APPENDIX 7, PART II (F/S)

Evaluation of Priority Project and Recommendations

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APPENDIX 7 EVALUATION OF PRIORITY PROJECT AND RECOMMENDATIONS

7.1 Septic Tank Cost

1)					
Septic tank initial cost: MKD	60,000				
Life (yr)	20				
Discount rate of capital (bank rate) %	12				
USCF*	0.134	*Uniform Series Capital Recovery Factor			
Annuity of capital cost	8,033				
O&M cost of the tank	4,000	(1) Disposal of sectic tank sludge		2,000	
Total annual cost	12,033	(2) Maintenance of the tank - every 3 months: 500		2,000	
2)					
Cost of sewerage services					
(1) Connection fee	20,000	USCF:	0.177	Repayment term (yr)	10
*Annuity of above	3540				
(2) Sewage volume	17.5	m3/month/HH			
(3) Sewerage charges	3045	Domestic sewerage rate:MKD/m3		14.5	<==1.2*12.12
Total sewerage charges/yr	6585				
3)					
Consumer surplus	5,448	MKD/HH/yr			
Population served '06	531,000				
Population served '20	619,000				
Population increase	88,000				
No. of Households	29,333				
Annual increase	5,867	for each year from '13-'17: 20% of incremental No. of Households			
Annual consumer surplus 1,000MKD	31,962				

APPENDIX 8, PART II (F/S)

Surveys

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APPENDIX 8 SURVEYS

8.1 Topographic Survey

Japan International Cooperation Agency

Project Team of the study on Wastewater Management in Skopje

Tokyo Engineering Consultants Co., Ltd. and
Cti Engineering International Co., Ltd

COMPONENT ONE: TOPOGRAPHIC SURVEY

Final REPORT

SUBMITTED TO

Team Leader Mr. Kazufumi Momose

01st JULY 2008

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Acronyms and Abbreviations

JICA	Japan International Cooperation Agency
LEI	Land Equity International Pty Ltd
LEI Europe	Land Equity International Europe DOOEL Skopje
TL	Team Leader
TOR	Terms of Reference
M&QC	Monitoring and Quality Control
WP	Work Plan
O&M	Operation and Maintenance
FS	Feasibility Study
WWTP	Waste Water Treatment Plant
WEF	Water Economy Facility
SAGW	State Agency for Geodetic Works
SKM	Skopje Municipality
PMT	Project Management Team
RMS	Root Mean Square
DTM	Digital Terrain Model

1. Introduction

This document is the Project Final Report that has been prepared under the contract Project Team of the study on Wastewater Management in Skopje between the Japan International Cooperation Agency (JICA) and Land Equity International Europe (LEI Europe), signed on 10th of June 2008. This report was prepared by Suleiman Dabbas (Manager) and Aleksandar Pecalevski (Team Leader).

The key counterparts for this report were the Team Leader Mr. Kazufumi Momose and JICA Engineers.

The project scope of work was discussed in a meeting on 10th of June 2008, and in the field during project execution.

According to the terms of reference (TOR) and the situation in the field, the LEIE team collected the data and calculated the field data in the office to produce the attached annexes.

The field Team successfully cooperated with the Japanese team and Skopje municipality to complete the work.

The work had been done according to the schedule without any delay and in the line of the TOR and inception report.

The Draft Final Report was presented and delivered to JICA team on Thursday, 26th June 2008 as agreed.

2. Terms of Reference

Skopje City, the capital of the Republic of Macedonia, is Macedonia's political, cultural and economic centre. The pollutants that originate from domestic and industrial wastewaters are discharged into the rivers without any treatment, which results in deterioration of sanitary environmental conditions and contamination of the river water environment.

The results of a Topographic Survey have been prepared by LEI Europe team.

The data and maps produced will be a base for the Japanese Team to prepare the Feasibility Study and basic project planning.

The subjects of the Surveying for this Project were:

a) Topographic Survey;
b) Profile survey and plane survey - longitudinal profile of the main collector;
c) Cross section survey – bed of river Vardar including 5 sections downstream of the river - see Annex 6 ; and
d) Invert level survey – see Annex 7.

3. Working Areas

The following surveying locations have been surveyed:

The Surveyed Area covered the project sites of the wastewater treatment plant, which is located in the Trubarevo area, between the river Vardar from the south, the local road Skopje - Petrovec from the north and the railway from the west *(see the picture below)*.

Surveying Area:	Rationale
Topographic Surveying	Proposed survey area cca 124ha, 60% mainly flat but cultivated, approximately 10% of the area are open pit mines for excavation of sand and the last 30% in the middle of the proposed area covered with plains and forestry.
Profiles	Total predicted length is cca 10.3km which approximately 60% are settled in the urban area. The rest is in settled outside of the urban area.
Manholes	Total number of manholes is 10. Their location is along the length of the profile and covers almost entire area.
Cross Sections	Predicted number of cross section is 6. 5 of these are cross section of the river Vardar which includes the waterbed of the river. The last cross section is located on the left side of the down stream of the river Vardar and represents the cross section of the railroad lane with embankment.

The surveying work created digital topographic maps, longitudinal section and cross sections data and maps for the above area.

4. Approach/Methodology:

4.1. Introduction

The measurement and data given in the Project ensures the required accuracy defined in the TOR. The survey accuracy did not exceed the following tolerance:

- Topographic survey error of horizontal location 1.0 mm on the map: less then ToR on the field

The digital and graphical data give a full oversight view of the field situation and reflect the current situation on the ground and thus serve the purpose of the Project.

4.2. Production of Digital Maps

The digital topographic maps set out the actual conditions in the field and the data resulting from the measurement. The digital topographic maps provide the basis for developing the Feasibility Study (FS).

LEI Europe undertook surveys over the defined project area for producing the digital topographic maps (see annex 1) at a scale of 1:5000

The LEI Europe team used the following instruments and materials:

1. Trimble R3 GPS set
2. Total Station Pentax V227N (reflector less)
3. Digital Level SOUTH NL-20
4. *Orthophoto maps in the scale of 1:5000 (from the year 2006), as a sketch and base for data collection and position control.*
5. *Satellite images from Google earth of required area, for a control purposes.*
6. *Official SAGW legal frame work, laws and Regulations:*
    a. *The Law on Survey, Cadastre and Registration of Rights to Real Property for Basic Geodetic Works,*
    b. *Manner of Survey and Real Properties Measurements:*
    c. *Production of Digital maps, and*
    d. *Digital Topographic Key*.

The following Data has been used to produce the digital topographic maps:

1. *Digital (coordinates of control points) and graphical data (control points position description and orthophoto maps) from SAGW;*
2. *New established reference survey/geodetic points,;*
3. *Detail points data measurement and their calculated coordinates and heights;*

4.3. Methodology for Project Implementation

The specifications set out in the TOR have guided the development of the methodology for project implementation which is described below.

LEI Europe's first step was to obtain the necessary legal regulations and manuals mentioned above, and the required alpha-numeric and graphic data from the State Authority for Geodetic Works (SAGW).

The LEI Europe team identified the following processes during the field work execution and office calculation and map production:

- *Establishment of additional reference and control points;*
- *Position and heights measurements of the Wastewater area (124 ha) ;*
- *Position and heights of the longitude profile of the main collector (10.3 km)*
- *Cross Section survey of the Vardar river bed (position and heights)*
- *Survey of the manholes (position and Invert heights);*
- *Survey of the geo-mechanic boreholes excavation..*

4.3.1. Establishment of Reference Points

The data is given in Gauss-Kruger projection coordinate system and Bessel 1841 ellipsoid datum.

The LEI Europe team executed the levelling work from known control points found in the field and suitable for the field work. Coordinates of the used benchmarks are stated in the table below:

No.	Y	X	Z
10725	7540433.017	648983.118	237.404
10727	7540220.715	4648637.308	237.884
10862	7541368.164	4648167.324	238.662
10855	7542049.916	4648167.324	238.581
10857	7541683.131	4648193.526	233.635

The point with the number 10725 has been used as starting point of the profile surveying and also as a GPS base. For the GPS surveying benchmark the number 10855 was used for the initialization purposes before the surveying started. The rest of the benchmarks were used as control points.

4.3.2. Topographic Survey *(plane table survey)*

The topographic survey consisted of plane table survey (position, Y, X) and level survey (H) of 124 ha. The location of the survey was the entire area of "Water Economy Facility" as described in the TOR.

The following work and results were identified and completed:

- *In the northwest side of the boundary, the plane table survey extends an inclusion of approximately 50 m apart from the bottom of the train track's mound.*
- *In the northeast and southeast side (side "C" and "D") of the boundary, the plane table survey conducted along the boundary of the "Water Economy Facility".*
- *In "Water Economy Facility", geotechnical survey conducted at 12 locations and included in plane table survey.*
- *The survey result is produced at a scale specified with 0.5 m contours, and the measurement is at approximately 50 m of pitch X and Y axis.*
- *All relevant natural (forest, stream, buildings roads, railway, and pylons for high-voltage power line and gas line) have been drawn up within the delineated area.*
- *The boundaries of roads around/in the "Water Economy Facility" prepared under Urban Development Plan in City of Skopje have been indicated on the survey result.*

The Plane table surveying, was performed by the LEI Europe field team 1 and the LEI Europe field team 2, according to the Work Plan in the given area with borders defined in the TOR. Despite the short time provided for the teams to finish the work specified in the TOR, the LEI Europe teams succeeded in finishing the work with the appropriate accuracy, using GPS equipment and total station surveying instruments.

The GPS was the best equipment to be used because of the lack of precisely determined transformation parameters on national level control points. The LEI Europe surveying teams used two sets of GPS equipment with the first set used as a permanent station over a known state data control point with given coordinates and height in the official Gaus-Kriguer coordinate system, and the second set used as a Rover for measuring the detail field points (gathering positional information for the surveyed points).

The LEI Europe teams determined that 15 sec is enough time to keep the rover gathering good quality information from satellites for defining the position and the height for each detail point in the field.,

and in some detail surveying points, the teams performed 3 epoch's (series) with duration of 5 sec/epoch (which gives 15sec).

The surveyed detail included:

- Local dirt roads;
- terrain transformation points - low and high points of the terrain, (characteristic points);
- Detail surveying points on grid of 50m;
- Forest boundary, which is settled in the middle of the surveyed area;
- Railway truck,
- Topographic entities and utilities (high points, electric power lines and gas pipelines) and
- levelling points within the working area (130 ha)

The office work begins after the completion of the field work. The post processing activities of the gathered field data was performed using the software *Trimble Geomatic Office.* The results from the post processing of the vector data is shown in Annex 1.

The accuracy of the measurement according to the results from RMS *(Root Mean Square-indicator of the degree of error established from the surveying)* is less than 3.4cm. *(Between 0.3 and 3.6 cm)*

The final coordinates of the surveyed points were transferred to Autodesk software to create the digital topographic map *(see Annex 3).*

The DTM (Digital Terrain Model) was created and visualised with 0.5m contours range. Visualisation was made for all of the topographic entities with appropriate topographic Signes, as defined in the official topographic key.

Beside the topographic survey of the specified area, the LEI Europe teams performed surveying of the boreholes specified by the JICA Project Team. The position and coordinates are shown and given in Annex 3.

4.3.3. Profile Survey

The profile survey is conducted along main collector route, which will be installed under main roads presented in the Urban Development Plan of Skopje. The length of the profile survey is as following:

.

(a)	Main collector route of Right bank	3.4 km
(b)	Main collector route of Left bank	5.1 km
(c)	Profile on the other side of the railroad lane	1.8 km
	Total:	10.3 km

LEI Europe field team 3 was responsible for the survey of the longitudinal profile.

The direction of this profile was defined from the coordinates, which were taken from the maps supplied by JICA project Engineering team.

Steps for measuring the longitudinal profile were performed as follows:

- Determine the control points and benchmarks which are needful and exist on the field;
- Acquire the coordinates for these points from SAGW;.
- Stakeout of the direction of the profile, and
- Survey of the profile points between stakeout profile points.

The Pentax Total Station was used for the profile surveying. .

For field work control, the team measured and calculated the coordinates of the existing control points and benchmarks along the profile area, and compared these with the state coordinates given officially by SAGW, to confirm that the collected data measurement of the field points were accurate.

As these points was a quality control of the measurement data, the differences in coordinates between surveyed control points and those provided by SAGW, are: 2 cm (position error)

The team encountered problems in the field during the profile surveying as some of the directions were omitted by private yards and through private houses, (see the picture below).

The data processing was performed after the field surveying. The profile Layout is provided in Annex 4. and the Profile visualisation (map) generated is provided in Annex 5.

4.3.4. Cross Section Survey

The position of the cross sections was defined and read out from the maps and coordinates supplied by JICA project Engineering team.

Steps of measuring the 5 cross sections were performed as following:

- Determine the control points and benchmarks which are required and exist on the field, as well as close to the cross sections area;
- Acquire the coordinates for these points from SAGW;
- Stakeout of the direction of the cross section, by materialising it with stabilizing a METAL INVAR SCALED WIRE between the both sides of the river, and
- Level each cross section of the river bed, using levelling staff, and moving by boat between the banks of the river.

The data calculation was performed after the field levelling work on the river and the cross sections layout and visualisation (map) was generated and is provided in Annex 6.

The 6th cross section was measured at the middle of the railway track. The layout of this cross section is provided in Annex 6.

4.3.5. Manholes Survey

The level of ground and invert of manholes and inlet and outlet pipes were measured, as well as the size and depth of the manholes. Plan location is transferred to topographic map (scale: 1/1000 or available smallest scale).

According to the position of the manholes on the field, which had been defined by the JICA Project team, The LEI Europe team surveyed, and calculated the coordinates to determine the location of the manhole covers.

The invert level of these manholes was also determined. The LEI Europe team used the levelling staff to determine the depth of the manhole, after opening them, as it shown on the picture below.

Some of the manholes cannot be opened as they are covered by new layer of asphalt or permanently welded, as shown in the picture below.

Also within this framework some outlets were surveyed (see picture below) at top elevation and the width and height of the outlet was determined.

5. The Final Products and Deliverables

All of the Final Products are considered as deliverables of the project. As such the final products of the detailed field surveying will contain the following:

1. Final Report;
2. Data processing of the GPS Vector Data *(Annex 1)*
3. Index map at scale 1:5000*(Annex 2)*
4. Topographic layout of the plane table survey at scale 1:5000 *(Annex 3)*;
5. Positional topographic map of the surveyed longitude profile *(Annex 4)*;
6. Profiles at scale 1:100/1000 *(Annex 5)*
7. Cross Sections of the river bed and railway truck at 1:500/500 *(Annex 6);*
8. List of coordinates of invert levelling for each Manhole *(Annex 7).*
9. Manhole position sketches *(Annex 8)*
10. *Boreholes coordinates(Annex 9)*
11. *Profile Data(Annex 10)*

The alpha-numeric data given in Gauss-Kruger projection coordinate system and Bessel 1841 ellipsoid datum and the calculation of these coordinates (Y, X, H) have been undertaken using Trimble Geomatic Office software and stored in Access database.

All of the final products are available in:

- Printed hardcopy form; and
- Digital form on a CD (Compact Disk).

6. Work Plan Actions

The Survey work was performed as stated in the Work Plan and TOR with no delays.

All deliverables were also performed within the deadline stated in the Work Plan.

7. Quality Control

The LEI Europe Team implemented a quality Project in the field, with all necessary surveying data according to the TOR.

The office team headed by the Team Leader, ensured the quality of digital and graphical data (map production), as well as the quality of alphanumeric data and surveying data, to ensure all data and maps were produced in accordance with the LEI Europe quality system and domestic regulations.

The Manger and TL's Quality Control consisted the following:

1. Project management responsibility;
2. Supervision of the field and office work;
3. Supervision of coordinates and raw data;
4. Supervision of the digital maps production;
5. Supervision of the all deliverables, and
6. Internal monitoring of quality.

8. Balance of Deliverables

- Final Report; and
- Final invoice for the rest of the value(~ 60% of the Project Value).

9. Annexure

Annex 1 – GPS Vector data Processing

Annex 2 – Index Map at scale 1:5000

Annex 3 – Topographic layout of the plane table at scale 1:5000

Annex 4 – Topographic layout of the profile position at scale 1:5000

Annex 5 – Longitudinal profile at scale 1:100/1000

Annex 6 – Cross Sections at scale 1:500/500

Annex 7 – Manhole coordinates and depths

Annex 8 – Manhole Sketches

Annex 9 – Boreholes

Annex 10 – Profile Data

GPS Vector data

Project : VARDARISTE

User name	LEI Europe DOOEL	**Date & Time**	21:06:10 24.06.2008
Coordinate System	Macedonia	**Zone**	21E
Project Datum	Skopje		
Vertical Datum		**Geoid Model**	EGM96 (Global)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

From Point Name	To Point Name	DeltaX	DeltaY	DeltaZ	Slope Distance	RMS	Ratio	Ref Var
10725	most init	-76.343m	1702.784m	-612.753m	1811.289m	0.007m	5.8	1.910
10725	1	-76.308m	1702.741m	-612.774m	1811.254m	0.009m	5.8	2.424
10725	2	-93.894m	1706.308m	-596.120m	1809.879m	0.022m	5.8	13.625
10725	3	-93.974m	1714.312m	-599.330m	1818.487m	0.007m	5.8	1.862
10725	4	-116.191m	1716.031m	-577.287m	1814.256m	0.018m	5.8	17.564
10725	5	-145.999m	1728.831m	-551.731m	1820.599m	0.006m	5.8	1.688
10725	6	-146.062m	1736.053m	-554.538m	1828.312m	0.008m	5.8	2.973
10725	7	-146.292m	1736.889m	-555.406m	1829.388m	0.022m	5.8	34.338
10725	8	-146.741m	1738.544m	-556.319m	1831.272m	0.008m	5.8	2.372
10725	9	-183.518m	1753.359m	-524.149m	1839.206m	0.007m	5.8	1.844
10725	10	-183.191m	1752.648m	-523.702m	1838.368m	0.040m	5.8	55.891
10725	11	-183.018m	1752.195m	-523.272m	1837.797m	0.036m	5.8	39.631
10725	12	-183.463m	1745.709m	-520.023m	1830.733m	0.009m	5.8	6.931
10725	pruga	-224.411m	1767.977m	-485.937m	1847.224m	0.021m	0.0	21.911
10725	13	-263.912m	1780.790m	-451.619m	1856.024m	0.011m	32.8	7.006
10725	14	-263.651m	1787.158m	-454.468m	1862.790m	0.009m	22.8	5.406
10725	15	-311.344m	1801.215m	-411.127m	1873.589m	0.011m	22.8	5.545
10725	16	-311.251m	1807.804m	-413.962m	1880.531m	0.025m	22.8	46.593
10725	17	-338.266m	1812.891m	-388.229m	1884.600m	0.009m	28.1	4.432
10725	18	-338.095m	1819.402m	-391.130m	1891.432m	0.012m	28.1	10.811
10725	21	-375.964m	1835.577m	-358.867m	1907.741m	0.008m	28.1	3.744
10725	22	-376.722m	1829.554m	-355.566m	1901.477m	0.008m	28.1	4.763
10725	pr	-386.195m	1836.108m	-349.219m	1908.505m	0.030m	0.0	50.733

10725	tocka	-385.965m	1836.532m	-349.070m	1908.839m	0.008m	14.4	2.780
10725	tockb	-414.070m	1845.660m	-323.744m	1919.043m	0.020m	14.4	22.979
10725	tockc	-413.557m	1852.091m	-326.937m	1925.658m	0.014m	14.4	8.336
10725	tockd	-454.159m	1869.362m	-292.412m	1945.837m	0.028m	14.4	53.424
10725	tocke	-454.373m	1863.249m	-289.590m	1939.591m	0.014m	14.4	12.786
10725	tockf	-495.265m	1880.982m	-254.791m	1961.709m	0.012m	14.4	10.477
10725	27	-495.298m	1880.962m	-254.746m	1961.692m	0.006m	14.4	2.207
10725	28	-495.092m	1887.012m	-257.476m	1967.796m	0.014m	14.4	10.571
10725	29	-535.035m	1904.449m	-223.549m	1990.770m	0.011m	14.4	5.127
10725	30	-535.255m	1898.181m	-220.808m	1984.526m	0.012m	14.4	6.790
10725	31	-576.197m	1916.021m	-186.060m	2009.417m	0.016m	14.4	11.586
10725	32	-575.284m	1921.755m	-189.375m	2014.934m	0.009m	14.4	4.454
10725	33	-612.404m	1937.683m	-157.625m	2038.259m	0.013m	14.4	12.103
10725	34	-612.456m	1931.512m	-155.082m	2032.213m	0.010m	14.4	7.783
10725	b	-604.068m	1931.119m	-163.380m	2029.979m	0.007m	14.4	4.232
10725	36	-612.707m	1941.822m	-160.692m	2042.525m	0.011m	14.4	8.924
10725	37	-613.551m	1945.452m	-161.356m	2046.280m	0.006m	14.4	3.818
10725	38	-617.358m	1948.554m	-159.170m	2050.203m	0.011m	4.5	6.060
10725	39	-617.638m	1943.908m	-156.778m	2045.687m	0.016m	4.5	12.316
10725	40	-614.289m	1949.969m	-161.598m	2050.816m	0.014m	4.5	7.958
10725	41	-613.293m	1955.849m	-165.343m	2056.408m	0.014m	4.5	11.183
10725	42	-616.255m	1964.922m	-165.958m	2065.970m	0.009m	14.4	3.563
10725	43	-614.464m	1964.625m	-167.990m	2065.317m	0.012m	14.4	7.463
10725	v	-615.864m	1981.677m	-173.330m	2082.397m	0.012m	14.4	7.738
10725	44	-616.267m	1981.908m	-172.758m	2082.688m	0.008m	14.4	5.233
10725	45	-617.917m	1982.167m	-171.371m	2083.309m	0.018m	14.4	22.576
10725	46	-617.034m	2000.271m	-180.685m	2101.062m	0.009m	14.4	4.981
10725	47	-614.514m	1974.189m	-172.454m	2074.799m	0.005m	14.4	1.818
10725	48	-611.289m	1950.134m	-165.359m	2050.376m	0.005m	14.4	2.180
10725	49	-590.702m	1932.671m	-179.731m	2028.904m	0.016m	14.4	13.057
10725	50	-591.177m	1936.470m	-180.947m	2032.769m	0.006m	14.4	1.925
10725	51	-591.444m	1937.595m	-181.567m	2033.973m	0.009m	14.4	3.818
10725	52	-591.606m	1991.379m	-204.224m	2087.413m	0.008m	14.4	3.455
10725	53	-579.328m	1987.145m	-214.907m	2080.997m	0.011m	14.4	6.670
10725	54	-571.334m	1983.985m	-222.212m	2076.535m	0.007m	14.4	3.207
10725	55	-569.587m	1959.532m	-213.944m	2051.820m	0.013m	14.4	7.765
10725	56	-568.479m	1928.563m	-201.831m	2020.708m	0.010m	14.4	6.738
10725	57	-568.292m	1926.882m	-200.903m	2018.958m	0.011m	14.4	7.005
10725	58	-568.245m	1922.819m	-198.989m	2014.877m	0.006m	14.4	2.397
10725	init	-74.091m	1694.269m	-612.396m	1803.071m	0.010m	3.8	3.440

10725	nesto	-74.075m	1694.041m	-612.411m	1802.862m	0.009m	0.0	3.228
10725	6000	-120.459m	1725.574m	-576.958m	1823.457m	0.017m	16.7	13.280
10725	6001	-123.872m	1732.194m	-576.533m	1829.817m	0.012m	16.7	9.585
10725	6002	-125.922m	1737.196m	-576.390m	1834.647m	0.012m	16.7	6.768
10725	6003	-128.529m	1753.559m	-580.432m	1851.591m	0.031m	16.7	51.662
10725	6004	-131.200m	1769.660m	-584.362m	1868.258m	0.028m	16.7	47.789
10725	6005	-132.305m	1776.269m	-586.054m	1875.126m	0.014m	16.7	12.029
10725	6006	-135.560m	1793.404m	-590.333m	1892.925m	0.015m	16.7	11.242
10725	6007	-139.896m	1810.910m	-593.214m	1910.724m	0.019m	16.7	18.355
10725	6008	-142.863m	1818.203m	-592.625m	1917.675m	0.007m	16.7	2.951
10725	6009	-143.162m	1822.117m	-594.443m	1921.969m	0.008m	16.7	3.445
10725	6010	-140.752m	1822.717m	-597.958m	1923.450m	0.008m	16.7	3.319
10725	6011	-137.134m	1811.675m	-596.196m	1912.177m	0.012m	16.7	7.821
10725	6012	-133.585m	1798.714m	-594.541m	1899.130m	0.005m	16.7	1.446
10725	6013	-130.050m	1784.523m	-592.017m	1884.654m	0.009m	16.7	4.957
10725	6014	-125.960m	1767.737m	-589.050m	1867.549m	0.015m	16.7	15.089
10725	6015	-119.780m	1738.255m	-583.182m	1837.383m	0.014m	16.7	12.885
10725	6016	-121.888m	1727.166m	-576.481m	1824.908m	0.006m	16.7	1.649
10725	6017	-132.132m	1735.236m	-572.984m	1832.161m	0.011m	16.7	6.584
10725	59	-138.396m	1772.672m	-583.403m	1871.331m	0.011m	16.7	6.476
10725	60	-142.063m	1773.020m	-580.037m	1870.888m	0.013m	16.7	8.270
10725	61	-140.119m	1757.532m	-575.269m	1854.585m	0.007m	16.7	3.679
10725	62	-135.705m	1753.164m	-577.738m	1850.886m	0.023m	16.7	28.640
10725	63	-138.753m	1745.329m	-571.409m	1841.720m	0.012m	16.7	9.088
10725	64	-143.280m	1750.047m	-568.968m	1845.784m	0.010m	16.7	6.902
10725	65	-148.011m	1748.798m	-563.519m	1843.301m	0.011m	16.7	6.883
10725	66	-148.370m	1743.426m	-560.705m	1837.372m	0.010m	16.7	5.306
10725	67	-148.254m	1741.850m	-559.645m	1835.544m	0.007m	16.7	2.154
10725	68	-160.889m	1748.188m	-550.146m	1839.757m	0.004m	16.7	1.743
10725	69	-160.783m	1747.113m	-549.424m	1838.511m	0.009m	16.7	5.017
10725	70	-170.333m	1752.481m	-542.215m	1842.335m	0.014m	16.7	12.648
10725	71	-170.392m	1756.852m	-544.021m	1847.030m	0.020m	16.7	24.899
10725	72	-171.228m	1780.256m	-553.783m	1872.246m	0.012m	16.7	8.286
10725	73	-171.088m	1797.559m	-561.330m	1890.920m	0.023m	16.7	29.093
10725	74	-189.829m	1765.326m	-527.637m	1852.245m	0.013m	16.7	11.057
10725	75	-189.914m	1760.968m	-525.535m	1847.502m	0.009m	16.7	5.633
10725	76	-205.593m	1772.181m	-514.038m	1856.644m	0.014m	16.7	11.231
10725	77	-205.746m	1767.542m	-511.835m	1851.624m	0.032m	16.7	60.336
10725	78	-205.639m	1790.124m	-521.386m	1875.813m	0.007m	16.7	3.674
10725	79	-205.949m	1808.682m	-528.658m	1895.581m	0.011m	16.7	7.613

10725	80	-224.845m	1780.420m	-497.547m	1862.258m	0.021m	16.7	25.280
10725	81	-225.103m	1775.431m	-495.018m	1856.843m	0.031m	6.9	56.316
10725	82	-242.956m	1783.059m	-479.810m	1862.403m	0.029m	6.9	46.182
10725	83	-242.517m	1788.068m	-482.784m	1867.908m	0.017m	6.9	19.854
10725	84	-246.347m	1790.733m	-479.885m	1870.214m	0.020m	6.9	27.813
10725	85	-242.877m	1801.772m	-487.901m	1882.397m	0.015m	6.9	12.380
10725	86	-243.311m	1822.410m	-495.800m	1904.258m	0.012m	6.9	6.445
10725	87	-267.452m	1798.646m	-461.080m	1875.967m	0.015m	6.9	11.382
10725	88	-267.558m	1793.715m	-458.624m	1870.652m	0.019m	6.9	13.498
10725	89	-291.153m	1809.040m	-440.317m	1884.482m	0.027m	6.9	31.495
10725	90	-291.314m	1803.643m	-438.029m	1878.793m	0.019m	6.9	11.927
10725	91	-291.887m	1825.970m	-447.076m	1902.431m	0.014m	6.9	9.525
10725	92	-292.113m	1846.691m	-455.089m	1924.241m	0.008m	6.9	2.773
10725	93	-314.310m	1818.280m	-420.005m	1892.443m	0.025m	6.9	49.144
10725	94	-314.172m	1813.510m	-417.908m	1887.371m	0.017m	6.9	16.352
10725	95	-336.736m	1823.116m	-398.881m	1896.378m	0.024m	6.9	34.035
10725	96	-336.498m	1827.863m	-401.378m	1901.425m	0.010m	6.9	4.340
10725	most	-76.367m	1702.767m	-612.759m	1811.277m	0.008m	4.4	2.086
10725	97	-356.092m	1836.892m	-385.029m	1910.293m	0.005m	4.4	1.780
10725	98	-356.127m	1831.645m	-383.376m	1904.922m	0.011m	4.4	9.433
10725	propust	-355.549m	1830.949m	-383.599m	1904.190m	0.008m	4.4	4.723
10725	propusu	-356.780m	1831.588m	-382.653m	1904.844m	0.008m	4.4	4.787
10725	99	-375.143m	1844.797m	-368.214m	1918.225m	0.008m	4.4	4.914
10725	100	-374.936m	1839.761m	-366.295m	1912.974m	0.009m	4.4	7.254
10725	101	-375.322m	1864.888m	-376.457m	1939.173m	0.006m	4.4	2.897
10725	102	-376.250m	1888.264m	-384.858m	1963.472m	0.007m	4.4	4.243
10725	103	-395.673m	1896.889m	-369.070m	1972.551m	0.019m	4.4	22.416
10725	105	-415.148m	1908.407m	-353.080m	1984.699m	0.003m	4.4	0.650
10725	106	-414.573m	1882.501m	-342.951m	1957.880m	0.010m	4.4	4.601
10725	107	-414.921m	1862.493m	-333.735m	1937.116m	0.006m	4.4	2.506
10725	108	-414.867m	1856.662m	-330.813m	1930.996m	0.027m	4.4	32.403
10725	109	-435.557m	1865.200m	-312.772m	1940.750m	0.008m	4.4	3.497
10725	111	-437.768m	1920.200m	-334.401m	1997.657m	0.012m	4.4	8.728
10725	112	-457.663m	1929.268m	-317.353m	2008.045m	0.011m	4.4	8.019
10725	113	-457.132m	1902.805m	-307.133m	1980.901m	0.010m	4.4	4.093
10725	114	-456.604m	1879.102m	-297.373m	1956.512m	0.008m	4.4	3.939
10725	115	-456.511m	1878.278m	-296.714m	1955.599m	0.006m	4.4	1.744
10725	116	-456.481m	1873.904m	-294.770m	1951.097m	0.009m	4.4	3.926
10725	117	-475.235m	1882.867m	-278.785m	1961.825m	0.023m	4.4	29.023
10725	118	-475.533m	1885.979m	-279.728m	1965.018m	0.009m	4.4	4.458

10725	119	-478.535m	1935.445m	-298.086m	2015.886m	0.005m	4.4	1.553
10725	120	-499.793m	1942.719m	-279.293m	2025.328m	0.013m	4.4	9.342
10725	121	-499.552m	1917.588m	-269.260m	1999.799m	0.007m	4.4	3.717
10725	122	-499.739m	1898.354m	-260.704m	1980.266m	0.009m	4.4	5.641
10725	123	-499.414m	1897.023m	-259.910m	1978.803m	0.012m	4.4	8.145
10725	124	-501.433m	1894.207m	-256.559m	1976.178m	0.020m	4.4	25.122
10725	125	-519.851m	1902.440m	-241.061m	1986.865m	0.005m	4.4	1.225
10725	126	-520.056m	1906.131m	-242.505m	1990.629m	0.015m	4.4	11.186
10725	127	-520.129m	1907.220m	-243.108m	1991.764m	0.010m	4.4	5.873
10725	128	-521.873m	1952.267m	-260.505m	2037.538m	0.016m	4.4	15.869
10725	129	-542.979m	1958.600m	-241.137m	2046.726m	0.011m	4.4	6.494
10725	130	-542.117m	1934.756m	-232.637m	2022.694m	0.009m	4.4	4.994
10725	131	-542.781m	1917.364m	-224.177m	2005.280m	0.011m	4.4	6.811
10725	132	-542.436m	1915.956m	-223.349m	2003.749m	0.024m	4.4	28.546
10725	134	-561.330m	1920.277m	-205.399m	2011.155m	0.028m	4.4	45.102
10725	135	-561.666m	1923.944m	-206.775m	2014.891m	0.017m	4.4	14.136
10725	136	-561.861m	1925.280m	-207.437m	2016.289m	0.008m	4.4	4.380
10725	137	-564.169m	1971.137m	-224.638m	2062.554m	0.025m	4.4	32.190
10725	ivica	-616.303m	1981.699m	-172.654m	2082.491m	0.021m	4.4	22.825
10725	ivicc	-617.379m	1993.356m	-176.479m	2094.223m	0.012m	4.4	6.632
10725	ivicd	-619.584m	1998.470m	-176.368m	2099.731m	0.006m	4.4	2.613
10725	ivice	-618.721m	1998.427m	-176.924m	2099.483m	0.010m	4.4	5.358
10725	ivicf	-619.851m	2022.688m	-185.453m	2123.646m	0.013m	4.4	9.456
10725	ivicg	-622.871m	2030.306m	-185.831m	2131.817m	0.019m	4.4	22.615
10725	ivich	-622.056m	2040.535m	-190.772m	2141.759m	0.010m	4.4	5.814
10725	no	-621.085m	2042.817m	-194.331m	2143.971m	0.017m	4.4	11.751
10725	np	-622.352m	2057.146m	-198.949m	2158.414m	0.008m	4.4	2.188
10725	nq	-625.271m	2086.772m	-208.293m	2188.371m	0.025m	4.4	20.681
10725	d	-627.633m	2085.070m	-203.131m	2186.939m	0.005m	4.4	1.088
10725	138	-618.295m	2034.489m	-193.850m	2135.185m	0.008m	4.4	3.971
10725	139	-598.115m	2027.408m	-212.106m	2124.409m	0.017m	4.4	16.304
10725	140	-599.903m	2054.084m	-221.655m	2151.342m	0.016m	4.4	14.748
10725	141	-602.309m	2079.846m	-229.644m	2177.447m	0.018m	4.4	19.418
10725	142	-582.229m	2071.679m	-246.790m	2166.045m	0.014m	4.4	11.754
10725	143	-578.502m	2024.051m	-231.328m	2117.773m	0.012m	4.4	8.504
10725	144	-559.471m	2016.302m	-248.283m	2107.160m	0.009m	4.4	3.158
10725	145	-560.562m	2042.271m	-257.877m	2133.448m	0.010m	4.4	4.869
10725	146	-561.646m	2066.863m	-267.002m	2158.392m	0.020m	4.4	22.251
10725	147	-539.898m	2058.815m	-285.337m	2147.469m	0.013m	4.4	9.211
10725	148	-537.127m	2011.730m	-268.847m	2099.486m	0.025m	4.4	36.614

10725	149	-517.161m	2004.798m	-286.649m	2090.176m	0.018m	4.4	16.613
10725	150	-518.839m	2030.221m	-295.035m	2116.137m	0.013m	4.4	8.561
10725	151	-520.464m	2055.845m	-303.970m	2142.377m	0.022m	4.4	29.306
10725	152	-500.031m	2047.714m	-321.953m	2132.327m	0.007m	4.4	2.705
10725	153	-497.799m	2003.644m	-306.105m	2087.126m	0.030m	4.4	51.494
10725	154	-479.085m	1997.938m	-323.196m	2079.840m	0.007m	4.4	2.521
10725	155	-480.293m	2021.434m	-331.507m	2103.990m	0.017m	4.4	16.168
10725	156	-481.382m	2045.214m	-340.131m	2128.454m	0.006m	4.4	1.693
10725	157	-459.717m	2036.643m	-358.929m	2118.510m	0.007m	4.4	2.654
10725	158	-456.704m	1995.128m	-345.036m	2075.612m	0.016m	4.4	15.181
10725	159	-437.592m	1988.223m	-362.068m	2067.755m	0.014m	4.4	8.373
10725	160	-438.949m	2010.614m	-369.790m	2090.930m	0.006m	4.4	1.879
10725	161	-440.654m	2035.566m	-378.334m	2116.800m	0.014m	4.4	9.625
10725	162	-422.631m	2030.234m	-395.053m	2111.050m	0.013m	4.4	9.262
10725	163	-406.217m	2022.055m	-408.935m	2102.604m	0.021m	4.4	18.784
10725	164	-404.525m	1977.623m	-392.771m	2056.430m	0.014m	4.4	9.344
10725	165	-385.959m	1970.227m	-408.208m	2048.754m	0.021m	4.4	19.191
10725	166	-368.320m	1964.471m	-424.333m	2043.249m	0.014m	4.4	5.988
10725	167	-372.247m	2020.283m	-443.205m	2101.557m	0.005m	4.4	1.800
10725	168	-353.336m	2013.286m	-459.756m	2095.123m	0.006m	4.4	1.142
10725	169	-336.628m	2007.398m	-474.751m	2090.060m	0.005m	4.4	1.368
10725	170	-333.375m	1948.385m	-454.303m	2028.234m	0.031m	4.4	59.502
10725	171	-300.504m	1936.781m	-483.203m	2018.641m	0.025m	4.4	40.909
10725	172	-304.012m	1983.592m	-499.134m	2067.896m	0.015m	4.4	20.546
10725	173	-270.642m	1968.673m	-529.168m	2056.438m	0.019m	4.4	13.027
10725	174	-266.173m	1929.520m	-516.763m	2015.177m	0.021m	4.4	23.740
10725	176	-234.687m	1962.320m	-563.718m	2055.129m	0.028m	4.4	20.725
10725	177	-194.219m	1941.452m	-596.878m	2040.397m	0.027m	4.4	23.103
10725	178	-191.965m	1893.211m	-579.385m	1989.167m	0.013m	4.4	16.055
10725	179	-163.619m	1885.102m	-605.562m	1986.728m	0.027m	4.4	27.365
10725	180	-161.419m	1871.100m	-602.336m	1972.277m	0.029m	4.4	33.853
10725	181	-163.701m	1865.255m	-597.087m	1965.321m	0.023m	43.4	20.770
10725	182	-157.959m	1854.388m	-598.957m	1955.110m	0.033m	43.4	67.121
10725	183	-141.441m	1844.500m	-611.635m	1948.405m	0.019m	43.4	13.955
10725	184	-151.320m	1836.045m	-597.140m	1936.629m	0.011m	21.1	6.432
10725	185	-153.879m	1828.213m	-591.195m	1927.577m	0.005m	21.1	1.030
10725	186	-149.576m	1825.603m	-594.517m	1925.785m	0.012m	21.1	6.890
10725	187	-148.793m	1817.520m	-591.531m	1917.140m	0.013m	21.1	15.607
10725	188	-143.437m	1796.725m	-588.380m	1896.044m	0.018m	21.1	13.503
10725	189	-140.142m	1784.176m	-586.397m	1883.291m	0.036m	21.1	61.771

10725	190	-144.522m	1785.358m	-582.593m	1883.562m	0.005m	21.1	1.978
10725	191	-153.169m	1819.776m	-588.297m	1918.629m	0.012m	21.1	13.384
10725	192	-146.655m	1831.415m	-600.270m	1932.850m	0.007m	21.1	2.847
10725	193	-142.811m	1832.527m	-605.068m	1935.112m	0.015m	21.1	10.680
10725	194	-134.620m	1824.817m	-610.302m	1928.872m	0.024m	21.1	43.325
10725	195	-123.891m	1786.758m	-605.465m	1890.619m	0.016m	21.1	11.856
10725	196	-119.946m	1774.925m	-604.454m	1878.859m	0.012m	21.1	8.608
10725	197	-116.367m	1754.517m	-599.806m	1857.859m	0.020m	21.1	19.122
10725	198	-112.933m	1733.332m	-594.937m	1836.068m	0.013m	15.4	8.880
10725	199	-115.368m	1729.420m	-590.640m	1831.136m	0.012m	15.4	6.009
10725	200	-119.078m	1746.365m	-593.940m	1848.442m	0.011m	15.4	4.170
10725	201	-122.547m	1763.760m	-597.244m	1866.164m	0.029m	15.4	47.151
10725	202	-129.078m	1787.399m	-600.353m	1889.942m	0.007m	21.1	2.661
10725	203	-136.717m	1813.627m	-603.056m	1916.145m	0.021m	21.1	21.807
10725	204	-126.079m	1817.810m	-616.001m	1923.482m	0.023m	15.3	35.759
10725	205	-115.652m	1782.831m	-612.608m	1888.690m	0.012m	15.3	9.520
10725	206	-116.920m	1769.328m	-605.397m	1873.685m	0.012m	15.3	8.491
10725	207	-113.995m	1752.075m	-601.173m	1855.847m	0.015m	15.3	8.906
10725	208	-111.182m	1740.826m	-599.595m	1844.546m	0.029m	15.3	46.401
10725	209	-111.570m	1736.866m	-597.562m	1840.171m	0.006m	15.3	2.317
10725	210	-109.787m	1730.618m	-596.871m	1833.943m	0.010m	15.3	7.220
10725	211	-107.546m	1730.189m	-599.017m	1834.105m	0.020m	15.3	22.702
10725	212	-105.989m	1729.057m	-599.842m	1833.217m	0.020m	15.3	18.565
10725	213	-105.320m	1728.982m	-601.249m	1833.568m	0.013m	15.3	12.557
10725	214	-101.978m	1728.939m	-605.307m	1834.674m	0.013m	15.3	11.592
10725	215	-104.884m	1738.615m	-605.632m	1844.065m	0.007m	15.3	2.626
10725	216	-107.624m	1738.779m	-602.762m	1843.436m	0.013m	15.3	10.384
10725	217	-110.010m	1752.339m	-605.667m	1857.317m	0.011m	15.3	9.748
10725	218	-109.938m	1753.234m	-606.464m	1858.417m	0.024m	15.3	31.402
10725	219	-104.081m	1754.297m	-613.157m	1861.277m	0.013m	15.3	7.627
10725	220	-102.394m	1756.959m	-616.280m	1864.723m	0.009m	15.3	4.392
10725	221	-102.106m	1757.297m	-617.287m	1865.358m	0.009m	15.3	7.241
10725	222	-103.234m	1758.119m	-616.343m	1865.883m	0.008m	15.3	3.920
10725	223	-97.420m	1737.537m	-614.624m	1845.613m	0.015m	15.3	28.827
10725	224	-98.431m	1736.480m	-613.037m	1844.143m	0.023m	15.3	32.698
10725	225	-102.655m	1733.942m	-607.420m	1840.123m	0.007m	15.3	4.260
10725	226	-98.154m	1721.644m	-608.018m	1828.490m	0.008m	15.3	3.424
10725	227	-94.177m	1722.552m	-612.397m	1830.597m	0.022m	15.3	20.297
10725	228	-92.423m	1722.550m	-614.444m	1831.191m	0.006m	15.3	1.963
10725	229	-91.318m	1722.727m	-618.134m	1832.544m	0.019m	15.3	15.150

10725	230	-92.779m	1731.038m	-619.942m	1841.040m	0.009m	15.3	7.300
10725	231	-108.914m	1779.920m	-618.754m	1887.547m	0.020m	15.3	18.350
10725	232	-118.481m	1816.799m	-623.770m	1924.548m	0.019m	15.3	29.971
10725	233	-123.108m	1833.443m	-626.134m	1941.317m	0.014m	15.3	10.054
10725	234	-132.894m	1838.833m	-617.881m	1944.413m	0.021m	15.3	23.722
10725	235	-137.210m	1833.135m	-611.072m	1937.167m	0.008m	15.3	4.999
10725	236	-151.180m	1865.160m	-609.996m	1968.190m	0.020m	15.3	19.730
10725	237	-146.488m	1869.915m	-616.744m	1974.440m	0.022m	15.3	24.460
10725	238	-159.842m	1898.711m	-614.780m	2002.151m	0.018m	15.3	19.915
10725	239	-165.327m	1898.376m	-608.548m	2000.374m	0.015m	15.3	12.514
10725	240	-175.293m	1926.620m	-609.637m	2028.361m	0.016m	15.3	14.662
10725	241	-171.199m	1931.284m	-615.891m	2034.327m	0.010m	15.3	6.924
10725	242	-187.396m	1958.788m	-610.122m	2060.149m	0.009m	15.3	5.865
10725	243	-183.048m	1962.150m	-616.001m	2064.703m	0.008m	15.3	3.659
10725	244	-194.665m	1984.805m	-613.297m	2086.499m	0.012m	15.3	8.695
10725	245	-201.905m	1989.157m	-607.199m	2089.545m	0.012m	15.3	8.748
10725	246	-228.345m	2001.557m	-585.757m	2097.971m	0.012m	15.3	7.558
10725	247	-234.546m	2006.270m	-581.009m	2101.833m	0.014m	15.3	14.443
10725	248	-238.506m	2011.983m	-579.023m	2107.185m	0.010m	15.3	5.922
10725	249	-241.473m	2017.948m	-579.098m	2113.239m	0.009m	15.3	4.917
10725	250	-248.223m	2039.634m	-580.842m	2135.204m	0.010m	15.3	6.025
10725	251	-252.407m	2045.979m	-579.693m	2141.444m	0.006m	15.3	2.212
10725	252	-246.846m	2048.141m	-586.026m	2144.584m	0.007m	15.3	2.079
10725	253	-240.963m	2027.355m	-583.709m	2123.428m	0.014m	15.3	12.718
10725	254	-235.884m	2014.071m	-582.530m	2109.849m	0.020m	15.3	29.534
10725	255	-232.192m	2012.256m	-585.735m	2108.595m	0.016m	15.3	18.326
10725	256	-233.036m	2032.704m	-592.854m	2130.180m	0.032m	15.3	62.752
10725	257	-243.549m	2049.432m	-588.146m	2146.020m	0.023m	15.3	34.122
10725	258	-240.866m	2050.722m	-591.840m	2147.965m	0.021m	15.3	25.541
10725	259	-242.605m	2056.078m	-592.469m	2153.447m	0.010m	15.3	5.273
10725	260	-244.345m	2055.853m	-590.526m	2152.895m	0.018m	15.3	18.098
10725	261	-248.118m	2063.835m	-592.157m	2161.395m	0.013m	15.3	8.321
10725	262	-246.142m	2064.771m	-594.786m	2162.784m	0.008m	15.3	3.726
10725	263	-248.101m	2078.121m	-597.443m	2176.484m	0.020m	15.3	24.078
10725	264	-253.263m	2077.217m	-592.083m	2174.750m	0.026m	15.3	40.430
10725	265	-261.063m	2076.299m	-583.810m	2172.558m	0.013m	15.3	9.701
10725	266	-261.386m	2082.637m	-586.001m	2179.243m	0.020m	15.3	23.774
10725	267	-265.440m	2083.163m	-582.359m	2179.259m	0.017m	15.3	18.607
10725	268	-273.566m	2075.374m	-571.025m	2169.813m	0.020m	15.3	27.367
10725	269	-277.598m	2067.246m	-563.682m	2160.626m	0.009m	15.3	4.025

10725	270	-283.230m	2071.387m	-559.473m	2164.226m	0.008m	15.3	2.666
10725	271	-281.664m	2076.486m	-563.286m	2169.889m	0.011m	15.3	7.105
10725	272	-288.037m	2078.304m	-557.556m	2170.986m	0.012m	15.3	7.742
10725	273	-294.185m	2085.087m	-553.942m	2177.380m	0.017m	15.3	14.542
10725	274	-295.855m	2097.461m	-557.189m	2190.281m	0.026m	15.3	44.883
10725	275	-297.398m	2111.496m	-561.304m	2204.977m	0.011m	15.3	6.981
10725	276	-288.097m	2114.985m	-572.429m	2209.940m	0.007m	15.3	2.840
10725	277	-277.370m	2105.324m	-579.176m	2201.083m	0.012m	15.3	9.119
10725	278	-269.110m	2102.986m	-586.509m	2199.764m	0.018m	15.3	17.361
10725	279	-255.074m	2107.825m	-601.622m	2206.794m	0.010m	13.1	4.292
10725	280	-250.686m	2118.177m	-609.950m	2218.458m	0.027m	13.1	39.779
10725	281	-243.570m	2118.511m	-617.654m	2220.115m	0.019m	13.1	20.590
10725	282	-234.363m	2074.095m	-608.247m	2174.111m	0.018m	13.1	18.641
10725	283	-225.377m	2062.680m	-613.110m	2163.642m	0.017m	13.1	19.025
10725	284	-218.589m	2043.377m	-612.295m	2144.312m	0.021m	13.1	27.209
10725	285	-222.088m	2033.581m	-604.345m	2133.075m	0.011m	13.1	7.893
10725	286	-211.412m	2023.774m	-611.505m	2124.687m	0.017m	13.1	18.369
10725	287	-254.128m	2125.933m	-609.752m	2226.200m	0.011m	11.3	6.305
10725	288	-262.211m	2133.072m	-605.037m	2232.671m	0.006m	11.3	1.756
10725	289	-279.810m	2141.649m	-590.566m	2239.135m	0.033m	11.3	72.690
10725	290	-281.701m	2132.869m	-584.916m	2229.487m	0.009m	11.3	3.470
10725	291	-285.395m	2131.339m	-580.395m	2227.311m	0.014m	11.3	8.547
10725	292	-289.969m	2139.634m	-579.327m	2235.562m	0.010m	11.3	4.206
10725	293	-294.666m	2141.477m	-575.422m	2236.931m	0.009m	11.3	4.013
10725	294	-299.471m	2141.423m	-570.392m	2236.229m	0.015m	11.3	13.184
10725	295	-316.471m	2150.221m	-555.481m	2243.248m	0.008m	11.3	3.429
10725	296	-319.128m	2147.681m	-551.548m	2240.219m	0.006m	11.3	1.488
10725	297	-316.775m	2138.431m	-550.234m	2230.693m	0.013m	11.3	10.152
10725	298	-311.260m	2120.188m	-548.555m	2212.011m	0.011m	11.3	5.006
10725	299	-310.286m	2114.976m	-547.573m	2206.635m	0.012m	11.3	9.220
10725	300	-314.274m	2114.343m	-542.984m	2205.459m	0.012m	11.3	7.183
10725	301	-313.899m	2107.031m	-540.238m	2197.719m	0.020m	11.3	21.174
10725	302	-309.622m	2099.095m	-541.981m	2189.934m	0.013m	11.3	6.722
10725	303	-312.835m	2095.997m	-536.733m	2186.127m	0.009m	15.3	5.351
10725	304	-309.902m	2054.066m	-522.068m	2141.911m	0.015m	15.3	13.755
10725	305	-338.047m	2065.322m	-496.900m	2150.986m	0.009m	15.3	8.226
10725	306	-343.015m	2108.144m	-510.408m	2196.007m	0.008m	15.3	3.990
10725	307	-373.317m	2116.751m	-481.791m	2202.753m	0.015m	15.3	22.369
10725	308	-373.690m	2082.202m	-467.383m	2166.485m	0.016m	15.3	23.186
10725	309	-405.359m	2093.039m	-438.708m	2176.601m	0.012m	15.3	10.854

10725	310	-403.746m	2065.318m	-429.051m	2147.704m	0.009m	15.3	9.744
10725	311	-403.975m	2059.548m	-426.233m	2141.637m	0.011m	13.4	12.542
10725	312	-409.476m	2138.909m	-453.268m	2224.422m	0.016m	13.4	15.441
10725	1.76	-347.728m	2154.234m	-525.318m	2244.460m	0.008m	7.6	2.245
10725	313	-348.395m	2151.344m	-523.165m	2241.286m	0.018m	7.6	15.771
10725	314	-354.800m	2165.552m	-522.666m	2255.810m	0.017m	7.6	19.630
10725	315	-388.293m	2159.960m	-485.321m	2247.606m	0.009m	7.6	3.541
10725	316	-386.806m	2148.352m	-481.850m	2235.445m	0.008m	7.6	3.834
10725	317	-397.226m	2155.936m	-473.649m	2242.809m	0.009m	7.6	3.493
10725	318	-397.108m	2156.702m	-473.600m	2243.514m	0.006m	7.6	2.264
10725	319	-402.430m	2159.307m	-469.117m	2246.025m	0.018m	7.6	15.221
10725	320	-403.388m	2149.771m	-464.413m	2236.049m	0.020m	7.6	29.443
10725	321	-412.547m	2158.683m	-459.031m	2245.176m	0.008m	7.6	3.089
10725	322	-415.427m	2152.209m	-452.944m	2238.246m	0.016m	7.6	14.402
10725	323	-416.074m	2150.148m	-451.220m	2236.035m	0.013m	7.6	10.123
10725	324	-418.484m	2152.684m	-449.936m	2238.664m	0.010m	7.6	5.846
10725	325	-430.211m	2153.917m	-437.917m	2239.689m	0.011m	7.6	6.083
10725	326	-431.798m	2162.198m	-440.290m	2248.422m	0.006m	7.6	2.529
10725	327	-453.736m	2164.879m	-418.173m	2251.099m	0.006m	7.6	2.082
10725	328	-453.085m	2156.989m	-415.068m	2242.804m	0.017m	7.6	14.842
10725	329	-451.712m	2134.099m	-406.967m	2219.019m	0.009m	7.6	3.876
10725	330	-449.387m	2091.999m	-392.030m	2175.338m	0.009m	7.6	3.892
10725	331	-472.973m	2089.321m	-366.713m	2173.348m	0.010m	7.6	4.156
10725	332	-479.133m	2137.274m	-380.237m	2223.080m	0.033m	7.6	63.422
10725	333	-479.134m	2148.042m	-384.546m	2234.173m	0.009m	7.6	3.984
10725	334	-478.541m	2145.131m	-383.857m	2231.128m	0.009m	7.6	3.020
10725	335	-481.660m	2157.191m	-385.811m	2243.729m	0.007m	7.6	3.153
10725	336	-509.758m	2146.897m	-352.482m	2234.561m	0.015m	7.6	10.539
10725	337	-506.128m	2105.233m	-339.223m	2191.631m	0.018m	7.6	20.135
10725	338	-510.759m	2106.073m	-334.643m	2192.807m	0.008m	7.6	3.834
10725	339	-541.276m	2113.383m	-306.474m	2203.019m	0.020m	7.6	20.706
10725	340	-546.486m	2152.713m	-317.368m	2243.556m	0.007m	7.6	2.133
10725	341	-578.196m	2159.289m	-287.380m	2253.759m	0.023m	7.6	27.049
10725	783	-645.833m	3260.083m	-667.659m	3389.839m	0.018m	12.5	15.600
10725	784	-650.629m	3252.956m	-659.873m	3382.377m	0.015m	12.5	17.427
10725	785	-654.542m	3244.318m	-652.196m	3373.334m	0.010m	12.5	6.012
10725	786	-657.026m	3231.304m	-644.170m	3359.756m	0.010m	11.4	5.355
10725	787	-655.545m	3230.650m	-645.423m	3359.079m	0.012m	12.5	11.592
10725	788	-657.517m	3223.420m	-640.377m	3351.545m	0.012m	12.5	8.622
10725	789	-669.559m	3214.498m	-624.429m	3342.338m	0.009m	12.5	5.312

10725	790	-673.174m	3209.920m	-618.973m	3337.646m	0.032m	12.5	47.514
10725	791	-610.139m	3157.266m	-666.519m	3284.029m	0.011m	12.5	5.387
10725	792	-611.705m	3145.759m	-660.093m	3271.957m	0.015m	12.5	11.971
10725	793	-611.528m	3143.039m	-659.144m	3269.118m	0.010m	12.5	5.337
10725	794	-610.549m	3133.359m	-655.501m	3258.894m	0.017m	12.5	9.074
10725	795	-593.833m	3140.150m	-674.692m	3266.250m	0.011m	12.5	8.345
10725	796	-583.395m	3144.754m	-688.249m	3271.623m	0.011m	12.5	4.176
10725	797	-579.483m	3143.221m	-692.375m	3270.324m	0.008m	12.5	2.353
10725	798	-579.928m	3145.168m	-693.185m	3272.447m	0.018m	12.5	10.366
10725	799	-566.507m	3137.893m	-703.258m	3265.252m	0.019m	12.5	15.231
10725	800	-568.431m	3140.491m	-702.702m	3267.964m	0.009m	12.5	7.268
10725	801	-556.550m	3135.208m	-712.527m	3262.970m	0.031m	12.5	43.701
10725	802	-555.922m	3139.786m	-715.074m	3267.819m	0.009m	12.5	6.700
10725	803	-555.288m	3151.654m	-720.870m	3280.384m	0.026m	12.5	25.138
10725	804	-553.813m	3160.110m	-725.636m	3289.309m	0.020m	12.5	16.652
10725	805	-555.829m	3180.662m	-732.222m	3310.847m	0.015m	12.5	9.058
10725	806	-564.156m	3183.308m	-725.229m	3313.258m	0.036m	12.5	68.259
10725	807	-559.694m	3194.371m	-734.232m	3325.110m	0.036m	12.5	72.048
10725	808	-552.517m	3196.678m	-742.250m	3327.907m	0.007m	12.5	4.303
10725	809	-555.735m	3211.339m	-745.171m	3343.175m	0.020m	12.5	16.172
10725	810	-554.954m	3222.519m	-750.856m	3355.054m	0.017m	12.5	15.968
10725	811	-546.810m	3215.428m	-755.764m	3348.008m	0.020m	12.5	33.761
10725	812	-549.148m	3133.579m	-719.694m	3261.723m	0.026m	12.5	54.637
10725	813	-535.303m	3128.829m	-730.610m	3257.286m	0.027m	12.5	29.430
10725	342	-574.011m	2120.552m	-275.836m	2214.117m	0.014m	7.6	12.152
10725	343	-603.228m	2128.016m	-248.489m	2225.777m	0.013m	7.6	8.640
10725	344	-607.843m	2167.483m	-260.204m	2266.090m	0.010m	7.6	6.998
10725	345	-623.984m	2167.905m	-243.779m	2269.052m	0.010m	7.6	5.614
10725	346	-627.020m	2168.037m	-239.979m	2269.610m	0.010m	7.6	6.731
10725	347	-626.673m	2164.574m	-239.072m	2266.110m	0.008m	7.6	3.281
10725	348	-635.670m	2179.184m	-235.397m	2282.177m	0.008m	7.6	3.920
10725	349	-630.318m	2135.016m	-222.756m	2237.234m	0.023m	7.6	28.806
10725	350	-582.373m	2170.140m	-287.640m	2265.259m	0.014m	7.6	11.797
10725	351	-577.764m	2163.879m	-289.835m	2258.360m	0.022m	7.6	23.910
10725	352	-584.531m	2175.146m	-287.391m	2270.579m	0.013m	7.6	7.730
10725	353	-584.961m	2200.595m	-297.669m	2296.390m	0.014m	7.6	12.831
10725	354	-587.449m	2247.551m	-314.538m	2344.252m	0.019m	7.6	19.505
10725	355	-590.539m	2290.931m	-328.745m	2388.550m	0.016m	7.6	14.294
10725	356	-591.768m	2294.989m	-328.876m	2392.765m	0.005m	7.6	1.015
10725	357	-590.855m	2298.263m	-331.246m	2396.006m	0.005m	7.6	1.630

10725	358	-585.654m	2295.430m	-335.861m	2392.654m	0.006m	7.6	3.330
10725	361	-551.247m	2277.083m	-364.406m	2371.027m	0.007m	2.0	5.083
10725	362	-532.468m	2274.171m	-383.094m	2366.884m	0.015m	2.0	16.025
10725	363	-522.872m	2271.068m	-392.077m	2363.233m	0.009m	2.0	4.090
10725	364	-514.775m	2242.163m	-388.360m	2333.048m	0.015m	2.0	13.491
10725	365	-509.960m	2221.105m	-384.365m	2311.083m	0.025m	2.0	33.734
10725	366	-500.924m	2192.224m	-381.717m	2280.894m	0.016m	2.0	15.042
10725	367	-493.831m	2175.593m	-382.010m	2263.406m	0.011m	2.0	5.498
10725	init	-568.968m	2270.399m	-342.998m	2365.604m	0.011m	2.7	3.441
10725	init	-568.960m	2270.398m	-342.997m	2365.601m	0.004m	65.7	0.930
10725	368	-632.444m	2184.475m	-241.186m	2286.939m	0.005m	2.8	1.852
10725	369	-617.903m	2182.953m	-255.282m	2283.037m	0.003m	2.8	0.439
10725	370	-607.841m	2182.140m	-266.110m	2280.794m	0.013m	2.8	15.546
10725	371	-597.537m	2180.320m	-275.687m	2277.466m	0.014m	2.8	13.417
10725	372	-593.090m	2206.394m	-290.782m	2303.147m	0.013m	2.8	12.923
10725	373	-604.890m	2212.751m	-281.622m	2311.162m	0.012m	2.8	10.614
10725	374	-620.383m	2220.996m	-268.559m	2321.599m	0.013m	2.8	12.383
10725	375	-631.559m	2226.480m	-259.835m	2328.861m	0.018m	2.8	20.991
10725	376	-641.275m	2232.983m	-251.432m	2336.806m	0.007m	2.8	4.117
10725	377	-638.558m	2268.038m	-269.315m	2371.557m	0.008m	2.8	4.112
10725	378	-635.795m	2268.167m	-272.605m	2371.314m	0.007m	2.8	3.822
10725	379	-625.600m	2267.955m	-282.486m	2369.556m	0.005m	2.8	2.356
10725	380	-618.729m	2277.110m	-293.774m	2377.890m	0.022m	2.8	40.607
10725	381	-609.409m	2281.932m	-304.719m	2381.480m	0.005m	2.8	1.841
10725	382	-613.355m	2305.456m	-310.286m	2405.745m	0.006m	2.8	2.727
10725	383	-622.955m	2308.666m	-302.513m	2410.295m	0.006m	2.8	2.786
10725	384	-630.653m	2316.384m	-297.209m	2419.026m	0.013m	2.8	12.553
10725	385	-642.940m	2309.470m	-281.183m	2413.729m	0.006m	2.8	2.488
10725	386	-648.750m	2313.063m	-276.105m	2418.134m	0.006m	2.8	1.660
10725	387	-608.293m	2320.821m	-321.634m	2420.677m	0.013m	2.8	8.318
10725	388	-621.402m	2337.771m	-315.214m	2439.401m	0.006m	2.8	2.235
10725	389	-625.769m	2343.749m	-313.502m	2446.024m	0.009m	2.8	5.930
10725	390	-632.689m	2354.847m	-310.815m	2458.090m	0.006m	2.8	2.401
10725	391	-637.047m	2357.697m	-307.622m	2461.543m	0.009m	2.8	5.445
10725	392	-625.253m	2338.787m	-312.297m	2440.982m	0.018m	2.8	28.480
10725	393	-614.266m	2324.304m	-317.112m	2424.927m	0.012m	2.8	10.807
10725	394	-641.464m	2365.632m	-306.399m	2470.136m	0.011m	2.8	10.116
10725	395	-645.604m	2376.708m	-306.802m	2481.869m	0.013m	2.8	15.331
10725	396	-647.974m	2390.264m	-309.975m	2495.860m	0.003m	2.8	0.482
10725	397	-651.737m	2436.661m	-325.338m	2543.211m	0.011m	2.8	8.489

10725	398	-657.984m	2454.870m	-325.624m	2562.297m	0.012m	2.8	12.882
10725	399	-664.046m	2462.134m	-321.960m	2570.353m	0.013m	2.8	15.181
10725	400	-664.869m	2462.822m	-321.051m	2571.112m	0.008m	2.8	5.420
10725	401	-650.932m	2394.048m	-308.771m	2500.104m	0.022m	2.8	40.998
10725	402	-652.556m	2393.994m	-306.548m	2500.201m	0.011m	2.8	10.166
10725	403	-654.680m	2394.500m	-304.137m	2500.947m	0.005m	2.8	2.592
10725	403	-654.788m	2394.489m	-304.096m	2500.959m	0.006m	2.8	2.355
10725	404	-654.469m	2437.439m	-323.003m	2544.361m	0.012m	2.8	13.297
10725	406	-659.349m	2441.616m	-319.007m	2549.116m	0.017m	2.8	23.106
10725	407	-652.875m	2449.772m	-329.231m	2556.564m	0.009m	2.8	7.123
10725	408	-660.723m	2461.993m	-325.492m	2569.808m	0.014m	2.8	10.402
10725	409	-665.192m	2466.621m	-322.491m	2575.014m	0.022m	2.8	28.157
10725	410	-666.739m	2468.565m	-320.244m	2576.996m	0.013m	2.8	7.630
10725	411	-668.671m	2472.467m	-319.680m	2581.165m	0.004m	2.8	1.564
10725	412	-669.440m	2473.633m	-319.338m	2582.439m	0.007m	2.8	2.243
10725	reper	-674.119m	2474.174m	-315.489m	2583.700m	0.012m	2.8	6.817
10725	450	-670.454m	2485.217m	-323.163m	2594.272m	0.006m	2.8	2.040
10725	451	-672.192m	2485.291m	-321.216m	2594.551m	0.010m	2.8	6.505
10725	452	-667.652m	2474.237m	-323.391m	2583.058m	0.004m	2.8	1.348
10725	453	-664.848m	2473.612m	-326.266m	2582.098m	0.010m	2.8	7.901
10725	454	-657.958m	2473.375m	-333.423m	2581.020m	0.007m	2.8	3.439
10725	455	-650.163m	2470.766m	-340.743m	2577.499m	0.011m	2.8	12.869
10725	456	-648.548m	2491.358m	-350.741m	2598.172m	0.025m	1.8	30.599
10725	457	-660.323m	2497.908m	-341.171m	2606.141m	0.008m	14.8	4.453
10725	458	-670.779m	2502.379m	-332.560m	2611.980m	0.005m	14.8	1.427
10725	459	-674.599m	2538.125m	-343.116m	2648.564m	0.011m	14.8	8.042
10725	460	-660.050m	2536.835m	-357.371m	2645.546m	0.011m	14.8	5.488
10725	461	-646.366m	2534.360m	-370.383m	2641.582m	0.005m	14.8	2.390
10725	462	-642.935m	2533.944m	-373.633m	2640.803m	0.007m	14.8	5.995
10725	463	-636.335m	2535.215m	-381.135m	2641.496m	0.015m	1.6	11.495
10725	464	-633.554m	2555.990m	-392.366m	2662.409m	0.007m	14.8	4.524
10725	465	-631.958m	2570.854m	-399.885m	2677.419m	0.009m	14.8	3.983
10725	466	-634.156m	2590.783m	-405.962m	2697.984m	0.009m	14.8	4.099
10725	467	-639.005m	2591.310m	-401.387m	2698.949m	0.020m	14.8	28.939
10725	468	-647.009m	2592.276m	-393.361m	2700.601m	0.013m	14.8	8.469
10725	469	-645.268m	2576.639m	-388.727m	2684.502m	0.010m	14.8	5.512
10725	470	-654.645m	2577.399m	-379.631m	2686.199m	0.005m	14.8	1.471
10725	471	-655.592m	2578.097m	-378.749m	2686.975m	0.008m	14.8	2.375
10725	472	-657.822m	2597.121m	-384.401m	2706.572m	0.014m	14.8	12.900
10725	473	-668.862m	2599.107m	-373.763m	2709.692m	0.014m	14.8	10.450

10725	474	-666.764m	2579.697m	-368.071m	2689.774m	0.013m	14.8	9.203
10725	475	-665.102m	2558.741m	-361.119m	2668.318m	0.010m	14.8	4.604
10725	476	-650.525m	2559.826m	-376.480m	2667.889m	0.009m	14.8	3.355
10725	477	-677.564m	2564.889m	-350.898m	2675.982m	0.006m	14.8	1.222
10725	478	-679.713m	2586.832m	-357.654m	2698.448m	0.014m	14.8	7.569
10725	479	-681.599m	2606.542m	-363.978m	2718.661m	0.008m	14.8	2.843
10725	480	-683.691m	2628.670m	-370.857m	2741.327m	0.023m	14.8	23.784
10725	481	-685.591m	2651.547m	-378.418m	2764.767m	0.014m	14.8	7.624
10725	482	-688.656m	2674.269m	-384.792m	2788.194m	0.018m	14.8	16.511
10725	483	-674.175m	2670.653m	-397.924m	2783.028m	0.004m	14.8	0.974
10725	484	-670.860m	2669.874m	-400.582m	2781.860m	0.009m	14.8	4.649
10725	485	-666.837m	2669.108m	-404.123m	2780.670m	0.007m	14.8	3.082
10725	486	-658.298m	2667.399m	-412.244m	2778.186m	0.013m	14.8	7.955
10725	487	-647.761m	2665.057m	-422.379m	2774.982m	0.013m	14.8	9.345
10725	488	-639.377m	2663.438m	-430.142m	2772.676m	0.011m	14.8	8.094
10725	489	-634.516m	2649.770m	-429.301m	2758.295m	0.014m	14.8	14.938
10725	490	-633.776m	2634.296m	-423.742m	2742.397m	0.014m	14.8	15.548
10725	491	-633.517m	2623.613m	-419.534m	2731.427m	0.012m	14.8	10.641
10725	492	-647.601m	2616.581m	-402.549m	2725.422m	0.008m	14.8	3.043
10725	493	-649.766m	2646.253m	-412.617m	2755.922m	0.024m	14.8	35.346
10725	494	-665.930m	2649.836m	-397.230m	2760.957m	0.011m	14.8	5.633
10725	495	-664.239m	2624.011m	-388.517m	2734.518m	0.005m	14.8	1.823
10725	496	-634.560m	2682.892m	-442.874m	2792.259m	0.019m	14.8	26.167
10725	497	-635.554m	2704.522m	-451.040m	2814.570m	0.011m	14.8	5.050
10725	498	-636.066m	2734.947m	-462.731m	2845.811m	0.008m	14.8	4.697
10725	499	-647.963m	2737.312m	-451.694m	2848.993m	0.010m	14.8	5.157
10725	500	-647.675m	2716.759m	-443.707m	2827.922m	0.010m	14.8	3.791
10725	501	-646.617m	2693.443m	-434.969m	2803.916m	0.019m	14.8	17.813
10725	502	-658.050m	2694.432m	-423.564m	2805.780m	0.012m	14.8	7.261
10725	503	-660.421m	2721.436m	-432.244m	2833.585m	0.008m	14.8	2.799
10725	504	-662.875m	2743.914m	-438.916m	2856.766m	0.019m	14.8	16.612
10725	505	-675.002m	2746.509m	-427.449m	2860.359m	0.014m	14.8	11.832
10725	506	-673.050m	2724.727m	-420.450m	2837.941m	0.015m	14.8	12.486
10725	507	-670.917m	2699.716m	-412.488m	2812.249m	0.009m	14.8	3.997
10725	508	-691.720m	2702.511m	-392.991m	2817.177m	0.007m	14.8	2.333
10725	509	-694.432m	2731.179m	-401.291m	2846.509m	0.012m	14.8	7.633
10725	510	-690.671m	2733.821m	-406.404m	2848.853m	0.013m	14.8	7.329
10725	511	-686.136m	2733.607m	-411.599m	2848.298m	0.011m	14.8	7.374
10725	512	-684.745m	2717.149m	-406.487m	2831.432m	0.007m	14.8	2.516
10725	513	-684.752m	2717.138m	-406.483m	2831.423m	0.009m	14.8	3.814

10725	514	-688.110m	2715.879m	-402.208m	2830.418m	0.010m	14.8	4.471
10725	515	-692.400m	2733.601m	-404.465m	2848.787m	0.014m	14.8	10.632
10725	516	-697.384m	2755.415m	-408.103m	2871.446m	0.009m	14.8	3.702
10725	517	-699.803m	2779.340m	-415.243m	2896.012m	0.011m	14.8	5.538
10725	518	-701.977m	2803.404m	-423.215m	2920.781m	0.024m	14.8	26.138
10725	519	-693.687m	2799.942m	-430.667m	2916.564m	0.010m	14.8	4.178
10725	520	-679.770m	2797.567m	-443.586m	2912.944m	0.009m	14.8	3.885
10725	521	-665.706m	2793.596m	-456.864m	2907.932m	0.022m	14.8	22.875
10725	522	-654.355m	2791.681m	-467.418m	2905.192m	0.015m	14.8	12.431
10725	523	-641.582m	2788.022m	-479.090m	2900.727m	0.007m	14.8	1.370
10725	524	-633.071m	2786.466m	-487.397m	2898.746m	0.010m	14.8	4.125
10725	525	-621.405m	2784.769m	-498.707m	2896.514m	0.011m	14.8	8.337
10725	526	-625.380m	2765.456m	-486.299m	2876.688m	0.010m	14.8	9.396
10725	527	-642.211m	2766.113m	-469.510m	2878.239m	0.012m	14.8	9.768
10725	528	-652.454m	2764.473m	-458.160m	2877.137m	0.017m	14.8	14.009
10725	529	-665.177m	2768.186m	-446.513m	2881.785m	0.009m	14.8	5.759
10725	530	-678.433m	2774.506m	-435.450m	2889.251m	0.015m	14.8	10.538
10725	531	-687.194m	2775.971m	-427.399m	2891.526m	0.018m	14.8	16.089
10725	532	-686.172m	2753.903m	-419.464m	2868.931m	0.014m	14.8	8.212
10725	533	-705.554m	2829.311m	-430.126m	2947.510m	0.029m	14.8	25.237
10725	534	-708.243m	2850.995m	-436.372m	2969.882m	0.015m	14.8	14.094
10725	535	-703.460m	2850.401m	-440.837m	2968.835m	0.010m	14.8	3.441
10725	536	-687.837m	2846.618m	-455.753m	2963.792m	0.011m	14.8	7.544
10725	537	-674.289m	2843.831m	-468.210m	2959.943m	0.019m	14.8	13.603
10725	538	-662.601m	2841.317m	-479.206m	2956.647m	0.012m	14.8	4.481
10725	539	-650.638m	2839.505m	-490.448m	2954.092m	0.008m	14.8	1.814
10725	540	-635.359m	2833.968m	-504.470m	2947.803m	0.009m	14.8	2.955
10725	541	-620.574m	2829.793m	-517.712m	2942.935m	0.009m	14.8	5.600
10725	542	-606.655m	2823.523m	-529.528m	2936.105m	0.011m	14.8	7.291
10725	543	-613.902m	2806.420m	-514.970m	2918.572m	0.016m	3.9	24.438
10725	544	-621.476m	2807.756m	-507.725m	2920.190m	0.007m	3.9	3.299
10725	545	-635.594m	2811.429m	-494.901m	2924.558m	0.010m	3.9	6.466
10725	546	-652.183m	2815.516m	-479.330m	2929.545m	0.012m	3.9	10.504
10725	547	-662.100m	2817.495m	-470.178m	2932.187m	0.020m	3.9	33.729
10725	548	-676.654m	2820.265m	-456.194m	2935.961m	0.006m	3.9	2.455
10725	549	-686.017m	2821.828m	-447.443m	2938.288m	0.034m	3.9	63.934
10725	550	-697.077m	2824.547m	-437.071m	2941.941m	0.009m	3.9	2.804
10725	551	-711.682m	2882.328m	-445.653m	3002.151m	0.012m	3.9	18.666
10725	552	-714.486m	2912.304m	-455.263m	3033.030m	0.014m	3.9	17.391
10725	553	-703.092m	2911.291m	-466.272m	3031.066m	0.022m	3.9	20.590

10725	554	-689.142m	2907.695m	-478.800m	3026.361m	0.017m	3.9	20.615
10725	555	-675.388m	2904.534m	-491.865m	3022.317m	0.011m	3.9	7.133
10725	556	-665.730m	2902.001m	-500.823m	3019.211m	0.009m	3.9	10.108
10725	557	-652.648m	2897.498m	-512.558m	3013.994m	0.018m	3.9	23.944
10725	558	-639.559m	2893.919m	-524.748m	3009.845m	0.031m	3.9	79.777
10725	559	-623.834m	2888.891m	-538.649m	3004.165m	0.002m	3.9	0.459
10725	560	-615.763m	2887.371m	-546.249m	3002.409m	0.014m	3.9	9.949
10725	561	-612.624m	2860.802m	-538.636m	2974.832m	0.010m	3.9	11.338
10725	562	-623.511m	2861.835m	-527.985m	2976.177m	0.010m	3.9	5.217
10725	563	-639.528m	2867.623m	-513.903m	2982.676m	0.017m	3.9	13.560
10725	564	-655.070m	2871.297m	-498.979m	2987.046m	0.014m	3.9	8.415
10725	565	-666.962m	2873.471m	-487.930m	2989.941m	0.009m	3.9	3.769
10725	566	-677.901m	2875.921m	-477.612m	2993.089m	0.011m	3.9	6.043
10725	567	-689.746m	2878.492m	-466.763m	2996.554m	0.008m	3.9	3.329
10725	568	-699.531m	2880.835m	-457.582m	2999.655m	0.010m	3.9	5.093
10725	569	-717.949m	2940.817m	-462.968m	3062.384m	0.027m	3.9	37.553
10725	570	-721.216m	2970.951m	-471.873m	3093.440m	0.035m	3.9	93.191
10725	571	-707.790m	2968.235m	-484.941m	3089.750m	0.010m	3.9	5.165
10725	572	-695.270m	2963.979m	-495.465m	3084.487m	0.010m	3.9	4.709
10725	573	-683.292m	2960.755m	-507.128m	3080.607m	0.015m	3.9	9.919
10725	574	-669.015m	2956.943m	-519.735m	3075.909m	0.012m	3.9	8.548
10725	575	-657.729m	2954.114m	-530.784m	3072.642m	0.012m	3.9	7.828
10725	576	-642.603m	2950.695m	-544.728m	3068.594m	0.019m	3.9	23.165
10725	577	-632.696m	2948.197m	-553.999m	3065.792m	0.011m	3.9	4.887
10725	578	-623.412m	2946.017m	-562.562m	3063.354m	0.013m	3.9	11.447
10725	579	-620.165m	2918.808m	-554.543m	3035.056m	0.017m	3.9	15.599
10725	580	-632.217m	2920.188m	-542.886m	3036.762m	0.014m	3.9	12.884
10725	581	-644.033m	2922.569m	-532.045m	3039.615m	0.019m	3.9	16.645
10725	582	-653.400m	2924.324m	-522.613m	3041.665m	0.020m	3.9	17.032
10725	583	-667.137m	2928.551m	-510.100m	3046.586m	0.021m	3.9	17.614
10725	584	-681.270m	2932.860m	-497.573m	3051.782m	0.020m	3.9	25.389
10725	585	-692.395m	2935.986m	-486.948m	3055.576m	0.034m	3.9	67.353
10725	586	-701.433m	2937.962m	-479.100m	3058.295m	0.012m	3.9	5.629
10725	587	-724.626m	3000.589m	-480.528m	3124.023m	0.027m	3.9	40.070
10725	588	-727.352m	3024.471m	-487.227m	3148.628m	0.012m	3.9	12.130
10725	589	-718.290m	3022.134m	-496.481m	3145.748m	0.006m	3.9	2.109
10725	590	-704.976m	3019.282m	-508.097m	3141.850m	0.007m	3.9	2.545
10725	591	-694.851m	3016.327m	-517.816m	3138.340m	0.012m	3.9	9.360
10725	592	-679.735m	3013.282m	-531.751m	3134.432m	0.008m	3.9	4.716
10725	593	-667.663m	3010.615m	-543.825m	3131.345m	0.010m	3.9	5.180

10725	594	-660.092m	3009.318m	-550.707m	3129.695m	0.019m	3.9	17.174
10725	595	-648.165m	3006.940m	-561.883m	3126.902m	0.008m	3.9	4.193
10725	596	-638.193m	3004.860m	-571.622m	3124.616m	0.024m	3.9	33.579
10725	597	-627.552m	3002.080m	-581.065m	3121.529m	0.010m	3.9	6.919
10725	598	-626.020m	2976.418m	-572.292m	3094.912m	0.017m	3.9	21.693
10725	599	-637.160m	2977.588m	-561.585m	3096.349m	0.004m	3.9	1.289
10725	600	-647.471m	2980.147m	-552.082m	3099.240m	0.008m	3.9	4.255
10725	601	-656.603m	2982.033m	-543.125m	3101.392m	0.010m	3.9	7.794
10725	602	-665.622m	2984.032m	-534.900m	3103.807m	0.012m	3.9	11.554
10725	603	-676.007m	2986.288m	-524.560m	3106.455m	0.007m	3.9	3.859
10725	604	-689.821m	2989.244m	-511.926m	3110.226m	0.019m	3.9	28.435
10725	605	-698.734m	2990.601m	-502.884m	3112.044m	0.012m	3.9	7.520
10725	606	-711.103m	2993.398m	-492.044m	3115.800m	0.011m	3.9	7.338
10725	607	-730.087m	3049.576m	-495.074m	3174.593m	0.015m	3.9	9.319
10725	608	-733.562m	3082.557m	-504.607m	3208.567m	0.016m	3.9	9.622
10725	609	-727.387m	3082.107m	-511.183m	3207.770m	0.017m	3.9	14.044
10725	610	-711.593m	3077.803m	-525.803m	3202.453m	0.012m	3.9	8.236
10725	611	-699.899m	3075.938m	-537.112m	3199.960m	0.025m	3.9	37.065
10725	612	-691.428m	3074.663m	-545.197m	3198.260m	0.010m	3.9	3.836
10725	613	-678.965m	3071.079m	-557.304m	3194.231m	0.016m	3.9	15.689
10725	614	-670.714m	3069.172m	-564.545m	3191.925m	0.008m	3.9	3.698
10725	615	-662.114m	3066.838m	-572.421m	3189.288m	0.006m	3.9	2.026
10725	616	-652.319m	3064.016m	-580.861m	3186.081m	0.008m	3.9	2.746
10725	617	-642.101m	3061.300m	-590.783m	3183.218m	0.012m	3.9	9.814
10725	618	-632.836m	3058.894m	-598.859m	3180.558m	0.007m	3.9	3.523
10725	619	-629.966m	3032.717m	-591.092m	3153.350m	0.013m	3.9	11.774
10725	620	-640.511m	3034.358m	-581.331m	3155.239m	0.013m	3.9	9.119
10725	621	-648.971m	3036.140m	-573.028m	3157.162m	0.011m	3.9	6.039
10725	622	-657.633m	3037.658m	-565.242m	3159.010m	0.013m	3.9	9.578
10725	623	-666.562m	3040.006m	-556.820m	3161.643m	0.008m	3.9	3.380
10725	625	-683.316m	3043.838m	-540.921m	3166.144m	0.012m	3.9	6.901
10725	626	-694.762m	3046.186m	-530.150m	3169.070m	0.007m	3.9	2.244
10725	627	-705.839m	3049.176m	-519.663m	3172.654m	0.020m	3.9	22.476
10725	628	-716.678m	3052.607m	-510.382m	3176.874m	0.035m	3.9	74.410
10725	629	-722.467m	3054.221m	-504.844m	3178.851m	0.014m	3.9	11.435
10725	630	-737.356m	3112.379m	-513.071m	3239.419m	0.008m	3.9	2.277
10725	631	-739.213m	3133.499m	-519.844m	3261.210m	0.017m	3.9	17.753
10725	632	-726.761m	3131.132m	-531.862m	3258.074m	0.009m	3.9	4.512
10725	633	-715.614m	3128.118m	-541.993m	3254.379m	0.008m	3.9	3.042
10725	634	-701.796m	3124.637m	-554.942m	3250.206m	0.009m	3.9	5.194

10725	635	-696.319m	3123.174m	-559.976m	3248.484m	0.006m	3.9	2.144
10725	636	-681.909m	3118.371m	-573.318m	3243.137m	0.005m	3.9	1.101
10725	637	-673.054m	3116.519m	-581.460m	3240.955m	0.010m	3.9	4.229
10725	638	-657.802m	3113.120m	-595.587m	3237.120m	0.028m	3.9	53.805
10725	639	-638.435m	3107.595m	-613.536m	3231.280m	0.008m	3.9	4.124
10725	640	-636.240m	3106.395m	-614.234m	3229.826m	0.007m	3.9	2.220
10725	641	-635.607m	3089.928m	-608.936m	3212.858m	0.011m	3.9	7.233
10725	642	-653.277m	3091.788m	-591.160m	3214.870m	0.020m	3.9	22.802
10725	643	-664.858m	3094.070m	-580.700m	3217.533m	0.012m	3.9	8.168
10725	644	-670.951m	3095.294m	-574.771m	3218.910m	0.007m	3.9	3.089
10725	645	-680.237m	3097.171m	-566.670m	3221.228m	0.010m	3.9	6.503
10725	646	-694.886m	3100.521m	-552.319m	3225.082m	0.006m	3.9	1.639
10725	647	-697.785m	3101.061m	-549.682m	3225.776m	0.013m	3.9	9.250
10725	648	-714.178m	3106.315m	-534.662m	3231.889m	0.015m	3.9	12.177
10725	649	-723.632m	3109.259m	-525.966m	3235.394m	0.009m	3.9	4.949
10725	650	-740.257m	3158.933m	-530.379m	3287.573m	0.009m	3.9	4.882
10725	651	-733.700m	3163.542m	-538.696m	3291.885m	0.013m	3.9	7.358
10725	652	-718.860m	3165.031m	-554.424m	3292.654m	0.011m	3.9	7.548
10725	653	-708.323m	3166.987m	-566.006m	3294.221m	0.011m	3.9	4.980
10725	654	-692.356m	3168.367m	-583.002m	3295.117m	0.014m	3.9	10.543
10725	655	-676.403m	3167.001m	-598.851m	3293.332m	0.025m	3.9	24.420
10725	656	-663.502m	3164.532m	-611.679m	3290.691m	0.016m	3.9	16.274
10725	657	-654.489m	3160.738m	-620.461m	3286.882m	0.009m	3.9	4.720
10725	658	-649.913m	3159.391m	-624.730m	3285.487m	0.009m	3.9	4.518
10725	665	-651.940m	3219.133m	-648.579m	3347.909m	0.009m	3.9	6.096
10725	666	-649.544m	3235.570m	-657.832m	3365.050m	0.011m	3.9	13.194
10725	667	-646.280m	3246.463m	-665.500m	3376.402m	0.022m	3.9	28.458
10725	668	-636.582m	3251.505m	-677.418m	3381.777m	0.012m	3.9	12.502
10725	669	-628.444m	3244.155m	-682.999m	3374.310m	0.022m	3.9	49.808
10725	670	-620.452m	3235.931m	-688.076m	3365.956m	0.006m	3.9	2.710
10725	671	-615.682m	3229.128m	-690.068m	3358.947m	0.010m	3.9	9.382
10725	672	-609.255m	3215.256m	-690.806m	3344.589m	0.011m	3.9	8.364
10725	673	-601.526m	3199.743m	-692.988m	3328.727m	0.006m	3.9	3.336
10725	674	-597.730m	3191.663m	-693.282m	3320.336m	0.009m	3.9	6.240
10725	675	-596.841m	3174.296m	-686.359m	3302.039m	0.011m	3.9	9.810
10725	676	-590.976m	3162.659m	-687.011m	3289.932m	0.009m	3.9	5.364
10725	677	-588.931m	3149.873m	-683.665m	3276.574m	0.009m	3.9	5.877
10725	678	-588.919m	3149.776m	-683.634m	3276.472m	0.008m	3.9	3.644
10725	679	-589.771m	3143.945m	-679.856m	3270.233m	0.013m	3.9	14.014
10725	680	-581.557m	3140.358m	-686.330m	3266.666m	0.025m	3.9	59.460

10725	681	-597.112m	3140.340m	-671.507m	3266.374m	0.020m	3.9	37.909
10725	682	-601.370m	3157.558m	-674.870m	3284.398m	0.011m	3.9	11.158
10725	683	-615.719m	3183.169m	-671.518m	3310.983m	0.009m	3.9	6.436
10725	684	-620.135m	3171.003m	-662.125m	3298.217m	0.018m	3.9	12.738
10725	685	-636.009m	3176.551m	-647.396m	3303.650m	0.019m	3.9	28.606
10725	686	-632.970m	3201.763m	-661.284m	3330.050m	0.032m	3.9	72.369
10725	687	-620.866m	3213.242m	-678.162m	3342.200m	0.010m	3.9	7.691
10725	688	-636.099m	3255.984m	-679.650m	3386.440m	0.012m	3.9	7.494
10725	689	-627.938m	3274.986m	-695.521m	3406.404m	0.010m	3.9	5.272
10725	690	-626.021m	3293.532m	-704.758m	3425.775m	0.034m	3.9	85.658
10725	691	-626.455m	3305.046m	-708.887m	3437.775m	0.019m	3.9	19.823
10725	692	-631.829m	3328.895m	-712.792m	3462.487m	0.017m	3.9	19.883
10725	693	-640.323m	3351.985m	-713.757m	3486.440m	0.014m	3.9	12.879
10725	694	-644.344m	3361.601m	-713.633m	3496.400m	0.013m	3.9	6.315
10725	695	-627.431m	3355.785m	-729.269m	3490.959m	0.008m	3.9	4.320
10725	init2	-619.036m	3266.611m	-701.566m	3397.962m	0.004m	8.2	0.677
10725	696	-616.843m	3246.345m	-696.013m	3376.935m	0.018m	8.2	17.123
10725	697	-611.570m	3273.272m	-711.950m	3405.172m	0.025m	8.2	37.338
10725	698	-618.506m	3282.237m	-708.349m	3414.291m	0.021m	8.2	29.046
10725	699	-617.134m	3309.210m	-720.408m	3442.487m	0.018m	8.2	17.854
10725	700	-618.623m	3351.314m	-736.846m	3486.681m	0.009m	8.2	5.768
10725	701	-600.075m	3342.250m	-752.027m	3477.970m	0.010m	8.2	5.537
10725	702	-587.953m	3336.469m	-762.382m	3472.598m	0.013m	8.2	8.687
10725	703	-585.012m	3327.268m	-761.931m	3463.162m	0.016m	8.2	16.729
10725	704	-591.766m	3319.221m	-751.839m	3454.370m	0.002m	8.2	0.174
10725	705	-601.997m	3312.347m	-738.082m	3446.565m	0.007m	8.2	2.407
10725	706	-603.871m	3297.523m	-730.018m	3430.924m	0.015m	8.2	13.085
10725	707	-605.100m	3283.168m	-723.033m	3415.862m	0.026m	8.2	39.166
10725	708	-610.705m	3260.945m	-708.219m	3392.388m	0.036m	8.2	74.789
10725	709	-613.328m	3243.287m	-698.352m	3373.837m	0.016m	8.2	15.020
10725	710	-613.328m	3243.265m	-698.339m	3373.813m	0.004m	8.2	0.937
10725	711	-636.838m	3372.913m	-726.561m	3508.560m	0.018m	8.2	16.317
10725	712	-625.784m	3370.363m	-737.256m	3506.351m	0.025m	8.2	32.959
10725	713	-608.266m	3364.495m	-752.314m	3500.827m	0.024m	8.2	30.736
10725	714	-615.492m	3370.682m	-747.576m	3507.021m	0.028m	8.2	44.615
10725	715	-627.218m	3385.646m	-741.622m	3522.215m	0.019m	8.2	20.945
10725	716	-626.142m	3388.164m	-742.978m	3524.731m	0.010m	8.2	6.036
10725	717	-627.458m	3390.569m	-741.879m	3527.045m	0.024m	8.2	36.089
10725	718	-627.434m	3390.599m	-741.921m	3527.079m	0.012m	8.2	8.067
10725	719	-625.388m	3387.765m	-743.365m	3524.295m	0.014m	8.2	11.181

10725	720	-625.550m	3389.423m	-744.457m	3526.148m	0.023m	8.2	29.720
10725	721	-622.283m	3388.696m	-747.743m	3525.566m	0.007m	8.2	4.307
10725	722	-618.496m	3384.027m	-750.125m	3520.918m	0.008m	8.2	4.584
10725	723	-618.342m	3381.001m	-748.961m	3517.735m	0.007m	8.2	3.372
10725	724	-612.735m	3375.166m	-751.906m	3511.773m	0.007m	8.2	3.502
10725	725	-605.630m	3371.096m	-757.512m	3507.834m	0.021m	8.2	23.312
10725	726	-601.222m	3363.071m	-759.180m	3499.725m	0.011m	8.2	8.142
10725	727	-591.610m	3356.983m	-766.485m	3493.829m	0.014m	8.2	9.791
10725	728	-582.474m	3345.519m	-771.388m	3482.358m	0.021m	8.2	23.902
10725	729	-581.334m	3347.893m	-773.588m	3484.935m	0.018m	8.2	15.305
10725	730	-580.847m	3342.224m	-770.742m	3478.777m	0.007m	8.2	3.462
10725	731	-584.080m	3345.433m	-768.680m	3481.945m	0.009m	8.2	5.076
10725	732	-583.811m	3341.546m	-768.478m	3478.121m	0.008m	8.2	3.679
10725	733	-590.800m	3350.946m	-763.192m	3487.169m	0.005m	8.2	1.544
10725	734	-604.038m	3364.471m	-755.942m	3500.854m	0.010m	8.2	5.985
10725	735	-636.125m	3399.364m	-736.917m	3536.011m	0.008m	8.2	2.823
10725	736	-636.477m	3400.878m	-738.151m	3537.787m	0.009m	4.6	4.534
10725	737	-642.692m	3410.468m	-735.215m	3547.518m	0.010m	4.6	5.235
10725	738	-644.605m	3409.680m	-732.892m	3546.628m	0.021m	4.6	21.896
10725	739	-649.795m	3411.866m	-727.625m	3548.591m	0.008m	4.6	4.062
10725	740	-651.606m	3411.483m	-726.290m	3548.282m	0.034m	4.6	62.885
10725	741	-653.442m	3410.959m	-724.074m	3547.663m	0.003m	4.6	0.659
10725	742	-659.295m	3420.503m	-720.670m	3557.228m	0.033m	4.6	54.409
10725	743	-662.081m	3427.244m	-720.351m	3564.163m	0.022m	4.6	24.857
10725	744	-661.943m	3432.114m	-722.400m	3569.235m	0.026m	4.6	33.842
10725	745	-668.728m	3444.346m	-719.379m	3581.651m	0.014m	4.6	9.680
10725	746	-667.328m	3447.379m	-722.233m	3584.880m	0.022m	4.6	32.377
10725	747	-671.072m	3457.196m	-722.223m	3595.017m	0.006m	4.6	1.979
10725	748	-668.273m	3459.286m	-726.031m	3597.272m	0.010m	4.6	6.476
10725	749	-670.306m	3471.437m	-728.722m	3609.878m	0.019m	4.6	19.609
10725	750	-660.886m	3416.622m	-716.591m	3552.968m	0.020m	4.6	17.643
10725	751	-657.253m	3413.878m	-719.110m	3550.164m	0.005m	4.6	0.989
10725	752	-653.913m	3396.929m	-715.184m	3532.452m	0.004m	4.6	0.756
10725	753	-657.391m	3397.236m	-711.760m	3532.701m	0.015m	4.6	11.392
10725	754	-686.862m	3411.283m	-687.329m	3546.978m	0.015m	4.6	17.495
10725	755	-724.568m	3429.675m	-655.668m	3566.170m	0.007m	12.5	2.914
10725	756	-752.449m	3441.613m	-632.091m	3579.165m	0.006m	12.5	1.594
10725	757	-774.289m	3451.111m	-613.275m	3589.679m	0.016m	12.5	13.734
10725	758	-773.696m	3441.599m	-609.998m	3579.847m	0.017m	12.5	11.172
10725	759	-740.742m	3425.368m	-637.602m	3562.075m	0.011m	12.5	4.338

10725	760	-725.492m	3418.293m	-650.385m	3554.443m	0.022m	12.5	23.262
10725	761	-689.530m	3401.656m	-680.762m	3536.969m	0.007m	12.5	2.169
10725	762	-654.735m	3385.762m	-709.912m	3520.800m	0.014m	12.5	7.975
10725	763	-651.163m	3381.048m	-711.859m	3515.998m	0.018m	12.5	20.462
10725	764	-647.130m	3366.819m	-710.388m	3501.271m	0.019m	12.5	20.165
10725	765	-644.341m	3358.680m	-710.150m	3492.881m	0.009m	12.5	5.013
10725	766	-638.149m	3339.280m	-708.184m	3472.686m	0.009m	12.5	5.189
10725	767	-632.345m	3324.041m	-708.313m	3456.995m	0.011m	12.5	5.926
10725	768	-632.976m	3316.576m	-704.490m	3449.151m	0.009m	12.5	5.040
10725	769	-629.972m	3290.273m	-696.047m	3421.585m	0.016m	12.5	15.035
10725	770	-631.370m	3281.144m	-691.181m	3412.077m	0.034m	12.5	62.546
10725	771	-642.273m	3263.482m	-672.644m	3393.417m	0.019m	7.5	22.562
10725	772	-662.120m	3270.183m	-654.937m	3400.212m	0.017m	12.5	11.945
10725	773	-663.992m	3298.513m	-664.527m	3429.675m	0.017m	11.0	14.629
10725	774	-663.803m	3320.249m	-673.492m	3452.286m	0.010m	11.0	6.424
10725	775	-664.062m	3346.529m	-684.261m	3479.719m	0.016m	11.0	11.869
10725	776	-666.811m	3374.843m	-693.113m	3509.218m	0.019m	11.0	23.134
10725	777	-748.345m	3387.215m	-613.921m	3522.803m	0.020m	11.0	25.622
10725	778	-752.896m	3387.711m	-609.852m	3523.544m	0.008m	11.0	4.386
10725	779	-768.874m	3394.608m	-595.158m	3531.111m	0.019m	12.5	20.897
10725	780	-757.925m	3295.497m	-566.022m	3428.575m	0.021m	12.5	23.328
10725	781	-743.865m	3296.053m	-581.625m	3428.642m	0.012m	12.5	7.807
10725	782	-683.970m	3275.849m	-634.624m	3406.134m	0.017m	12.5	14.979
10725	814	-540.444m	3129.326m	-724.597m	3257.269m	0.018m	12.5	17.894
10725	815	-538.763m	3126.631m	-724.991m	3254.489m	0.015m	12.5	23.742
10725	816	-538.566m	3123.069m	-724.022m	3250.818m	0.011m	12.5	5.153
10725	817	-528.538m	3125.273m	-737.193m	3254.249m	0.005m	12.5	1.478
10725	818	-529.742m	3112.310m	-732.359m	3240.902m	0.005m	12.5	1.121
10725	819	-528.646m	3106.330m	-730.665m	3234.598m	0.015m	12.5	11.369
10725	820	-525.292m	3114.698m	-737.268m	3243.584m	0.009m	12.5	5.531
10725	821	-508.784m	3099.997m	-749.472m	3229.636m	0.013m	12.5	8.785
10725	822	-525.502m	3128.003m	-740.999m	3257.244m	0.014m	12.5	9.635
10725	823	-528.893m	3133.742m	-738.998m	3262.849m	0.005m	12.5	1.648
10725	824	-535.278m	3143.254m	-737.124m	3272.601m	0.016m	12.5	11.764
10725	825	-533.863m	3145.808m	-739.683m	3275.401m	0.015m	12.5	10.499
10725	826	-531.391m	3148.859m	-741.861m	3278.422m	0.013m	12.5	10.872
10725	827	-528.642m	3151.232m	-743.916m	3280.722m	0.019m	12.5	22.655
10725	828	-528.142m	3153.385m	-745.563m	3283.083m	0.018m	12.5	14.247
10725	829	-528.088m	3153.406m	-745.632m	3283.111m	0.027m	12.5	34.842
10725	830	-528.663m	3150.579m	-743.746m	3280.059m	0.012m	12.5	4.989

10725	831	-528.664m	3150.603m	-743.755m	3280.085m	0.010m	12.5	4.278
10725	832	-528.466m	3149.013m	-744.554m	3278.707m	0.012m	12.5	8.691
10725	833	-525.530m	3143.702m	-745.934m	3273.448m	0.012m	12.5	9.510
10725	834	-522.131m	3141.468m	-748.557m	3271.358m	0.015m	12.5	11.696
10725	835	-518.616m	3144.726m	-755.455m	3275.511m	0.006m	12.5	2.173
10725	836	-519.148m	3154.109m	-758.600m	3285.330m	0.013m	12.5	10.895
10725	837	-522.073m	3148.986m	-754.141m	3279.848m	0.011m	12.5	7.468
10725	838	-510.356m	3150.627m	-766.053m	3282.339m	0.011m	12.5	6.645
10725	839	-497.645m	3157.119m	-779.760m	3289.845m	0.022m	12.5	29.582
10725	840	-498.331m	3159.797m	-780.082m	3292.595m	0.011m	12.5	8.663
10725	841	-501.510m	3157.613m	-776.614m	3290.162m	0.030m	12.5	73.587
10725	842	-503.878m	3162.513m	-776.025m	3295.087m	0.024m	12.5	28.505
10725	843	-506.573m	3167.348m	-774.781m	3299.848m	0.010m	12.5	9.385
10725	jnjit	-497.301m	3161.083m	-781.725m	3294.063m	0.006m	15.3	1.714
10725	844	-496.222m	3158.561m	-781.721m	3291.478m	0.006m	15.3	1.547
10725	845	-492.747m	3161.556m	-786.882m	3295.060m	0.010m	15.3	7.079
10725	846	-492.744m	3164.624m	-788.158m	3298.308m	0.014m	15.3	12.846
10725	847	-485.738m	3165.745m	-796.588m	3300.369m	0.006m	15.3	2.776
10725	848	-490.154m	3171.216m	-795.541m	3306.017m	0.021m	15.3	34.108
10725	849	-492.063m	3168.969m	-791.725m	3303.228m	0.006m	15.3	2.026
10725	850	-495.465m	3166.516m	-787.308m	3300.328m	0.009m	15.3	5.121
10725	851	-500.808m	3164.196m	-780.799m	3297.361m	0.015m	15.3	13.962
10725	852	-503.871m	3167.092m	-779.118m	3300.210m	0.003m	15.3	0.672
10725	853	-504.080m	3175.007m	-782.180m	3308.561m	0.009m	15.3	5.141
10725	854	-478.591m	3166.136m	-803.542m	3301.385m	0.019m	15.3	24.603
10725	855	-477.107m	3163.537m	-803.810m	3298.743m	0.012m	15.3	9.199
10725	856	-476.630m	3160.461m	-802.989m	3295.525m	0.009m	15.3	7.747
10725	857	-471.067m	3170.433m	-813.446m	3306.848m	0.009m	15.3	5.301
10725	858	-472.364m	3172.588m	-812.961m	3308.980m	0.006m	15.3	2.029
10725	859	-468.143m	3185.036m	-823.128m	3322.823m	0.025m	15.3	42.055
10725	860	-466.459m	3183.124m	-824.098m	3320.994m	0.021m	15.3	31.955
10725	861	-461.509m	3188.436m	-830.681m	3327.032m	0.007m	15.3	1.981
10725	862	-460.071m	3185.858m	-830.758m	3324.382m	0.013m	15.3	9.871
10725	863	-451.136m	3185.539m	-840.277m	3325.244m	0.004m	15.3	1.193
10725	864	-450.204m	3182.636m	-839.885m	3322.238m	0.026m	15.3	46.074
10725	865	-436.020m	3181.242m	-854.691m	3322.787m	0.007m	15.3	3.191
10725	866	-435.496m	3178.430m	-853.924m	3319.828m	0.022m	15.3	36.982
10725	867	-423.348m	3175.478m	-866.095m	3318.584m	0.014m	15.3	12.654
10725	868	-421.773m	3172.396m	-866.170m	3315.454m	0.017m	15.3	20.592
10725	869	-421.757m	3172.316m	-866.160m	3315.374m	0.007m	15.3	3.052

10725	870	-410.055m	3164.417m	-875.736m	3308.866m	0.007m	15.3	4.073
10725	871	-409.157m	3161.526m	-875.467m	3305.919m	0.007m	15.3	3.560
10725	872	-394.557m	3160.748m	-890.292m	3307.359m	0.007m	15.3	2.322
10725	873	-393.376m	3158.269m	-890.740m	3304.969m	0.017m	15.3	18.438
10725	874	-382.464m	3162.579m	-903.674m	3311.316m	0.013m	15.3	11.216
10725	875	-383.369m	3165.082m	-903.691m	3313.816m	0.013m	15.3	8.865
10725	876	-376.245m	3170.820m	-913.255m	3321.098m	0.010m	15.3	6.279
10725	877	-373.759m	3173.939m	-916.948m	3324.813m	0.008m	15.3	3.933
10725	878	-379.364m	3176.034m	-912.148m	3326.127m	0.016m	15.3	17.934
10725	879	-379.169m	3180.006m	-913.832m	3330.359m	0.013m	15.3	13.212
10725	880	-401.833m	3202.754m	-900.023m	3350.992m	0.007m	15.3	2.369
10725	881	-401.894m	3206.077m	-901.282m	3354.513m	0.016m	15.3	17.161
10725	882	-426.735m	3229.648m	-885.207m	3375.844m	0.036m	15.3	89.661
10725	883	-426.406m	3232.583m	-886.742m	3379.012m	0.016m	15.3	17.165
10725	884	-461.968m	3261.596m	-861.883m	3405.035m	0.006m	15.3	2.177
10725	885	-491.159m	3286.122m	-841.362m	3427.496m	0.013m	15.3	12.297
10725	886	-492.756m	3284.250m	-839.031m	3425.359m	0.003m	15.3	0.655
10725	887	-518.765m	3304.768m	-820.611m	3444.418m	0.009m	15.3	5.178
10725	888	-519.895m	3302.366m	-818.579m	3441.800m	0.019m	15.3	27.957
10725	889	-553.198m	3328.013m	-794.356m	3465.934m	0.023m	15.3	30.425
10725	890	-554.099m	3325.843m	-792.501m	3463.570m	0.015m	15.3	13.054
10725	891	-579.987m	3342.616m	-772.553m	3479.412m	0.004m	15.3	1.324
10725	892	-572.341m	3335.528m	-777.475m	3472.432m	0.020m	15.3	28.538
10725	893	-571.889m	3334.256m	-776.819m	3470.990m	0.019m	15.3	19.596
10725	894	-568.198m	3339.279m	-783.370m	3476.680m	0.022m	15.3	30.777
10725	895	-568.227m	3339.303m	-783.343m	3476.701m	0.016m	15.3	19.151
10725	896	-478.875m	3268.170m	-846.963m	3409.927m	0.013m	15.3	7.986
10725	897	-435.511m	3234.124m	-877.942m	3379.350m	0.016m	15.3	17.388
10725	898	-413.333m	3220.732m	-895.474m	3368.357m	0.014m	15.3	14.019
10725	899	-364.074m	3157.734m	-920.403m	3309.226m	0.012m	12.0	5.945
10725	900	-361.976m	3158.959m	-923.026m	3310.895m	0.018m	12.0	16.077
10725	901	-344.592m	3134.464m	-930.251m	3287.700m	0.012m	15.3	7.676
10725	902	-342.890m	3135.634m	-932.599m	3289.303m	0.015m	9.4	7.941
10725	903	-331.127m	3120.483m	-937.942m	3275.178m	0.010m	9.4	5.423
10725	904	-329.894m	3122.292m	-940.042m	3277.380m	0.020m	9.4	20.588
10725	905	-312.133m	3102.361m	-949.701m	3259.448m	0.006m	15.3	2.499
10725	906	-310.858m	3104.213m	-951.742m	3261.684m	0.009m	15.3	3.490
10725	907	-301.411m	3088.783m	-954.811m	3247.013m	0.011m	12.7	3.420
10725	908	-302.142m	3088.272m	-953.900m	3246.327m	0.025m	12.7	35.015
10725	909	-303.995m	3089.740m	-952.025m	3247.346m	0.011m	12.7	3.266

10725	910	-299.132m	3091.471m	-958.315m	3250.391m	0.009m	12.7	3.834
10725	911	-286.414m	3065.144m	-960.583m	3224.882m	0.006m	15.3	2.392
10725	912	-287.664m	3061.635m	-958.000m	3220.889m	0.026m	15.3	65.110
10725	913	-319.126m	3070.196m	-929.289m	3223.589m	0.014m	15.3	12.028
10725	914	-324.107m	3073.962m	-925.106m	3226.471m	0.014m	15.3	16.398
10725	915	-333.874m	3087.713m	-921.779m	3239.618m	0.016m	15.3	20.532
10725	916	-342.935m	3100.365m	-918.227m	3251.616m	0.008m	15.3	8.142
10725	917	-344.571m	3099.853m	-916.075m	3250.694m	0.012m	15.3	17.539
10725	918	-339.702m	3091.977m	-918.100m	3243.243m	0.010m	15.3	10.234
10725	919	-339.702m	3091.949m	-918.085m	3243.213m	0.007m	15.3	3.125
10725	920	-325.802m	3070.852m	-922.130m	3222.826m	0.010m	15.3	9.372
10725	921	-330.097m	3069.921m	-918.648m	3221.381m	0.016m	15.3	22.072
10725	922	-340.460m	3070.014m	-909.042m	3219.822m	0.008m	15.3	5.889
10725	923	-355.466m	3079.508m	-896.364m	3226.948m	0.031m	15.3	96.428
10725	924	-355.601m	3076.592m	-894.849m	3223.760m	0.012m	15.3	11.856
10725	925	-344.412m	3069.933m	-905.041m	3219.038m	0.017m	15.3	21.753
10725	926	-343.471m	3066.777m	-904.775m	3215.853m	0.025m	15.3	72.898
10725	927	-329.662m	3067.743m	-918.181m	3219.127m	0.023m	15.3	60.472
10725	928	-325.037m	3067.841m	-921.704m	3219.757m	0.003m	15.3	0.548
10725	929	-324.852m	3060.262m	-919.302m	3211.829m	0.004m	15.3	1.343
10725	930	-331.411m	3042.431m	-905.472m	3191.567m	0.014m	15.3	13.434
10725	931	-335.221m	3040.068m	-900.923m	3188.424m	0.012m	15.3	15.988
10725	932	-347.268m	3044.049m	-890.685m	3190.634m	0.018m	15.3	24.067
10725	933	-346.828m	3041.145m	-890.063m	3187.642m	0.024m	15.3	55.293
10725	934	-333.796m	3037.673m	-901.687m	3186.207m	0.009m	15.3	6.274
10725	935	-330.202m	3039.618m	-905.787m	3188.849m	0.006m	15.3	4.101
10725	936	-322.501m	3057.267m	-920.510m	3209.085m	0.007m	15.3	5.768
10725	937	-313.271m	3065.044m	-933.831m	3219.422m	0.018m	15.3	19.674
10725	938	-291.457m	3058.624m	-953.240m	3216.954m	0.016m	15.3	24.112
10725	939	-292.022m	3035.728m	-944.764m	3192.726m	0.024m	15.3	46.445
10725	940	-292.445m	3017.957m	-936.763m	3173.502m	0.005m	15.3	2.001
10725	941	-293.703m	3008.392m	-932.193m	3163.174m	0.014m	15.3	18.539
10725	942	-292.252m	3007.370m	-933.271m	3162.385m	0.019m	15.3	29.809
10725	943	-289.636m	3030.992m	-945.097m	3188.105m	0.010m	15.3	11.485
10725	944	-290.726m	3049.615m	-950.797m	3207.599m	0.029m	15.3	66.518
10725	945	-288.627m	3057.361m	-955.358m	3216.126m	0.006m	15.3	3.065
10725	946	-282.280m	3057.896m	-961.935m	3218.032m	0.009m	15.3	5.188
10725	947	-282.217m	3057.528m	-960.824m	3217.345m	0.005m	15.3	2.290
10725	948	-278.262m	3056.314m	-965.663m	3217.296m	0.008m	15.3	8.106
10725	949	-242.164m	3003.042m	-982.905m	3169.070m	0.006m	15.3	4.025

10725	950	-242.853m	3001.790m	-981.738m	3167.575m	0.012m	15.3	12.249
10725	951	-239.978m	3004.143m	-985.501m	3170.753m	0.009m	15.3	6.581
10725	952	-239.004m	3004.439m	-986.690m	3171.330m	0.013m	15.3	12.164
10725	953	-234.558m	2996.347m	-987.951m	3163.725m	0.008m	15.3	5.144
10725	954	-235.858m	2993.690m	-985.616m	3160.577m	0.017m	15.3	29.953
10725	955	-228.798m	2981.153m	-987.604m	3148.806m	0.015m	15.3	17.730
10725	956	-230.850m	2979.030m	-984.789m	3146.064m	0.012m	15.3	11.924
10725	957	-219.499m	2916.528m	-970.294m	3081.523m	0.007m	15.3	5.693
10725	958	-222.379m	2916.082m	-967.088m	3080.300m	0.011m	15.3	9.647
10725	959	-213.772m	2834.918m	-943.218m	2995.350m	0.013m	15.3	15.326
10725	960	-217.409m	2835.130m	-939.590m	2994.672m	0.021m	15.3	48.266
10725	961	-215.728m	2822.936m	-936.285m	2981.968m	0.007m	15.3	2.369
10725	962	-219.661m	2821.288m	-931.619m	2979.234m	0.013m	10.3	9.819
10725	963	-219.393m	2811.690m	-928.378m	2969.111m	0.013m	10.3	14.836
10725	964	-236.556m	2780.664m	-897.512m	2931.481m	0.022m	10.3	28.514
10725	965	-234.313m	2777.765m	-898.551m	2928.869m	0.012m	10.3	6.253
10725	966	-238.387m	2773.908m	-892.811m	2923.783m	0.007m	10.3	3.523
10725	967	-236.234m	2771.414m	-894.073m	2921.628m	0.006m	10.3	2.765
10725	968	-240.218m	2731.828m	-872.672m	2877.872m	0.014m	3.9	13.992
10725	969	-244.114m	2732.022m	-868.925m	2877.250m	0.013m	3.9	15.544
10725	970	-241.417m	2700.263m	-858.918m	2843.843m	0.004m	3.9	1.808
10725	971	-238.316m	2698.534m	-861.354m	2842.677m	0.007m	3.9	2.495
10725	972	-245.025m	2664.233m	-840.432m	2804.372m	0.010m	3.9	8.241
10725	973	-242.155m	2662.455m	-842.846m	2803.158m	0.012m	3.9	8.811
10725	974	-244.090m	2622.836m	-824.824m	2760.287m	0.017m	3.9	28.977
10725	975	-240.673m	2620.709m	-827.486m	2758.763m	0.012m	3.9	9.350
10725	976	-241.631m	2602.661m	-819.373m	2739.270m	0.007m	3.9	3.610
10725	977	-244.836m	2602.352m	-815.963m	2738.244m	0.015m	3.9	17.607
10725	978	-242.161m	2596.750m	-816.405m	2732.814m	0.011m	3.9	8.434
10725	979	-257.688m	2558.390m	-784.191m	2688.256m	0.023m	3.9	34.233
10725	980	-254.953m	2553.560m	-785.074m	2683.656m	0.005m	3.9	2.158
10725	981	-273.384m	2469.796m	-730.225m	2589.953m	0.005m	3.9	2.193
10725	982	-270.317m	2467.486m	-732.522m	2588.078m	0.010m	3.9	8.247
10725	983	-282.095m	2406.042m	-694.829m	2520.200m	0.006m	3.9	2.704
10725	984	-278.885m	2403.968m	-697.489m	2518.597m	0.007m	3.9	3.487
10725	985	-279.800m	2342.180m	-671.176m	2452.462m	0.014m	3.9	15.485
10725	986	-284.308m	2343.249m	-667.108m	2452.893m	0.006m	3.9	2.537
10725	987	-288.682m	2343.097m	-662.459m	2451.998m	0.005m	3.9	1.903
10725	988	-303.327m	2353.758m	-650.723m	2460.818m	0.011m	3.9	9.788
10725	989	-311.569m	2363.924m	-646.247m	2470.394m	0.012m	3.9	6.752

10725	990	-319.642m	2376.853m	-644.288m	2483.285m	0.007m	3.9	2.931
10725	991	-328.087m	2396.312m	-644.397m	2503.038m	0.011m	3.9	6.467
10725	992	-332.209m	2418.414m	-649.663m	2526.094m	0.005m	3.9	1.321
10725	993	-326.239m	2477.890m	-682.869m	2590.884m	0.006m	3.9	2.556
10725	994	-328.507m	2505.876m	-691.481m	2620.206m	0.017m	3.9	13.393
10725	995	-323.291m	2516.383m	-701.113m	2632.159m	0.017m	3.9	17.818
10725	996	-310.693m	2518.858m	-712.890m	2636.169m	0.013m	3.9	12.165
10725	997	-304.242m	2516.516m	-719.170m	2634.885m	0.010m	3.9	7.797
10725	998	-295.934m	2512.190m	-725.168m	2631.453m	0.013m	3.9	9.485
10725	999	-293.595m	2527.762m	-734.108m	2648.527m	0.031m	15.3	74.192
10725	1000	-299.168m	2542.675m	-733.997m	2663.353m	0.021m	15.3	31.169
10725	1001	-299.214m	2542.753m	-733.975m	2663.427m	0.016m	15.3	20.206
10725	1002	-309.216m	2545.184m	-724.655m	2664.338m	0.011m	15.3	6.301
10725	1003	-308.405m	2527.795m	-718.314m	2645.909m	0.009m	15.3	5.147
10725	1004	-322.912m	2522.668m	-703.941m	2638.875m	0.011m	15.3	7.578
10725	1005	-327.313m	2549.985m	-710.809m	2667.359m	0.009m	15.3	4.977
10725	1006	-367.828m	2563.228m	-673.942m	2675.749m	0.011m	15.3	7.736
10725	1007	-367.868m	2558.331m	-671.763m	2670.515m	0.011m	15.3	9.247
10725	1008	-337.624m	2519.758m	-687.946m	2633.713m	0.009m	15.3	4.786
10725	1009	-332.634m	2481.419m	-677.584m	2593.685m	0.014m	15.3	15.079
10725	1010	-334.296m	2448.303m	-659.815m	2557.596m	0.016m	15.3	18.018
10725	1011	-332.355m	2469.696m	-671.088m	2580.740m	0.009m	15.3	5.117
10725	1012	-360.598m	2495.057m	-652.422m	2604.034m	0.010m	15.3	5.416
10725	1013	-367.668m	2545.651m	-664.711m	2656.569m	0.021m	15.3	31.541
10725	1014	-374.292m	2548.831m	-659.396m	2659.218m	0.010m	15.3	4.563
10725	1015	-377.814m	2532.373m	-649.582m	2641.517m	0.007m	15.3	2.497
10725	1016	-390.124m	2534.593m	-637.767m	2642.556m	0.009m	15.3	6.035
10725	1017	-396.930m	2538.363m	-632.284m	2645.869m	0.021m	15.3	36.151
10725	1018	-407.122m	2534.551m	-619.875m	2640.822m	0.013m	15.3	14.000
10725	1019	-403.451m	2512.285m	-614.617m	2617.652m	0.015m	15.3	14.382
10725	1020	-396.309m	2501.736m	-617.804m	2607.187m	0.018m	15.3	21.370
10725	1021	-381.834m	2446.515m	-610.246m	2550.222m	0.015m	15.3	12.033
10725	1022	-333.782m	2401.592m	-640.739m	2507.908m	0.015m	15.3	13.472
10725	1023	-312.552m	2357.108m	-642.612m	2463.047m	0.009m	15.3	4.973
10725	1024	-288.495m	2336.760m	-660.206m	2445.312m	0.006m	15.3	2.697
10725	1025	-283.186m	2325.801m	-661.074m	2434.453m	0.011m	15.3	7.314
10725	1026	-274.064m	2260.609m	-644.175m	2366.522m	0.020m	15.3	21.186
10725	1027	-278.513m	2260.587m	-639.721m	2365.812m	0.011m	15.3	8.271
10725	1028	-266.133m	2188.187m	-622.950m	2290.645m	0.018m	15.3	17.837
10725	1029	-261.467m	2187.019m	-627.073m	2290.117m	0.018m	15.3	20.002

10725	initt	-262.875m	2174.236m	-620.538m	2276.285m	0.005m	28.6	1.152
10725	1030	-265.234m	2176.503m	-620.111m	2278.607m	0.008m	28.6	4.610
10725	1031	-259.956m	2153.956m	-615.759m	2255.275m	0.013m	28.6	6.364
10725	1032	-271.483m	2204.031m	-625.281m	2307.040m	0.006m	28.6	1.427
10725	1033	-274.533m	2224.886m	-630.285m	2328.679m	0.015m	28.6	11.633
10725	1034	-279.936m	2260.973m	-638.896m	2366.125m	0.006m	28.6	2.592
10725	1035	-284.013m	2295.415m	-648.204m	2402.033m	0.010m	28.6	6.659
10725	1036	-284.163m	2312.646m	-654.953m	2420.339m	0.009m	28.6	3.826
10725	1037	-297.671m	2340.550m	-652.629m	2448.001m	0.009m	28.6	12.197
10725	1038	-316.773m	2354.721m	-638.756m	2460.297m	0.005m	28.6	1.840
10725	1039	-321.315m	2361.757m	-636.934m	2467.149m	0.003m	19.3	0.905
10725	1040	-322.358m	2365.471m	-637.524m	2470.992m	0.019m	19.3	22.297
10725	1041	-321.068m	2368.852m	-640.285m	2474.774m	0.003m	19.3	0.957
10725	1042	-325.614m	2381.455m	-640.562m	2487.503m	0.006m	19.3	3.508
10725	1043	-318.106m	2367.461m	-641.281m	2473.319m	0.006m	19.3	2.443
10725	1044	-319.954m	2366.358m	-638.710m	2471.836m	0.011m	19.3	4.212
10725	1045	-320.576m	2364.944m	-637.626m	2470.283m	0.015m	19.3	10.726
10725	1046	-314.082m	2354.345m	-639.830m	2459.872m	0.014m	19.3	8.421
10725	1047	-313.279m	2344.646m	-638.621m	2450.173m	0.015m	19.3	12.653
10725	1048	-314.755m	2314.319m	-624.806m	2417.752m	0.015m	19.3	10.621
10725	1049	-313.767m	2290.405m	-616.440m	2392.572m	0.007m	19.3	2.245
10725	1050	-313.869m	2268.036m	-606.884m	2368.714m	0.018m	19.3	13.310
10725	1051	-315.140m	2237.955m	-593.006m	2336.539m	0.009m	19.3	3.728
10725	1052	-313.730m	2210.190m	-583.225m	2307.275m	0.016m	19.3	15.601
10725	1053	-339.637m	2205.633m	-554.780m	2299.555m	0.030m	19.3	48.737
10725	1054	-341.710m	2237.007m	-565.251m	2332.482m	0.013m	19.3	7.164
10725	1055	-343.636m	2274.079m	-578.577m	2371.555m	0.020m	19.3	26.103
10725	1056	-344.904m	2307.949m	-591.343m	2407.337m	0.015m	19.3	12.231
10725	1057	-346.359m	2329.138m	-598.402m	2429.595m	0.007m	19.3	3.176
10725	1058	-347.104m	2351.445m	-607.122m	2453.237m	0.035m	19.3	76.663
10725	1059	-348.663m	2371.258m	-613.877m	2474.121m	0.013m	19.3	8.277
10725	1060	-370.197m	2383.150m	-596.226m	2484.338m	0.025m	19.3	38.172
10725	1061	-379.867m	2386.357m	-586.256m	2486.503m	0.018m	19.3	18.229
10725	1062	-380.295m	2386.857m	-585.759m	2486.930m	0.026m	19.3	48.235
10725	1063	-380.057m	2391.581m	-588.204m	2492.004m	0.010m	15.3	5.094
10725	1064	-384.701m	2393.975m	-584.666m	2494.182m	0.020m	15.3	28.210
10725	1065	-387.818m	2386.825m	-579.398m	2486.572m	0.006m	15.3	1.720
10725	1066	-376.336m	2368.868m	-584.268m	2468.711m	0.008m	15.3	2.508
10725	1067	-376.351m	2368.860m	-584.251m	2468.701m	0.007m	15.3	2.609
10725	1068	-376.939m	2348.136m	-574.244m	2446.545m	0.004m	15.3	0.917

10725	1069	-379.051m	2323.509m	-562.629m	2420.522m	0.006m	15.3	1.645
10725	1070	-381.836m	2291.959m	-547.254m	2387.124m	0.014m	15.3	11.064
10725	1071	-380.488m	2270.597m	-539.427m	2364.606m	0.016m	15.3	15.667
10725	1072	-380.065m	2251.901m	-532.415m	2344.989m	0.018m	15.3	21.060
10725	1073	-381.507m	2238.916m	-525.544m	2331.199m	0.015m	15.3	16.590
10725	1074	-382.447m	2218.206m	-515.777m	2309.270m	0.016m	15.3	15.252
10725	1075	-411.426m	2228.991m	-490.344m	2319.075m	0.014m	15.3	11.795
10725	1076	-410.206m	2245.050m	-498.751m	2336.080m	0.011m	15.3	7.734
10725	1077	-411.530m	2261.014m	-503.913m	2352.758m	0.012m	15.3	4.417
10725	1078	-411.003m	2274.041m	-509.574m	2366.400m	0.021m	15.3	27.722
10725	1079	-410.830m	2298.057m	-519.544m	2391.605m	0.015m	15.3	14.188
10725	1080	-406.163m	2335.191m	-539.559m	2430.887m	0.009m	15.3	4.367
10725	1081	-402.933m	2352.807m	-548.901m	2449.357m	0.029m	15.3	49.718
10725	1082	-400.215m	2368.665m	-558.314m	2466.264m	0.014m	15.3	11.603
10725	1083	-398.086m	2393.372m	-572.290m	2492.834m	0.006m	15.3	1.632
10725	1084	-396.781m	2413.298m	-581.852m	2513.960m	0.010m	15.3	7.592
10725	1085	-405.441m	2423.507m	-576.169m	2523.835m	0.010m	15.3	5.888
10725	1086	-413.202m	2425.674m	-569.241m	2525.602m	0.014m	15.3	16.871
10725	1087	-414.641m	2406.336m	-558.755m	2504.913m	0.012m	15.3	8.902
10725	1088	-417.274m	2382.104m	-546.266m	2479.303m	0.008m	15.3	4.991
10725	1089	-420.383m	2363.023m	-535.144m	2459.061m	0.009m	15.3	6.989
10725	1090	-422.523m	2349.372m	-527.699m	2444.697m	0.012m	15.3	8.680
10725	1091	-429.382m	2322.640m	-510.396m	2416.512m	0.008m	15.3	5.638
10725	1092	-437.172m	2298.026m	-492.276m	2390.477m	0.015m	15.3	20.330
10725	1093	-443.487m	2287.013m	-481.041m	2378.762m	0.018m	15.3	21.187
10725	1094	-448.021m	2264.356m	-467.642m	2355.147m	0.012m	15.3	10.333
10725	1095	-454.085m	2249.259m	-454.574m	2339.230m	0.029m	15.3	82.605
10725	1096	-462.781m	2251.611m	-446.165m	2341.577m	0.006m	15.3	1.853
10725	1097	-481.516m	2248.952m	-425.053m	2338.871m	0.010m	15.3	7.160
10725	1098	-485.721m	2262.634m	-426.587m	2353.171m	0.022m	15.3	20.102
10725	1099	-486.139m	2264.611m	-426.971m	2355.228m	0.015m	15.3	13.056
10725	1100	-498.033m	2266.625m	-415.317m	2357.565m	0.008m	15.3	4.098
10725	1101	-514.345m	2269.431m	-399.991m	2361.114m	0.019m	15.3	23.472
10725	1102	-533.654m	2274.762m	-382.143m	2367.564m	0.013m	15.3	9.367
10725	1103	-550.258m	2229.263m	-345.867m	2322.073m	0.010m	15.3	5.540
10725	1104	-575.724m	2876.561m	-583.338m	2991.044m	0.036m	11.7	94.170
10725	1105	-575.748m	2876.586m	-583.309m	2991.067m	0.005m	11.7	1.458
10725	1106	-579.436m	2907.951m	-592.357m	3023.708m	0.007m	11.7	2.375
10725	1107	-583.921m	2950.019m	-604.993m	3067.506m	0.008m	11.7	2.888
10725	1108	-589.120m	2997.426m	-619.093m	3116.874m	0.016m	11.7	14.577

10725	1109	-593.312m	3043.040m	-633.483m	3164.397m	0.010m	11.7	4.853
10725	1110	-594.299m	3065.117m	-641.407m	3187.403m	0.011m	11.7	6.053
10725	1111	-595.463m	3090.828m	-651.706m	3214.423m	0.014m	11.7	11.948
10725	1112	-565.795m	3081.895m	-678.620m	3206.045m	0.017m	11.7	17.679
10725	1113	-561.613m	3056.187m	-671.403m	3179.067m	0.021m	11.7	15.543
10725	1114	-556.904m	3022.522m	-662.697m	3144.034m	0.010m	11.7	4.792
10725	1115	-554.746m	2995.198m	-653.528m	3115.454m	0.023m	11.7	25.202
10725	1116	-553.499m	2961.941m	-641.435m	3080.730m	0.018m	11.7	17.316
10725	1117	-553.669m	2926.954m	-626.922m	3044.116m	0.020m	11.7	23.125
10725	1118	-550.962m	2906.224m	-621.026m	3022.477m	0.011m	11.7	7.696
10725	1119	-523.105m	2916.252m	-654.284m	3034.181m	0.025m	13.8	31.552
10725	1120	-524.733m	2932.074m	-659.220m	3050.733m	0.013m	13.8	4.713
10725	1121	-525.387m	2952.915m	-667.073m	3072.576m	0.018m	13.8	12.084
10725	1122	-526.256m	2984.488m	-678.830m	3105.628m	0.012m	13.8	6.862
10725	1123	-529.652m	3013.782m	-687.537m	3136.259m	0.019m	13.8	10.018
10725	1124	-531.810m	3039.896m	-696.352m	3163.652m	0.015m	13.8	12.164
10725	1125	-534.395m	3072.730m	-707.820m	3198.165m	0.017m	13.8	11.099
10725	1126	-534.314m	3074.537m	-708.127m	3199.955m	0.022m	13.8	18.156
10725	1127	-519.696m	3067.632m	-720.991m	3193.787m	0.018m	13.8	9.700
10725	1128	-510.996m	3063.719m	-727.855m	3190.182m	0.013m	13.8	5.292
10725	1129	-515.471m	3051.413m	-718.866m	3177.042m	0.027m	13.8	29.723
10725	1130	-501.315m	3038.455m	-727.407m	3164.276m	0.022m	13.8	23.548
10725	1131	-510.916m	3021.392m	-711.073m	3145.706m	0.006m	13.8	1.857
10725	1132	-512.171m	2981.514m	-692.558m	3103.446m	0.013m	13.8	7.311
10725	1133	-508.156m	2957.202m	-686.527m	3078.081m	0.022m	13.8	22.001
10725	1134	-507.092m	2925.995m	-674.690m	3045.291m	0.020m	13.8	20.878
10725	1135	-506.156m	2911.860m	-669.935m	3030.501m	0.015m	13.8	15.897
10725	1136	-492.119m	2906.100m	-682.206m	3025.393m	0.015m	4.0	11.681
10725	1137	-475.251m	2891.782m	-693.391m	3011.488m	0.016m	7.9	14.322
10725	1138	-461.345m	2875.523m	-701.044m	2995.486m	0.020m	7.9	25.578
10725	1139	-442.969m	2842.290m	-706.381m	2962.061m	0.017m	7.9	17.739
10725	1140	-438.393m	2845.127m	-712.465m	2965.559m	0.009m	7.9	4.055
10725	1141	-440.687m	2865.430m	-718.674m	2986.868m	0.008m	7.9	4.508
10725	1142	-442.954m	2890.240m	-726.667m	3012.929m	0.017m	7.9	17.301
10725	1143	-445.796m	2913.072m	-732.859m	3036.743m	0.015m	7.9	13.878
10725	1144	-450.010m	2936.090m	-737.879m	3060.653m	0.020m	7.9	23.716
10725	1145	-451.726m	2965.108m	-748.206m	3091.235m	0.023m	7.9	29.585
10725	1146	-453.285m	2990.424m	-757.328m	3117.956m	0.017m	7.9	17.172
10725	1148	-455.671m	3048.391m	-778.625m	3179.084m	0.007m	7.9	3.774
10725	1149	-454.897m	3053.441m	-781.521m	3184.526m	0.010m	7.9	5.367

10725	1150	-429.544m	3044.295m	-803.805m	3177.789m	0.028m	7.9	53.018
10725	1151	-427.245m	3007.894m	-791.391m	3139.469m	0.023m	7.9	33.982
10725	1153	-423.776m	2945.724m	-769.292m	3073.872m	0.021m	7.9	24.018
10725	1154	-424.617m	2932.116m	-762.922m	3059.355m	0.019m	7.9	29.733
10725	1155	-423.138m	2898.286m	-750.462m	3023.624m	0.022m	7.9	38.568
10725	1156	-415.275m	2858.470m	-742.161m	2982.299m	0.006m	7.9	3.206
10725	1157	-406.215m	2821.120m	-735.760m	2943.650m	0.006m	7.9	3.234
10725	1158	-406.083m	2821.042m	-735.795m	2943.565m	0.006m	7.9	3.708
10725	1159	-397.935m	2744.939m	-713.223m	2863.866m	0.011m	7.9	9.452
10725	1160	-385.556m	2698.784m	-708.691m	2816.795m	0.016m	4.8	17.433
10725	1161	-380.350m	2696.931m	-712.555m	2815.286m	0.012m	4.8	7.721
10725	1162	-386.716m	2664.135m	-694.773m	2780.265m	0.006m	4.8	2.351
10725	1163	-370.817m	2653.644m	-707.135m	2771.168m	0.024m	4.8	39.824
10725	1164	-368.773m	2651.919m	-708.255m	2769.529m	0.009m	4.8	4.914
10725	1165	-346.973m	2622.284m	-718.381m	2740.956m	0.008m	4.8	3.240
10725	inite	-380.413m	2448.834m	-612.671m	2552.816m	0.005m	6.1	1.195
10725	1166	-282.094m	2633.619m	-787.593m	2763.300m	0.018m	6.1	16.852
10725	1167	-313.187m	2636.631m	-756.886m	2760.939m	0.008m	6.1	4.904
10725	1168	-313.294m	2680.948m	-774.752m	2808.180m	0.007m	6.1	3.601
10725	1169	-279.040m	2533.217m	-750.308m	2656.692m	0.008m	2.5	3.743
10725	1170	-284.523m	2508.880m	-734.978m	2629.758m	0.012m	2.5	9.336
10725	1171	-289.205m	2483.134m	-719.602m	2601.427m	0.036m	2.5	93.711
10725	1172	-294.879m	2447.631m	-699.232m	2562.573m	0.018m	2.5	20.849
10725	1173	-297.807m	2415.086m	-682.831m	2527.368m	0.023m	2.5	29.755
10725	1174	-299.644m	2385.832m	-668.825m	2495.858m	0.030m	2.5	45.015
10725	1175	-300.554m	2353.945m	-654.389m	2461.628m	0.019m	2.5	19.420
10725	1176	-301.839m	2355.535m	-651.299m	2462.487m	0.027m	2.5	34.429
10725	1177	-306.234m	2360.746m	-648.191m	2467.195m	0.014m	2.5	14.319
10725	1178	-306.683m	2371.434m	-651.523m	2478.353m	0.021m	2.5	27.959
10725	1179	-302.290m	2370.173m	-655.023m	2477.530m	0.015m	2.5	12.029
10725	1180	-301.603m	2392.838m	-664.743m	2501.704m	0.011m	2.5	6.834
10725	1182	-300.119m	2420.440m	-677.616m	2531.356m	0.023m	2.5	41.793
10725	1183	-302.861m	2421.368m	-675.240m	2531.935m	0.017m	2.5	13.004
10725	1184	-300.176m	2449.700m	-689.745m	2562.593m	0.028m	2.5	39.894
10725	1185	-297.388m	2448.088m	-691.726m	2561.261m	0.012m	2.5	8.446
10725	1186	-293.473m	2475.003m	-706.871m	2590.644m	0.020m	2.5	16.140
10725	1187	-296.840m	2478.776m	-704.849m	2594.081m	0.022m	2.5	15.579
10725	1188	-289.470m	2498.127m	-720.634m	2616.055m	0.012m	2.5	7.743
10725	1189	-291.640m	2500.511m	-719.408m	2618.236m	0.020m	2.5	13.310
10725	1190	-281.707m	2534.381m	-744.384m	2656.417m	0.030m	2.5	44.007

10725	1191	-284.294m	2535.544m	-741.870m	2657.099m	0.032m	2.5	41.682
10725	1192	-288.034m	2535.628m	-740.110m	2657.092m	0.020m	2.5	13.783
10725	1193	-293.464m	2526.879m	-734.014m	2647.643m	0.014m	2.5	10.079
10725	1194	-298.596m	2503.415m	-720.114m	2621.986m	0.026m	2.5	44.290
10725	1195	-304.109m	2480.921m	-705.626m	2597.183m	0.038m	2.5	119.730
10725	1196	-308.310m	2446.638m	-686.871m	2559.860m	0.032m	2.5	65.905
10725	1197	-312.050m	2425.020m	-674.889m	2536.449m	0.026m	2.5	48.109
10725	1198	-313.407m	2394.633m	-660.311m	2503.697m	0.036m	2.5	85.648
10725	1199	-310.678m	2363.133m	-646.617m	2469.622m	0.038m	2.5	99.093
10725	1200	-417.613m	2422.210m	-562.524m	2521.495m	0.020m	2.5	16.398
10725	1201	-418.396m	2424.370m	-563.003m	2523.806m	0.028m	2.5	47.771
10725	1202	-426.695m	2418.439m	-551.183m	2516.887m	0.009m	2.5	6.594
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10725	1206	-436.985m	2418.461m	-540.608m	2516.380m	0.032m	2.5	47.172
10725	1207	-437.538m	2415.596m	-538.859m	2513.347m	0.029m	2.5	43.104
10725	1208	-442.359m	2423.677m	-538.977m	2521.981m	0.023m	2.5	37.605
10725	1209	-444.328m	2423.258m	-536.829m	2521.467m	0.013m	2.5	10.429
10725	1210	-445.451m	2432.660m	-537.277m	2530.796m	0.018m	2.5	39.666
10725	1211	-446.131m	2431.959m	-536.401m	2530.056m	0.016m	2.5	19.235
10725	1212	-448.561m	2437.189m	-534.044m	2535.015m	0.018m	2.2	27.419
10725	1213	-448.224m	2439.155m	-535.374m	2537.126m	0.026m	2.2	79.518
10725	1214	-460.499m	2448.141m	-526.674m	2546.142m	0.015m	2.2	17.525
10725	1216	-472.117m	2458.288m	-518.685m	2556.386m	0.015m	2.2	13.770
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10725	1218	-490.074m	2466.667m	-503.925m	2564.871m	0.018m	2.2	18.885
10725	1219	-490.901m	2463.456m	-502.072m	2561.577m	0.020m	2.2	19.020
10725	1221	-512.126m	2479.285m	-486.398m	2577.927m	0.019m	2.2	16.025
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10725	1227	-557.785m	2529.923m	-459.754m	2631.161m	0.023m	2.5	33.105
10725	1228	-564.988m	2537.744m	-455.526m	2639.481m	0.011m	2.5	12.960
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10725	1233	-567.199m	2507.478m	-441.000m	2608.379m	0.011m	2.5	5.918
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10725	1263	-552.668m	2612.217m	-499.444m	2716.351m	0.027m	1.9	58.665
10725	1265	-532.871m	2630.803m	-527.331m	2735.536m	0.035m	1.9	73.655
10725	1266	-547.758m	2637.084m	-514.442m	2742.062m	0.019m	1.9	19.257
10725	1267	-562.753m	2638.623m	-499.341m	2743.786m	0.021m	1.9	22.757
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10725	1269	-551.775m	2656.897m	-518.433m	2762.667m	0.015m	1.9	12.583
10725	1270	-537.656m	2649.871m	-530.148m	2755.349m	0.017m	1.9	22.561
10725	1271	-524.391m	2647.644m	-542.651m	2753.085m	0.027m	1.9	71.058
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10725	1274	-537.855m	2558.915m	-492.431m	2660.794m	0.011m	1.9	7.216
10725	initial	-414.564m	2423.493m	-566.550m	2523.125m	0.009m	10.8	2.972
10725	1275	-507.830m	2498.939m	-498.762m	2598.336m	0.017m	10.8	13.687
10725	1276	-510.154m	2507.252m	-499.851m	2606.995m	0.032m	10.8	54.738
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10725	1281	-272.630m	2732.644m	-839.729m	2871.727m	0.017m	10.8	26.530

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10725	1290	-604.091m	298.769m	504.557m	841.883m	0.014m	1.6	11.465
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10725	1292	55.735m	-780.396m	262.379m	825.207m	0.005m	3.7	1.178
10725	1293	54.901m	-778.911m	262.714m	823.853m	0.012m	3.7	5.048
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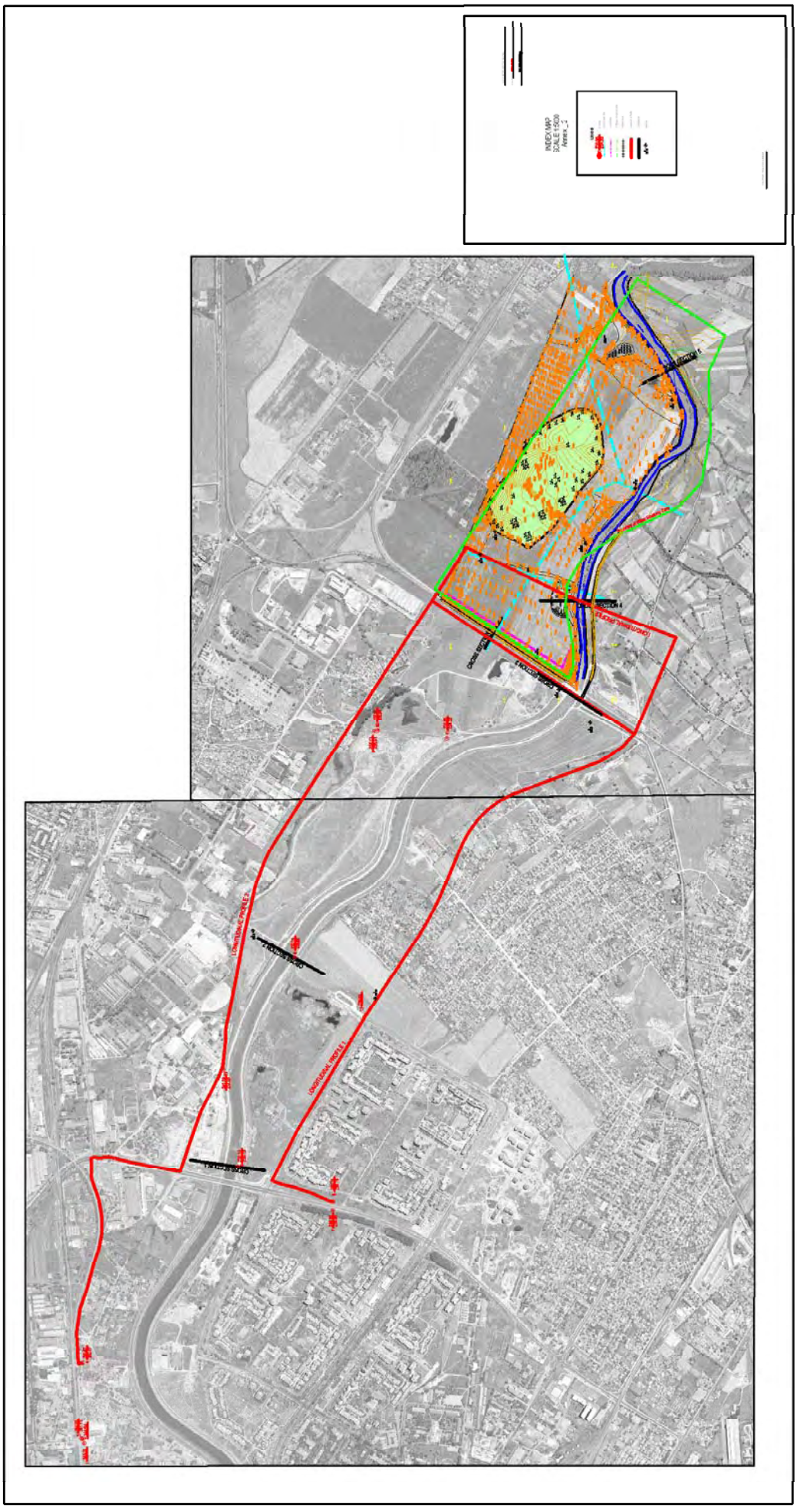

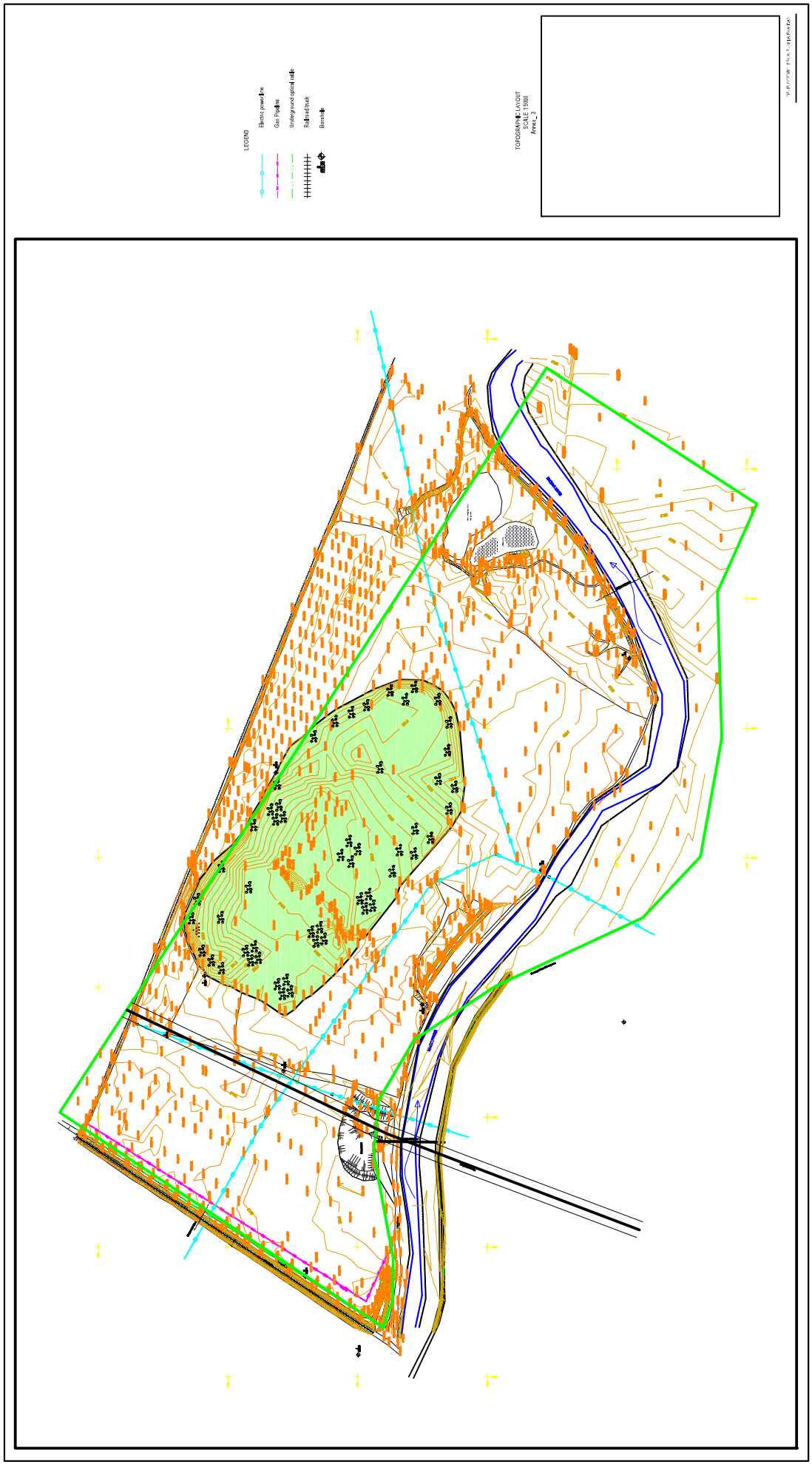
LEGEND
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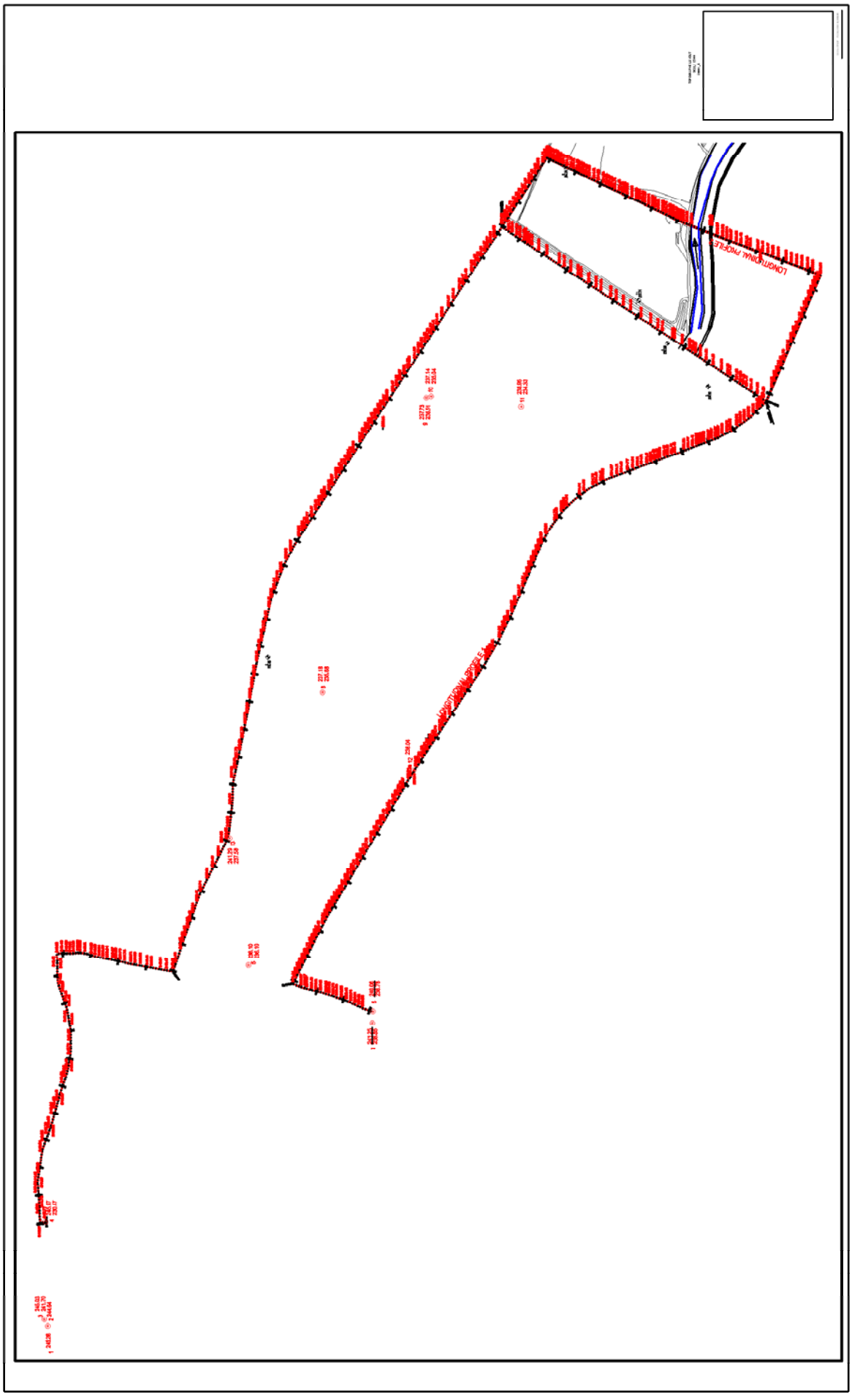
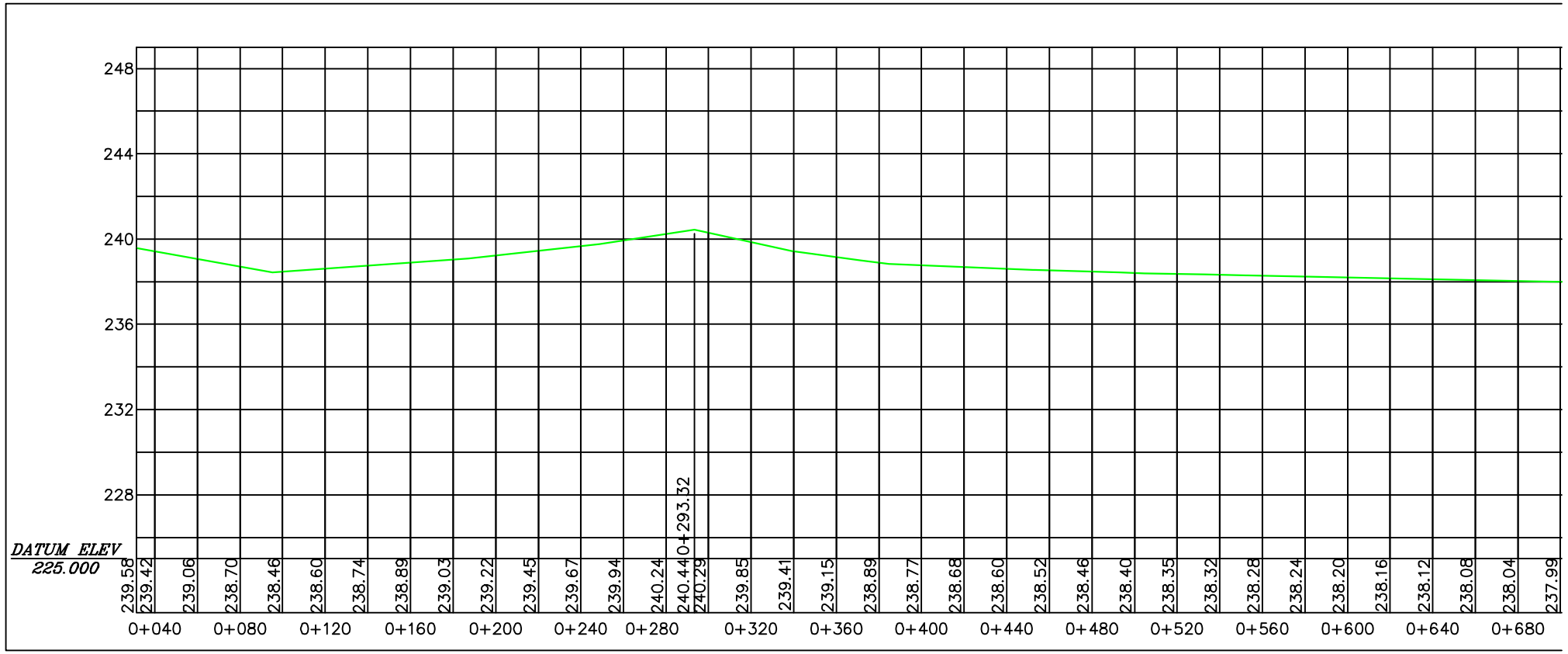
Gas Pipeline
Underground optical cable
Railroad track
Borehole
TOPOGRAPHIC LAYOUT
SCALE 1:5000
Annex_3



LONGITUDINAL PROFILE 1
(RIGHT BANK OF THE RIVER)
SCALE 1:1000
Annex _ 5_1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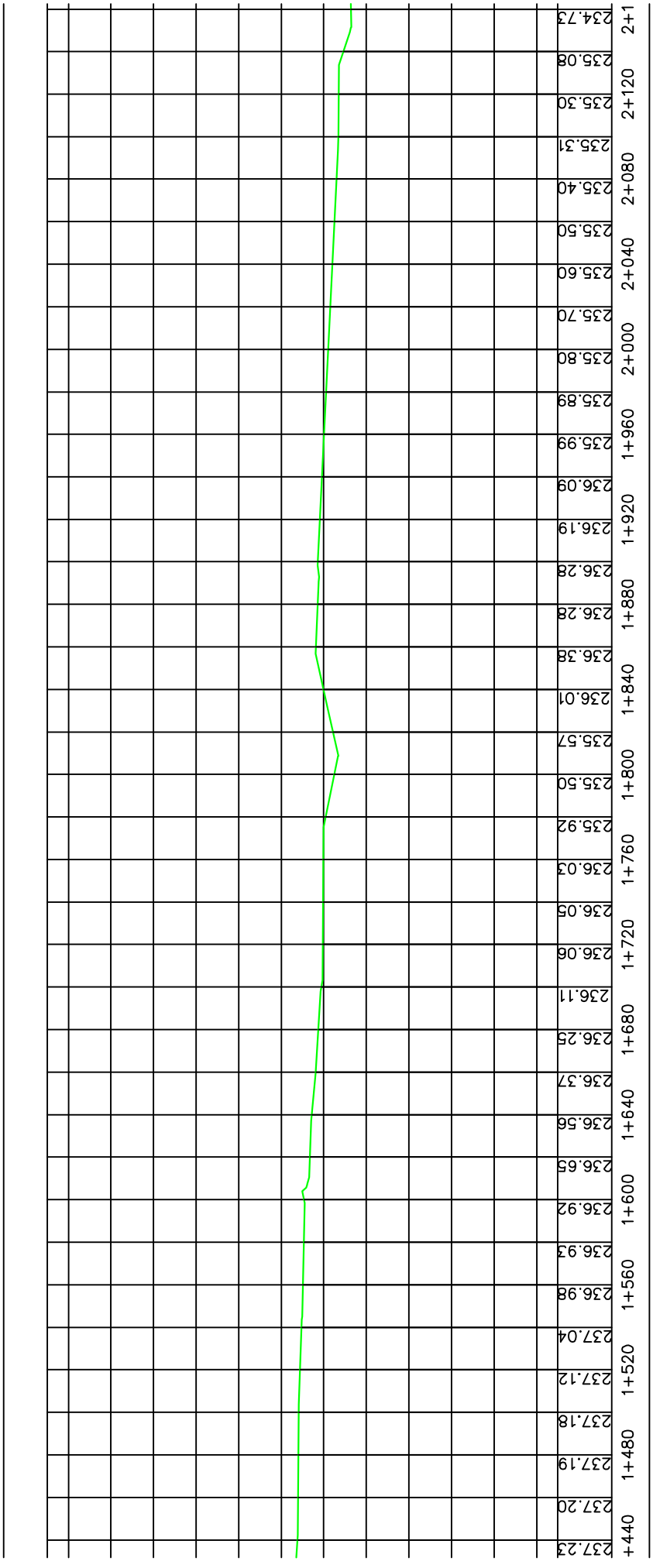
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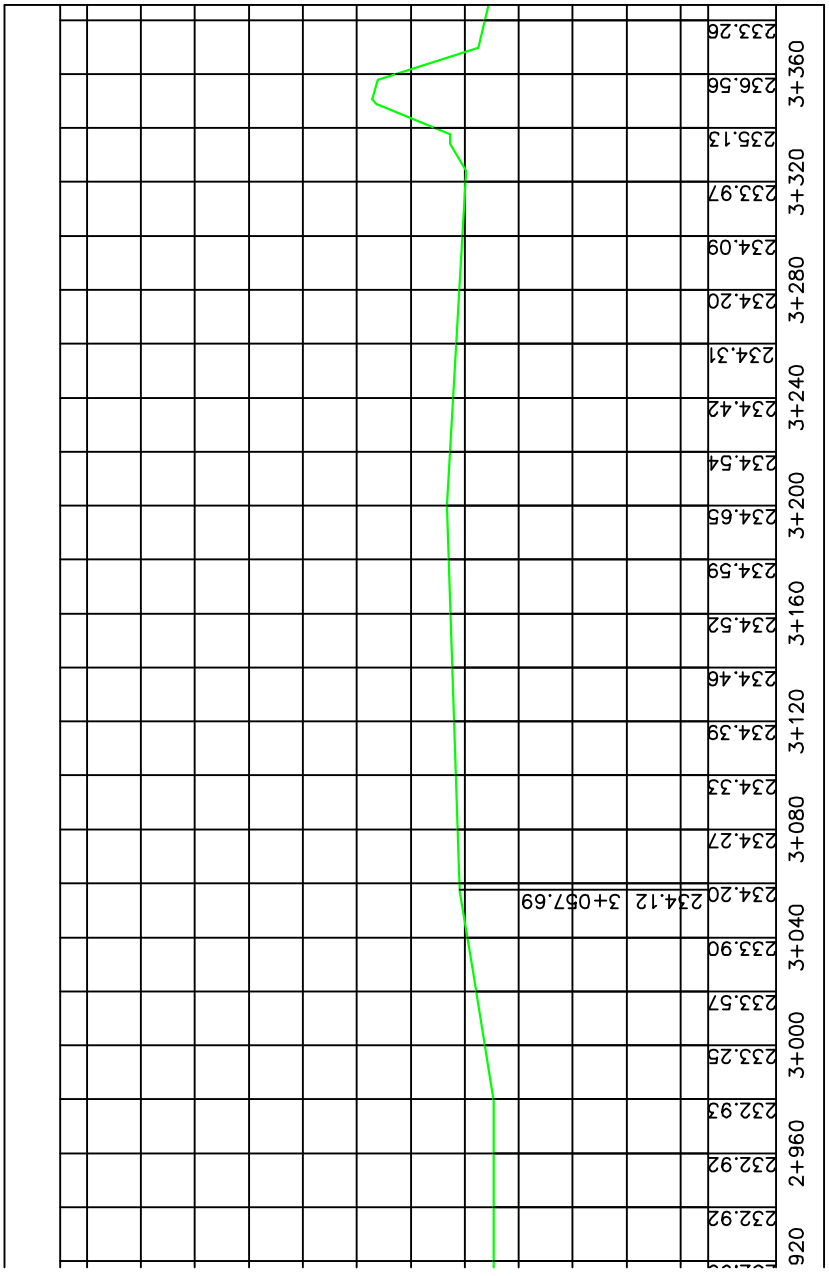
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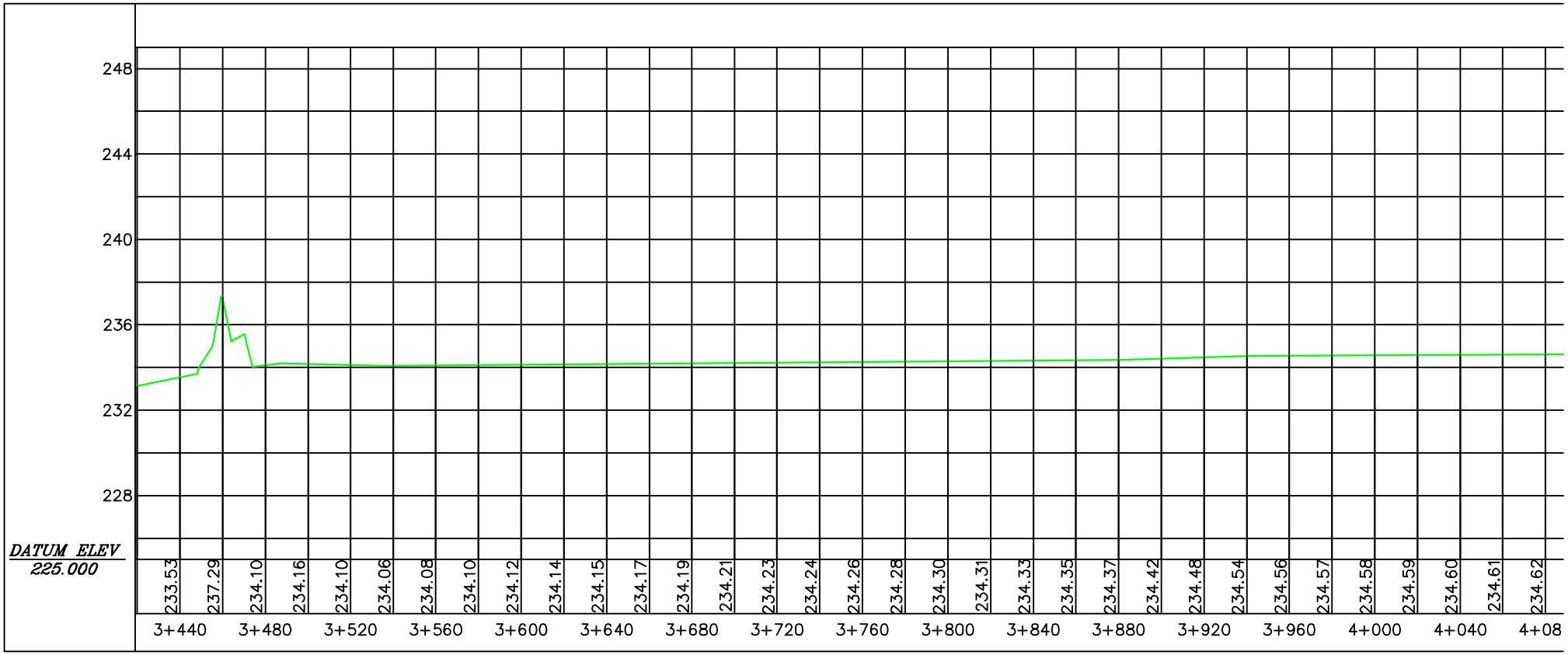
LONGITUDINAL PROFILE 1
(LEFT BANK OF THE RIVER)
SCALE 1:1000
Annex _ 5_1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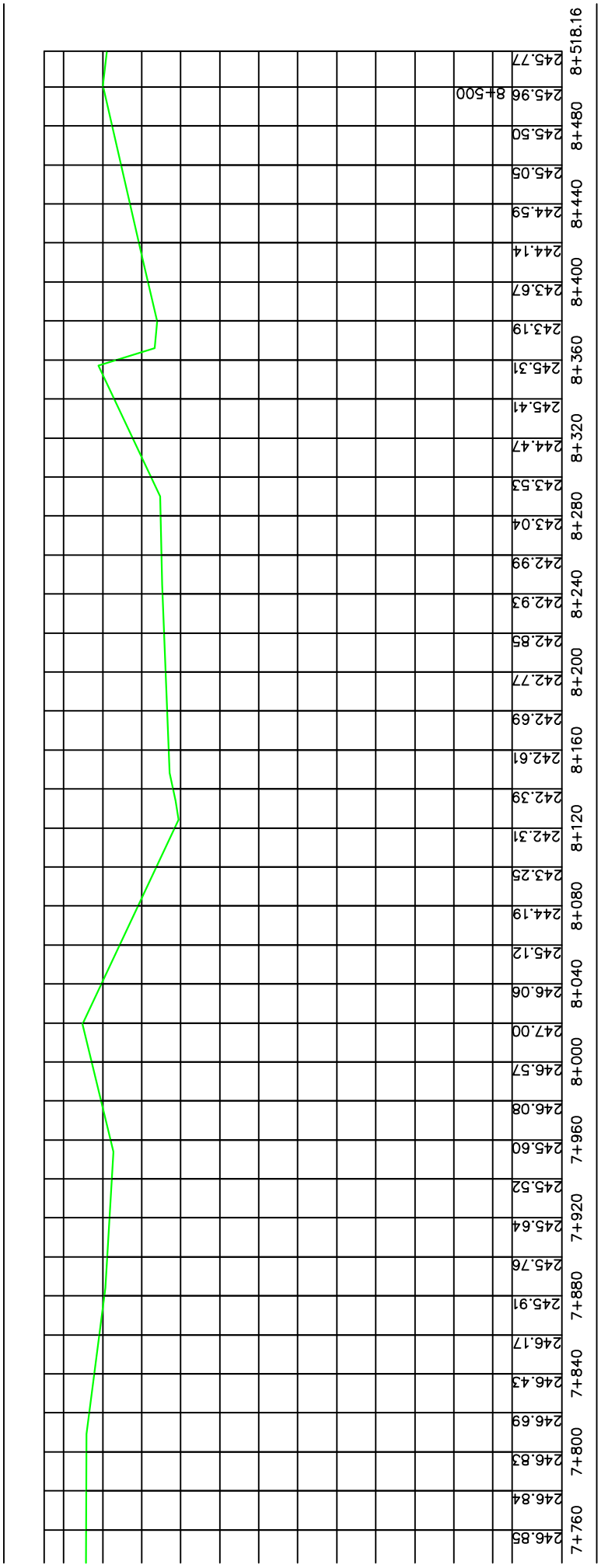
239.62
239.52
239.69
239.77
239.88
239.80
239.65
239.51
239.37
239.20
239.15
239.49
239.83
240.01
240.18
239.92
239.52
239.13
238.73
238.33
237.94
237.75
237.74
237.83
237.82
237.81
237.80
237.80
237.80
7+000
6+960
6+920
6+880
6+840
6+800
6+760
6+720
6+680
6+640
6+600
6+560
6+520
6+480
6+440
6+400
6+360
6+320
280

240.49
240.42
240.36
240.41
240.55
240.54
240.61
7+108.81
240.42
240.31
240.19
240.07
239.95
239.84
239.72
239.75
239.79
239.85
239.91
239.98
240.05
240.09
240.10
240.14
240.15
240.16
240.36
240.19
240.21
7+530
240.48
240.76
241.03
241.30
244.23
244.84
245.44
246.05
246.65
246.86
7+040
7+080
7+120
7+160
7+200
7+240
7+280
7+320
7+360
7+400
7+440
7+480
7+520
7+560
7+600
7+640
7+680
7+720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242.93
242.85
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242.69
242.61
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242.31
243.25
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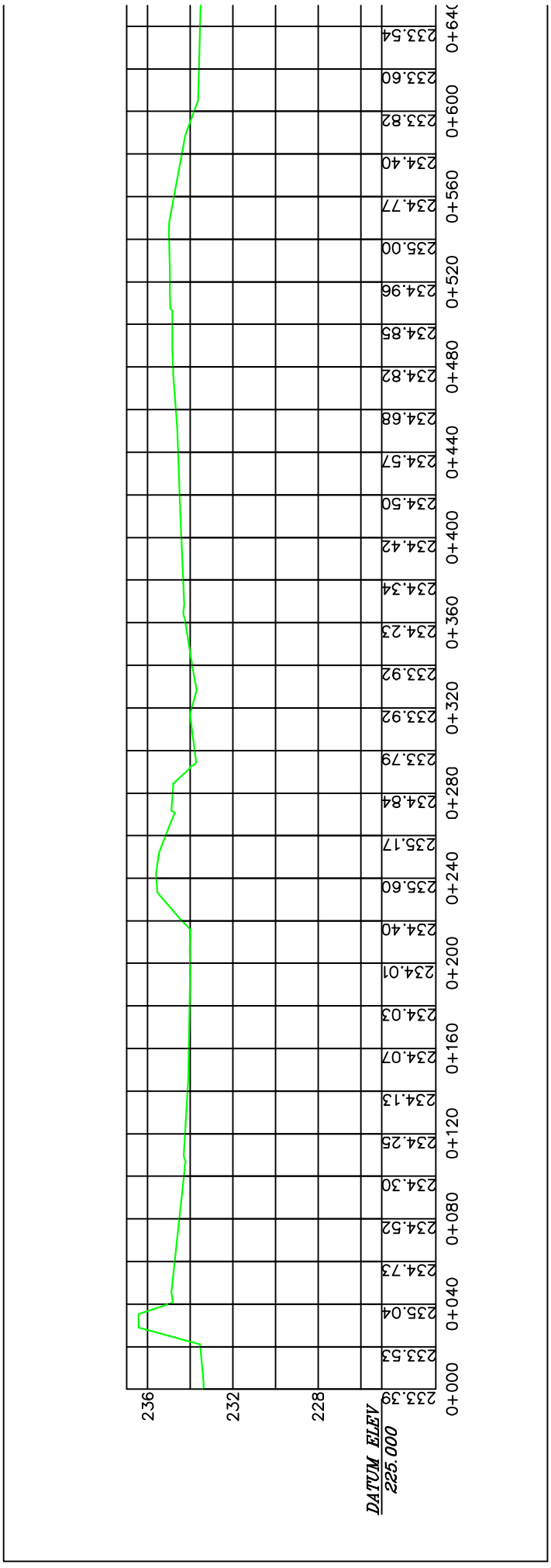
245.12
246.06
247.00
246.57
246.08
245.60
245.52
245.64
245.76
245.91
246.17
246.43
246.69
246.83
246.84
246.85
8+500
8+518.16
8+480
8+440
8+400
8+360
8+320
8+280
8+240
8+200
8+160
8+120
8+080
8+040
8+000
7+960
7+920
7+880
7+840
7+800
7+760

LONGITUDINAL PROFILE 2
SCALE 1:1000
Annex _ 5_2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234.03
234.01
234.40
235.60
235.17
234.84
233.79
233.92
233.92
234.23
234.34
234.42
234.50
234.57
234.68
234.82
234.85
234.96
235.00
234.77
234.40
233.82
233.60
233.54
0+000
0+040
0+080
0+120
0+160
0+200
0+240
0+280
0+320
0+360
0+400
0+440
0+480
0+520
0+560
0+600
0+64(

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232.88
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232.96
233.19
233.43
0+000
0+040
0+080
0+120
0+160
0+200
0+240
0+280
0+320
0+360
0+400
0+440
0+480
0+520
0+560
0+600
0+640
0+680
0+720
0+760
0+800
0+840
0+880
0+920
0+960
1+000
1+040
1+080
1+120
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1+200
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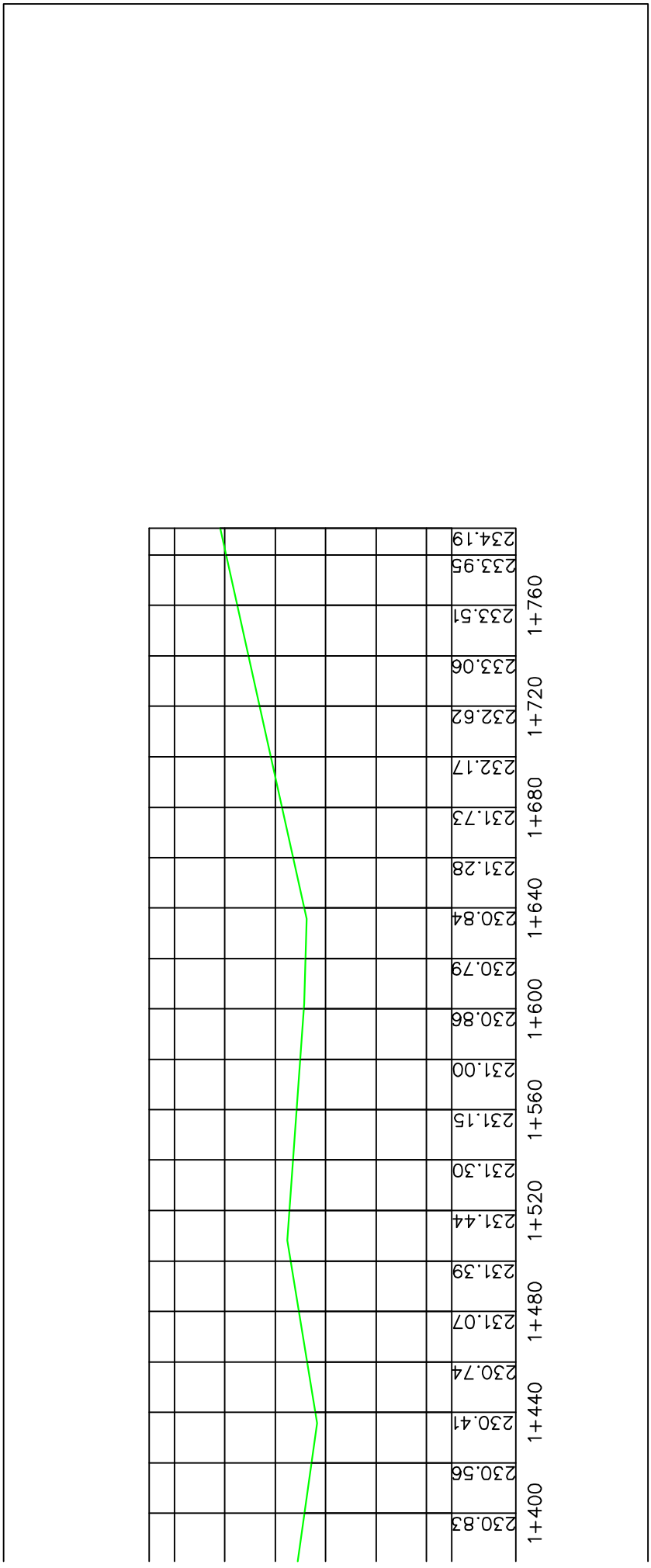
1+280
1+320
1+360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231.39
231.07
230.74
230.41
230.56
230.83
1+760
1+720
1+680
1+640
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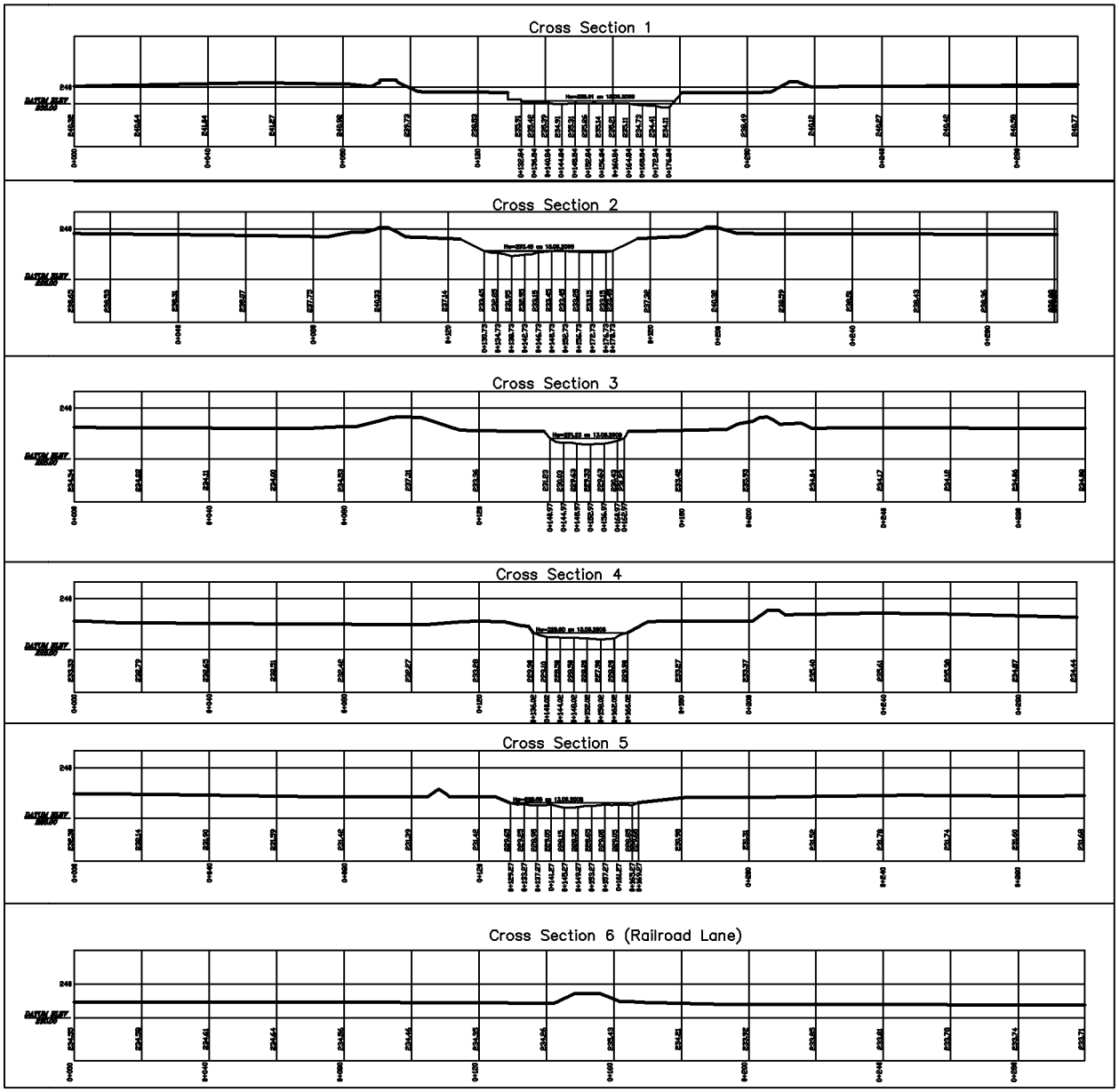
1+560
1+520
1+480
1+440
1+400



Cross Sections

Scale 1:50/50

Annex 6

Aleksandar Pecalevski

MANHOLE COORDINATES AND DEPTHS

No.	Y	X	Z	Depth
1	7538557.34	4650443.31	245.28	
2	7538577.43	4650448.96	244.64	
3	7538577.64	4650450.80	245.03	241.70
4	7538930.50	4650451.84	245.97	230.47
5	7539830.01	4649734.34	238.10	236.10
6	7539685.31	4649331.62	240.06	236.76
7	7539631.55	4649293.40	240.84	238.44
8	7540831.58	4649456.55	237.18	235.68
9	7541849.01	4649103.02	237.73	235.51
10	7541852.88	4649087.85	237.14	235.04
11	7541813.30	4649768.97	238.95	234.33
12	7540527.89	4649147.40	239.04	
13	7540286.08	4649800.08	241.29	237.58

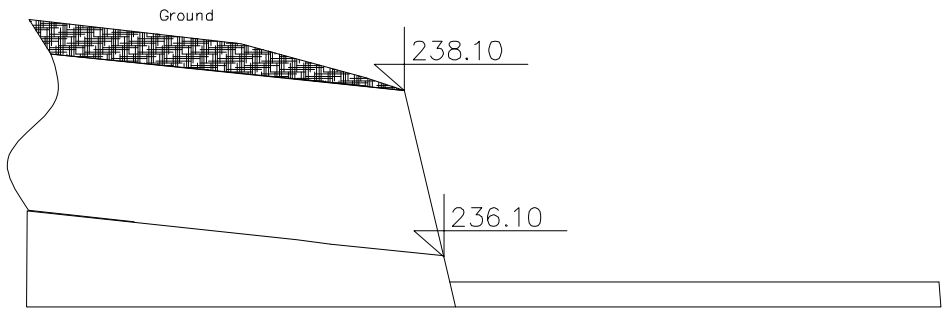
DRAWING SKETCH

LOCATION 'outlet near twins bridge'

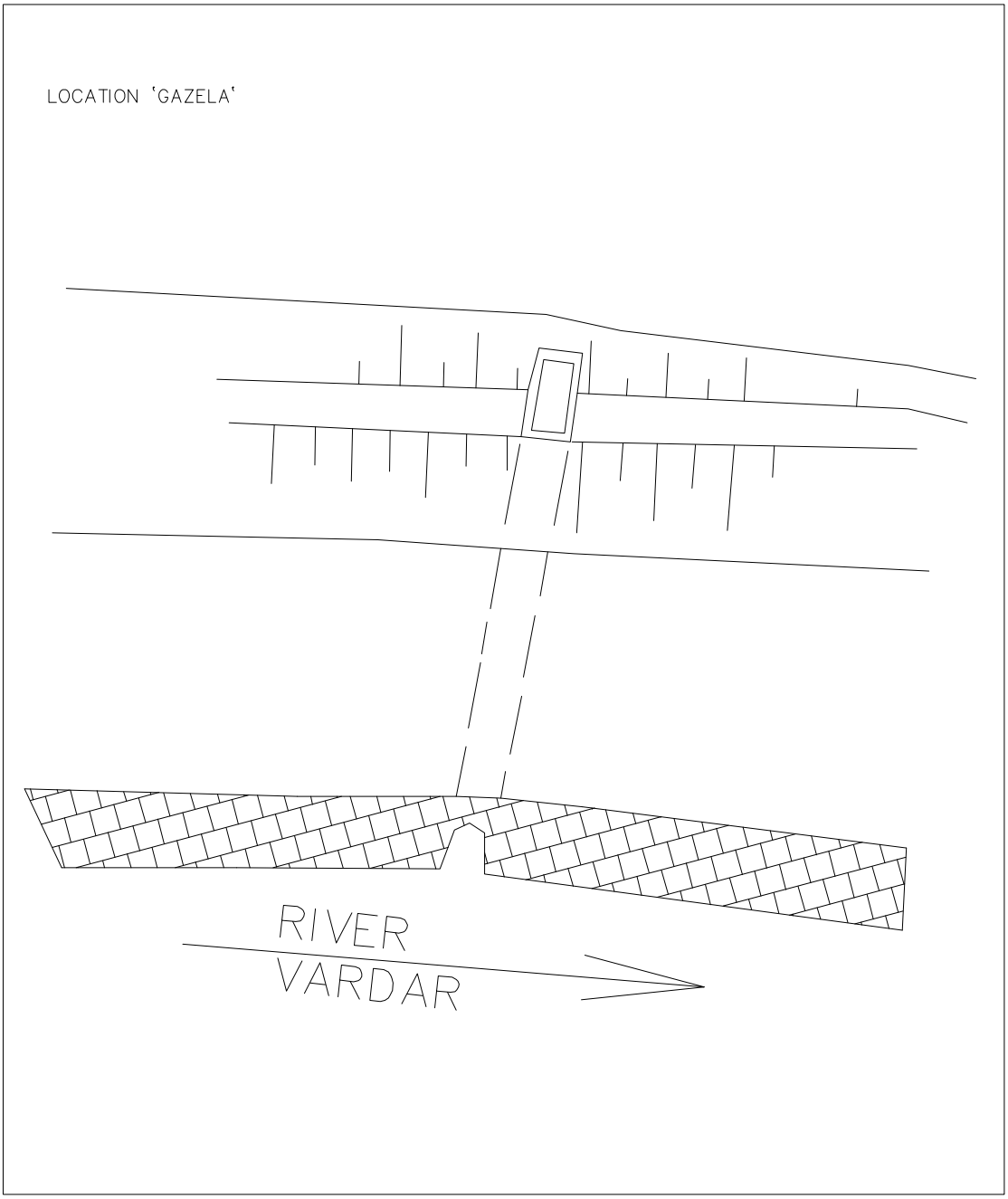
Izrabotil: Nata{a Trip~eva dipl.geod.in'.

DRAWING SKETCH

LOCATION 'outlet near twins bridge'



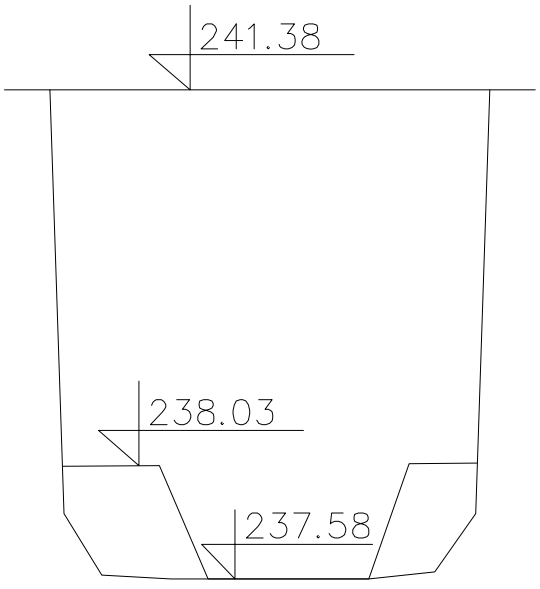
DRAWING SKETCH



Izrabotil: Nata{a Trip~eva dipl.geod.in'.

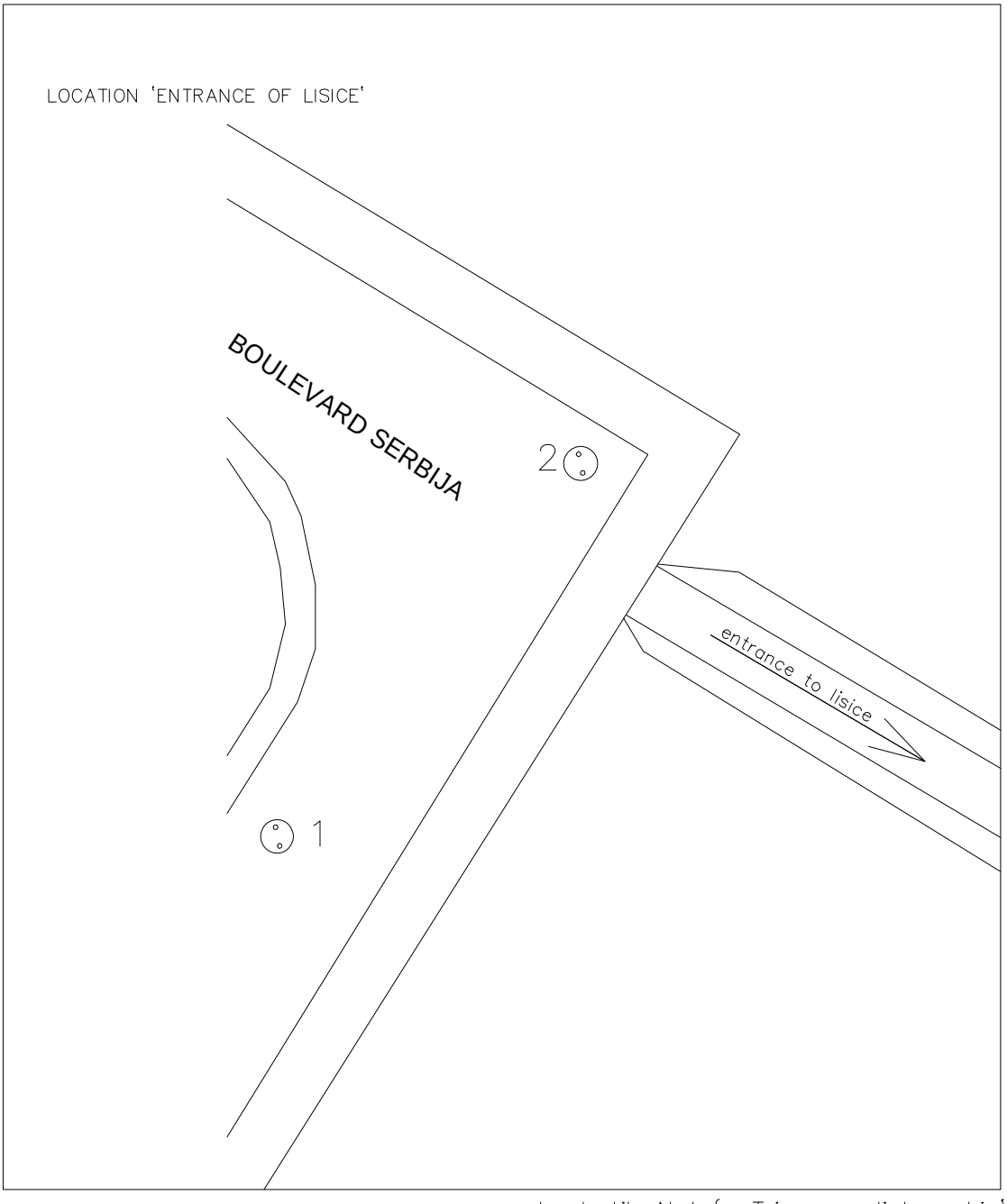
DRAWING SKETCH

LOCATION 'GAZELA'



Izrabotil: Nataša Trip~eva dipl.geod.in'.

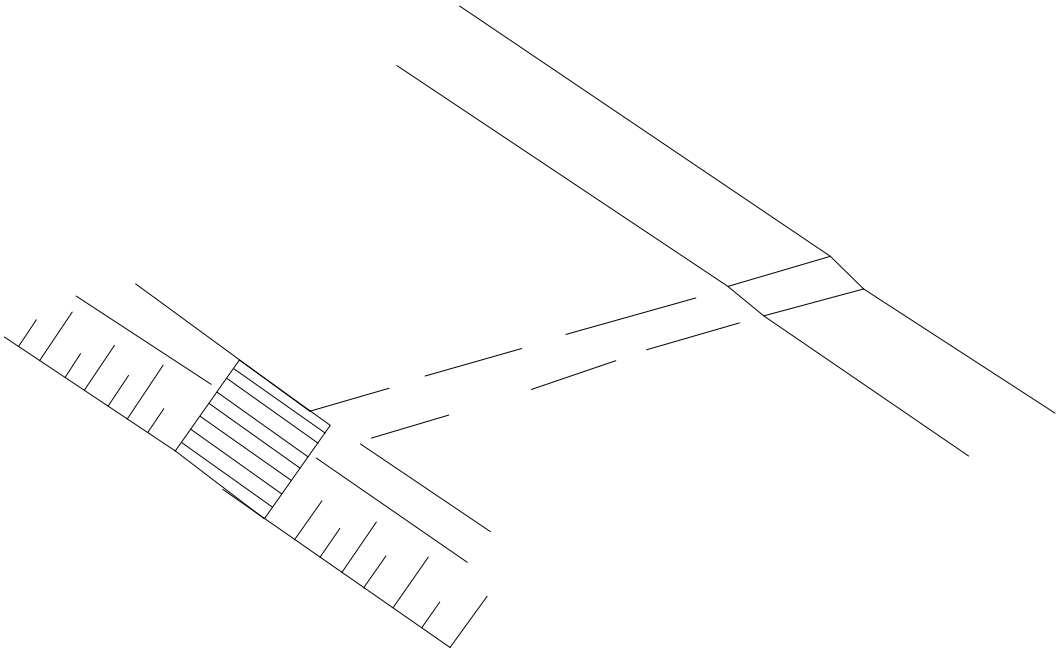
DRAWING SKETCH



DRAWING SKETCH

DRAWING SKETCH

LOCATION 'outlet near entrance in lisice'

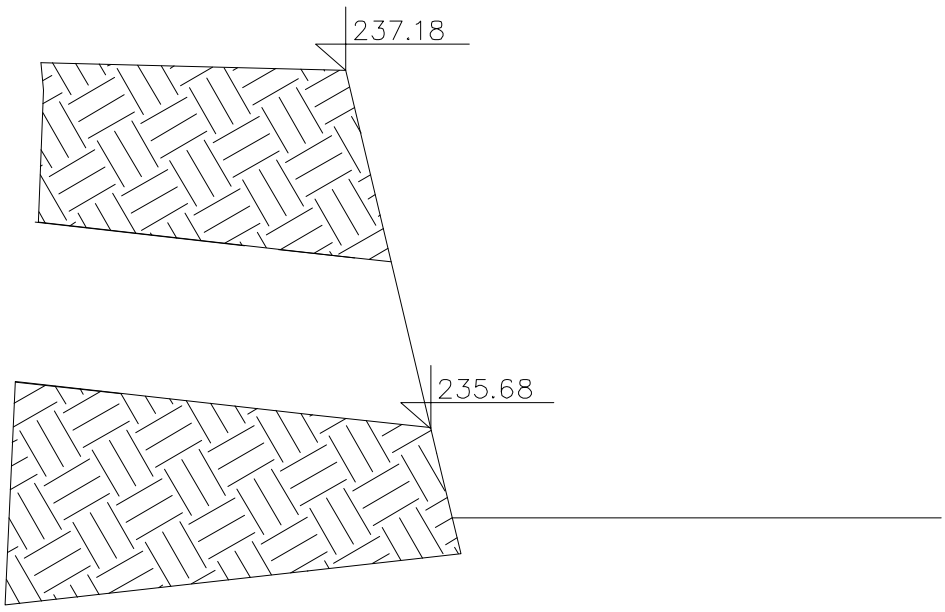


Izrabotil: Nata{a Trip~eva dipl.geod.in'.

DRAWING SKETCH

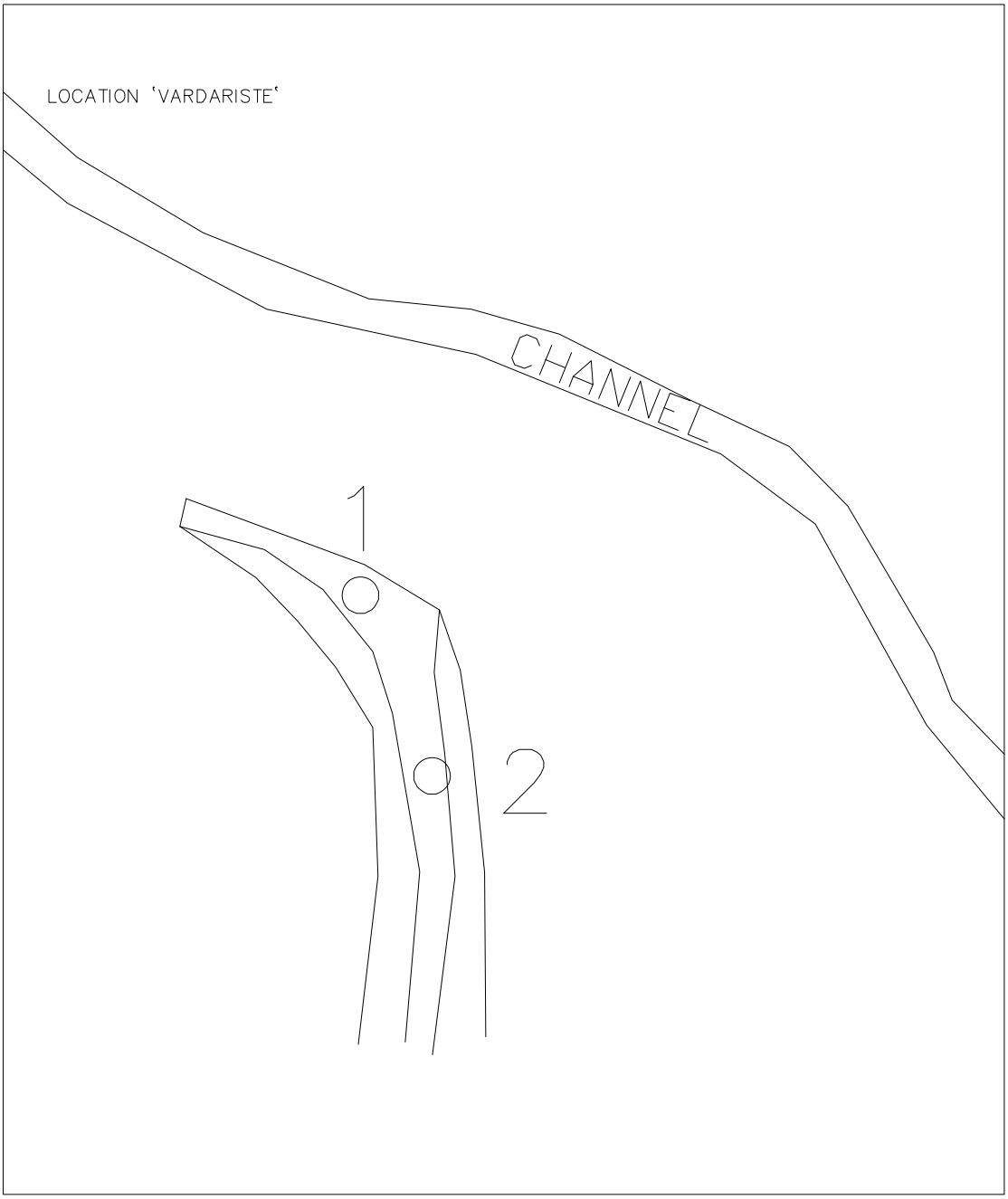
LOCATION 'outlet near entrance in lisice'

section
of
outlet



Izrabotil: Nata{a Trip~eva dipl.geod.in'.

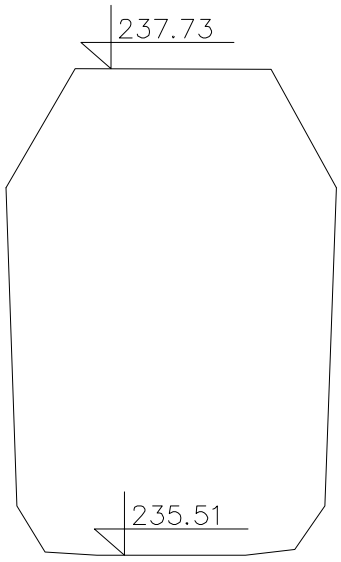
DRAWING SKETCH



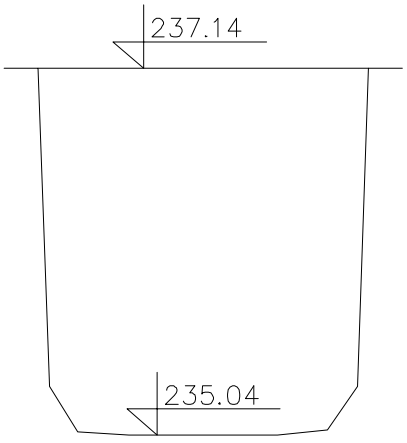
DRAWING SKETCH

LOCATION 'VARDARISTE'

section
of
manhole
1



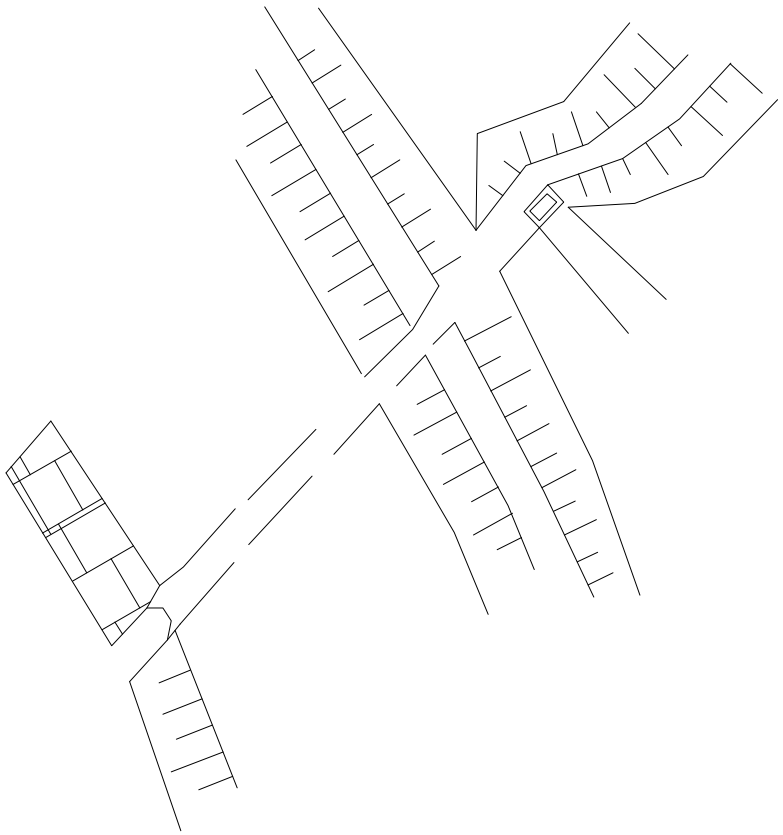
section
of
manhole
2



Izrabotil: Nata{a Trip~eva dipl.geod.in'.

DRAWING SKETCH

LOCATION 'VARDARISTE NEAR RIVER VARDAR'

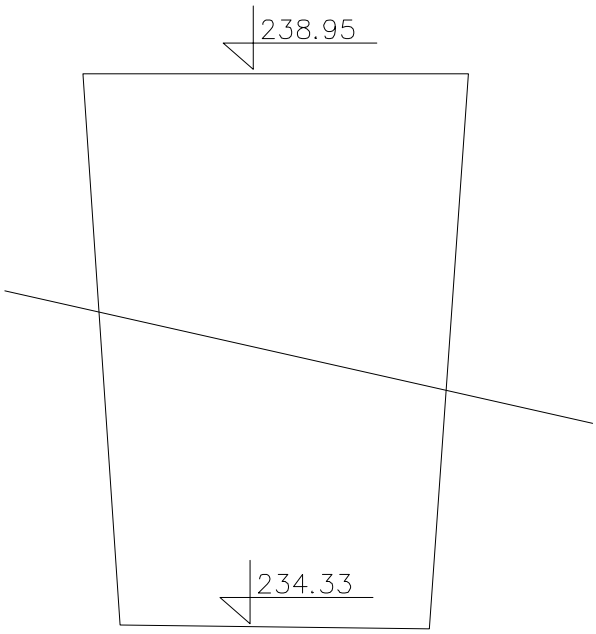


Izrabotil: Nata{a Trip~eva dipl.geod.in'.

DRAWING SKETCH

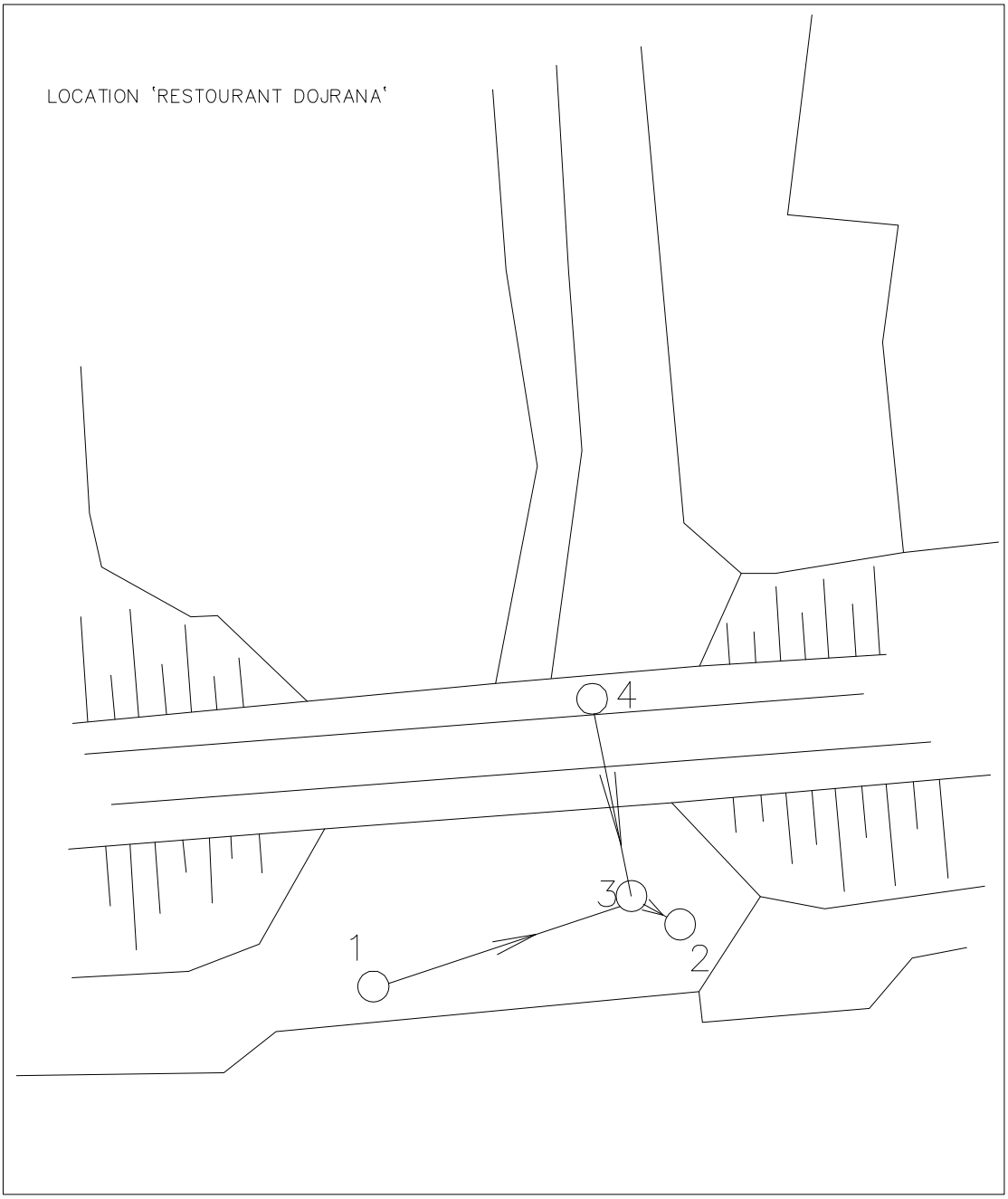
LOCATION 'VARDARISTE NEAR RIVER VARDAR'

section
of
manhole



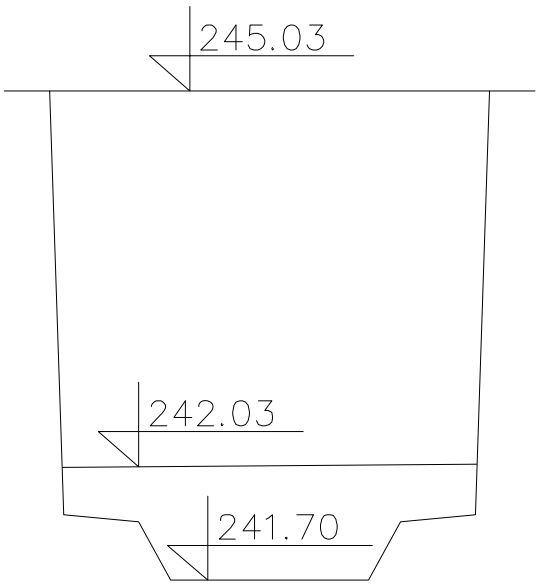
Izrabotil: Nata{a Trip~eva dipl.geod.in'.

DRAWING SKETCH



DRAWING SKETCH

LOCATION 'RESTOURANT DOJRANA'



BOREHOLE COORDINATES

	Y	X	Z
1	540613.27	649098.38	237.40
2	540927.88	649664.43	239.45
3	541888.36	648104.52	233.82
4	542042.15	648248.82	235.90
5	542667.39	648613.33	234.31
6	542589.17	648392.62	234.34
7	542772.00	648545.13	232.61
8	542717.02	648125.83	233.22
9	543164.16	648407.67	233.18
10	542975.71	647896.34	232.38
11	542192.88	648350.96	233.74
12	543383.95	647727.05	232.24

Table for Longitudinal Profile Data 1

Station	Height
0+031.27	239.58
0+095.19	238.43
0+187.25	239.08
0+248.83	239.77
0+293.32	240.44
0+339.07	239.43
0+371.83	238.99
0+384.75	238.83
0+384.94	238.83
0+452.24	238.55
0+453.36	238.54
0+493.12	238.42
0+504.55	238.38
0+532.90	238.33
0+552.32	238.30
0+553.12	238.30
0+687.07	238.02
0+854.41	237.68
0+860.19	237.67
0+863.14	237.66
0+863.26	237.66
0+913.90	237.55
0+923.11	237.53
0+964.56	237.46
0+987.00	237.43
1+002.99	237.45
1+050.77	237.53
1+071.66	237.61
1+111.10	237.78
1+141.91	237.97
1+164.27	238.09
1+173.12	238.02
1+173.39	238.02
1+173.41	238.02
1+181.28	237.71
1+183.51	237.62
1+189.52	237.21
1+192.17	237.04
1+271.63	236.83
1+295.80	236.77

Station	Height
1+315.12	236.72
1+352.36	236.94
1+384.24	237.13
1+417.95	237.34
1+421.32	237.37
1+421.81	237.36
1+422.60	237.36
1+442.32	237.21
1+503.84	237.18
1+543.72	237.03
1+545.09	237.02
1+598.46	236.88
1+604.00	237.02
1+605.79	236.82
1+607.13	236.77
1+607.34	236.77
1+610.47	236.68
1+637.07	236.59
1+659.44	236.37
1+697.88	236.14
1+703.27	236.07
1+703.35	236.07
1+704.08	236.07
1+775.30	236.02
1+808.42	235.33
1+808.59	235.32
1+808.80	235.32
1+808.81	235.32
1+809.63	235.34
1+831.53	235.82
1+856.79	236.38
1+857.17	236.39
1+889.96	236.24
1+890.48	236.24
1+892.90	236.22
1+898.53	236.29
2+093.30	235.34
2+100.67	235.31
2+133.58	235.29
2+148.98	234.78
2+151.24	234.71
2+151.45	234.70
2+232.98	234.92
2+246.70	234.96
2+272.70	235.03
2+287.60	235.00

Station	Height
2+287.70	235.00
2+287.73	235.00
2+290.30	234.99
2+351.79	234.79
2+352.11	234.79
2+352.11	234.79
2+365.24	234.75
2+418.19	234.50
2+563.17	235.00
2+564.01	235.02
2+564.05	235.02
2+564.08	235.00
2+565.31	234.35
2+692.37	231.05
2+770.13	233.08
2+842.18	233.07
2+842.84	233.07
2+876.12	232.98
2+894.22	232.94
2+898.25	232.93
2+898.51	232.93
2+902.97	232.93
2+946.04	232.92
2+961.48	232.92
2+978.00	232.92
2+979.30	232.92
3+028.53	233.70
3+052.61	234.12
3+056.97	234.20
3+057.11	234.19
3+057.25	234.20
3+057.27	234.20
3+057.69	234.20
3+063.66	234.21
3+200.10	234.65
3+324.18	233.95
3+334.15	234.55
3+337.58	234.54
3+348.53	237.21
3+348.73	237.27
3+348.78	237.27
3+350.82	237.44
3+351.29	237.42
3+351.30	237.42
3+357.90	237.22
3+368.70	233.81

Station	Height
3+369.68	233.49
3+385.73	233.13
3+418.97	233.10
3+419.01	233.10
3+419.48	233.11
3+448.28	233.69
3+448.88	233.99
3+455.34	235.00
3+459.53	237.33
3+459.90	237.34
3+463.40	235.63
3+464.00	235.22
3+465.70	235.31
3+470.43	235.56
3+471.30	235.14
3+474.15	234.02
3+487.40	234.19
3+535.69	234.06
3+881.50	234.37
3+942.25	234.55
4+082.65	234.62
4+132.18	234.57
4+135.23	235.96
4+138.12	236.07
4+140.92	234.40
4+141.87	233.96
4+142.30	233.80
4+142.31	233.80
4+177.57	233.39
4+178.62	233.38
4+178.96	233.38
4+213.67	234.04
4+244.44	233.86
4+288.43	234.07
4+362.51	234.48
4+378.51	234.57
4+408.56	234.40
4+472.72	234.61
4+473.48	234.61
4+507.48	234.60
4+543.35	234.79
4+554.19	234.69
4+562.40	234.62
4+565.09	235.02
4+568.70	235.03
4+570.15	234.87

Station	Height
4+581.92	234.47
4+582.60	234.47
4+710.27	234.28
4+781.11	234.30
4+786.09	236.18
4+792.50	236.15
4+796.16	235.95
4+826.60	234.97
4+874.69	235.45
4+895.65	235.49
4+983.73	235.64
5+073.89	235.19
5+075.33	235.18
5+118.28	235.16
5+201.13	235.43
5+312.43	235.63
5+398.34	235.60
5+429.25	235.76
5+523.79	235.84
5+525.70	235.84
5+547.71	235.86
5+598.16	235.95
5+598.19	235.95
5+599.05	235.98
5+702.77	237.44
5+725.83	237.17
5+785.09	236.76
5+786.64	236.37
5+793.28	236.57
5+795.14	236.96
5+835.29	236.76
5+859.17	237.66
5+876.88	237.69
5+918.76	237.47
5+951.54	237.53
5+951.66	237.53
6+030.21	237.99
6+107.05	238.11
6+161.39	237.80
6+162.76	237.79
6+164.98	237.79
6+313.47	237.80
6+329.05	237.80
6+336.05	237.80
6+382.66	237.82
6+410.71	237.84

Station	Height
6+428.79	237.65
6+459.59	237.93
6+575.24	240.22
6+618.74	239.85
6+635.15	239.57
6+651.04	239.30
6+653.57	239.26
6+665.53	239.06
6+667.44	239.08
6+690.87	239.30
6+775.90	239.91
6+796.38	239.76
6+808.61	239.79
6+808.67	239.79
6+810.05	239.79
6+810.74	239.78
6+831.12	239.57
6+831.12	239.57
6+831.17	239.57
6+850.17	239.47
6+853.44	239.52
6+857.87	239.58
6+932.08	240.71
6+976.03	240.65
7+022.29	240.48
7+068.70	240.33
7+108.78	240.61
7+108.81	240.61
7+261.14	239.71
7+303.62	239.80
7+346.39	239.94
7+389.82	240.09
7+413.69	240.09
7+415.40	240.09
7+444.88	240.15
7+481.88	240.16
7+508.54	240.45
7+518.64	240.21
7+527.82	240.05
7+622.53	241.33
7+629.00	241.42
7+637.56	243.74
7+639.36	244.21
7+727.19	246.87
7+809.23	246.83
7+884.27	245.85

Station	Height
7+953.33	245.44
7+953.48	245.44
7+953.98	245.45
8+019.21	247.03
8+124.35	242.11
8+133.93	242.27
8+148.36	242.57
8+245.02	242.95
8+290.06	243.06
8+357.19	246.22
8+366.04	243.34
8+379.82	243.19
8+411.46	243.94
8+500.66	245.97
8+518.16	245.77

8.2 Geotechnical Survey

Hydro Energo Engineering DOO Skopje

DGR GEOTEHNIKA DOO Skopje

FINAL REPORT
ON GEOTECHNICAL SURVEY

Study on Wastewater Management in Skopje in Republic of Macedonia

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"GEOTEHNIKA" DOO - Skopje

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FINAL REPORT

ON GEOTECHNICAL SURVEY

Study on Wastewater Management in Skopje in Republic of Macedonia

Друштво за проектирање и услуги ХИДРО-ЕНЕРГО ИНЖЕНЕРИНГ ДОО СКОПЈЕ

Друштво за геотехнички работи ГЕОТЕХНИКА ДОО СКОПЈЕ

Manager:
Dusko Spirovski grad.civ.eng.

June, 2008
Skopje

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1. INTRODUCTION

The Skopje City, the capital city of the Republic of Macedonia, is Macedonia's political, cultural and economic center. The pollutants originated from domestic and industrial wastewaters have been discharged to the rivers without any treatment, which resulted in deterioration of sanitary environmental conditions and contaminating the river water environment.

Under the circumstances, to decrease the pollutants loads discharging into the rivers from various pollution sources in order to improve the sanitary and water environment in the Skopje City, the Japan International Cooperation Agency, the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, dispatched the JICA Study Team to conduct the Study on Wastewater Management in Skopje to formulate the Sewerage System Improvement Basic Plan and carry out the Feasibility Study for selected priority projects in the Basic Plan. In order to identify the issues that should be addressed during the planning, design, construction and operation of the sewerage system in Skopje City it was necessary to carried out geotechnical survey, which results, will be used by the JICA Study Team for the preparation of the Study.

Geotechnical survey was carried out by Company for geological survey GEOTEHNIKA – doo Skopje (GEOTEHNIKA) associated with Hydro Energo Engineering DOO Skopje (HEI) starting from 30.05.2008 during period of four weeks as shown in Time schedule - Attachment 12. The main members of Local Consultant Team with their positions are as follows:

No	Name and surname	Project position	Graduation	Company
1	Emilija Spirovska	Project manager	graduated civil engineer	HEI
2	Zoran Dopcev	Assistant manager	technician	HEI
3	Dusko Spirovski	Manager for Geotechnical Investigations	graduated civil engineer	Geotehnika
4	Vido Markovski	Technical manager for Geotechnical Investigations	graduated civil engineer	Geotehnika
5	Keti Dolnenec Vckova	Manager for geotechnical investigation works	graduated civil engineer	Geotehnika
6	Igor Krstev	Site manager	graduated civil engineer	Geotehnika
7	Dragan Arsovski	Site manager	technician	Geotehnika

The rest of personal consists of seven persons including three data entry and laboratory operators and four field surveyors. Field surveyors worked in two groups in order to fulfill defined time schedule and all tasks according to TOR:

I Team
Site Manager Igor Krstev

No.	Surname&Name
1	Milcev Pante
2	Rajcic Ranko

II Team
Site Manager Dragan Arsovski

No.	Surname&Name
1	Spasovski Goce
2	Petrovik Ivica

As defined in Terms of reference Activities for performing geotechnical survey as a source for TOR realization were as follows:

1. Boring and on-site investigation
2. Laboratory testing
3. Reporting and data submission

The aim of the investigation is the disposition and characteristics of the soil material on the investigated location, as well as the conditions for foundation of the structure and underground water level.

The results obtained from geomechanical investigations are shown in graphical enclosures and appendixes, tabular review and diagrams while their interpretation is shown in following parts.

2. FIELD INVESTIGATION WORKS

Field investigations were carried out in the course of June, year 2008. Twelve (12) boreholes were extended on the location in question, depth shown on the table No.1 Disposition of the boreholes is shown on the layout of the enclosure No.1.

Table No.1

BOREHOLE	DEPTH[m]	Ground level[m]
B-1	15.0	239.45
B-2	12.0	237.40
B-3	18.0	233.82
B-4	16.0	235.90
B-5	19.0	234.31
B-6	17.0	234.34
B-7	16.0	232.61
B-8	17.0	233.22
B-9	15.0	233.18
B-10	17.0	232.88
B-11	20.0	233.74
B-12	18.0	232.24

The boreholes and wells have been drilled by drilling equipment, which contains two rigs: GDR 500 and GAK 300. The boreholes were made by a rotary drilling "on dry" method. The test wells have been drilled in using rotary technique with coring with "vidia" crowns and using rotary technique with water. The start drilling diameter was ∅ 131 and 146 mm. The extracted core is marked on site, and from all changes in material representative samples are taken, packaged, marked and brought to the laboratory for testing.

Ground water had been established up to the executed excavation depth.

During the drilling, it was condacted a terrain test "*in sity*" (SPT) *Standard dynamic penetration test* at every one meter depth, which give us parameters for soil compressability. The results are shown in the following Table No2.

Table No.2

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence	Module of density according to Suklje Mv [MPa]	Symbol
B-1	1.00	23.00	30	23	30		compacted	19.84	SFs
B-1	2.00	20.00	30	23	34		compacted	22.52	SFs
B-1	3.00	7.00	30	23	98		Very compacted	81.17	GW
B-1	4.00	8.00	30	23	86		Very compacted	71.40	GW
B-1	5.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	6.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	7.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	8.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	9.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	10.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	11.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	12.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	13.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	14.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-1	15.00	8.00	30	23	86	50	Very compacted	71.40	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-2	1.00	18.00	30	23	38		compacted	33.40	GW
B-2	2.00	16.00	30	23	43		compacted	37.20	GW
B-2	3.00	19.00	30	23	36		compacted	31.80	GW

B-2	4.00	17.00	30	23	40		compacted	35.19	GW
B-2	5.00	16.00	30	23	43		compacted	37.20	GW
B-2	6.00	17.00	30	23	40		compacted	35.19	GW
B-2	7.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-2	8.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-2	9.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-2	10.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-2	11.00	20.00	30	23	34	25	compacted	30.36	GW
B-2	12.00	20.00	30	23	34	25	compacted	30.36	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-3	1.00	23.00	30	23	30		Medium comp.	26.79	GW
B-3	2.00	20.00	30	23	34		compacted	30.36	GW
B-3	3.00	18.00	30	23	38		compacted	33.40	GW
B-3	4.00	17.00	30	23	40		compacted	35.19	GW
B-3	5.00	23.00	30	23	30	22	Medium comp.	26.79	GW
B-3	6.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-3	7.00	19.00	30	23	36	26	compacted	31.80	GW
B-3	8.00	18.00	30	23	38	27	compacted	33.40	GW
B-3	9.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-3	10.00	23.00	30	23	30	22	Medium comp.	26.79	GW
B-3	11.00	20.00	30	23	34	25	compacted	30.36	GW
B-3	12.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-3	13.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-3	14.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-3	15.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-3	16.00	23.00	30	23	30	22	Medium comp.	26.79	GW
B-3	17.00	20.00	30	23	34	25	compacted	30.36	GW
B-3	18.00	18.00	30	23	38	27	compacted	33.40	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence	Module of density according to Suklje Mv [MPa]	Symbol
B-4	1.00	20.00	30	23	34		Solid	14.88	ML
B-4	2.00	16.00	30	23	43		Solid	18.30	ML
B-4	3.00	7.00	30	23	98		Very compacted	81.17	SFs
B-4	4.00	8.00	30	23	86		Very compacted	71.40	GW

B-4	5.00	8.00	30	23	86		Very compacted	71.40	GW
B-4	6.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	7.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	8.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	9.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	10.00	7.00	30	23	98	56	Very compacted	48.09	GW
B-4	11.00	9.00	30	23	76	46	compacted	39.40	GW
B-4	12.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	13.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-4	14.00	7.00	30	23	98	56	Very compacted	48.09	GW
B-4	15.00	7.00	30	23	98	56	Very compacted	48.09	GW
B-4	16.00	8.00	30	23	86	50	Very compacted	43.20	GW

Bor-	Deph	Penetr-	Number of impacts				Density/ consistence	Module of density according to Suklje	Symbol
hole	[m']	tion e [cm]	N	N'	N''	N*	hole	[m']	[cm]
B-5	1.00	26.00	30	23	26		half solid	11.72	ML
B-5	2.00	30.00	30	23	23		half solid	0.00	ML
B-5	3.00	17.00	30	23	40		compacted	35.19	GW
B-5	4.00	20.00	30	23	34		compacted	30.36	GW
B-5	5.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-5	6.00	10.00	30	23	68	42	compacted	36.36	GW
B-5	7.00	15.00	30	23	46	30	compacted	27.24	GW
B-5	8.00	9.00	30	23	76	46	compacted	39.40	GW
B-5	9.00	10.00	30	23	68	42	compacted	36.36	GW
B-5	10.00	13.00	30	23	53	34	compacted	30.05	GW
B-5	11.00	12.00	30	23	57	36	compacted	31.80	GW
B-5	12.00	10.00	30	23	68	42	compacted	36.36	GW
B-5	13.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-5	14.00	7.00	30	23	98	56	Very compacted	48.09	GW
B-5	15.00	9.00	30	23	76	46	compacted	39.40	GW
B-5	16.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-5	17.00	9.00	30	23	76	46	compacted	39.40	GW
B-5	18.00	8.00	30	23	86	50	Very compactd	43.20	GW
B-5	19.00	7.00	30	23	98	56	Very compactd	48.09	GW

Bor-	Deph	Penetr-	Number of impacts				Density/ consistence	Module of density according to Suklje	Symbol
hole	[m']	tion e [cm]	N	N'	N''	N*	hole	[m']	[cm]

B-6	1.00	30.00	30	23	23		Medium comp.	10.32	ML
B-6	2.00	25.00	30	23	27		Medium comp.	24.89	GW
B-6	3.00	23.00	30	23	30		Medium comp.	26.79	GW
B-6	4.00	19.00	30	23	36		compacted	31.80	GW
B-6	5.00	22.00	30	23	31	23	Medium comp.	21.44	GW
B-6	6.00	23.00	30	23	30	22	Medium comp.	26.79	GW
B-6	7.00	20.00	30	23	34	25	compacted	30.36	GW
B-6	8.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-6	9.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-6	10.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-6	11.00	20.00	30	23	34	25	compacted	30.36	GW
B-6	12.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-6	13.00	20.00	30	23	34	25	compacted	30.36	GW
B-6	14.00	23.00	30	23	30	22	Medium comp.	26.79	GW
B-6	15.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-6	16.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-6	17.00	23.00	30	23	30	22	Medium comp.	26.79	GW

Bor-	Deph	Penetr-	Number of impacts				Density/ consistence	Module of density according to Suklje	Symbol
hole	[m']	e [cm]	N	N'	N''	N*	hole	[m']	[cm]
B-7	1.00	20.00	30	23	34		compacted	0.00	SFs
B-7	2.00	17.00	30	23	40		compacted	0.00	SFs
B-7	3.00	15.00	30	23	46		compacted	0.00	SFs
B-7	4.00	19.00	30	23	36	26	compacted	23.40	GW
B-7	5.00	7.00	30	23	98	56	Verycompactd	48.09	GW
B-7	6.00	9.00	30	23	76	46	compacted	39.40	GW
B-7	7.00	10.00	30	23	68	42	compacted	36.36	GW
B-7	8.00	6.00	30	23	11.4	65	Verycompactd	54.60	GW
B-7	9.00	8.00	30	23	86	50	Very compacted	43.20	GW
B-7	10.00	11.00	30	23	62	39	compacted	33.87	GW
B-7	11.00	13.00	30	23	53	34	compacted	30.05	GW
B-7	12.00	9.00	30	23	76	46	compacted	39.40	GW
B-7	13.00	8.00	30	23	86	50	Very compactd	43.20	GW
B-7	14.00	9.00	30	23	76	46	compacted	39.40	GW
B-7	15.00	7.00	30	23	98	56	Very compactd	48.09	GW
B-7	16.00	9.00	30	23	76	46	compacted	39.40	GW

		Penetr-	Number of	Density/	Module of density	

Bor-hole	Depth [m']	tion e [cm]	impacts N	N'	N''	N*	consistence hole	according to Suklje [m']	Symbol e [cm]
B-8	1.00	15.00	30	23	46		compacted	39.48	GW
B-8	2.00	13.00	30	23	53		compacted	45.09	GW
B-8	3.00	10.00	30	23	68		Very compacted	57.72	GW
B-8	4.00	20.00	30	23	34	25	compacted	30.36	GW
B-8	5.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-8	6.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-8	7.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-8	8.00	19.00	30	23	36	26	compacted	31.80	GW
B-8	9.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-8	10.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-8	11.00	26.00	30	23	26	21	Medium comp.	24.05	GW
B-8	12.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-8	13.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-8	14.00	20.00	30	23	34	25	compacted	30.36	GW
B-8	15.00	20.00	30	23	34	25	compacted	30.36	GW
B-8	16.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-8	17.00	24.00	30	23	29	22	Medium comp.	25.80	GW

Bor-hole	Depth [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-9	1.00	22.00	30	23	31		Solid	13.64	ML
B-9	2.00	18.00	30	23	38		Solid	16.40	ML
B-9	3.00	16.00	10	8	14		Medium comp.	10.55	SFs
B-9	4.00	19.00	30	23	36		Medium comp.	23.60	SFs
B-9	5.00	11.00	30	23	62	39	compacted	33.87	GW
B-9	6.00	9.00	30	23	76	46	compacted	39.40	GW
B-9	7.00	8.00	30	23	86	50	Verycompactd	43.20	GW
B-9	8.00	11.00	30	23	62	39	compacted	33.87	GW
B-9	9.00	10.00	30	23	68	42	compacted	36.36	GW
B-9	10.00	12.00	30	23	57	36	compacted	31.80	GW
B-9	11.00	20.00	30	23	34	25	Medium comp.	22.68	GW
B-9	12.00	15.00	30	23	46	30	compacted	27.24	GW
B-9	13.00	18.00	30	23	38	27	Medium comp.	24.20	GW
B-9	14.00	19.00	30	23	36	26	Medium comp.	23.40	GW
B-9	15.00	17.00	30	23	40	28	Medium comp.	25.09	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-10	1.00	23.00	30	23	30		Medium comp.	13.10	ML
B-10	2.00	20.00	30	23	34		Medium comp.	22.52	SFs
B-10	3.00	30.00	10	8	8			0.00	OI
B-10	4.00	19.00	30	23	36	26	compacted	31.80	GW
B-10	5.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-10	6.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-10	7.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-10	8.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-10	9.00	22.00	30	23	31	23	Medium comp.	27.87	GW
B-10	10.00	19.00	30	23	36	26	compacted	31.80	GW
B-10	11.00	18.00	30	23	38	27	compacted	33.40	GW
B-10	12.00	19.00	30	23	36	26	compacted	31.80	GW
B-10	13.00	19.00	30	23	36	26	compacted	31.80	GW
B-10	14.00	20.00	30	23	34	25	compacted	30.36	GW
B-10	15.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-10	16.00	18.00	30	23	38	27	compacted	33.40	GW
B-10	17.00	17.00	30	23	40	28	compacted	35.19	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-11	1.00	25.00	30	23	27		half solid	12.14	ML
B-11	2.00	18.00	30	23	38		compacted	24.80	SFs
B-11	3.00	14.00	30	23	49		compacted	42.09	GW
B-11	4.00	17.00	30	23	40	28	Medium comp.	25.09	GW
B-11	5.00	15.00	30	23	46	30	compacted	27.24	GW
B-11	6.00	20.00	30	23	34	25	Medium comp.	22.68	GW
B-11	7.00	22.00	30	23	31	23	Medium comp.	21.44	GW
B-11	8.00	20.00	30	23	34	25	Medium comp.	22.68	GW
B-11	9.00	17.00	30	23	40	28	Medium comp.	25.09	GW
B-11	10.00	19.00	30	23	36	26	Medium comp.	23.40	GW
B-11	11.00	16.00	30	23	43	29	Medium comp.	26.10	GW
B-11	12.00	15.00	30	23	46	30	compacted	27.24	GW
B-11	13.00	14.00	30	23	49	32	compacted	28.54	GW
B-11	14.00	18.00	30	23	38	27	Medium comp.	24.20	GW
B-11	15.00	16.00	30	23	43	29	Medium comp.	26.10	GW

B-11	16.00	19.00	30	23	36	26	Medium comp.	23.40	GW
B-11	17.00	18.00	30	23	38	27	Medium comp.	24.20	GW
B-11	18.00	15.00	30	23	46	30	compacted	27.24	GW
B-11	19.00	17.00	30	23	40	28	Medium comp.	25.09	GW
B-11	20.00	18.00	30	23	38	27	Medium comp.	24.20	GW

Bor-hole	Deph [m']	Penetr-tion e [cm]	Number of impacts N	N'	N''	N*	Density/ consistence hole	Module of density according to Suklje [m']	Symbol e [cm]
B-12	1.00	22.00	30	23	31		Medium comp.	13.64	ML
B-12	2.00	20.00	30	23	34		compacted	30.36	GW
B-12	3.00	19.00	30	23	36		compacted	31.80	GW
B-12	4.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-12	5.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-12	6.00	27.00	30	23	25	20	Medium comp.	23.27	GW
B-12	7.00	29.00	30	23	24	19	Medium comp.	21.87	GW
B-12	8.00	30.00	30	23	23	19	Medium comp.	21.24	GW
B-12	9.00	27.00	30	23	25	20	Medium comp.	23.27	GW
B-12	10.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-12	11.00	24.00	30	23	29	22	Medium comp.	25.80	GW
B-12	12.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-12	13.00	25.00	30	23	27	21	Medium comp.	24.89	GW
B-12	14.00	20.00	30	23	34	25	compacted	30.36	GW
B-12	15.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-12	16.00	21.00	30	23	33	24	Medium comp.	29.06	GW
B-12	17.00	19.00	30	23	36	26	compacted	31.80	GW
B-12	18.00	17.00	30	23	40	28	compacted	35.19	GW

3. LABORATORY TESTS

Certain laboratory tests have been conducted on the samples of selected soil materials, taken in trial boring, according to current standards of the R. of Macedonia, to determine:

Classification of soils:

- Specific weight;
- Moisture content ;
- Natural density ;
- Grain size distribytion test;

- Permeability test;
- Aterberg;

Strength – deformation characteristics:

- Shear strenght test;
- Triaxial compression test.

Laboratory test results are showed in the enclosures to this document in the form of diagrams, tables and in the descriptions of enclosures No.4 through 7.

4. GEOMECHANICAL PROFILE OF LOCATION

The field investigations and laboratory tests conducted provide enough data to define and classify soil strata of the location up to the investigated depth.

According to the investigations conducted and the results of those investigations, there can be generally defined the composition of the investigated location. On the basis of the investigations the following soil profile of the terrain has been established:

ML Sandy and clayly silt, low plasticity, light brown colour, established in all boreholes as bed with depth of 0.5 to 1.2 m;

SFs Silty sand, rarely with gravel pieces, light brown colour. It has been established in the boreholes under the silt: B-1 (0.6-2.5m), B-2 (0.5-1.0m), B-4 (2.3-4.0m), B-7 (1.0-3.5m), B-9 (3.0-4.0m), B-10 (1.2-2.8m), B-11 (1.2 -2.2m);

GW Silty and sandy gravel, locally clayly, rarely with blocks, well size distribution, with fine and softy grains surface d_{max}=8.0cm, compacted, gray colour. It has been established in all boreholes under the silt and sand to the investigation depth.

Underground water level has been encountered in all boreholes on the variety depth shown on the table No.3.

Table No.3

BOREHOLE	UGWL[m]
B-1	-4.6
B-2	-7.0
B-3	-4.2
B-4	-5.7
B-5	-4.4

B-6	-5.0
B-7	-3.8
B-8	-3.9
B-9	-4.2
B-10	-3.5
B-11	-3.8
B-12	-3.5

Physical and mechanical characteristics of above mentioned materials are showed in the Table of enclosure No.9.

5.HIDROGEOLOGICAL CONDITIONS

The geotechnical drilling program has allowed the determination of the characteristics of the various lithological units in the investigated area. The strata of silty sands and gravelly sands, which form part of the sequence of alluvial sediments, represent layers with reasonable thickness, apparent large lateral extent and good permeability / transmissivity. Clayly,sandy silts on surface lauers are typical roof hydrogeological aquiclude. These strata represent favorable aquifers. (*see: Enclosures N^{o}.1.2*)

5.1 Types of aquifers

The investigations have shown that these aquifers are formed of non-consolidated sediments with a free water table (phreatic) and primary permeability (intergranular porosity and permeability).

The river Vardar apparently provides a permanent recharge boundary.

The groundwater flow direction is similar to that of Vardar River. An assumption that groundwater flow is similar to that of Vardar River is very usual for river and underground flows trough alluvial environments consist of gravelly sands, which are characterized with great intergranular porosity..

5.2 Determination of the aquifer parameters

The permeability features and hydraulic conductivity (or coefficient of permeability) are defined according to the grainsize distribution curves of drilling samples by an empirical formula and by means of field and laboratory tests.

The coefficient of permeability, according to the grainsize distribution curves, is calculated using the empirical equation of USBR as follows:

Where
k - coefficient of permeability (m/s),

d - grainsize (mm) of unconsolidated sediment at intersection of 20%-line with accumulative curve of grainsize distribution (weight rate).

The values for the coefficient of permeability, obtained according to this method of calculation, are shown in the *Enclosures N<u>o</u>. 4.1 to 4.12* and varies from, 4.21×10^{-4} to 4.06×10^{-3} m/s for sandy gravel.

As a comparative method, the permeability conducted on site is performed using A. Ansberg method. This method is conducted by pouring water directly into borehole, keeping water level to be constant while measuring water flow using watermeter. Measuring is performed on every 5 min 2 or 3 times with difference between measuring not more than 10%.
Value of coefficient of permeability (k) is calculated according to A. Ansberg equation:

$$k = 0.525 \cdot q \cdot \log \frac{0.66 \cdot l_0}{r}$$

k – coefficient of permeability (m/s)
q – specific discharge (l/min)
l_0 – length of the investigated layer
r – borehole radius (m).

The values for the coefficient of permeability, obtained according to this method of calculation, are shown in the *Enclosures N<u>o</u>. 9* and varies from, 5.11×10^{-6} to 1.96×10^{-4} m/s for sandy gravel.

Sample permeability is tested into permeameters with constant pressure of 2 bars for samples built in with natural condition.

$$k = \frac{q}{A \times t \times h}$$

k – coefficient of permeability (m/s)
q – specific discharge
t – flow interval
h – constant pressure

Coefficient of permeability tested into permeameters with constant pressure of 2 bars for samples built in with natural condition is 2,64 h 10^{-5} – $6{,}2 \times 10^{-3}$ m/s, which points to material with good permeability. The values are shown in the *Enclosures N<u>o</u>. 9.*

6. BEARING CAPACITY AND DEFORMABLE CHARACTERISTICS

On the basis of the defined soil profile of site, characteristics of materials and the

test results, there was calculated the bearing capacity for sandy and silty gravel , of very good density, with geomechanical designation according to Artur Casagrande, GW and of characteristics showed in Table No. 2.

Table N°. 4

Friction angle $\varphi(^0)$	Cohesion $c(kN/m^2)$	Unit Weights γ_1 / γ_2 (kN/m^3)	Class	Safety factor F
31.5	0.0	21.5 / 11.5	GW	3.0

Computation of the bearing capacity according to the theory of failure of soil, was carried out according to method of Terzaghi with values showed in Table No.4, for simple spread footing sized 1.0 x 1.0 m; 2.0 x 2.0 m; 3.0 x 3.0 m and 4.0 x 4.0 m, effective foundation depth being Df, such amounting to 0.85; 1.0 and 1.2 m, as well as for continuous footing with 0.6, 0.8, 1.0, 1.2 and 1.4 m and for foundation plate 10 x 10; 12 x 12 and 15 x 15 m width; effective foundation depth being Df, such amounting to 0.4; 0.6 and 1.2 m.

6.1 Calculation of ultimate and bearing capacity - Terzaghi method

The ultimate bearing capacity will be calculated for the following types of foundations, applying the Terzaghi method:

- *Simple spread footing*

$$q_f = 2/3 \cdot 1.3 \cdot c \cdot N'_c + \gamma_1 \cdot D_f \cdot N'_q + 0{,}4 \cdot \gamma_2 \cdot B \cdot N'_\gamma$$

- *Continous footing*

$$q_f = 2/3 c \cdot N'_c + \gamma_1 \cdot D_f \cdot N'_q + 0{,}5 \cdot \gamma_2 \cdot B \cdot N'_\gamma$$

- *Foundation plate*

$$q_f = 2/3 \cdot (1 + 0.3n) \cdot c \cdot N'_c + \gamma_1 \cdot D_f \cdot N'_q + 0{,}5 \cdot \gamma_2 \cdot B \cdot N'_\gamma$$

where:

q_f ‡ ultimate bearing [kPa];

c ‡ cohesion [kPa];

n ‡ relation of sides B/A;

γ_1, γ_2 ‡ bulk specific gravity over and under foundation levels [kN/m3];

D_f ‡ effective depth of foundation [m];

B ‡ foundation width [m];

N'_c , N'_q , N'_γ ‡ reduced factors of bearing capacity for assumed friction angle.

Bearing capacity is computed according to the expression: $\sigma_{doz} = \frac{P_{kr}}{F}$

Where F=3.0 and represents safety factor.

6.2 Calculation of ultimate and bearing capacity – Brinch-Hansen method

According to this method, the ultimate bearing capacity, depending on the shape of foundations, foundation depth and inclination of load is computed according to the following expression:

$P_{kr} = c \cdot N_c \, s_c \, d_c \, i_c + \gamma_1 \cdot D_f \cdot N_q \, s_q \, d_q \, i_q + 0{,}5 \cdot \gamma_2 \cdot B \cdot N_\gamma \; s_\gamma \; d_\gamma \; i_\gamma$

where:

c ‡ cohesion [kPa];

γ_1, γ_2 ‡ volume weights over and under foundation level [kN/m^3];

D_f ‡ effective depth of foundation [m];

B ‡ foundation width [m];

L ‡ foundation length;

N_c , N_q , N_γ ‡ factors of bearing capacity for assumed friction angle;

s_c, s_q s_γ - factors of shape depending on the relation between the width and length of the centrally loaded foundation and the friction angle;

d_c d_q d_γ - factors depending on the relation between the depth and width of the centrally loaded foundation and the friction angle;

To calculate bearing capacity there are adopted partial safety factors for elements of the internal resistance of soil material.

$$C_m = \frac{C'}{F_c} \qquad tg\varphi_m = \frac{tg\varphi'}{F_\varphi}$$

The calculation considers the safety factor Fc=2.5 i Fφ=1.50 .

6.3 Review of results

Summary of results of computations of bearing capacity is included in enclosure No. 8.1 - 8.6. The computation is carried out applying the program for computation of bearing characteristics (Visual basic).

The values of bearing capacity obtained applying failure criteria are ruling, and the maximum value when spot footings and foundation strips are in question is limited to σ_{doz}.= 100 - 300 KPa, depending on the type and size of foundation and the effective depth of foundation Df ≥ 0.4m.

7. CONCLUSION

On the basis of the done calculations, following conclusions and recommendations for certain location are:

- In general the location is consist of silt and sand depth from ground surface to maximum 2.5m and sandy and silty gravel, well size distribution to the investigation depth.
- Underground water level has been encountered in all boreholes on the varety depth, shown in the table no.3 and on the enclouser no.3.1-3.12.
- The investigations have shown that these aquifers are formed of non-consolidated sediments with a free water table (phreatic) and primary permeability (intergranular porosity and permeability). The varety coficient of permeability according to Usbr, laboratory and fields tests are: $k = n \times 10^{-6} - n \times 10^{-3}\, m/s$.
- The values of bearing capacity obtained applying failure criteria are ruling, and the maximum value when spot footings and foundation strips are in question is limited to σ_{doz}.= 100 - 300 KPa, depending on the type and size of foundation and the effective depth of foundation Df $\geq$ 0.4m .
- It is recimmended to prepeare design for drenaiging the construction trench, water evacuation and also support the trench.
- After performing a construction hole, it is recommended that inspection and acceptance has to be done by authorized expert person - geomechanical engineer.

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