Idejni projekt lokalne ceste

Goić, Tamara

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SVEUČILIŠTE U SPLITU

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE

ZAVRŠNI RAD

TAMARA GOIĆ

Split, 2020.

SVEUČILIŠTE U SPLITU

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE

IDEJNI PROJEKT LOKALNE CESTE

Završni rad

Split, 2020.

SVEUČILIŠTE U SPLITU

FAKULTET GRAĐEVINARSTVA, ARHITEKTURE I GEODEZIJE

Split, Matice hrvatske 15

STUDIJ:	**PREDDIPLOMSKI SVEUČILIŠNI STUDIJ GRAĐEVINARSTVA**
KANDIDAT:	**Tamara Goić**
BROJ INDEKSA:	**4563**
KATEDRA:	**Katedra za prometnice**
PREDMET:	**Ceste**

ZADATAK ZA ZAVRŠNI RAD

Tema: Idejni projekt lokalne ceste

Opis zadatka: Uz pomoć programa za projektiranje cesta AutoCAD Civil 3D potrebno je izraditi idejni projekt ceste na geodetskoj podlozi koja je korištena za izradu programa u okviru kolegija Ceste. Trasa se treba položiti od točke A do točke B koristeći podatke iz programskog zadatka.

Zadatak treba sadržavati:

1. Kopiju programskog zadatka
2. Tehnički opis s prikazom korištenja programa Civil 3D
3. Građevinsku situaciju u mjerilu 1:1000
4. Uzdužni presjek u mjerilu 1:1000/100
5. Karakteristične poprečne presjeke u mjerilu 1:200
6. Obradu na računalu
7. Računalne ispise koordinatnih točaka osi
8. Proračun količina zemljanih radova
9. Proračun količine radova po presjecima

U Splitu, rujan 2020.

Voditelj završnog rada:

Prof. dr. sc. Dražen Cvitanić

Idejni projekt lokalne ceste

Sažetak: Idejni projekt lokalne ceste je izrađen na geodetskoj podlozi, prema zadatku iz kolegija Ceste, koristeći se programom AutoCAD Civil 3D. Cesta je projektirana za godišnji dnevni promet (PGDP) od 950 vozila na dan, na brdovitom terenu. Predviđena projektna brzina ceste je 40 km/h. Idejno rješenje izrađeno je prema Pravilniku i osnovnim uvjetima za projektiranje ceste s elementima koji zadovoljavaju važeće propise, kao i sigurnosne i estetske kriterije.

Ključne riječi:

Idejni projekt, lokalna cesta, projektna brzina, os ceste, niveleta, poprečni presjek

Conceptual project of local road

Abstract:

A conceptual project of local road, on a geodetic ground according to the task from course „Roads“, is made using software AutoCAD Civil 3D. The road is designed for the annual average daily traffic (AADT) of 950 vehicles per day, on the hilly terrain. The predicted project speed of the road is 40 miles per hour. Preliminary design of local road was created according to the Regulations on the basic conditions for the design of public roads with the elements that meet the applicable rules, as well as safety and aesthetic criteria.

Keywords:

Conceptual project, local road, design speed, the road axis, profile, cross-section

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1. PROGRAMSKI ZADATAK

SVEUČILIŠTE U SPLITU
FAKULTET GRAĐEVINARSTVA, ARHITEKTURE
I GEODEZIJE

Split, ak.god. 2019/2020.

Katedra za prometnice

Studij: Preddiplomski

Nastavni predmet: CESTE

Student/ica: Tamara Goić

ZADATAK

Treba izraditi idejni projekt dionice ceste između točaka A i B naznačenih na priloženoj geodetskoj podlozi u mjerilu 1:1000.

Zadano je:

- PGDP - prosječni godišnji dnevni promet: **950 voz/dan**
- vrsta terena: **brdoviti.**

Idejni projekt treba sadržavati:

1. Tehnički opis
2. Proračun horizontalne geometrije
3. Proračun proširenja kolnika u krivini
4. Proračun vertikalne geometrije i kota nivelete
5. Proračun vitoperenja kolnika
6. Građevinska situacija MJ. 1:1000
7. Uzdužni presjek MJ. 1:1000/100
8. Normalni poprečni presjek MJ. 1:50
9. Karakteristični poprečni presjeci MJ. 1:100
10. Predmjer radova
11. Aproksimativni troškovnik

Predmetna nastavnica:

izv.prof.dr.sc. Deana Breški, dipl.ing.građ.

2. TEHNIČKI OPIS

2.1. Općenito

Na priloženoj geodetskoj podlozi u mjerilu 1:1000 izrađen je idejni projekt ceste na dionici od točke A koja se nalazi na 230 metara nadmorske visine, do točke B koja se nalazi na 218 metara nadmorske visine. Cesta je projektirana za prosječni dnevni promet od 950 vozila na dan i to na brdovitom terenu (ceste je V. kategorije). Predviđena projektna brzina je 40 km/h.

2.2. Horizontalni elementi

Za navedenu kategoriju prema pravilniku, minimalni radijus horizontalne krivine je 45 m, a prijelaznice 30 m. Trasa kontinuirane ceste ima dužinu od 294 m, a sastoji se od tri pravca i dvije krivine. Obe krivine imaju radijus 50 m, a duljinu prijelaznice 30 m. Svaka krivina je konstruirana pomoću dvije prijelaznice oblika klotoide i jednog kružnog luka. Proširenje kružnog luka za promet teretnih vozila s priključkom u prvoj i u drugoj krivini iznosi 1.68 m.

2.3. Vertikalni elementi

Na temelju kategorije ceste najveći dopušteni nagib nivelete iznosi 12%, a najmanji dopušteni radijus vertikalne krivine 300 m. Tok trase se sastoji od tri pravca i dvije krivine. Nagib prvog pravca iznosi 5.21%, a drugog 9.54%. Tangenta krivine je dužine 21.483 m, a radijus konkavne krivine 500 m.

2.4. Poprečni presjek

Projektirana cesta ima dva kolnička traka širine svakog po 3 m, betonski rubni trak širine 0.20 m i bankinu širine 1 m i nagiba 4%. Cesta se dijelom nalazi u zasjeku, a dijelom u usjeku i nasipu. Nagib pokosa nasipa iznosi 1:1, a usjeka 2:1. Na usjecima se izvode rigoli za odvodnju vode širine 0.65 m i drenaža koja je postavljena u glinenu posteljicu, a u nasipu se izvode potporni zidovi zbog konfiguracije terena.

2.5. Kolnička konstrukcija

Projektom je predviđena kolnička konstrukcija sa sljedećim slojevima:

- Habajući sloj AC 11 surf (BIT50/70) AG4 M4 u debljini 4 cm
- Nosivi sloj AC 22 base (BIT50/70) AG6 M2 u debljini 6 cm
- Mehanički zbijeni nosivi sloj debljine 30 cm

2.6. Odvodnja

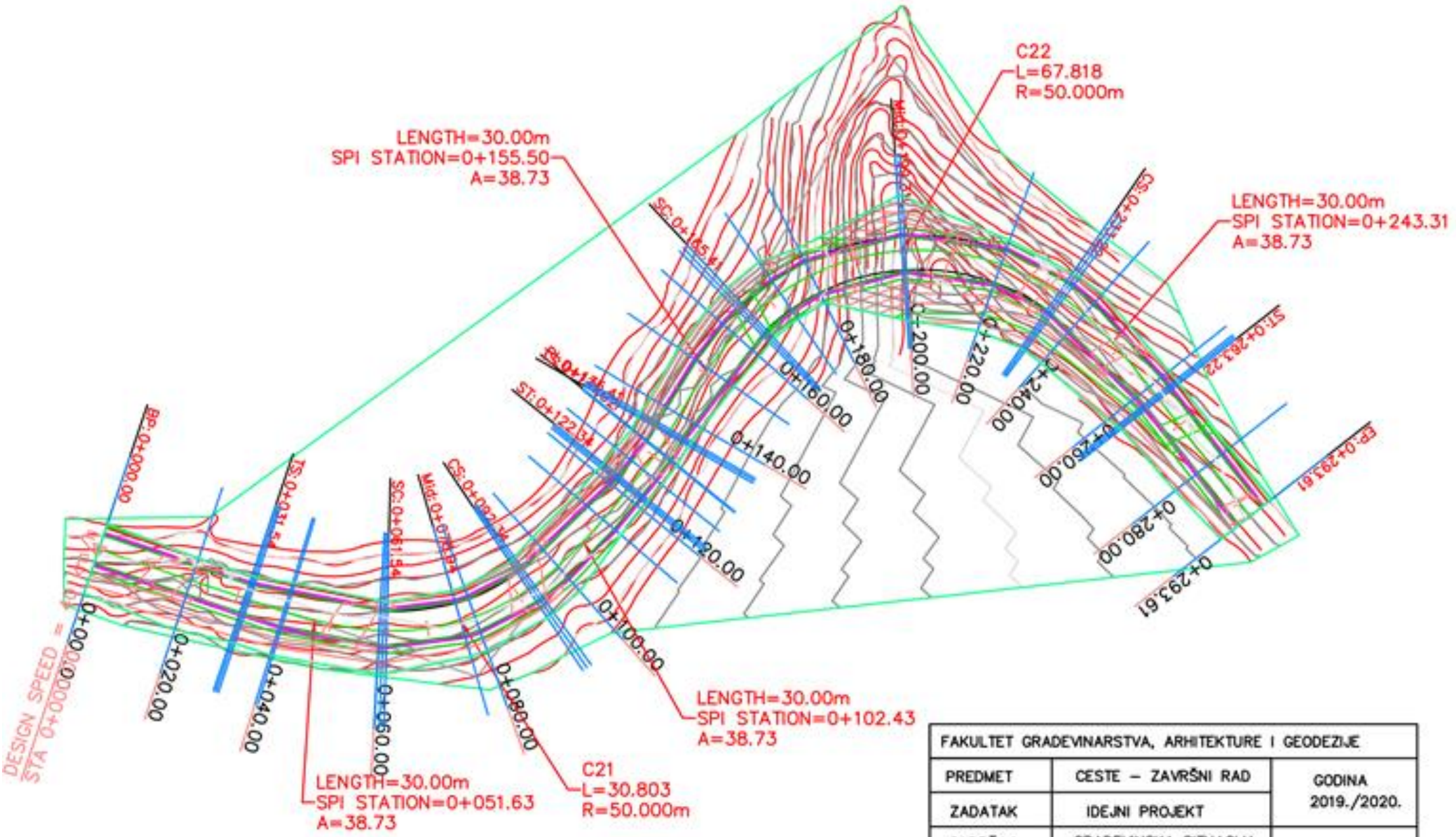
Odvodnja kolnika predviđa se otvorenim sustavom odvodnje prihvaćanjem kolničkih pribrežnih voda u zasjeku i usjeku u betonske rigole te kontroliranim ispuštanjem u teren direktno ili betonskim cijevnim propustima kroz trup kolnika.

2.7. Oprema ceste

Idejnim rješenjem je predviđena horizontalna signalizacija koja se sastoji od jedne pune razdjelne crte širine 10 cm koja se postavlja u osi prometnice i punih rubnih crta širine 10 cm koje se postavljaju na svaki od rubnih trakova. Na nasip se postavlja jednostrana zaštitna čelična ograda.

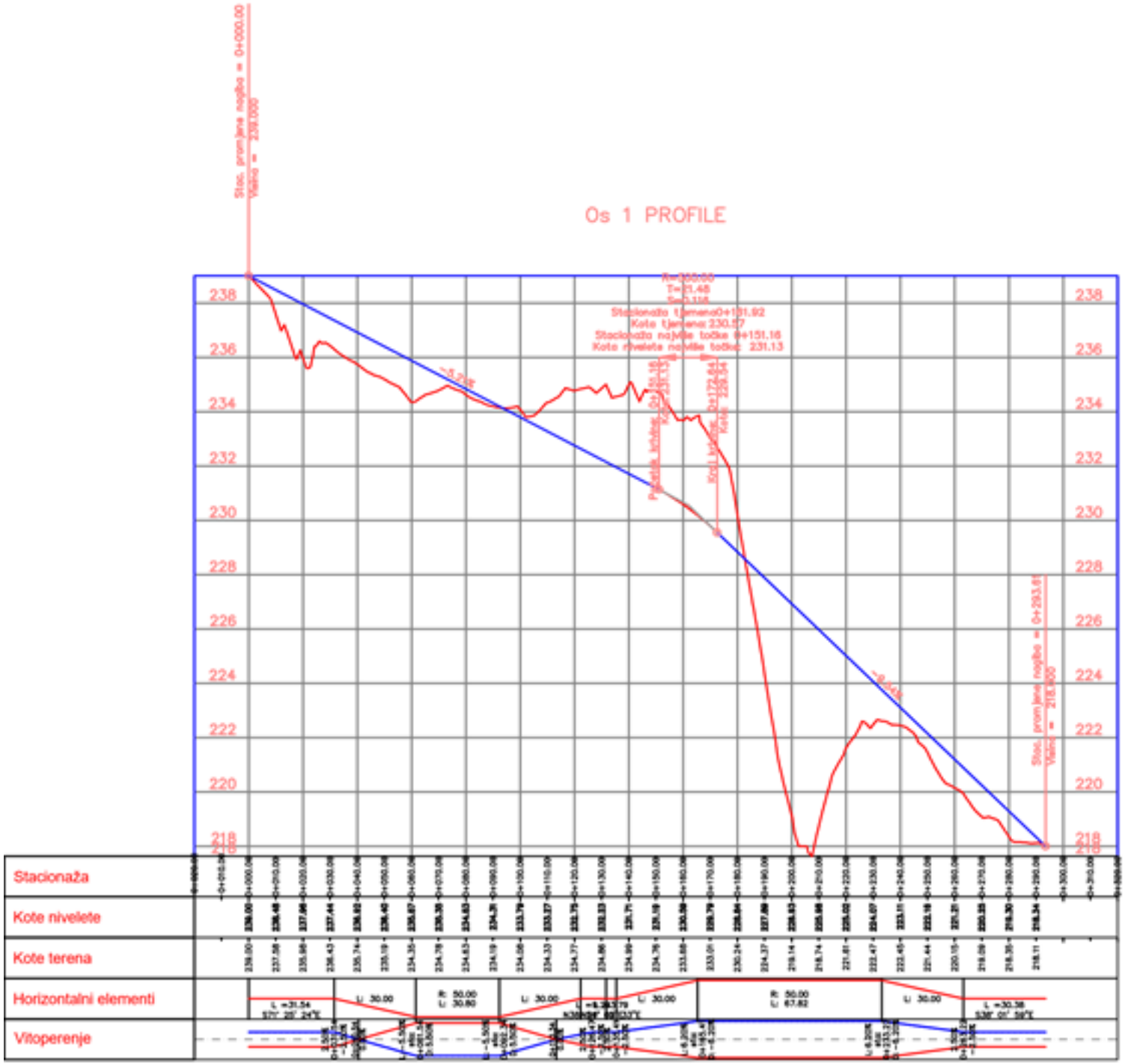
3. GRAFIČKI PRILOZI

3.1. Situacija M 1:1000

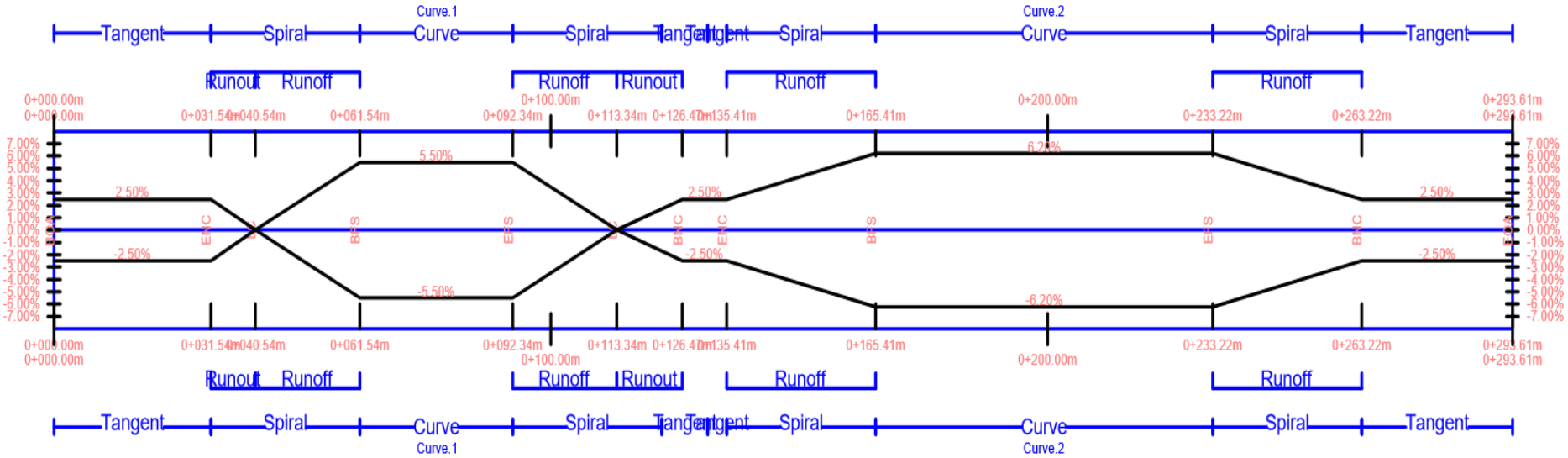


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PREDMET	CESTE – ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	GRADEVINSKA SITUACIJA	M 1:1000
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3.2. Uzdužni presjek M 1:1000/100



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ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	UZDUŽNI PRESJEK	M 1:1000/100
STUDENTICA	TAMARA GOIĆ	

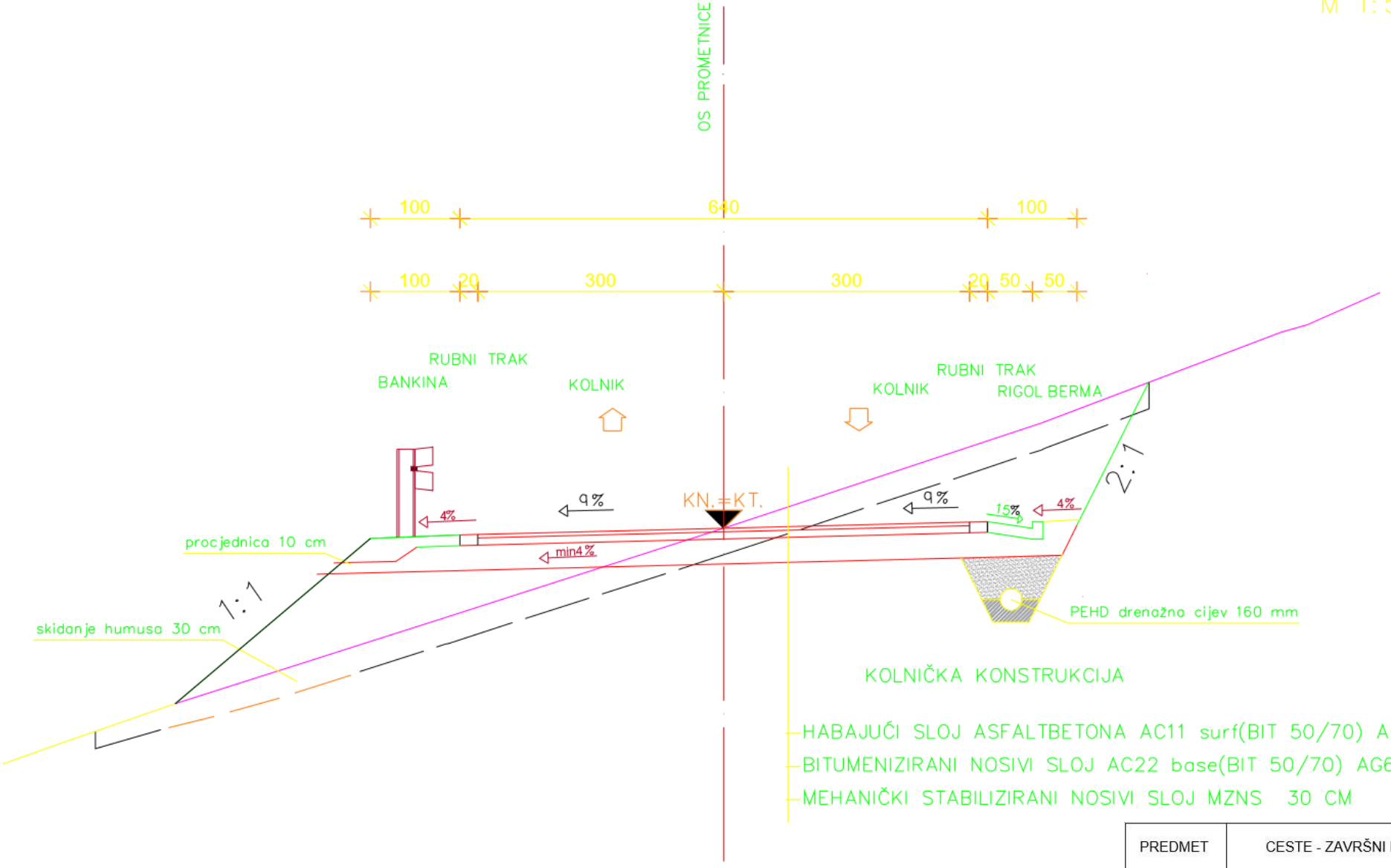


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ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	DIJAGRAM VITOPERENJA	M 1:1000
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3.3. Normalni poprečni presjek M 1:50

NORMALNI POPREČNI PRESJEK

M 1:50



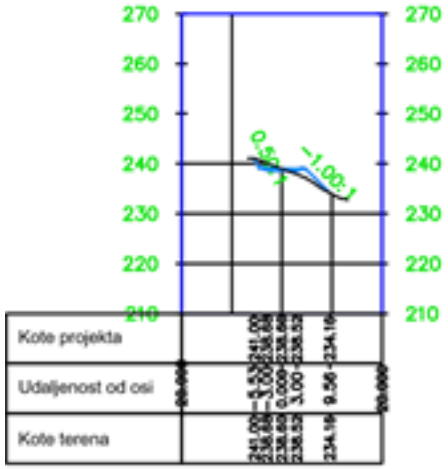
KOLNIČKA KONSTRUKCIJA

- HABAJUĆI SLOJ ASFALTBETONA AC11 surf(BIT 50/70) AG4 M4 4 CM
- BITUMENIZIRANI NOSIVI SLOJ AC22 base(BIT 50/70) AG6 M2 8 CM
- MEHANIČKI STABILIZIRANI NOSIVI SLOJ MZNS 30 CM

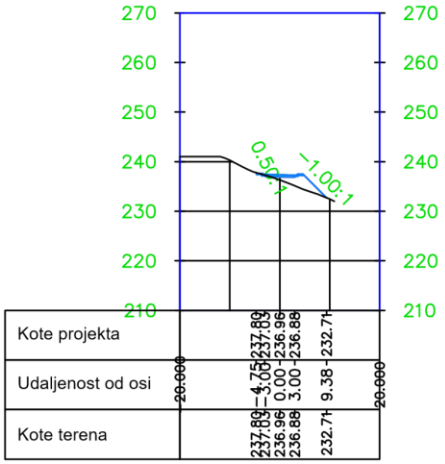
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PROGRAM	IDEJNI PROJEKT	
SADRŽAJ	NORMALNI POPREČNI PRESJEK	M 1:50
STUDENTICA	TAMARA GOIĆ	

3.4. Karakteristični poprečni presjeci M 1:200

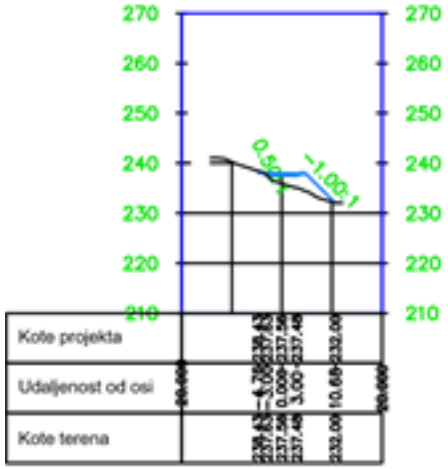
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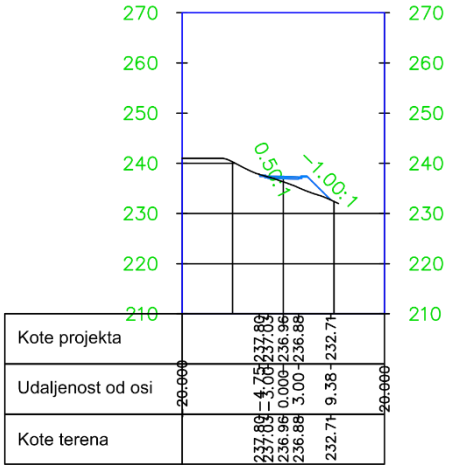
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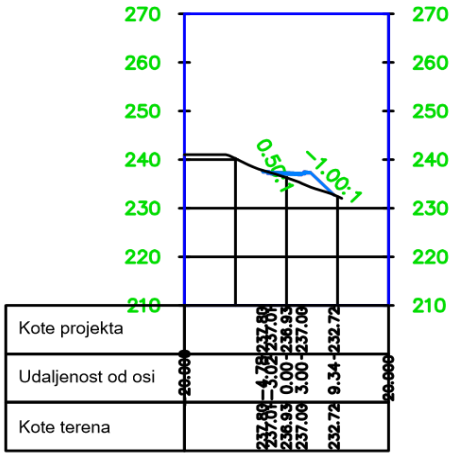


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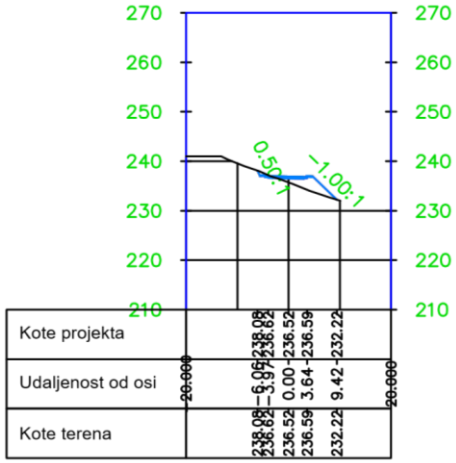


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PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

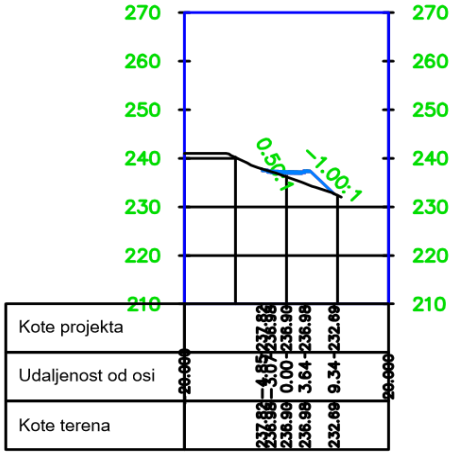
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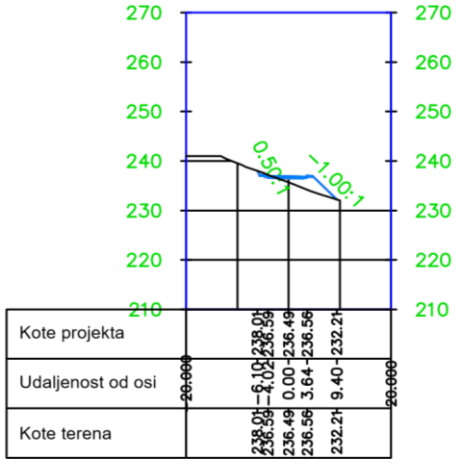
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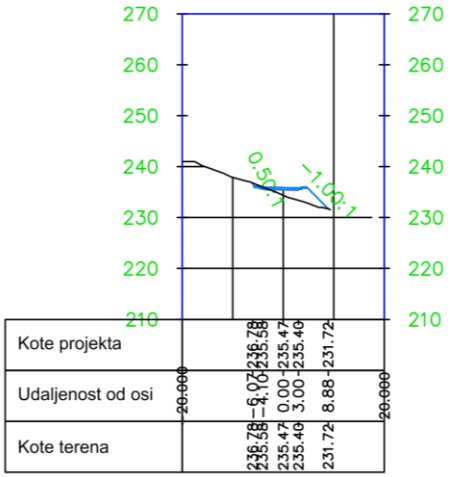


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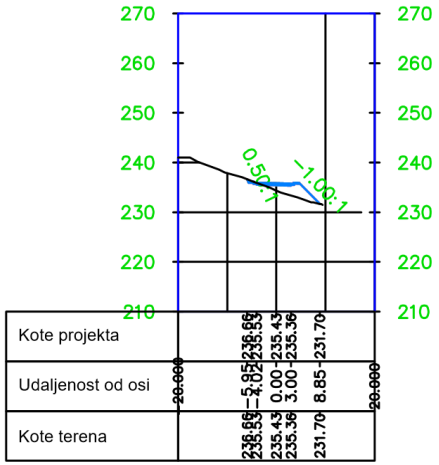


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PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

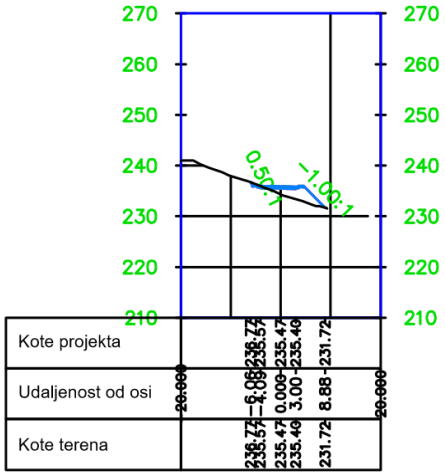
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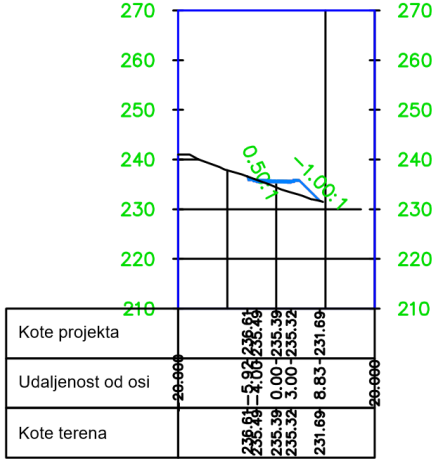
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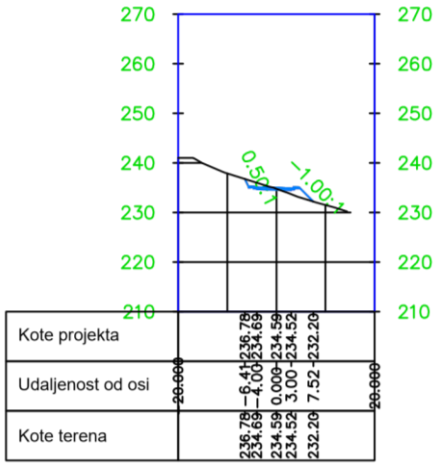


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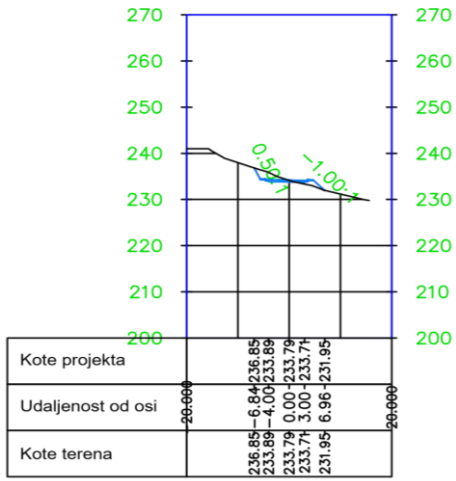


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SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

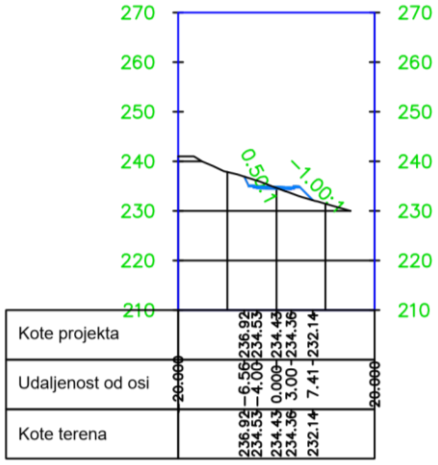
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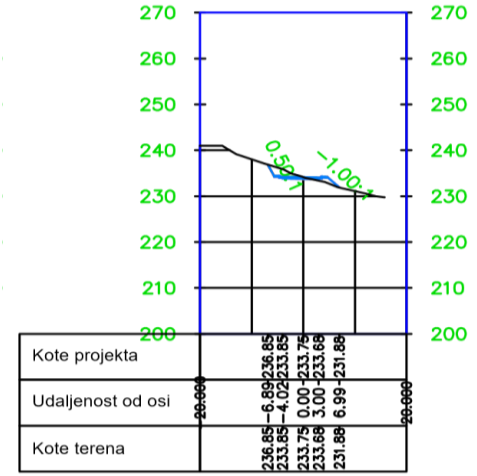
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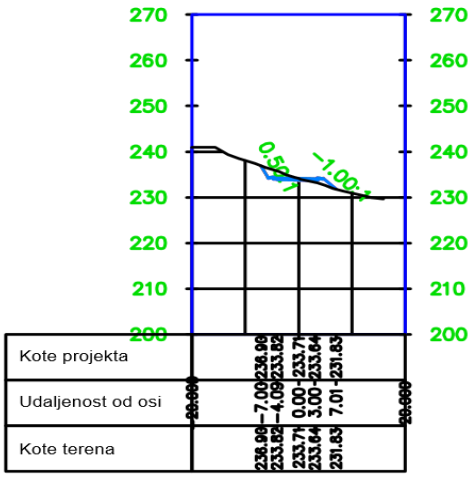


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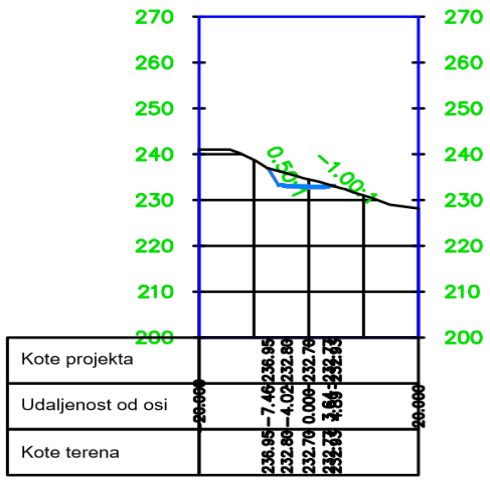


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PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

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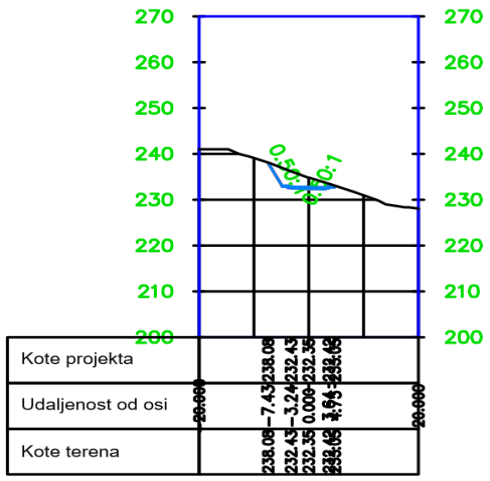
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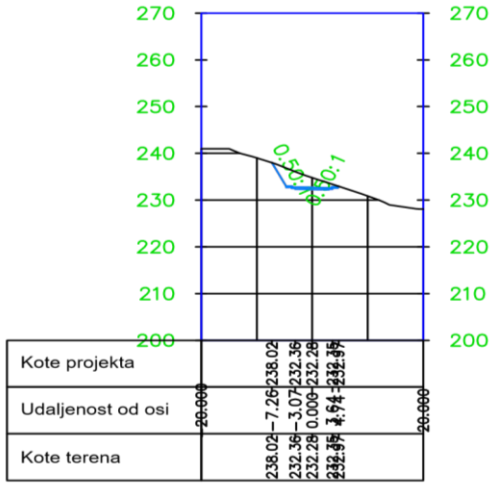


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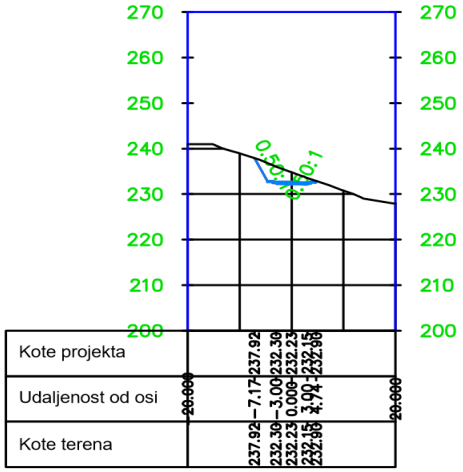


FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

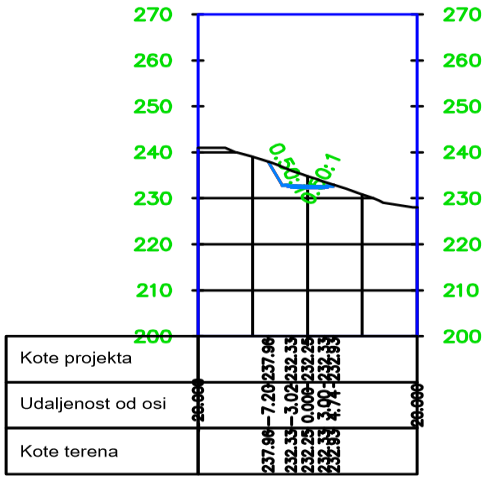
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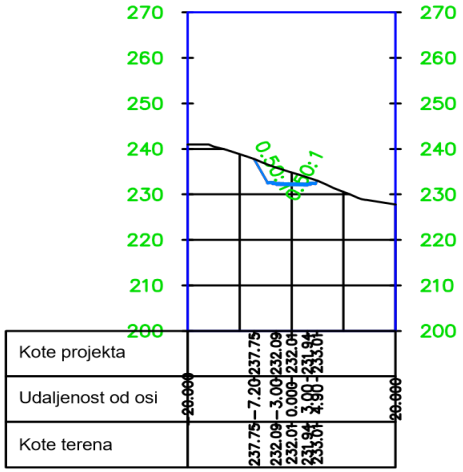
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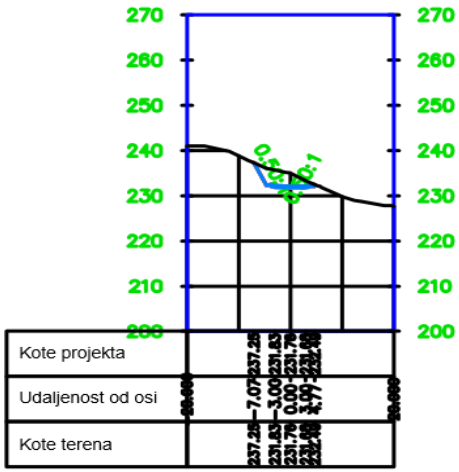


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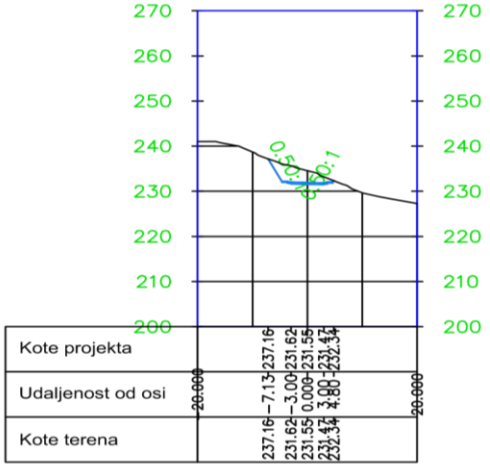


FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

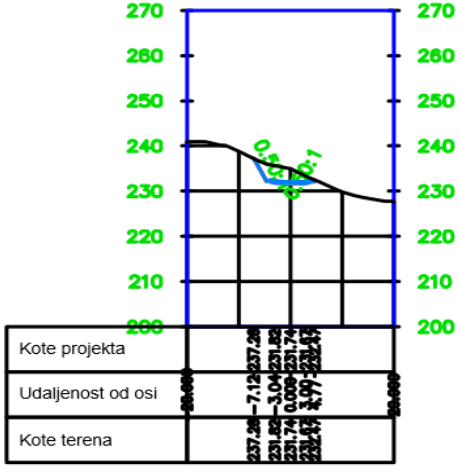
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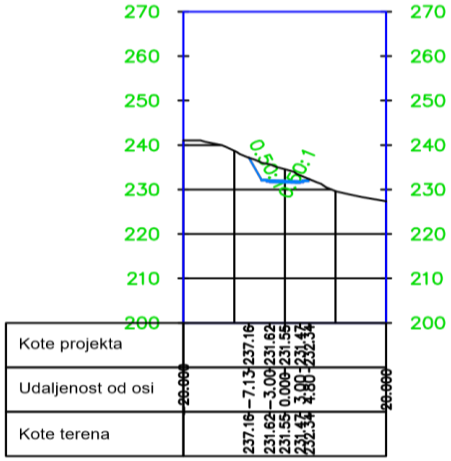
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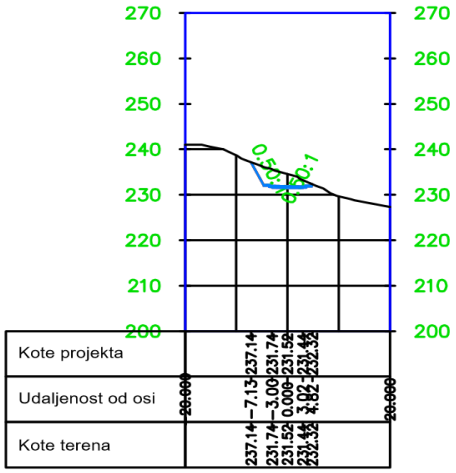


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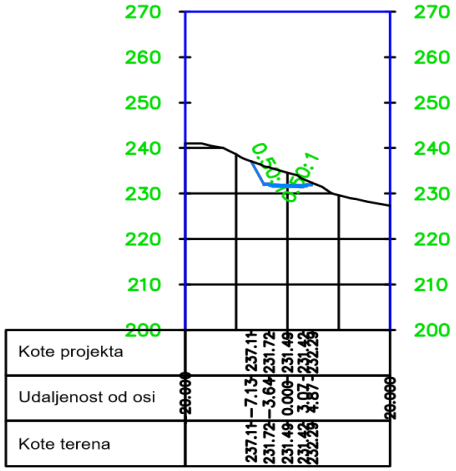


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PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

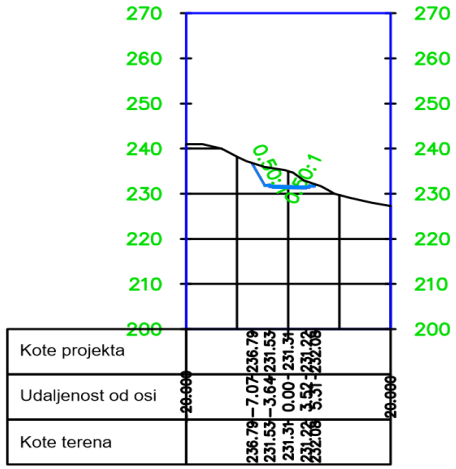
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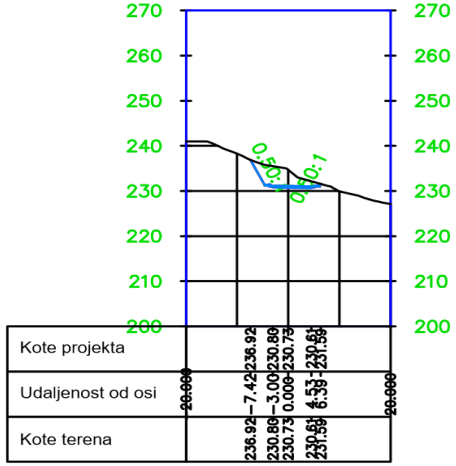
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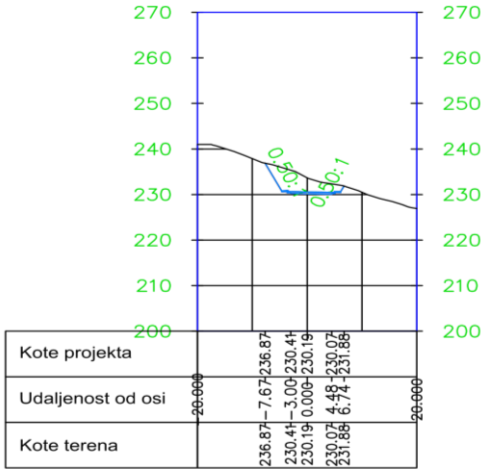


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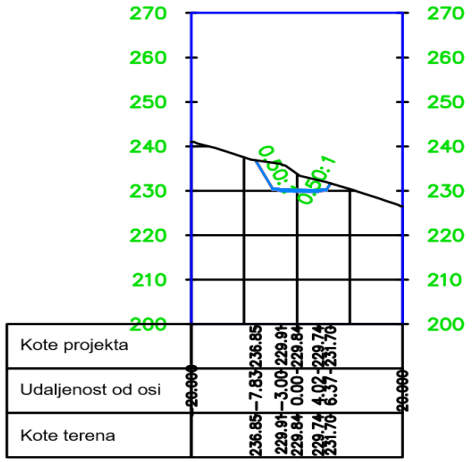


FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

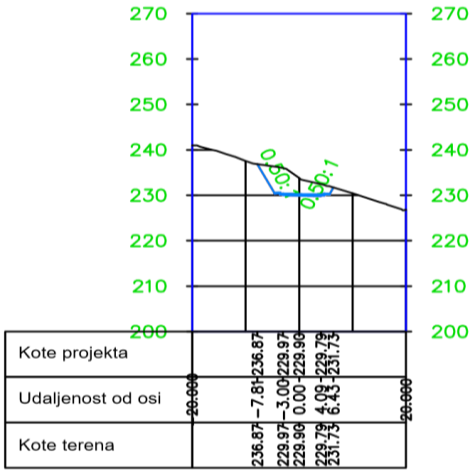
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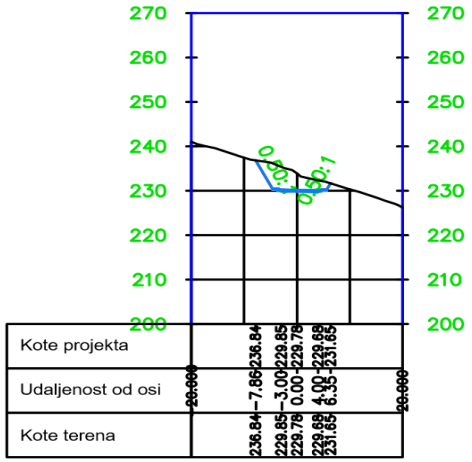
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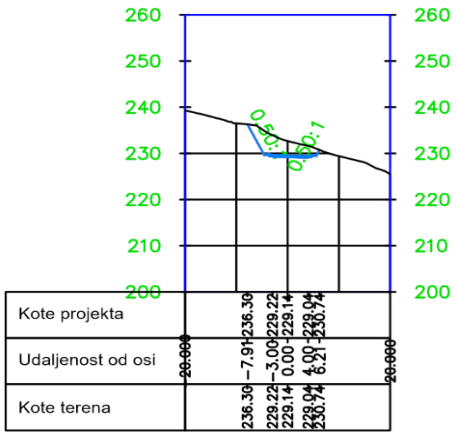


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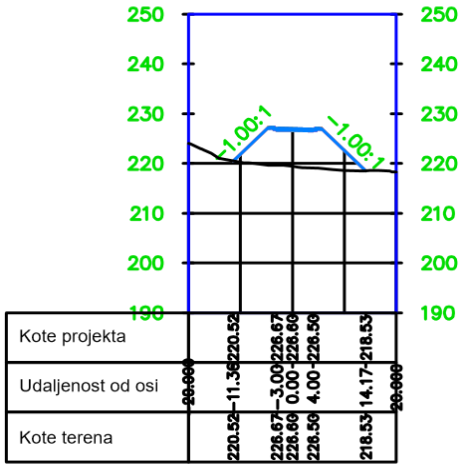


FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

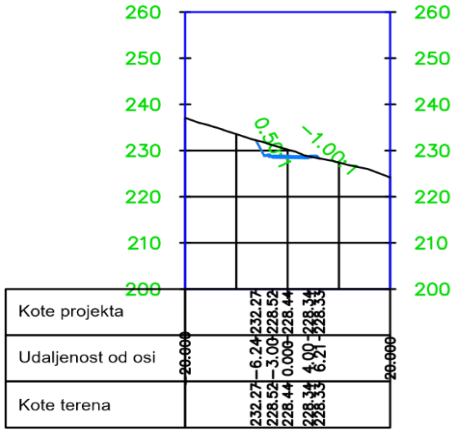
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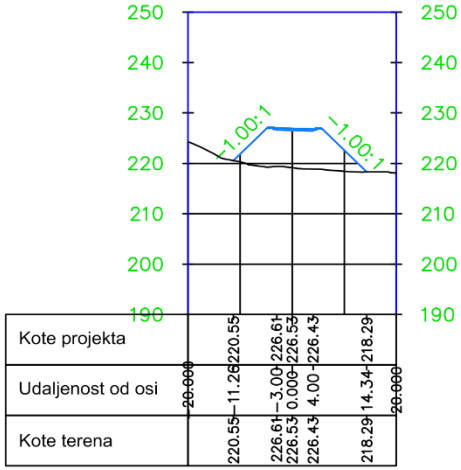
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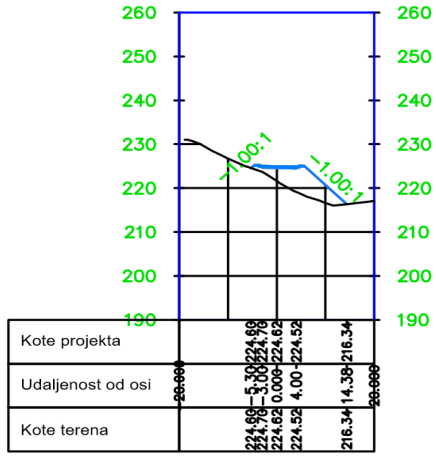


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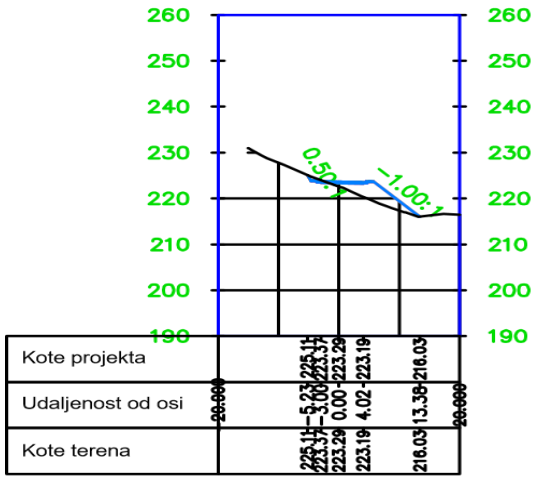


FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

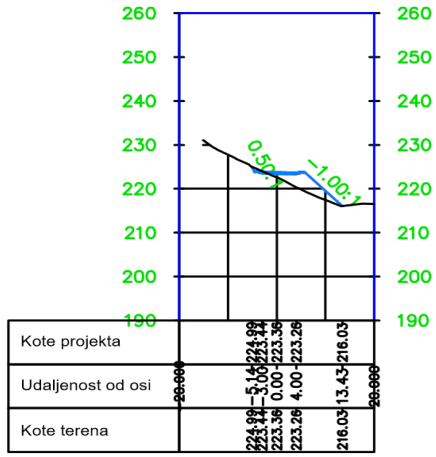
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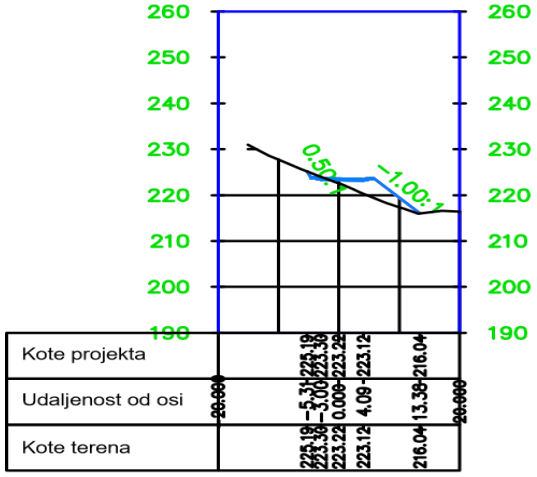
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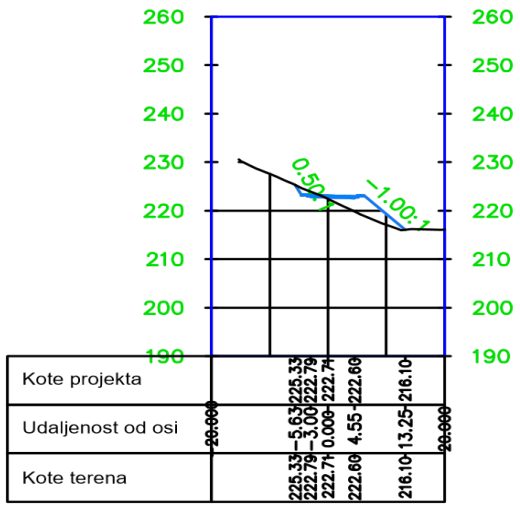


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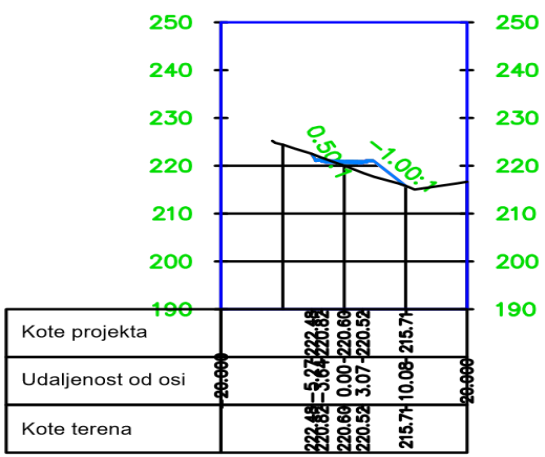
FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

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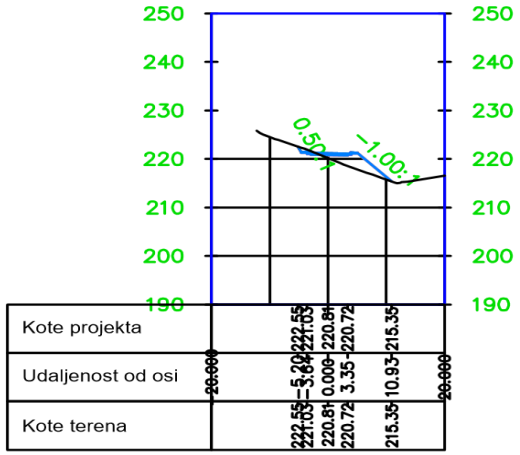
Kote projekta		225.33	222.79	222.74	222.60	216.10
Udaljenost od osi	20.000	-5.63	-3.00	0.00	4.55	13.25	20.000
Kote terena		225.33	222.79	222.74	222.60	216.10	

0+262.18



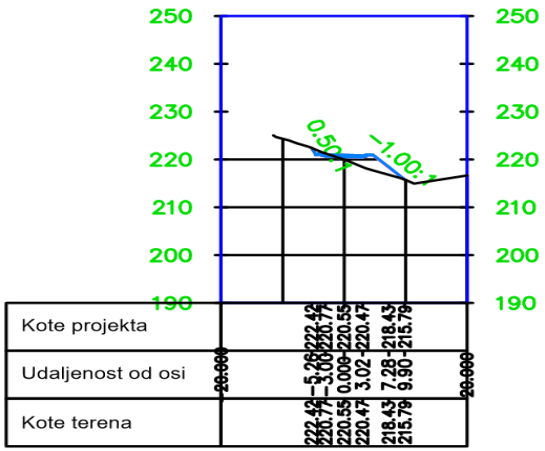
Kote projekta		222.48	220.82	220.60	215.71
Udaljenost od osi	20.000	-5.27	-3.00	0.00	3.07	10.08	20.000
Kote terena		222.48	220.82	220.60	220.52	215.71	

0+260.00



Kote projekta		222.55	221.03	220.81	220.72	215.35
Udaljenost od osi	20.000	-5.20	-3.00	0.00	3.35	10.93	20.000
Kote terena		222.55	221.03	220.81	220.72	215.35	

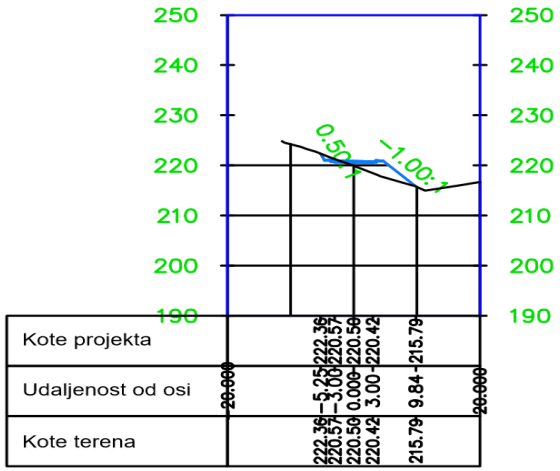
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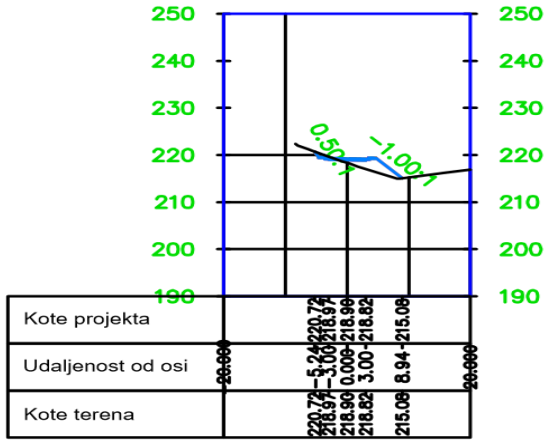
Kote projekta		222.42	220.77	220.55	220.47	215.79
Udaljenost od osi	20.000	-5.26	-3.00	0.00	3.02	7.28	20.000
Kote terena		222.42	220.77	220.55	220.47	218.43	

FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE			
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.	
ZADATAK	IDEJNI PROJEKT		
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200	
STUDENTICA	TAMARA GOIĆ		

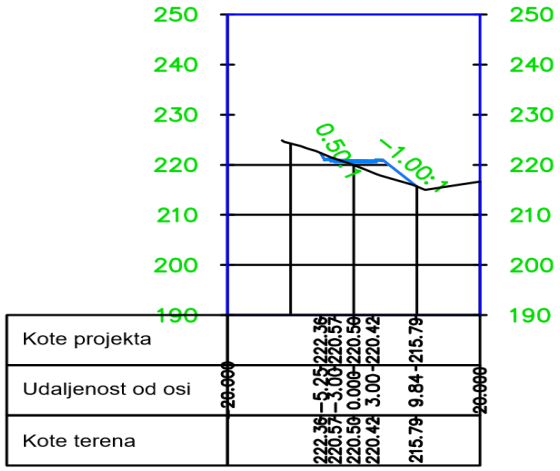
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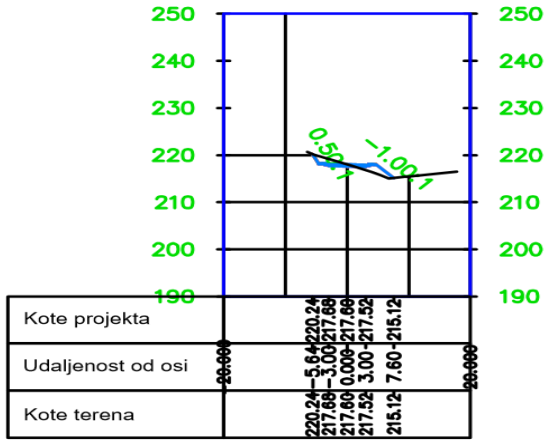
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0+263.22



0+293.61



FAKULTET GRADEVINARSTVA, ARHITEKTURE I GEODEZIJE		
PREDMET	CESTE - ZAVRŠNI RAD	GODINA 2019./2020.
ZADATAK	IDEJNI PROJEKT	
SADRŽAJ	KARAKTERISTIČNI POPREČNI PRESJECI	M 1:200
STUDENTICA	TAMARA GOIĆ	

4. TABLICA UKUPNOG VOLUMENA ZEMLJANIH RADOVA

Stacionaža	Površina usjeka	Volumen usjeka	Površina nasipa	Volumen nasipa	Kumulativni volumen usjeka	Kumulativni volumen nasipa	Kumulativni volumen
0+000.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0+020.000	20.10	254.05	14.09	167.61	254.05	167.61	86.44
0+031.538	47.08	387.54	8.04	127.65	641.60	295.26	346.34
0+031.540	47.08	0.07	8.04	0.01	641.67	295.28	346.40
0+032.062	47.37	24.63	8.12	4.21	666.30	299.49	366.81
0+032.583	47.66	24.78	8.20	4.26	691.08	303.74	387.34
0+040.000	49.83	345.66	9.20	65.05	1036.74	368.79	667.95
0+040.538	49.74	26.81	9.25	4.97	1063.54	373.76	689.79
0+060.000	46.20	766.80	10.65	199.17	1830.35	572.93	1257.42
0+060.074	46.18	3.43	10.62	0.79	1833.77	573.72	1260.06
0+060.804	46.08	33.67	10.26	7.62	1867.44	581.34	1286.11
0+061.538	46.12	33.85	9.84	7.38	1901.30	588.72	1312.58
0+076.940	61.30	595.06	3.28	106.14	2496.36	694.86	1801.50
0+080.000	64.44	140.69	3.24	10.66	2637.05	705.52	1931.53
0+092.342	75.33	634.89	1.67	32.42	3271.94	737.94	2534.00
0+093.076	76.24	55.65	2.11	1.39	3327.59	739.33	2588.26
0+093.806	77.20	56.00	2.69	1.75	3383.59	741.08	2642.51
0+100.000	85.77	394.99	10.85	46.40	3778.57	787.47	2991.10
0+113.342	106.80	1122.05	27.76	291.08	4900.63	1078.55	3822.08
0+120.000	123.07	732.67	24.89	185.11	5633.30	1263.66	4369.64
0+121.297	124.24	160.40	25.18	32.47	5793.70	1296.13	4497.57
0+121.819	124.67	64.91	25.33	13.17	5858.61	1309.30	4549.31
0+122.342	125.13	65.34	25.44	13.28	5923.95	1322.58	4601.37
0+126.467	129.05	524.24	25.23	104.50	6448.19	1427.08	5021.11
0+131.383	131.91	641.46	27.57	129.79	7089.65	1556.88	5532.78
0+131.620	131.88	31.23	27.71	6.54	7120.88	1563.42	5557.46
0+135.405	133.09	276.40	26.35	164.09	7397.29	1727.52	5669.77
0+135.410	133.09	0.65	26.35	0.13	7397.93	1727.64	5670.29

0+135.928	133.41	69.06	26.32	13.65	7466.99	1741.29	5725.70
0+136.450	133.79	69.67	26.22	13.70	7536.67	1754.99	5781.67
0+140.000	137.13	480.92	23.75	88.71	8017.58	1843.70	6173.89
0+151.162	71.93	1233.69	15.19	194.84	9251.27	2038.53	7212.74
0+160.000	40.76	515.79	9.85	86.27	9767.06	2124.80	7642.26
0+163.941	46.49	170.23	8.89	25.67	9937.29	2150.47	7786.81
0+164.671	46.99	34.12	9.00	6.53	9971.40	2157.00	7814.40
0+165.405	46.06	34.16	9.12	6.65	10005.57	2163.65	7841.91
0+172.645	38.54	303.38	11.23	48.10	10308.95	2211.75	8097.19
0+180.000	15.43	199.20	26.86	96.29	10508.14	2308.04	8200.10
0+199.314	0.00	153.06	194.24	1753.86	10661.20	4061.90	6599.30
0+200.000	0.00	0.00	198.77	134.77	10661.20	4196.67	6464.53
0+220.000	0.00	0.00	154.67	2886.33	10661.20	7083.00	3578.20
0+233.223	1.55	10.99	114.20	1377.69	10672.19	8460.69	2211.51
0+233.958	1.63	1.17	113.13	83.47	10673.36	8544.16	2129.20
0+234.687	1.80	1.25	112.15	82.22	10674.61	8626.37	2048.24
0+240.000	3.51	14.87	107.26	458.71	10689.48	9085.08	1604.40
0+260.000	1.91	55.70	94.57	1801.18	10745.18	10886.26	-141.08
0+262.179	1.88	4.13	91.17	202.33	10749.31	11088.59	-339.28
0+262.700	1.84	0.97	90.37	47.34	10750.28	11135.93	-385.65
0+263.220	1.80	0.95	89.62	46.79	10751.22	11182.71	-431.49
0+263.223	1.80	0.00	89.62	0.29	10751.23	11183.00	-431.77
0+280.000	1.77	29.92	67.72	1319.82	10781.15	12502.82	-1721.67
0+293.605	5.54	49.73	2.84	480.04	10830.88	12982.87	-2151.98

5. OBRADA NA RAČUNALU

Za izradu idejnog projekta lokalne ceste korišten je AutoCAD Civil 3D koji znatno olakšava izradu programskog zadatka. U odnosu na ručno rješavanje, postupak na računalu je znatno brži i jednostavniji.

Prvi korak pri izradi idejnog rješenja je skeniranje geodetske podloge te slijedi iscrtavanje slojnica. Slojnice se iscrtavaju pomoću 3D poligonalnih linija te se postupkom triangulacije na tim linijama dobije trodimenzionalni model terena. Zatim definiramo koordinate točaka tangenti (dvije točke ta svaku tangentu) te ih definiramo na terenu. Na sjecištima tangenti definiramo kružne lukove i prijelazne krivine te na taj način definiramo horizontalni tok ceste.

Slijedi izrada uzdužnog presjeka ceste kojeg definira niveleta. Niveleta se postavlja tako da se zadovolje geometrijski i sigurnosni elementi te odvodnja. Između tangenti se ubacuje kružna krivina određenog radijusa.

Sljedeći korak je definiranje poprečnog profila prometnice. Poprečnim presjekom su definirani: poprečni nagib i širina kolnika te pokosi usjeka i nasipa.

Na temelju definiranih horizontalnih i vertikalnih elemenata te osi ceste, izrađujemo koridor. On omogućuje uvid u poprečne presjeke u svim karakterističnim i zadanim točkama osi ceste. Time smo definirali cijelu dionicu ceste.

Izlazni podaci su računalni ispisi koordinatnih točaka osi, točaka svakog poprečnog presjeka te količina zemljanih radova po presjeku.

6. IZLAZNI PODACI IZ PROGRAMA

6.1. Koordinatni račun glavnih točaka

Alignment: Os_1

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	3284.707	-19916.653
End:	0+31.538	3274.660	-19886.757

Tangent Data

Parameter	Value	Parameter	Value
Length:	31.538	Course:	S 71° 25' 23.5199" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+31.538	3274.660	-19886.757
SPI:		3268.258	-19867.709
SC:	0+61.538	3268.014	-19857.626

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.095
Radius:	50.000	S Tan:	10.087
Theta:	17° 11' 19.4419"	P:	0.748
X:	29.731	K:	14.955
Y:	2.981	A:	38.730
Chord:	29.880	Course:	S 77° 08' 54.2507" E

Curve Point Data

Description	Station	Northing	Easting
SC:	0+61.538	3268.014	-19857.626
RP:		3317.999	-19856.415
CS:	0+92.342	3276.503	-19828.520

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	35° 17' 52.9015"	Type:	LEFT
Radius:	50.000		
Length:	30.803	Tangent:	15.908
Mid-Ord:	2.353	External:	2.470
Chord:	30.319	Course:	N 73° 44' 20.5875" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	0+92.342	3276.503	-19828.520
SPI:		3282.131	-19820.149
ST:	1+22.342	3297.769	-19807.530

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.095
Radius:	50.000	S Tan:	10.087
Theta:	17° 11' 19.4419"	P:	0.748
X:	29.731	K:	14.955
Y:	2.981	A:	38.730
Chord:	29.880	Course:	N 44° 37' 35.4257" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+22.342	3297.769	-19807.530
End:	1+31.620	3304.990	-19801.703

Tangent Data

Parameter	Value	Parameter	Value
Length:	9.278	Course:	N 38° 54' 04.6949" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+31.620	3304.990	-19801.703
End:	1+35.405	3308.272	-19799.818

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.785	Course:	N 29° 52' 32.8644" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+35.405	3308.272	-19799.818
SPI:		3325.696	-19789.808
SC:	1+65.405	3332.567	-19782.423

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.095
Radius:	50.000	S Tan:	10.087
Theta:	17° 11' 19.4419"	P:	0.748
X:	29.731	K:	14.955
Y:	2.981	A:	38.730
Chord:	29.880	Course:	N 35° 36' 03.5952" E

Curve Point Data

Description	Station	Northing	Easting
SC:	1+65.405	3332.567	-19782.423
RP:		3295.961	-19748.365
CS:	2+33.223	3337.029	-19719.845

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	77° 42' 49.7150"	Type:	RIGHT
Radius:	50.000		
Length:	67.818	Tangent:	40.283
Mid-Ord:	11.064	External:	14.208
Chord:	62.738	Course:	N 85° 55' 17.1638" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+33.223	3337.029	-19719.845
SPI:		3331.276	-19711.560
ST:	2+63.223	3315.448	-19699.179

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.000	L Tan:	20.095
Radius:	50.000	S Tan:	10.087
Theta:	17° 11' 19.4419"	P:	0.748
X:	29.731	K:	14.955
Y:	2.981	A:	38.730
Chord:	29.880	Course:	S 43° 45' 29.2677" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+63.223	3315.448	-19699.179
End:	2+93.605	3291.517	-19680.460

Tangent Data

Parameter	Value	Parameter	Value
Length:	30.382	Course:	S 38° 01' 58.5369" E

Alignment: Os 1-Left-3.000

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	3287.551	-19915.697
End:	0+31.538	3277.504	-19885.802

Tangent Data

Parameter	Value	Parameter	Value
Length:	31.538	Course:	S 71° 25' 23.5199" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+31.538	3277.504	-19885.802
RP:		3285.087	-19883.253
PT:	0+32.585	3277.236	-19884.791

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 29' 40.6609"	Type:	LEFT
Radius:	8.000		
Length:	1.046	Tangent:	0.524
Mid-Ord:	0.017	External:	0.017
Chord:	1.046	Course:	S 75° 10' 13.8503" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+32.585	3277.236	-19884.791
End:	0+58.995	3272.160	-19858.873

Tangent Data

Parameter	Value	Parameter	Value
Length:	26.411	Course:	S 78° 55' 04.1808" E

Curve Point Data

Description	Station	Northing	Easting
PC:	0+58.995	3272.160	-19858.873
RP:		3280.010	-19857.335
PCC:	0+60.349	3272.013	-19857.529

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 41' 38.7810"	Type:	LEFT
Radius:	8.000		
Length:	1.354	Tangent:	0.678
Mid-Ord:	0.029	External:	0.029
Chord:	1.352	Course:	S 83° 45' 53.5713" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	0+60.349	3272.013	-19857.529
RP:		3317.999	-19856.415
PCC:	0+88.688	3279.823	-19830.752

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	35° 17' 52.9015"	Type:	LEFT
Radius:	46.000		
Length:	28.339	Tangent:	14.635
Mid-Ord:	2.165	External:	2.272
Chord:	27.893	Course:	N 73° 44' 20.5875" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	0+88.688	3279.823	-19830.752
RP:		3286.462	-19835.215
PT:	0+90.042	3280.669	-19829.697

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 41' 38.7810"	Type:	LEFT
Radius:	8.000		
Length:	1.354	Tangent:	0.678
Mid-Ord:	0.029	External:	0.029
Chord:	1.352	Course:	N 51° 14' 34.7463" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+90.042	3280.669	-19829.697
End:	1+16.452	3298.884	-19810.573

Tangent Data

Parameter	Value	Parameter	Value
Length:	26.411	Course:	N 46° 23' 45.3558" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+16.452	3298.884	-19810.573
RP:		3304.677	-19816.090
PT:	1+17.499	3299.653	-19809.864

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 29' 40.6609"	Type:	LEFT
Radius:	8.000		
Length:	1.046	Tangent:	0.524
Mid-Ord:	0.017	External:	0.017
Chord:	1.046	Course:	N 42° 38' 55.0253" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+17.499	3299.653	-19809.864
End:	1+26.540	3306.689	-19804.187

Tangent Data

Parameter	Value	Parameter	Value
Length:	9.041	Course:	N 38° 54' 04.6949" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+26.540	3306.689	-19804.187
End:	1+30.088	3309.766	-19802.419

Tangent Data

Parameter	Value	Parameter	Value
Length:	3.549	Course:	N 29° 52' 32.8644" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	1+30.088	3309.766	-19802.419
SPI:		3327.584	-19792.183
SC:	1+60.988	3334.764	-19784.467

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.900	L Tan:	20.692
Radius:	53.000	S Tan:	10.384
Theta:	16° 42' 08.1369"	P:	0.748
X:	30.638	K:	15.406
Y:	2.984	A:	40.469
Chord:	30.776	Course:	N 35° 41' 04.3975" E

Curve Point Data

Description	Station	Northing	Easting
SC:	1+60.988	3334.764	-19784.467
RP:		3295.961	-19748.365
CS:	2+32.875	3339.493	-19718.133

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	77° 42' 49.7150"	Type:	RIGHT
Radius:	53.000		
Length:	71.887	Tangent:	42.700
Mid-Ord:	11.728	External:	15.061
Chord:	66.502	Course:	N 85° 55' 17.1638" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	2+32.875	3339.493	-19718.133
SPI:		3333.481	-19709.476
ST:	2+63.775	3317.296	-19696.816

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.900	L Tan:	20.692
Radius:	53.000	S Tan:	10.384
Theta:	16° 42' 08.1369"	P:	0.748
X:	30.638	K:	15.406
Y:	2.984	A:	40.469
Chord:	30.776	Course:	S 43° 50' 30.0700" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+63.775	3317.296	-19696.816
End:	2+94.157	3293.366	-19678.097

Tangent Data

Parameter	Value	Parameter	Value
Length:	30.382	Course:	S 38° 01' 58.5369" E

Alignment: Os 1-Right-3.000

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0+00.000	3281.864	-19917.608
End:	0+31.538	3271.816	-19887.713

Tangent Data

Parameter	Value	Parameter	Value
Length:	31.538	Course:	S 71° 25' 23.5199" E

Spiral Point Data

Description	Station	Northing	Easting
TS:	0+31.538	3271.816	-19887.713
SPI:		3265.270	-19868.235
SC:	0+62.438	3265.015	-19857.698

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.900	L Tan:	20.692
Radius:	53.000	S Tan:	10.384
Theta:	16° 42' 08.1369"	P:	0.748
X:	30.638	K:	15.406
Y:	2.984	A:	40.469
Chord:	30.776	Course:	S 77° 13' 55.0530" E

Curve Point Data

Description	Station	Northing	Easting
SC:	0+62.438	3265.015	-19857.698
RP:		3317.999	-19856.415
CS:	0+95.090	3274.014	-19826.846

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	35° 17' 52.9015"	Type:	LEFT
Radius:	53.000		
Length:	32.652	Tangent:	16.863
Mid-Ord:	2.495	External:	2.618
Chord:	32.138	Course:	N 73° 44' 20.5875" E

Spiral Point Data

Description	Station	Northing	Easting
CS:	0+95.090	3274.014	-19826.846
SPI:		3279.894	-19818.099
ST:	1+25.990	3295.885	-19805.195

Spiral Curve Data: clothoid

Parameter	Value	Parameter	Value
Length:	30.900	L Tan:	20.692
Radius:	53.000	S Tan:	10.384
Theta:	16° 42' 08.1369"	P:	0.748
X:	30.638	K:	15.406
Y:	2.984	A:	40.469
Chord:	30.776	Course:	N 44° 42' 36.2280" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+25.990	3295.885	-19805.195
End:	1+35.505	3303.290	-19799.220

Tangent Data

Parameter	Value	Parameter	Value
Length:	9.515	Course:	N 38° 54' 04.6949" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+35.505	3303.290	-19799.220
End:	1+39.527	3306.778	-19797.216

Tangent Data

Parameter	Value	Parameter	Value
Length:	4.022	Course:	N 29° 52' 32.8644" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+39.527	3306.778	-19797.216
RP:		3302.793	-19790.280
PT:	1+40.573	3307.648	-19796.637

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 29' 40.6609"	Type:	RIGHT
Radius:	8.000		
Length:	1.046	Tangent:	0.524
Mid-Ord:	0.017	External:	0.017
Chord:	1.046	Course:	N 33° 37' 23.1948" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+40.573	3307.648	-19796.637
End:	1+66.984	3328.637	-19780.607

Tangent Data

Parameter	Value	Parameter	Value
Length:	26.411	Course:	N 37° 22' 13.5253" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+66.984	3328.637	-19780.607
RP:		3323.782	-19774.249
PCC:	1+68.337	3329.639	-19779.699

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 41' 38.7810"	Type:	RIGHT
Radius:	8.000		
Length:	1.354	Tangent:	0.678
Mid-Ord:	0.029	External:	0.029
Chord:	1.352	Course:	N 42° 13' 02.9158" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	1+68.337	3329.639	-19779.699
RP:		3295.961	-19748.365
PCC:	2+30.730	3333.744	-19722.126

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	77° 42' 49.7150"	Type:	RIGHT
Radius:	46.000		
Length:	62.393	Tangent:	37.060
Mid-Ord:	10.179	External:	13.072
Chord:	57.719	Course:	N 85° 55' 17.1638" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	2+30.730	3333.744	-19722.126
RP:		3327.173	-19726.689
PT:	2+32.084	3332.882	-19721.085

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	09° 41' 38.7810"	Type:	RIGHT
Radius:	8.000		
Length:	1.354	Tangent:	0.678
Mid-Ord:	0.029	External:	0.029
Chord:	1.352	Course:	S 50° 22' 28.5882" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+32.084	3332.882	-19721.085
End:	2+58.494	3314.379	-19702.239

Tangent Data

Parameter	Value	Parameter	Value
Length:	26.411	Course:	S 45° 31' 39.1978" E

Curve Point Data

Description	Station	Northing	Easting
PC:	2+58.494	3314.379	-19702.239
RP:		3308.671	-19707.843
PT:	2+59.541	3313.600	-19701.542

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	07° 29' 40.6609"	Type:	RIGHT
Radius:	8.000		
Length:	1.046	Tangent:	0.524
Mid-Ord:	0.017	External:	0.017
Chord:	1.046	Course:	S 41° 46' 48.8673" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+59.541	3313.600	-19701.542
End:	2+89.922	3289.669	-19682.823

Tangent Data

Parameter	Value	Parameter	Value
Length:	30.382	Course:	S 38° 01' 58.5369" E

6.2. Koordinatni račun detaljnih točaka osi

Alignment Name: Os 1
Description:
Station Range: Start: 0+000.00, End: 29+361.00
Station Increment: 20.00

Station	Northing	Easting	Tangential Direction
0+000.00	3,284.7074m	-19,916.6526m	S71° 25' 24"E
0+020.00	3,278.3359m	-19,897.6946m	S71° 25' 24"E
0+040.00	3,272.0283m	-19,878.7157m	S72° 47' 26"E
0+060.00	3,268.0744m	-19,859.1629m	S86° 53' 39"E
0+080.00	3,270.9455m	-19,839.5045m	N70° 13' 58"E
0+100.00	3,281.2068m	-19,822.4836m	N48° 26' 04"E
0+120.00	3,295.9476m	-19,809.0015m	N39° 00' 22"E
0+140.00	3,312.2507m	-19,797.5196m	N30° 16' 44"E
0+160.00	3,328.6907m	-19,786.1870m	N41° 25' 43"E
0+180.00	3,340.8198m	-19,770.4486m	N63° 47' 20"E
0+200.00	3,345.8786m	-19,751.2365m	N86° 42' 26"E
0+220.00	3,343.0565m	-19,731.5711m	S70° 22' 28"E
0+240.00	3,332.8254m	-19,714.5346m	S48° 19' 59"E
0+260.00	3,317.9844m	-19,701.1678m	S38° 13' 53"E
0+280.00	3,302.2336m	-19,688.8426m	S38° 01' 59"E

6.3. Račun kota kolnika

Corridor Name: Koridor1
Description:
Base Alignment Name: Os 1
Station Range: Start: 0+000.00, End: 0+293.61

CHAINAGE 0+000.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,915.1738	3,289.1072	239.3130	-4.642m	EPS
2	-19,915.1742	3,289.1063	239.1130	-4.641m	EPS_Sub
3	-19,915.4924	3,288.1593	239.2730	-3.642m	Back_Curb
4	-19,915.5402	3,288.0171	239.2730	-3.492m	Top_Curb
5	-19,915.5535	3,287.9776	239.0480	-3.450m	Flowline_Gutter
6	-19,915.6969	3,287.5511	238.6750	-3.000m	ETW_SubBase
7	-19,915.6969	3,287.5511	239.0750	-3.000m	Flange
8	-19,917.6083	3,281.8637	238.9250	3.000m	Flange
9	-19,917.6083	3,281.8637	238.5250	3.000m	ETW_SubBase
10	-19,917.7517	3,281.4371	238.8980	3.450m	Flowline_Gutter
11	-19,917.7649	3,281.3976	239.1230	3.492m	Top_Curb
12	-19,917.8127	3,281.2554	239.1230	3.642m	Back_Curb
13	-19,918.1310	3,280.3085	238.8830	4.641m	EPS_Sub
14	-19,918.1313	3,280.3075	239.0830	4.642m	EPS

CHAINAGE 0+020.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,896.2159	3,282.7357	238.2712	-4.642m	EPS
2	-19,896.2162	3,282.7348	238.0712	-4.641m	EPS_Sub
3	-19,896.5345	3,281.7878	238.2312	-3.642m	Back_Curb
4	-19,896.5823	3,281.6456	238.2312	-3.492m	Top_Curb
5	-19,896.5955	3,281.6061	238.0062	-3.450m	Flowline_Gutter
6	-19,896.7389	3,281.1795	237.6332	-3.000m	ETW_SubBase
7	-19,896.7389	3,281.1795	238.0332	-3.000m	Flange
8	-19,898.6504	3,275.4922	237.8832	3.000m	Flange
9	-19,898.6504	3,275.4922	237.4832	3.000m	ETW_SubBase
10	-19,898.7937	3,275.0656	237.8562	3.450m	Flowline_Gutter
11	-19,898.8070	3,275.0261	238.0812	3.492m	Top_Curb
12	-19,898.8548	3,274.8839	238.0812	3.642m	Back_Curb
13	-19,899.1730	3,273.9369	237.8412	4.641m	EPS_Sub
14	-19,899.1734	3,273.9360	238.0412	4.642m	EPS

CHAINAGE 0+040.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,877.3424	3,276.4622	237.2293	-4.642m	EPS
2	-19,877.3427	3,276.4612	237.0293	-4.641m	EPS_Sub
3	-19,877.6382	3,275.5070	237.1893	-3.642m	Back_Curb
4	-19,877.6826	3,275.3637	237.1893	-3.492m	Top_Curb
5	-19,877.6950	3,275.3238	236.9643	-3.450m	Flowline_Gutter
6	-19,877.8281	3,274.8940	236.5913	-3.000m	ETW_SubBase
7	-19,877.8281	3,274.8940	236.9913	-3.000m	Flange
8	-19,879.6033	3,269.1626	236.8413	3.000m	Flange
9	-19,879.6033	3,269.1626	236.4413	3.000m	ETW_SubBase
10	-19,879.7364	3,268.7328	236.8143	3.450m	Flowline_Gutter
11	-19,879.7488	3,268.6929	237.0393	3.492m	Top_Curb
12	-19,879.7931	3,268.5496	237.0393	3.642m	Back_Curb
13	-19,880.0887	3,267.5954	236.7993	4.641m	EPS_Sub
14	-19,880.0890	3,267.5944	236.9993	4.642m	EPS

CHAINAGE 0+060.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,858.9114	3,272.7092	236.1875	-4.642m	EPS
2	-19,858.9115	3,272.7082	235.9875	-4.641m	EPS_Sub
3	-19,858.9656	3,271.7107	236.1475	-3.642m	Back_Curb
4	-19,858.9737	3,271.5609	236.1475	-3.492m	Top_Curb
5	-19,858.9760	3,271.5193	235.9225	-3.450m	Flowline_Gutter
6	-19,859.0004	3,271.0700	235.5495	-3.000m	ETW_SubBase
7	-19,859.0004	3,271.0700	235.9495	-3.000m	Flange
8	-19,859.3254	3,265.0788	235.7995	3.000m	Flange
9	-19,859.3254	3,265.0788	235.3995	3.000m	ETW_SubBase
10	-19,859.3498	3,264.6294	235.7725	3.450m	Flowline_Gutter
11	-19,859.3521	3,264.5878	235.9975	3.492m	Top_Curb
12	-19,859.3602	3,264.4380	235.9975	3.642m	Back_Curb
13	-19,859.4143	3,263.4405	235.7575	4.641m	EPS_Sub
14	-19,859.4144	3,263.4395	235.9575	4.642m	EPS

CHAINAGE 0+080.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,841.0743	3,275.3137	235.1456	-4.642m	EPS
2	-19,841.0739	3,275.3127	234.9456	-4.641m	EPS_Sub
3	-19,840.7361	3,274.3726	235.1056	-3.642m	Back_Curb
4	-19,840.6854	3,274.2314	235.1056	-3.492m	Top_Curb
5	-19,840.6712	3,274.1922	234.8806	-3.450m	Flowline_Gutter
6	-19,840.5191	3,273.7687	234.5076	-3.000m	ETW_SubBase
7	-19,840.5191	3,273.7687	234.9076	-3.000m	Flange
8	-19,838.4899	3,268.1223	234.7576	3.000m	Flange
9	-19,838.4899	3,268.1223	234.3576	3.000m	ETW_SubBase
10	-19,838.3377	3,267.6988	234.7306	3.450m	Flowline_Gutter
11	-19,838.3236	3,267.6595	234.9556	3.492m	Top_Curb
12	-19,838.2728	3,267.5184	234.9556	3.642m	Back_Curb
13	-19,837.9350	3,266.5782	234.7156	4.641m	EPS_Sub
14	-19,837.9346	3,266.5773	234.9156	4.642m	EPS

CHAINAGE 0+100.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,825.5632	3,284.6797	234.1038	-4.642m	EPS
2	-19,825.5626	3,284.6790	233.9038	-4.641m	EPS_Sub
3	-19,824.8998	3,283.9315	234.0638	-3.642m	Back_Curb
4	-19,824.8002	3,283.8193	234.0638	-3.492m	Top_Curb
5	-19,824.7726	3,283.7881	233.8388	-3.450m	Flowline_Gutter
6	-19,824.4740	3,283.4514	233.4658	-3.000m	ETW_SubBase
7	-19,824.4740	3,283.4514	233.8658	-3.000m	Flange
8	-19,820.4931	3,278.9622	233.7158	3.000m	Flange
9	-19,820.4931	3,278.9622	233.3158	3.000m	ETW_SubBase
10	-19,820.1946	3,278.6255	233.6888	3.450m	Flowline_Gutter
11	-19,820.1669	3,278.5943	233.9138	3.492m	Top_Curb
12	-19,820.0674	3,278.4821	233.9138	3.642m	Back_Curb
13	-19,819.4046	3,277.7347	233.6738	4.641m	EPS_Sub
14	-19,819.4039	3,277.7339	233.8738	4.642m	EPS

CHAINAGE 0+120.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,812.6084	3,298.8691	233.0619	-4.642m	EPS
2	-19,812.6076	3,298.8685	232.8619	-4.641m	EPS_Sub
3	-19,811.8313	3,298.2397	233.0219	-3.642m	Back_Curb
4	-19,811.7148	3,298.1453	233.0219	-3.492m	Top_Curb
5	-19,811.6824	3,298.1191	232.7969	-3.450m	Flowline_Gutter
6	-19,811.3327	3,297.8358	232.4239	-3.000m	ETW_SubBase
7	-19,811.3327	3,297.8358	232.8239	-3.000m	Flange
8	-19,806.6702	3,294.0594	232.6739	3.000m	Flange
9	-19,806.6702	3,294.0594	232.2739	3.000m	ETW_SubBase
10	-19,806.3205	3,293.7762	232.6469	3.450m	Flowline_Gutter
11	-19,806.2881	3,293.7499	232.8719	3.492m	Top_Curb
12	-19,806.1716	3,293.6555	232.8719	3.642m	Back_Curb
13	-19,805.3953	3,293.0267	232.7119	4.641m	EPS_Sub
14	-19,805.3945	3,293.0261	232.9119	4.642m	EPS

CHAINAGE 0+140.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,801.5281	3,314.5911	232.0201	-4.642m	EPS
2	-19,801.5273	3,314.5906	231.8201	-4.641m	EPS_Sub
3	-19,800.6645	3,314.0869	231.9801	-3.642m	Back_Curb
4	-19,800.5350	3,314.0113	231.9801	-3.492m	Top_Curb
5	-19,800.4990	3,313.9903	231.7551	-3.450m	Flowline_Gutter
6	-19,800.1104	3,313.7634	231.3821	-3.000m	ETW_SubBase
7	-19,800.1104	3,313.7634	231.7821	-3.000m	Flange
8	-19,794.9289	3,310.7381	231.6321	3.000m	Flange
9	-19,794.9289	3,310.7381	231.2321	3.000m	ETW_SubBase
10	-19,794.5403	3,310.5112	231.6051	3.450m	Flowline_Gutter
11	-19,794.5043	3,310.4902	231.8301	3.492m	Top_Curb
12	-19,794.3747	3,310.4145	231.8301	3.642m	Back_Curb
13	-19,793.5120	3,309.9108	231.6701	4.641m	EPS_Sub
14	-19,793.5112	3,309.9103	231.8701	4.642m	EPS

CHAINAGE 0+160.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,789.6673	3,331.7620	230.8997	-4.642m	EPS
2	-19,789.6665	3,331.7614	230.6997	-4.641m	EPS_Sub
3	-19,788.9175	3,331.1003	230.8597	-3.642m	Back_Curb
4	-19,788.8050	3,331.0011	230.8597	-3.492m	Top_Curb
5	-19,788.7738	3,330.9735	230.6347	-3.450m	Flowline_Gutter
6	-19,788.4364	3,330.6757	230.2617	-3.000m	ETW_SubBase
7	-19,788.4364	3,330.6757	230.6617	-3.000m	Flange
8	-19,783.9377	3,326.7056	230.5117	3.000m	Flange
9	-19,783.9377	3,326.7056	230.1117	3.000m	ETW_SubBase
10	-19,783.6003	3,326.4079	230.4847	3.450m	Flowline_Gutter
11	-19,783.5690	3,326.3803	230.7097	3.492m	Top_Curb
12	-19,783.4566	3,326.2810	230.7097	3.642m	Back_Curb
13	-19,782.7075	3,325.6200	230.5497	4.641m	EPS_Sub
14	-19,782.7068	3,325.6193	230.7497	4.642m	EPS

CHAINAGE 0+180.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,772.4987	3,344.9842	229.1531	-4.642m	EPS
2	-19,772.4983	3,344.9833	228.9531	-4.641m	EPS_Sub
3	-19,772.0571	3,344.0870	229.1131	-3.642m	Back_Curb
4	-19,771.9908	3,343.9524	229.1131	-3.492m	Top_Curb
5	-19,771.9724	3,343.9150	228.8881	-3.450m	Flowline_Gutter
6	-19,771.7736	3,343.5113	228.5151	-3.000m	ETW_SubBase
7	-19,771.7736	3,343.5113	228.9151	-3.000m	Flange
8	-19,769.1236	3,338.1283	228.7651	3.000m	Flange
9	-19,769.1236	3,338.1283	228.3651	3.000m	ETW_SubBase
10	-19,768.9248	3,337.7245	228.7381	3.450m	Flowline_Gutter
11	-19,768.9064	3,337.6871	228.9631	3.492m	Top_Curb
12	-19,768.8401	3,337.5525	228.9631	3.642m	Back_Curb
13	-19,768.3989	3,336.6563	228.7231	4.641m	EPS_Sub
14	-19,768.3985	3,336.6554	228.9231	4.642m	EPS

CHAINAGE 0+200.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,751.5031	3,350.5126	227.1647	-4.642m	EPS
2	-19,751.5031	3,350.5116	226.9647	-4.641m	EPS_Sub
3	-19,751.4457	3,349.5142	227.2047	-3.642m	Back_Curb
4	-19,751.4371	3,349.3645	227.2047	-3.492m	Top_Curb
5	-19,751.4347	3,349.3229	226.9797	-3.450m	Flowline_Gutter
6	-19,751.4088	3,348.8736	226.6067	-3.000m	ETW_SubBase
7	-19,751.4088	3,348.8736	227.0067	-3.000m	Flange
8	-19,751.0642	3,342.8835	226.8567	3.000m	Flange
9	-19,751.0642	3,342.8835	226.4567	3.000m	ETW_SubBase
10	-19,751.0384	3,342.4342	226.8297	3.450m	Flowline_Gutter
11	-19,751.0360	3,342.3926	227.0547	3.492m	Top_Curb
12	-19,751.0274	3,342.2429	227.0547	3.642m	Back_Curb
13	-19,750.9700	3,341.2455	226.8147	4.641m	EPS_Sub
14	-19,750.9699	3,341.2445	227.0147	4.642m	EPS

CHAINAGE 0+220.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,730.0120	3,347.4285	225.2563	-4.642m	EPS
2	-19,730.0124	3,347.4276	225.0563	-4.641m	EPS_Sub
3	-19,730.3479	3,346.4866	225.2963	-3.642m	Back_Curb
4	-19,730.3983	3,346.3453	225.2963	-3.492m	Top_Curb
5	-19,730.4123	3,346.3060	225.0713	-3.450m	Flowline_Gutter
6	-19,730.5634	3,345.8822	224.6983	-3.000m	ETW_SubBase
7	-19,730.5634	3,345.8822	225.0983	-3.000m	Flange
8	-19,732.5787	3,340.2307	224.9483	3.000m	Flange
9	-19,732.5787	3,340.2307	224.5483	3.000m	ETW_SubBase
10	-19,732.7298	3,339.8069	224.9213	3.450m	Flowline_Gutter
11	-19,732.7438	3,339.7676	225.1463	3.492m	Top_Curb
12	-19,732.7942	3,339.6263	225.1463	3.642m	Back_Curb
13	-19,733.1297	3,338.6853	224.9063	4.641m	EPS_Sub
14	-19,733.1301	3,338.6844	225.1063	4.642m	EPS

CHAINAGE 0+240.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,711.4488	3,336.2928	223.4279	-4.642m	EPS
2	-19,711.4494	3,336.2921	223.2279	-4.641m	EPS_Sub
3	-19,712.1136	3,335.5458	223.3879	-3.642m	Back_Curb
4	-19,712.2133	3,335.4338	223.3879	-3.492m	Top_Curb
5	-19,712.2410	3,335.4026	223.1629	-3.450m	Flowline_Gutter
6	-19,712.5402	3,335.0665	222.7899	-3.000m	ETW_SubBase
7	-19,712.5402	3,335.0665	223.1899	-3.000m	Flange
8	-19,716.5290	3,330.5843	223.0399	3.000m	Flange
9	-19,716.5290	3,330.5843	222.6399	3.000m	ETW_SubBase
10	-19,716.8281	3,330.2482	223.0129	3.450m	Flowline_Gutter
11	-19,716.8558	3,330.2170	223.2379	3.492m	Top_Curb
12	-19,716.9556	3,330.1050	223.2379	3.642m	Back_Curb
13	-19,717.6197	3,329.3587	222.9979	4.641m	EPS_Sub
14	-19,717.6204	3,329.3579	223.1979	4.642m	EPS

CHAINAGE 0+260.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,697.5216	3,320.8569	221.5196	-4.642m	EPS
2	-19,697.5224	3,320.8563	221.3196	-4.641m	EPS_Sub
3	-19,698.3071	3,320.2380	221.4796	-3.642m	Back_Curb
4	-19,698.4250	3,320.1452	221.4796	-3.492m	Top_Curb
5	-19,698.4577	3,320.1194	221.2546	-3.450m	Flowline_Gutter
6	-19,698.8112	3,319.8409	220.8816	-3.000m	ETW_SubBase
7	-19,698.8112	3,319.8409	221.2816	-3.000m	Flange
8	-19,703.5243	3,316.1279	221.1316	3.000m	Flange
9	-19,703.5243	3,316.1279	220.7316	3.000m	ETW_SubBase
10	-19,703.8778	3,315.8494	221.1046	3.450m	Flowline_Gutter
11	-19,703.9106	3,315.8236	221.3296	3.492m	Top_Curb
12	-19,704.0284	3,315.7308	221.3296	3.642m	Back_Curb
13	-19,704.8131	3,315.1126	221.0896	4.641m	EPS_Sub
14	-19,704.8139	3,315.1120	221.2896	4.642m	EPS

CHAINAGE 0+280.00

POINT	X	Y	Z	OFFSET	STRING CUT
1	-19,685.1865	3,305.0934	219.6112	-4.642m	EPS
2	-19,685.1873	3,305.0928	219.4112	-4.641m	EPS_Sub
3	-19,685.9741	3,304.4773	219.5712	-3.642m	Back_Curb
4	-19,686.0923	3,304.3849	219.5712	-3.492m	Top_Curb
5	-19,686.1251	3,304.3592	219.3462	-3.450m	Flowline_Gutter
6	-19,686.4796	3,304.0819	218.9732	-3.000m	ETW_SubBase
7	-19,686.4796	3,304.0819	219.3732	-3.000m	Flange
8	-19,691.2055	3,300.3852	219.2232	3.000m	Flange
9	-19,691.2055	3,300.3852	218.8232	3.000m	ETW_SubBase
10	-19,691.5600	3,300.1080	219.1962	3.450m	Flowline_Gutter
11	-19,691.5928	3,300.0823	219.4212	3.492m	Top_Curb
12	-19,691.7110	3,299.9899	219.4212	3.642m	Back_Curb
13	-19,692.4978	3,299.3744	219.1812	4.641m	EPS_Sub
14	-19,692.4986	3,299.3738	219.3812	4.642m	EPS

6.4. Vertikalni tok trase

Vertical Alignment: Niveleta
Description:
Station Range: Start: 0+000.00, End: 29+361.00

PVI	Station	Grade Out	Curve Length
0.00	0+000.00	-5.21%	
1.00	0+161.92	-9.54%	21.483m
	Vertical Curve Information:(crest curve) PVC Station: 0+151.16 Elevation: 231.126m PVI Station: 0+161.92 Elevation: 230.565m PVT Station: 0+172.64 Elevation: 229.542m High Point: 0+151.16 Elevation: 231.126m Grade in: -5.21% Grade out: -9.54% Change: 4.33% K: Curve Length: 21.483m Passing Distance: Stopping Distance:		
2.00	0+293.61		

7. LITERATURA

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