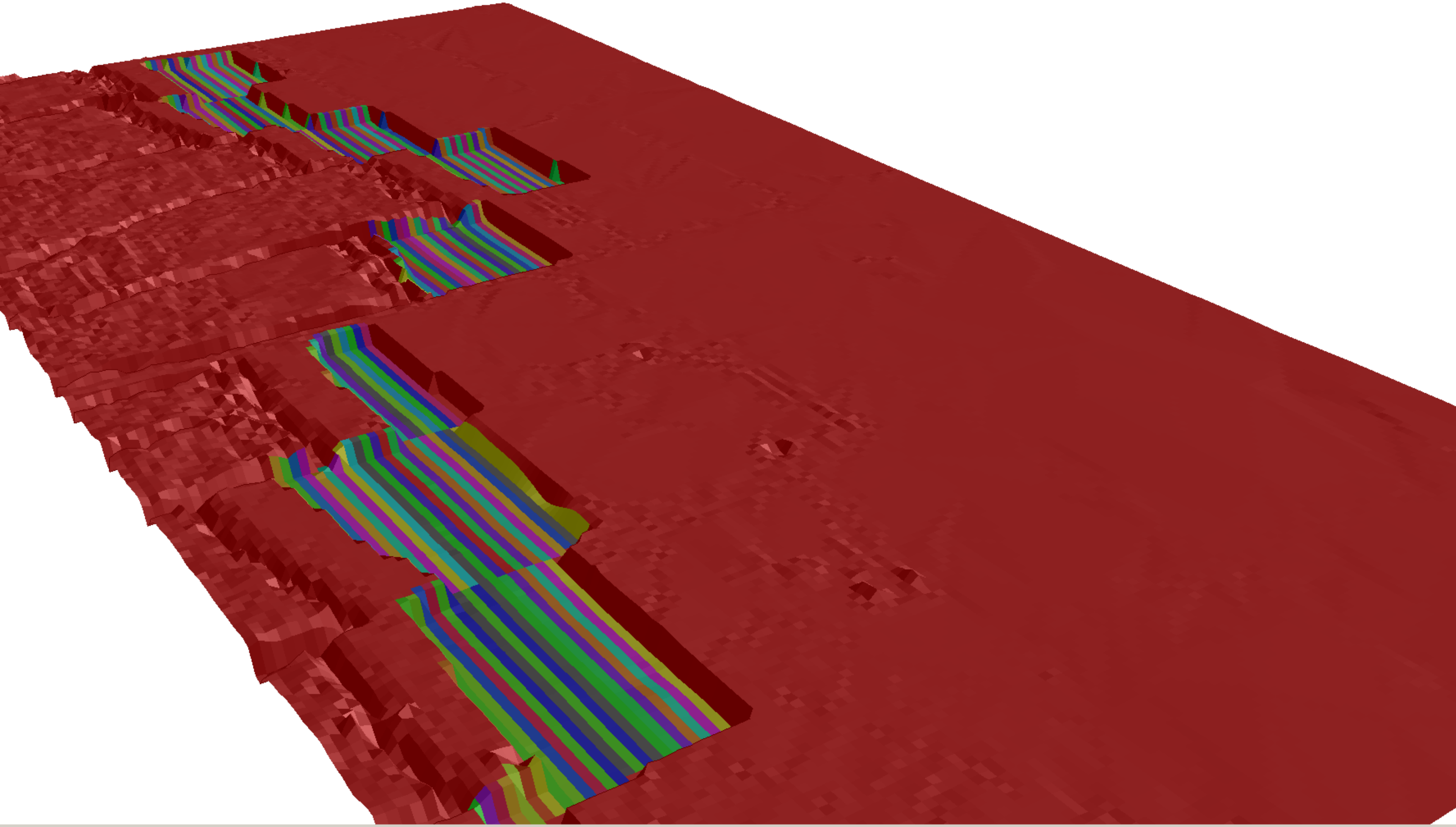

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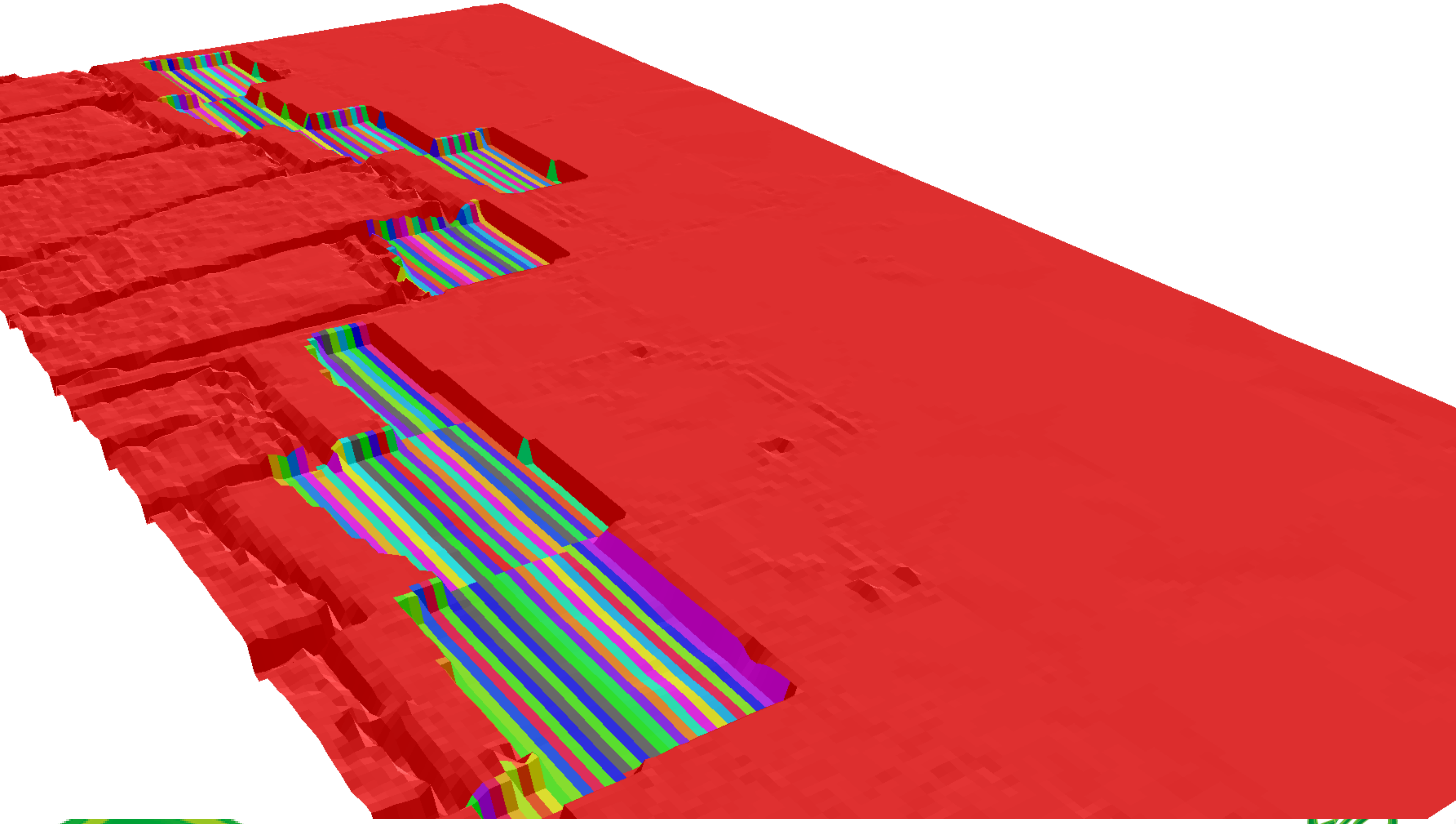

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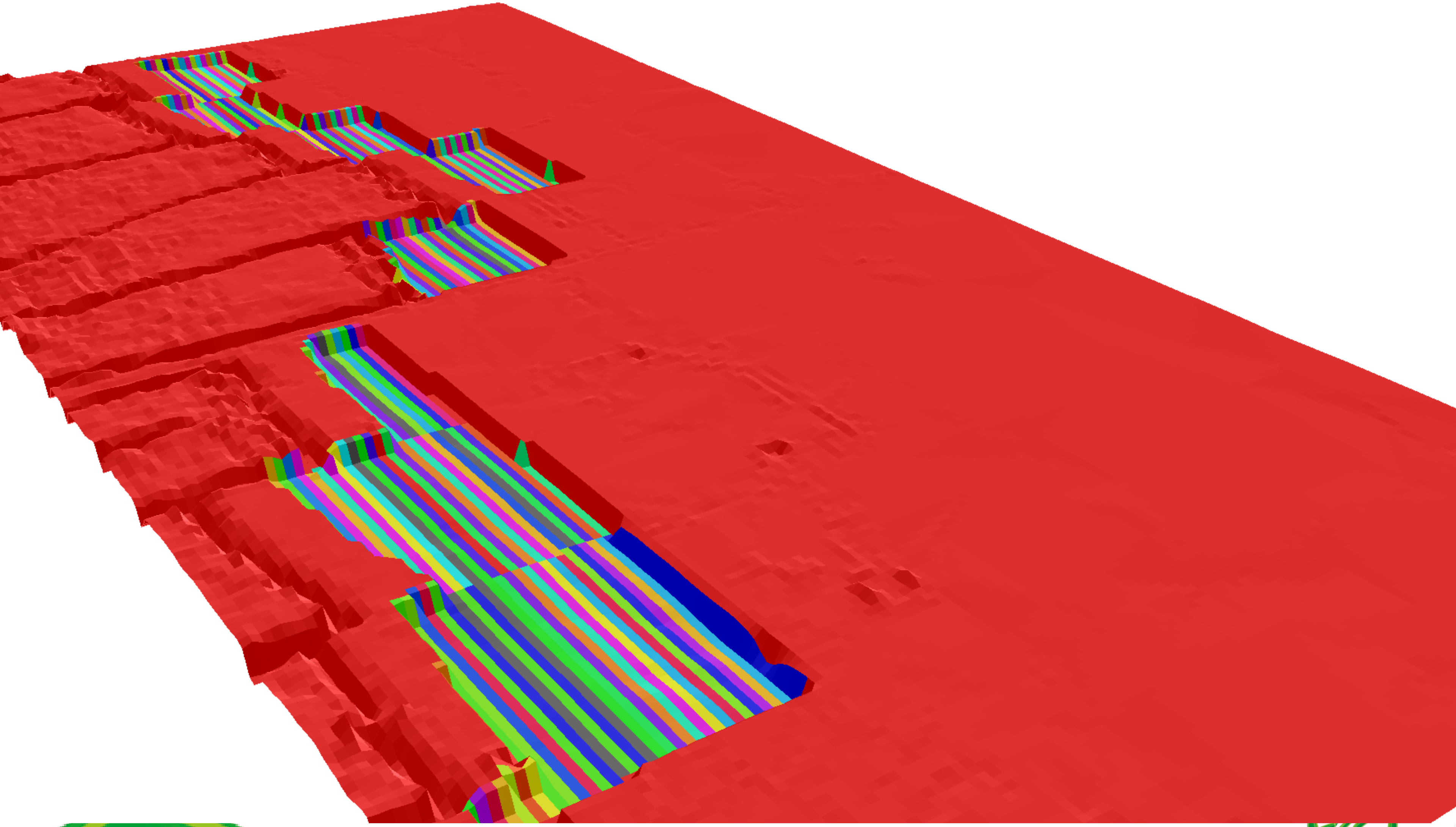

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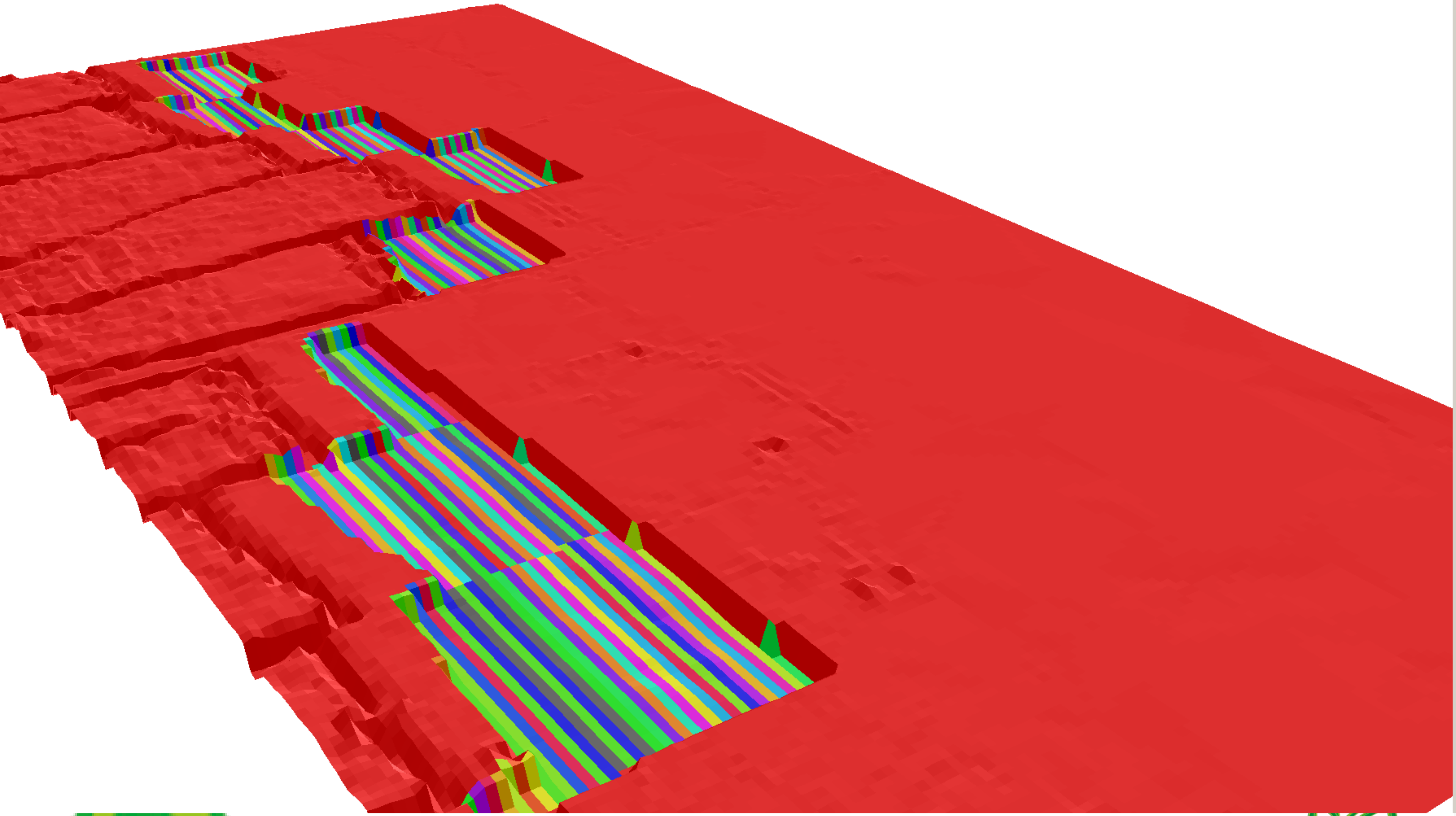
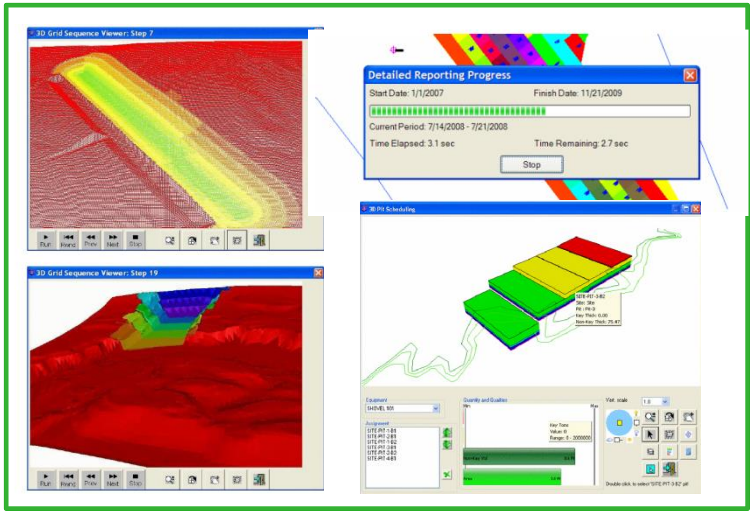
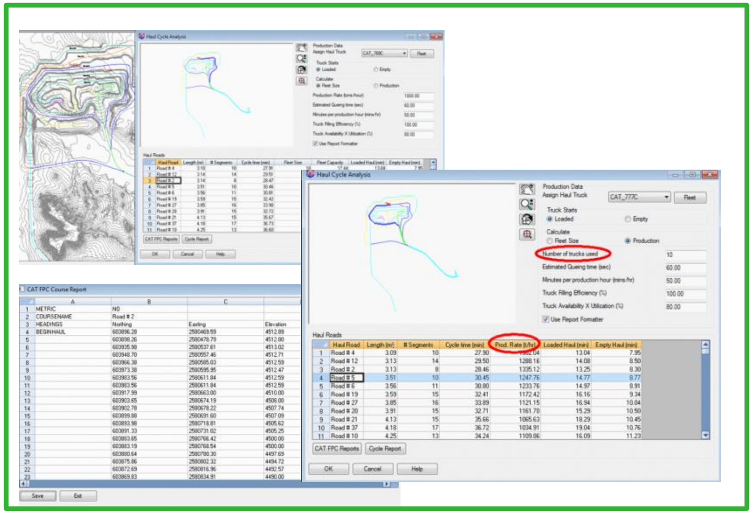
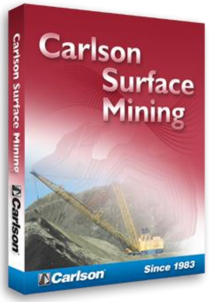


Toodang

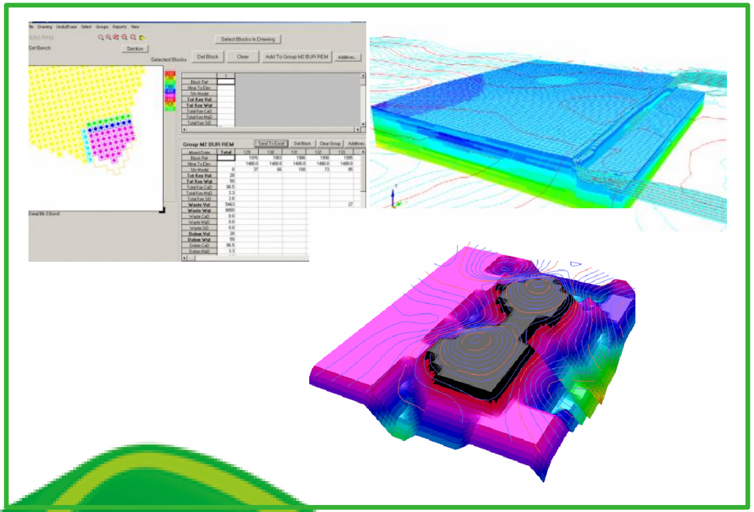


Veotsüklite analüüs

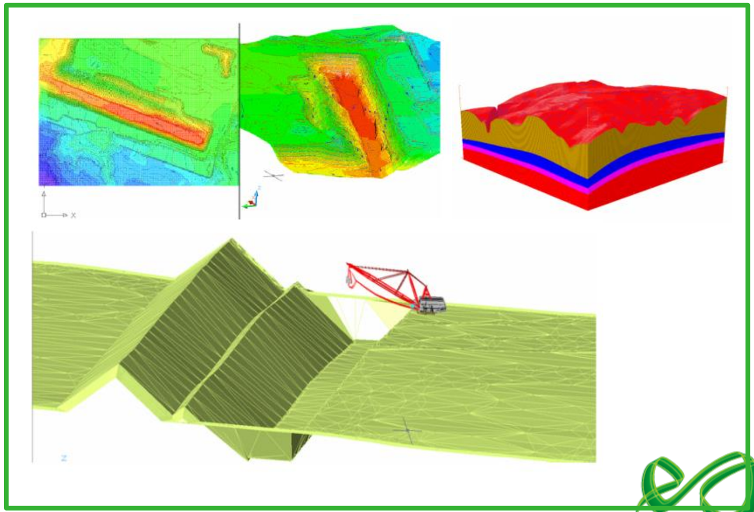




Kaevandatavad varud



Ruumiline disain



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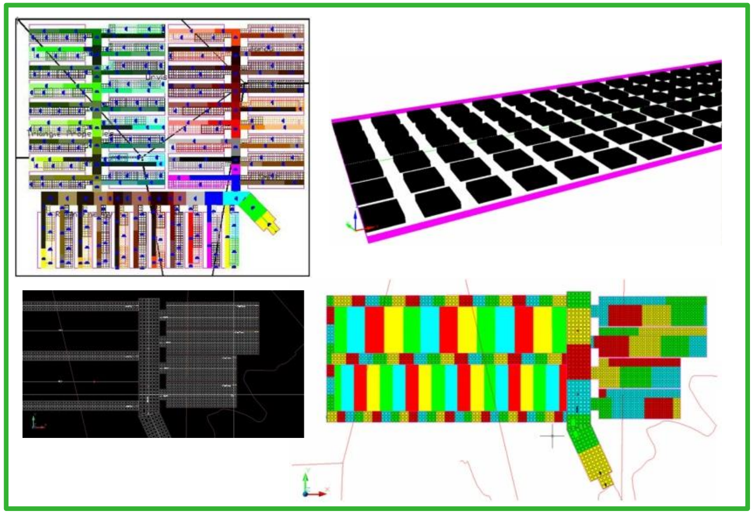
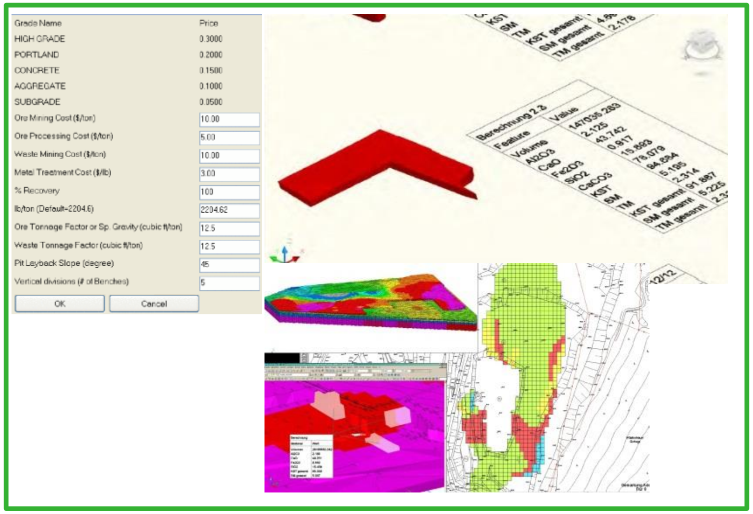
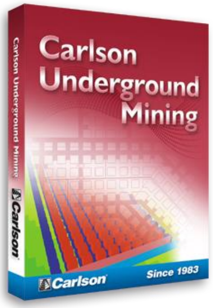
Projekteerimine

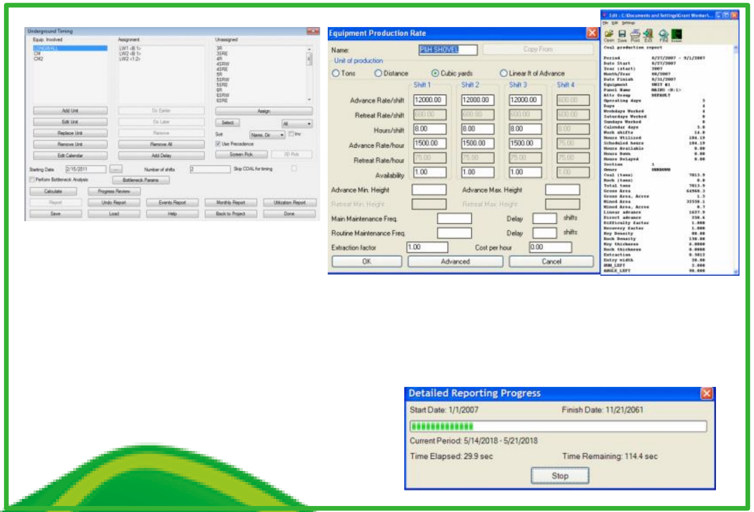


Kaevandatavad varud

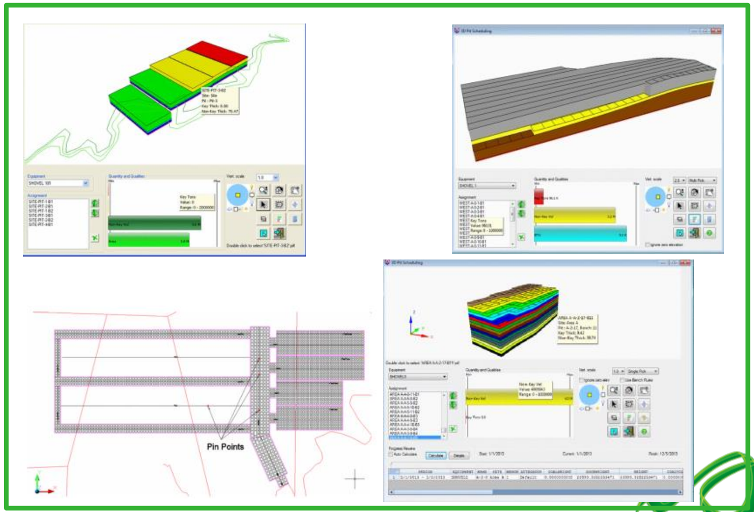




Toodang



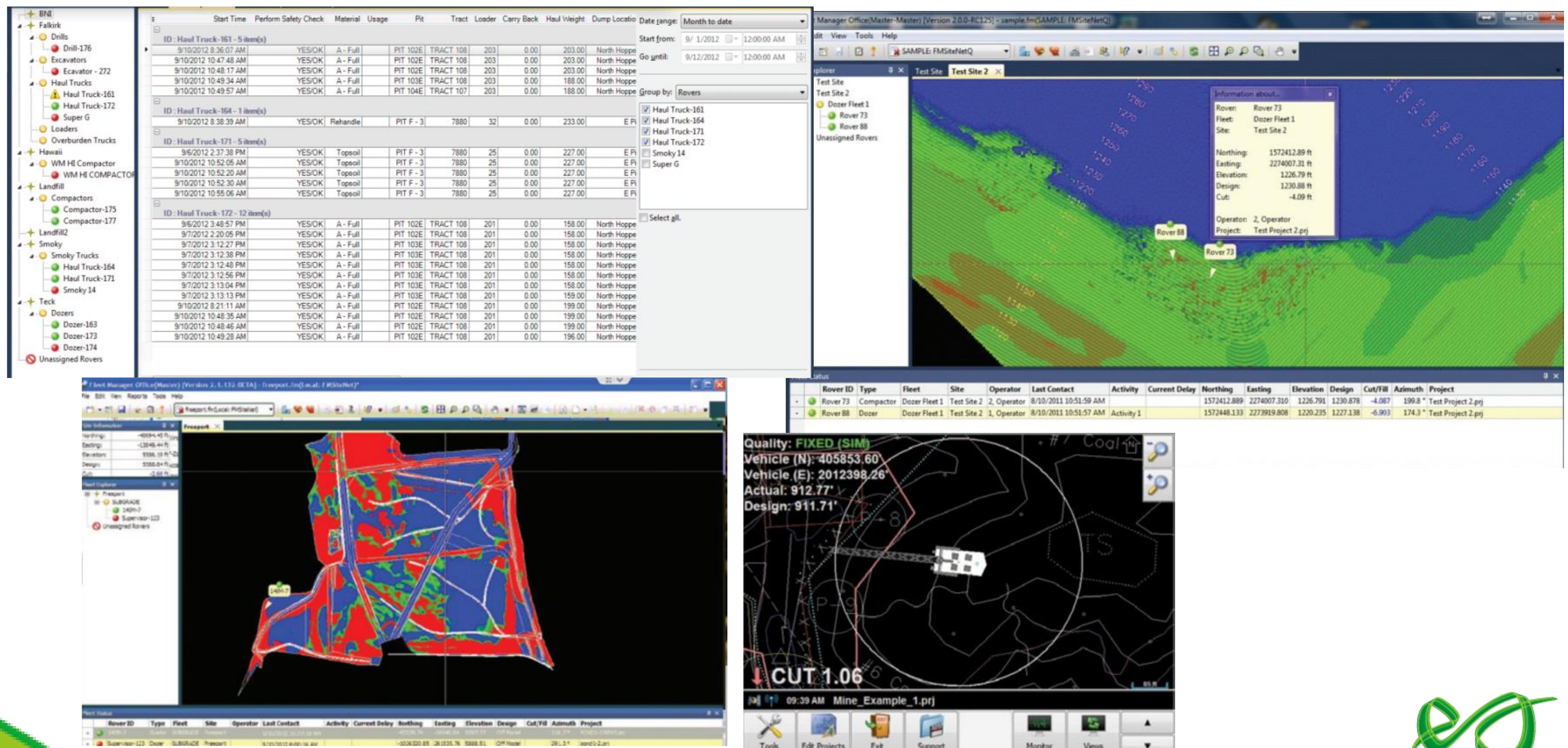
Ruumiline disain



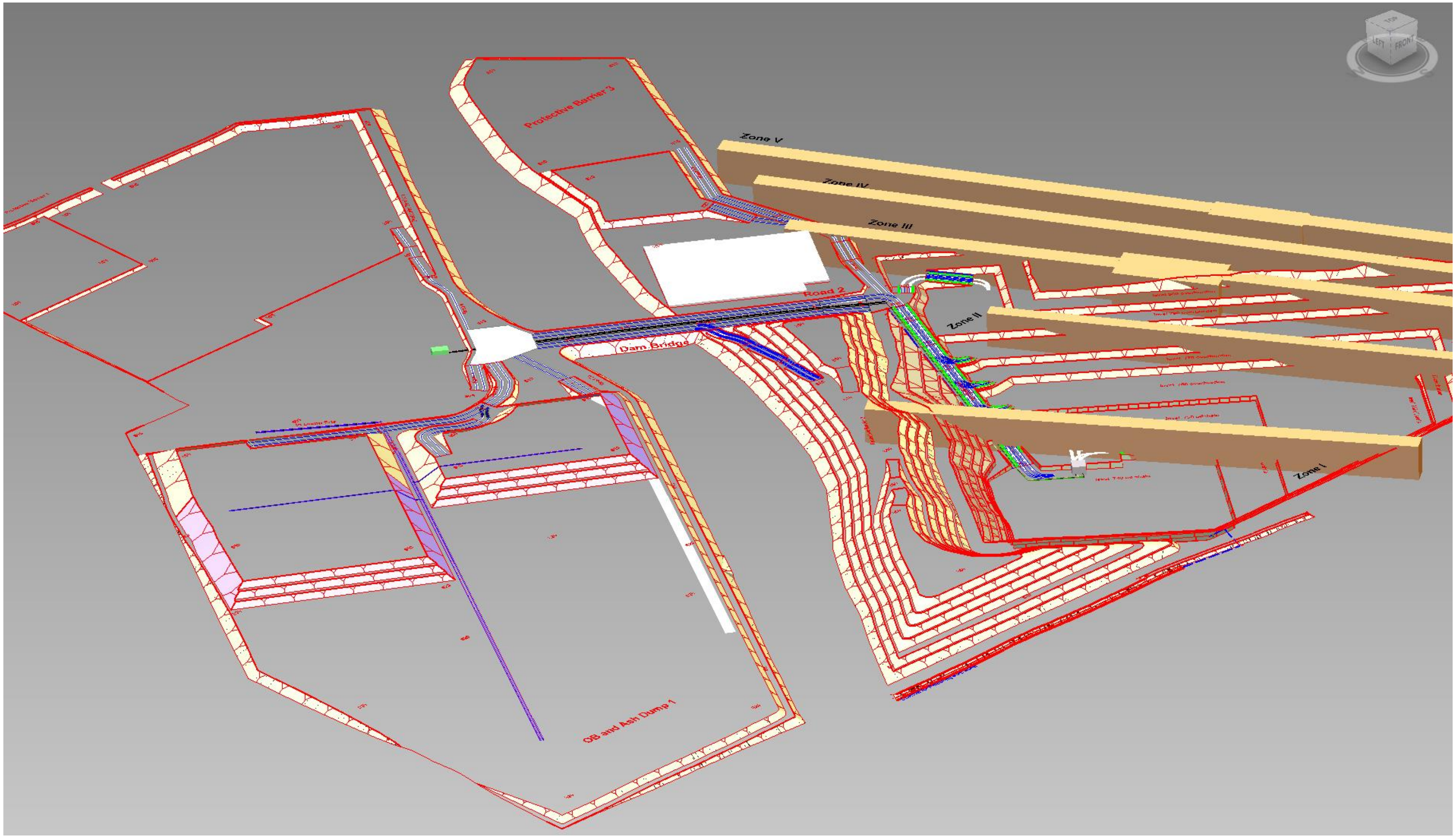
Eesti Energia

Mis edasi?

- Mäemasinate reaalajas jälgimine
- Geoloogiliste mudelite reaalajas uuendamine



Aitäh kuulamast



Eesti Energia