

PLAN FOR WATERWAY MARKING AND MAINTENANCE ON THE SAVA RIVER AND ITS NAVIGABLE TRIBUTARIES FOR THE YEAR 2024



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1. DESCRIPTION OF CRITICAL SECTORS

1.1. LIST OF CRITICAL SECTORS

1.1.1. Critical sectors at the Sava River section entirely in Croatia

No	Name of the sector	Section (rkm)		Length of the section
		from	to	
1	Prelošćica	583,7	584,2	0,5
2	Blinjski Kut	581,0	582,0	1
3	Gušće 2*	573,0	576,0	3
4	Gušće 1	570,0	572,0	2
5	Bobovac	559,9	560,7	0,8
6	Lonja – Strmen*	552,0	556,0	4
7	Lonja1	549,0	549,8	0,8
8	Puska	541,4	542,3	0,9
9	Višnjica*	523,0	525,0	2
TOTAL:				42,5

**Particularly restricting sectors (note from the Ministry of the Sea, Transport and Infrastructure - Croatia)*

1.1.2. Critical sectors at the Sava River joint section between Croatia and Bosnia and Herzegovina

No	Name of the sector	Section (rkm)		Length of the section
		from	to	
1	Dolina *	445,5	449,5	4
2	Davor Mlature	429,0	431,0	2
3	Davor ušće Vrbasa	426,5	427,2	0,7
4	Gričić*	394,0	395,0	1
5	Migalovci – ušće Ukrine*	377,5	382,0	4,5
6	Jaruge–Novi Grad*	322,0	329,0	7
7	Savulje	310,5	311,5	1
8	Tolisa	275,0	277,0	2
9	Gunja*	220,0	223,0	3
10	Račinovci	210,8	212,7	1,9
TOTAL:				42,5

**Particularly restricting sectors (note from the Ministry of the Sea, Transport and Infrastructure - Croatia)*

1.1.3. Critical sectors at the Sava River section in Serbia

No	Name of the sector	Section (rkm)		Length of the section
		from	to	
1	Confluence of the Drina River	177,0	184,0	7,0
2	Sremska Mitrovica	126,8	134,0	7,2
3	Klenak	106,0	112,6	6,6
4	Šabac	90,0	104,0	14,0
5	Kamičak	82,2	88,2	6,0
TOTAL:				40,8

Note: The stretch from rkm 177 to rkm 178 of the critical sector Confluence of the Drina River is on the territory of the Republic of Serbia, while the remaining stretch from rkm 178 to rkm 184 is a joint sector between the Republic of Serbia and Bosnia and Hercegovina.

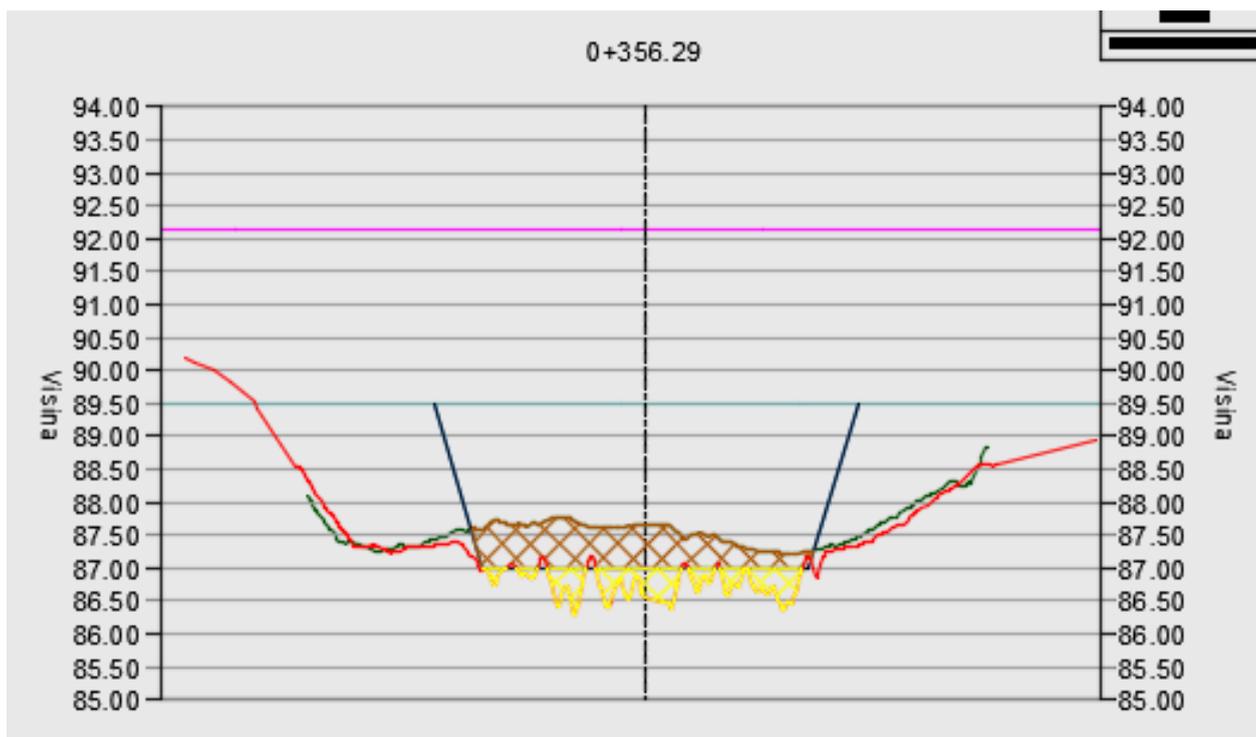
1.2. HYDROMORPHOLOGICAL CHANGES AT SPECIFIC SECTORS

1.2.1. Hydromorphological changes at the Sava River section in Croatia

Critical sector: Preloščica (rkm 583+700 - rkm 584+200)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 584+050 (EV 1895)



legend: —— August 2018 —— December 2018

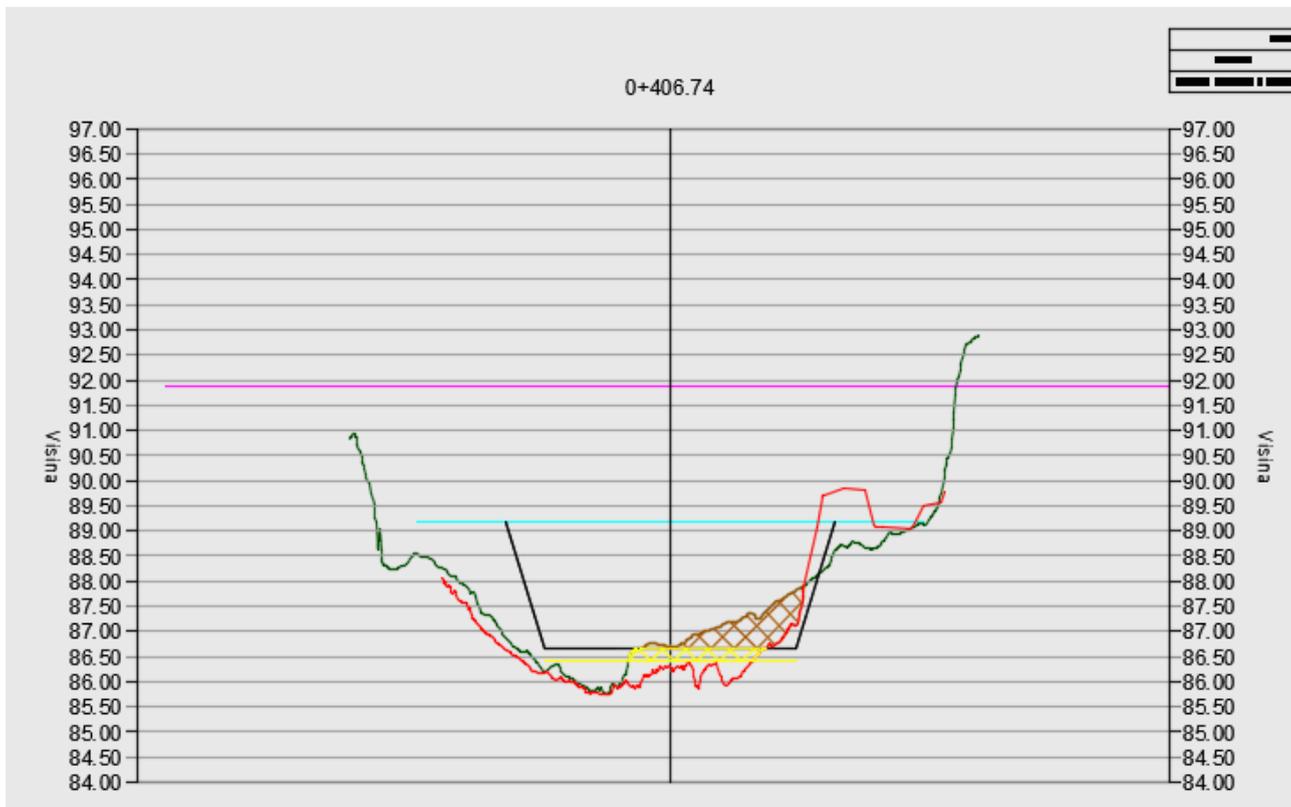
- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
584,05	50	50,0	50,0	2,5	2,3

Critical sector: Blinjski Kut (rkm 581+000 - rkm 582+000)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 581+300 (EV 1880)



legend: ——— **April 2018** - - - - - **December 2018**

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
581,3	50	45,0	50,0	3,4	2,2

Note: Dredging works performed in 2018.

(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

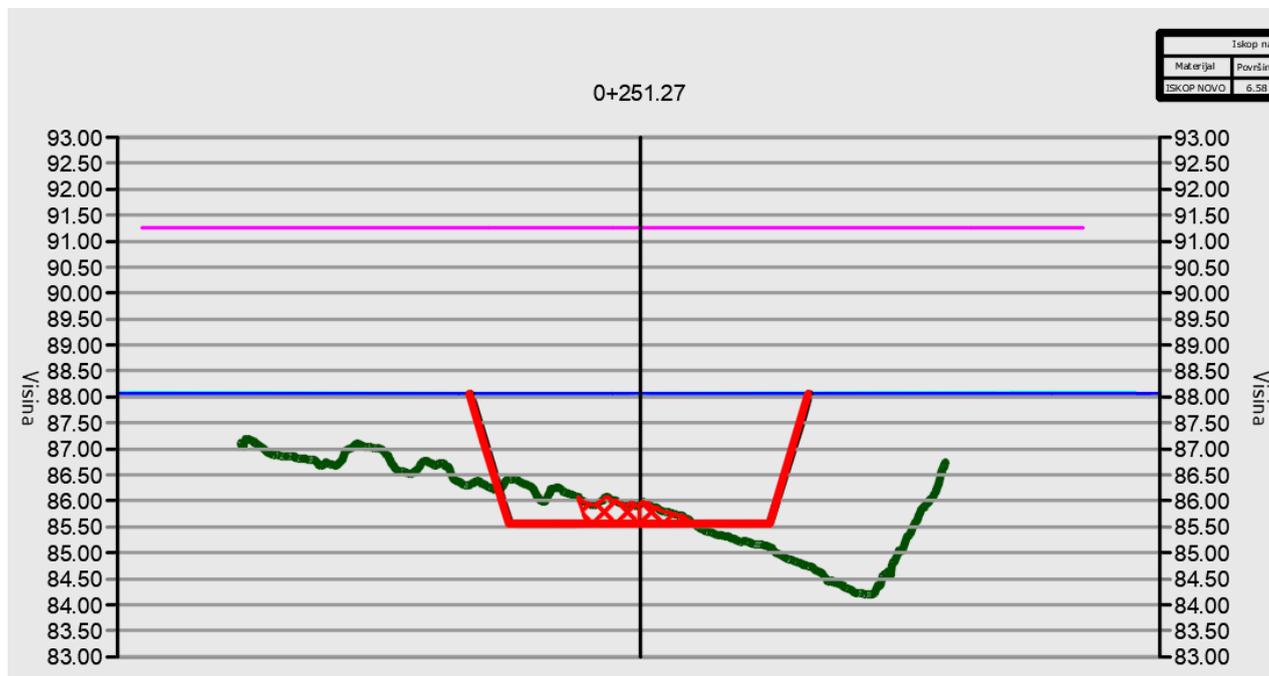
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
573,1	50	40	60	3,00	2,3
574,7	50	20	20	2,57	2,32

Note: Technical maintenance works were executed during 2021-2023. The continuation of the works is planned for 2024.

Critical sector: Gušće 1 (rkm 570+000 - rkm 572+000)

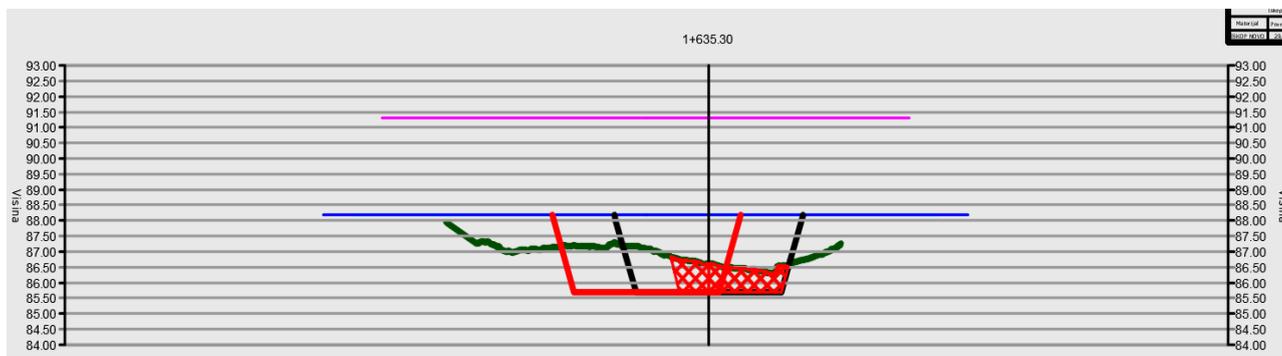
- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 570+500 (EV 1823)



legend: ----- September 2018

Profile at rkm 571+500 (EV 1830)



legend: ----- September 2018

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

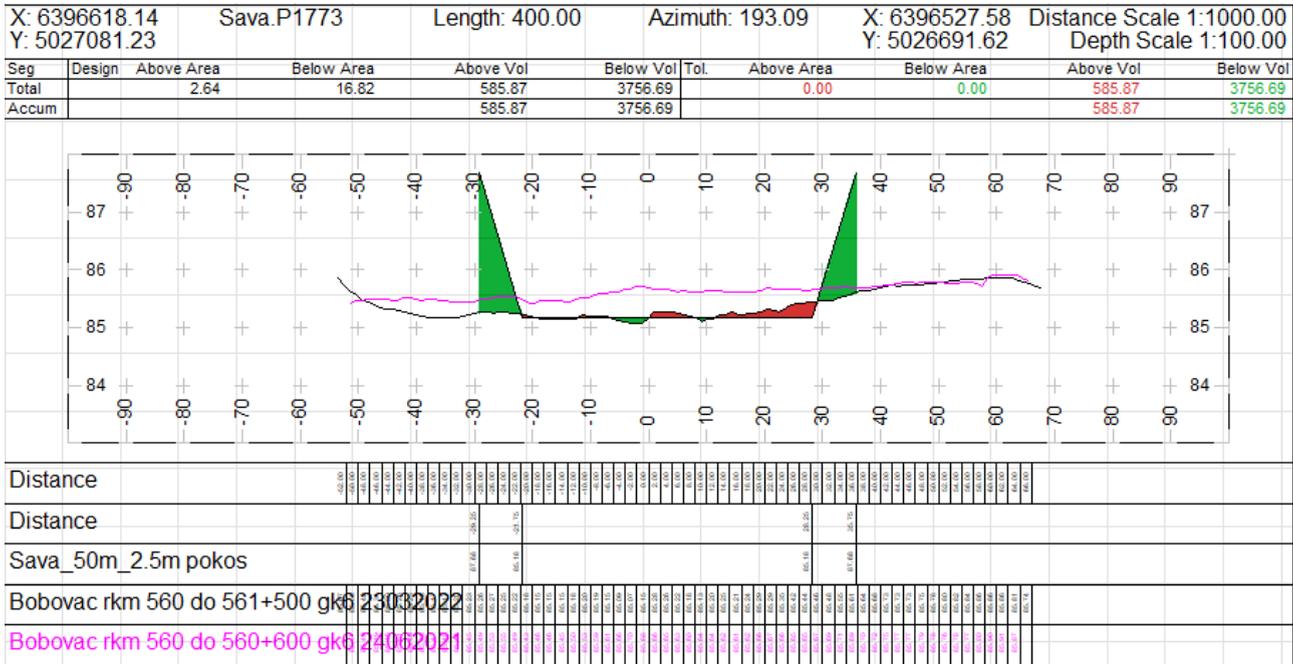
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
570,05	50	0,0	60,0	3,3	2,4
571,5	50	0,0	35,0	2,4	2,4

Note: Dredging works performed in 2018 in a narrowed profile with a partially translated waterway route.

Critical sector: Bobovac (rkm 559+900 - rkm 560+700)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 560+150 (EV 1773)



legend: - - - - - June 2021 - - - - - March 2022

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

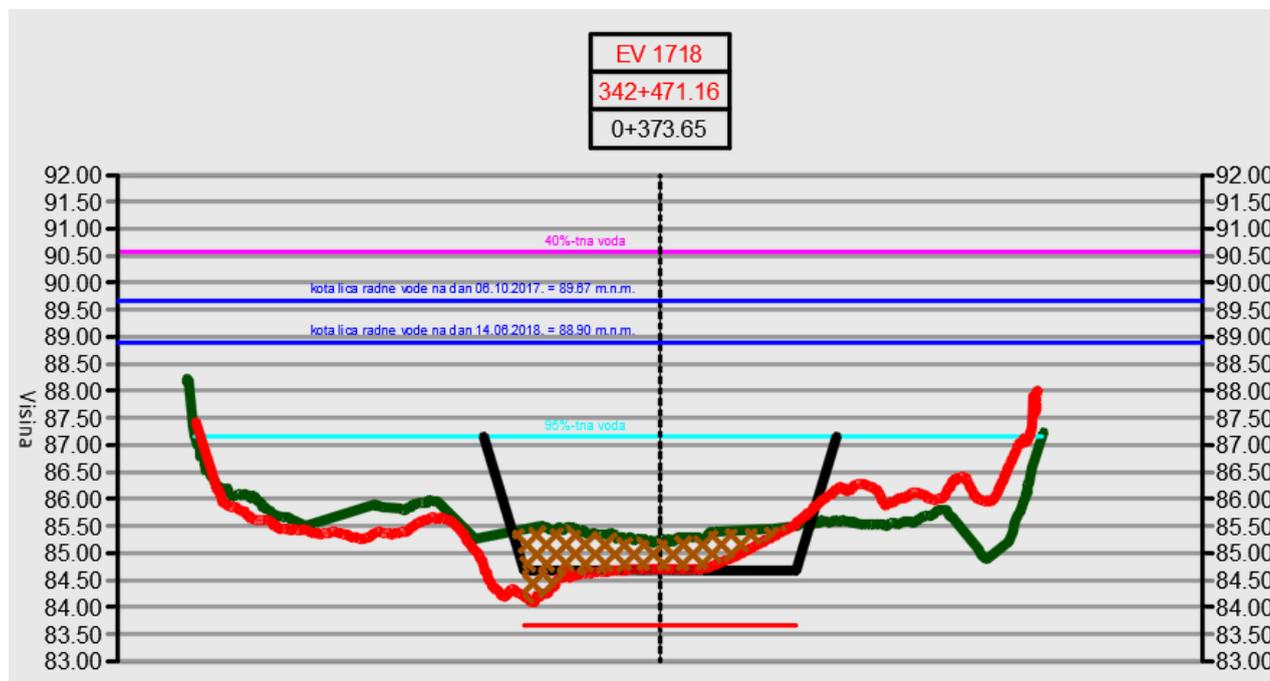
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
560,15	50	25	25	2,61	2,24

Note: Dredging works performed in 2021. The continuation of the works is planned for 2024.

Critical sector: Lonja 1 (rkm 549+000 do rkm 549+800)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 549+500 (EV 1718)



legend: ----- October 2017 ----- June 2018

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

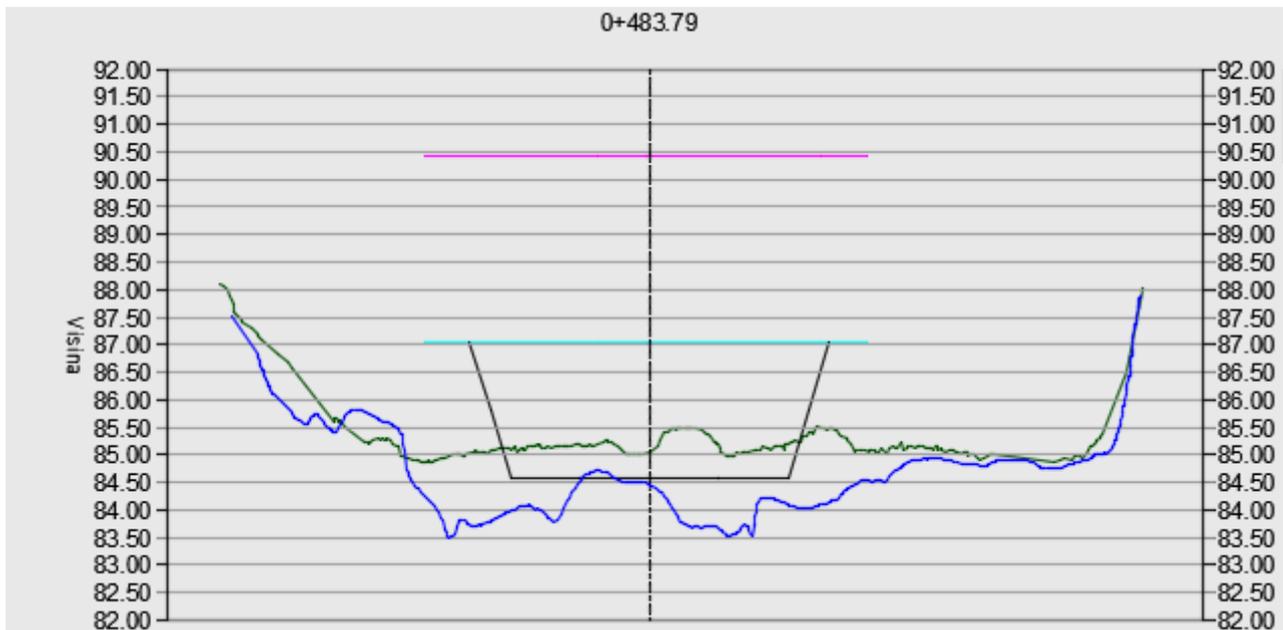
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
549,5	50	0,0	0,0	2,2	1,5

Note: Dredging works performed during 2017-2018.

Critical sector: Puska (rkm 541+400 – rkm 542+300)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 541+950 (EV 1679)



legend: — **May 2017** — **October 2017**

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
523,9	50	64,0	49,0	3,5	2,2

Note: The work on technical maintenance was finished in 2017.

Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
446,1	70	0,0	0,0	2,4	1,4
447,1	70	11,0	29,0	2,5	1,8

Note: Technical maintenance works on the Croatian side of the waterway are planned for 2024.

(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

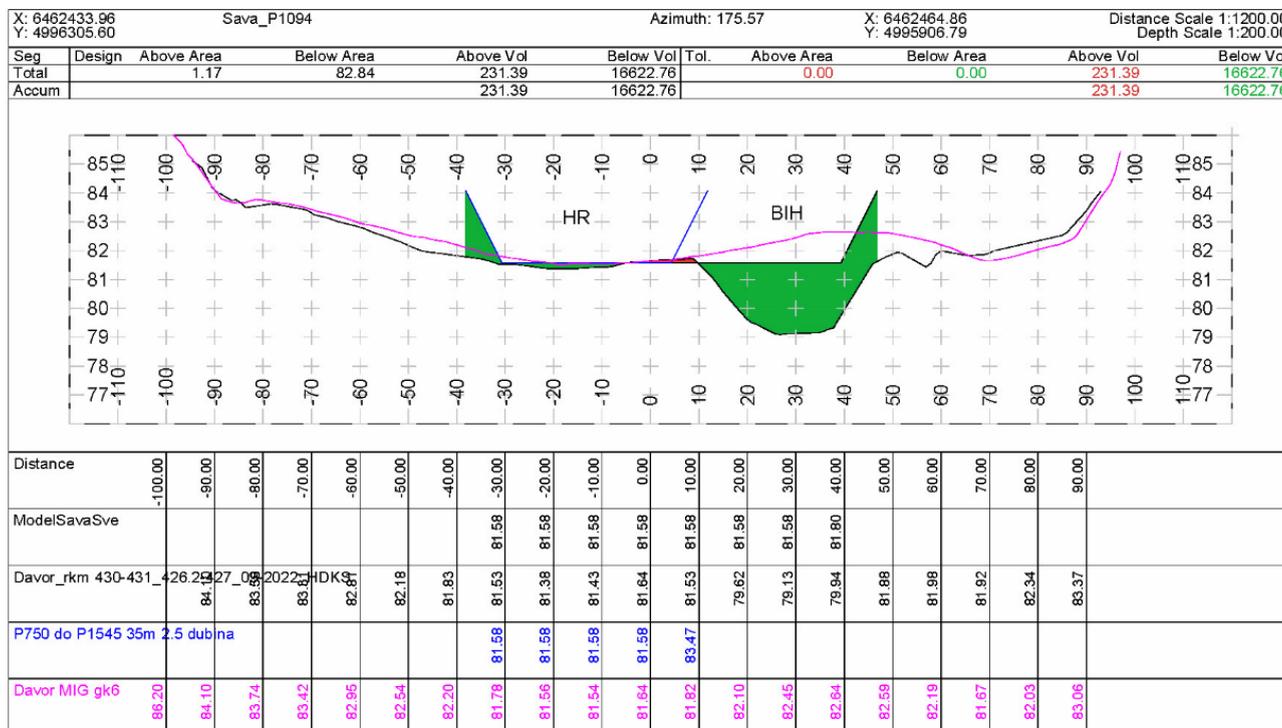
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
430,1	70	25	25	2,73	1,77
430,6	70	55	55	3,27	2,29

Note: Technical maintenance works were finished on the Croatian side of the waterway in 2023.

Critical sector: Davor – Ušće Vrbasa (rkm 426+500 – rkm 427+200)

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 426+900 (EV 1094)



legend: **September 2022** **2018**

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

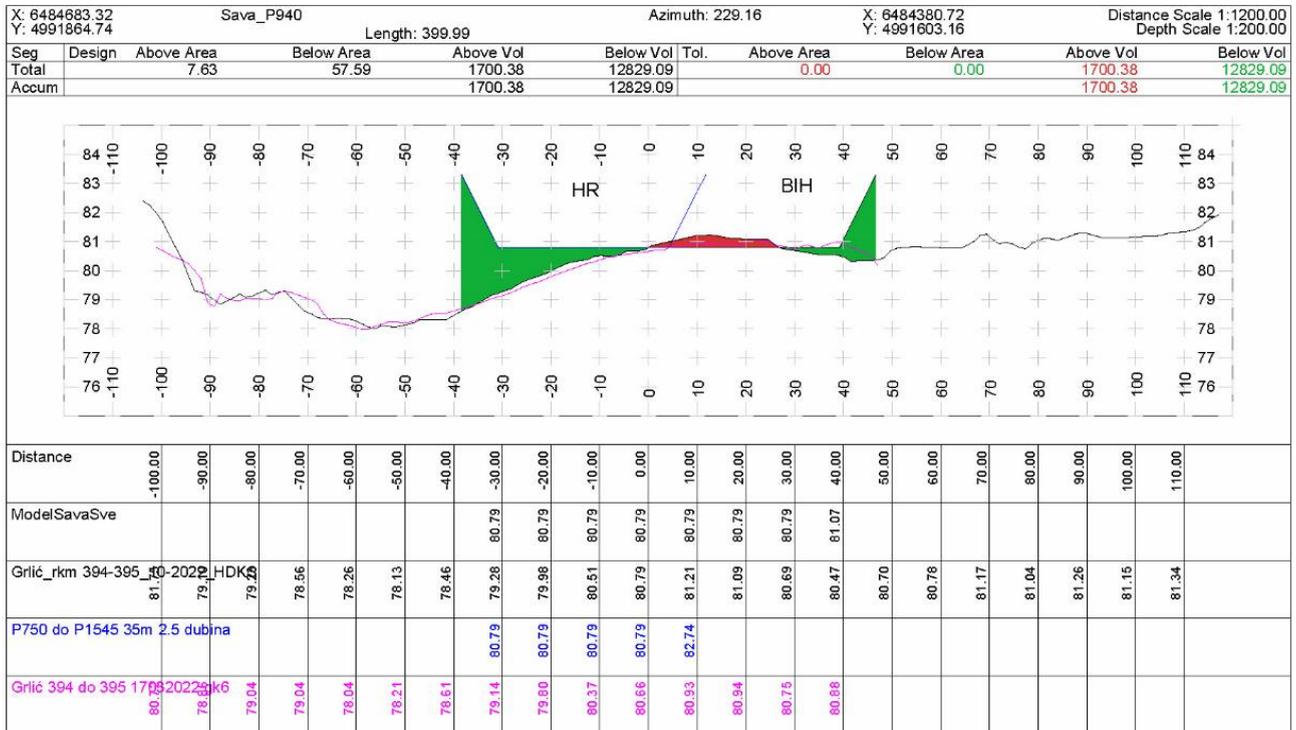
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
426,7	70	45	80	3,1	2,5

Note: Technical maintenance works were finished on the Croatian side of the waterway in 2023.

Critical sector: Grlić (rkm 394+000 – 395+000)

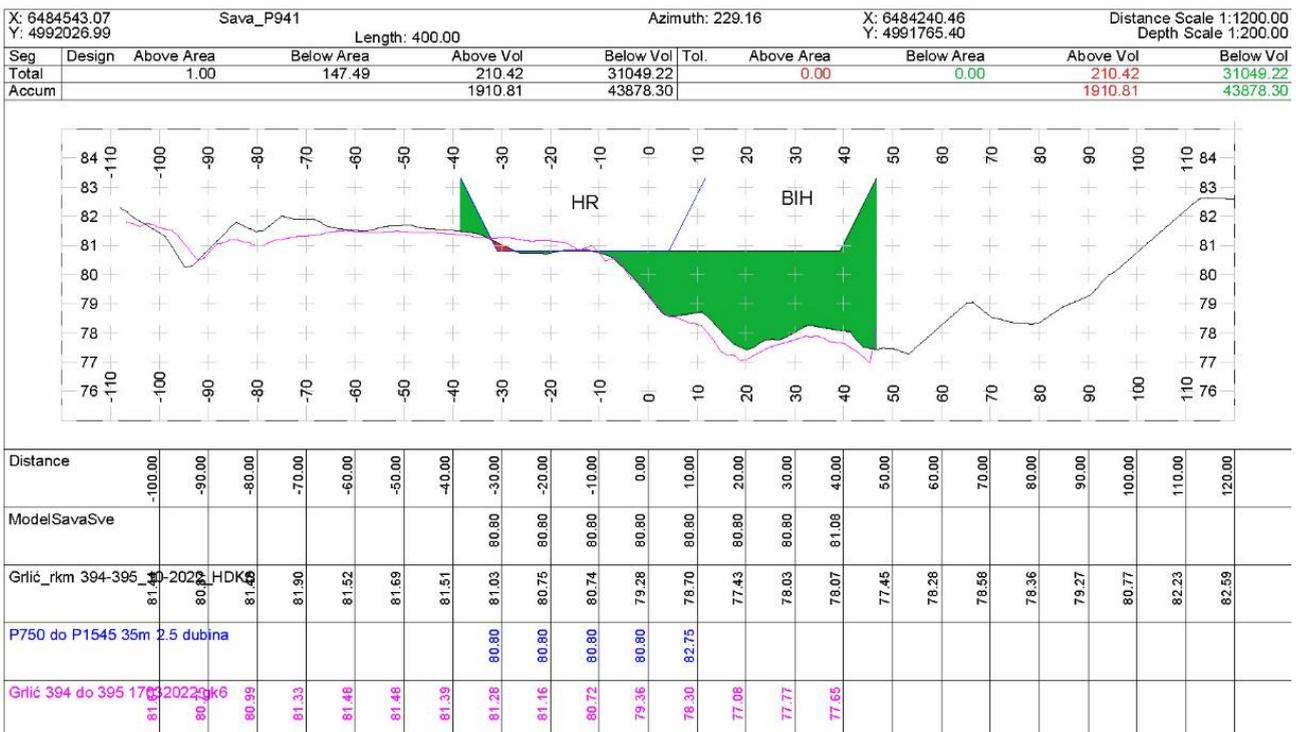
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 394+400 (EV 940)



legend: October 2022 March 2022

Profile at rkm 394+600 (EV 941)



legend: October 2022 March 2022

(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

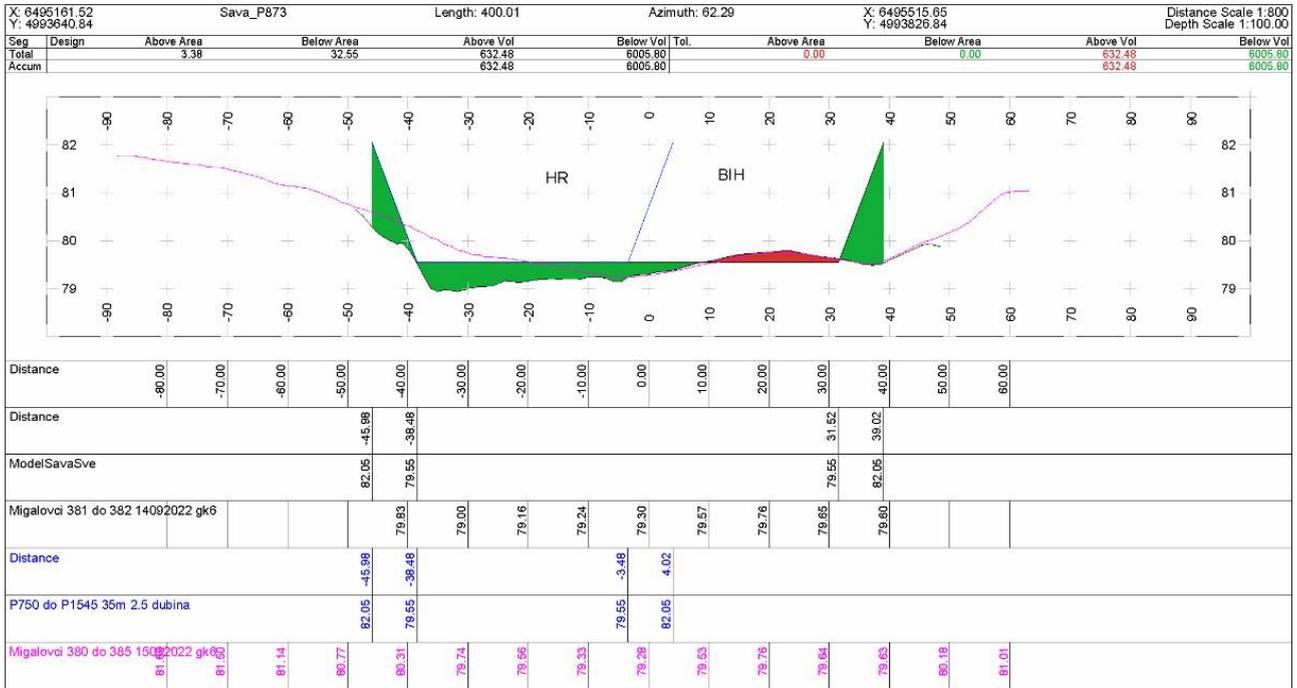
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
394,4	70	35	90	4,01	2,09
394,6	70	65	85	5,74	2,43

Note: Technical maintenance works were finished on the Croatian side of the waterway in 2022.

Critical sector: Migalovci – Ušće Ukrine (rkm 377+500 – rkm 382+000)

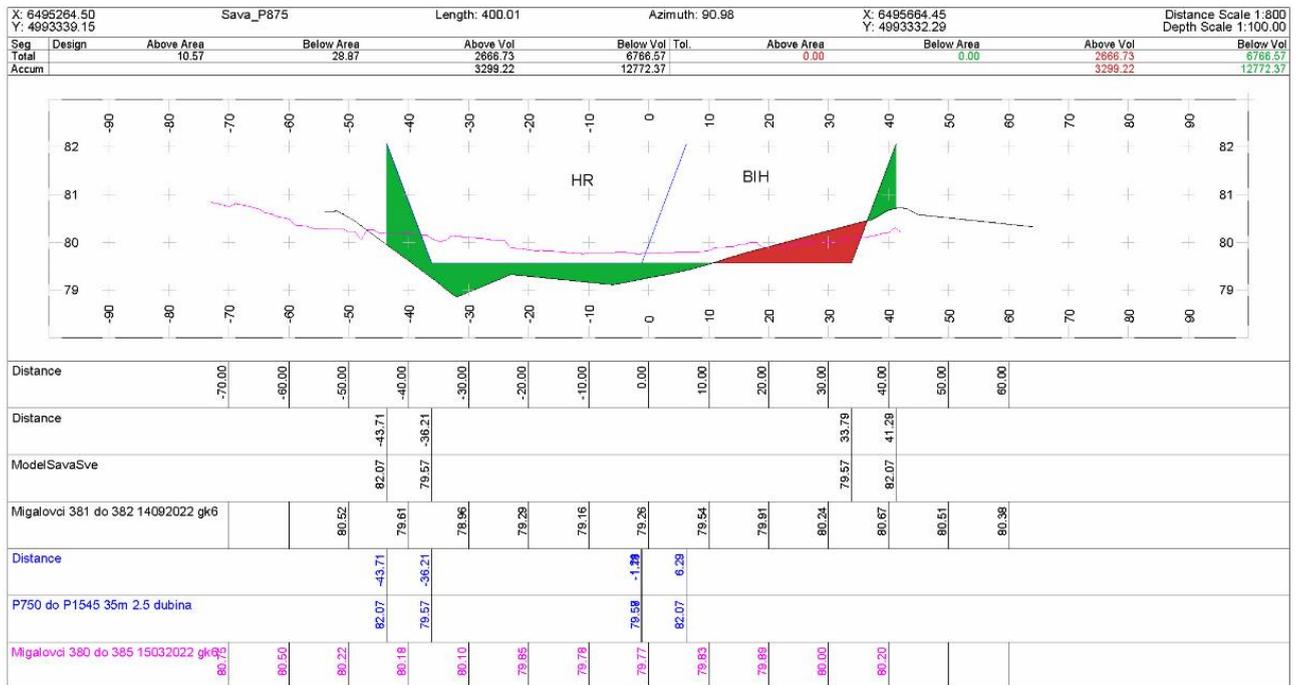
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 377+700 (EV 873)



legend: September 2022 March 2022

Profile at rkm 379+500 (EV 875)



legend: September 2022 March 2022

(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

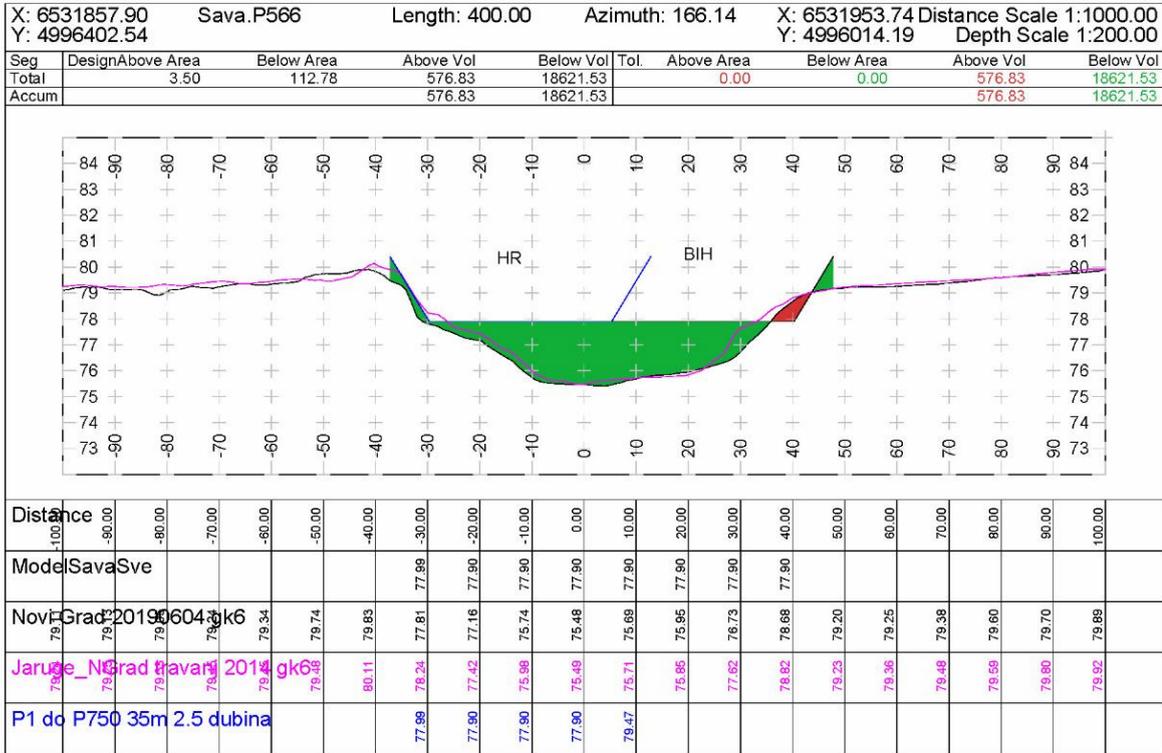
rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
381,7	70	50	50	3,11	2,27
379,5	70	60	60	3,21	1,63

Note: Works on technical maintenance were finished on the Croatian side of the waterway from rkm 374 to rkm 382 in 2021 - 2022.

Critical sector: Jaruge – Novi Grad (rkm 322+000 – rkm 329+000)

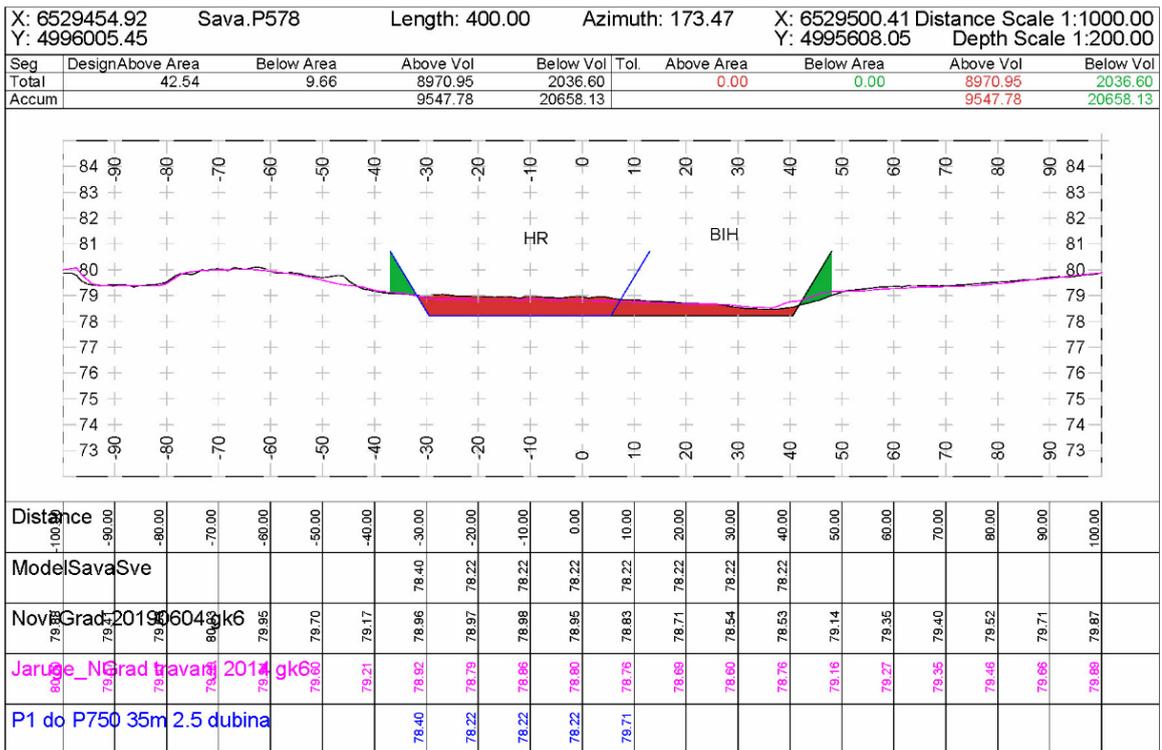
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 321+900 (EV 566)



legend: ——— 2019 - - - - - 2014

Profile at rkm 324+500 (EV 578)

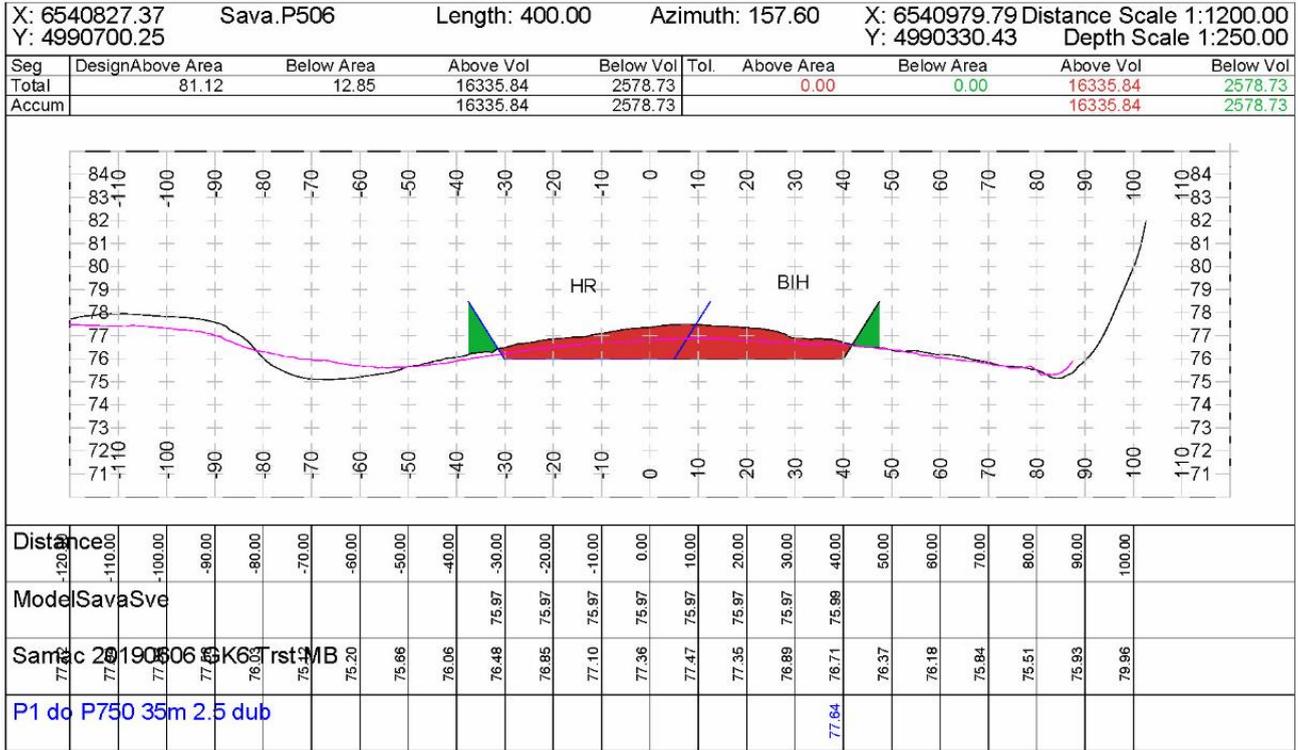


legend: ——— 2019 - - - - - 2014

Critical sector: Savulje (rkm 310+500 – rkm 311+500)

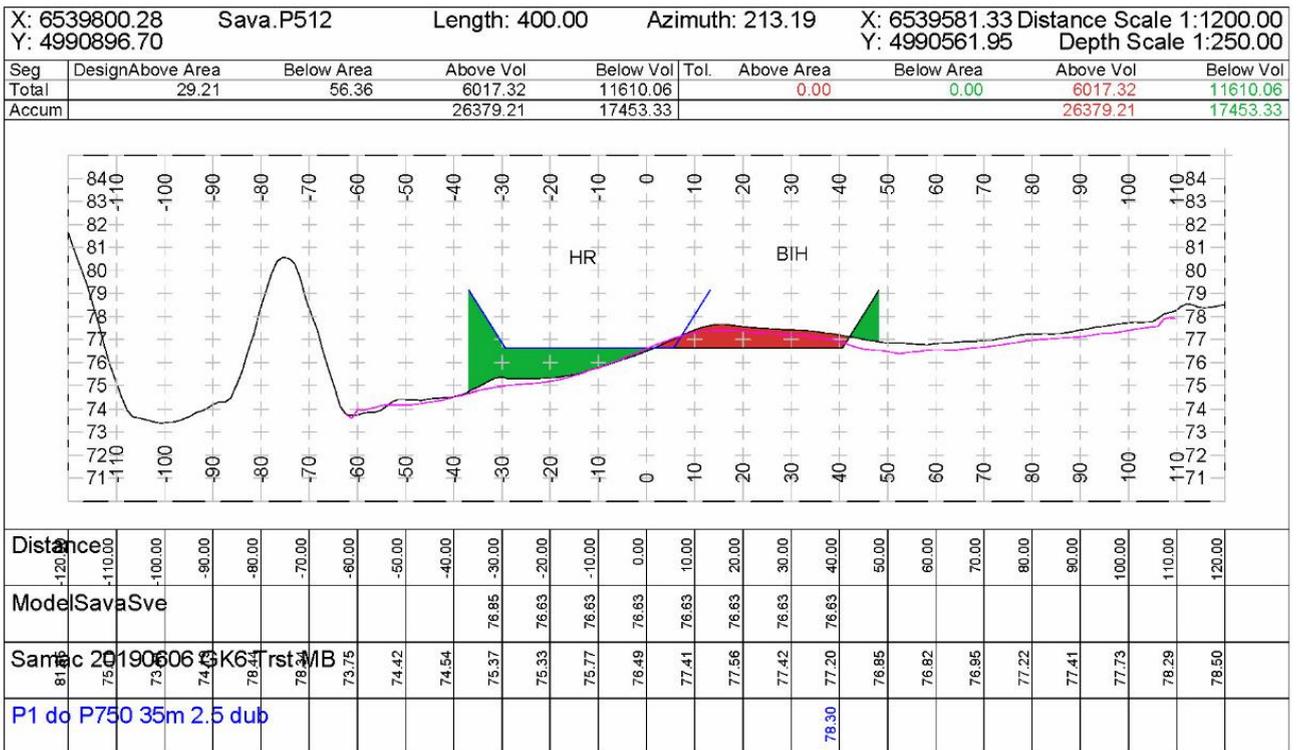
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 310+500 (EV 506)



legend: — 2019 - - - 2016

Profile at rkm 311+600 (EV 512)



legend: — 2019 - - - 2016

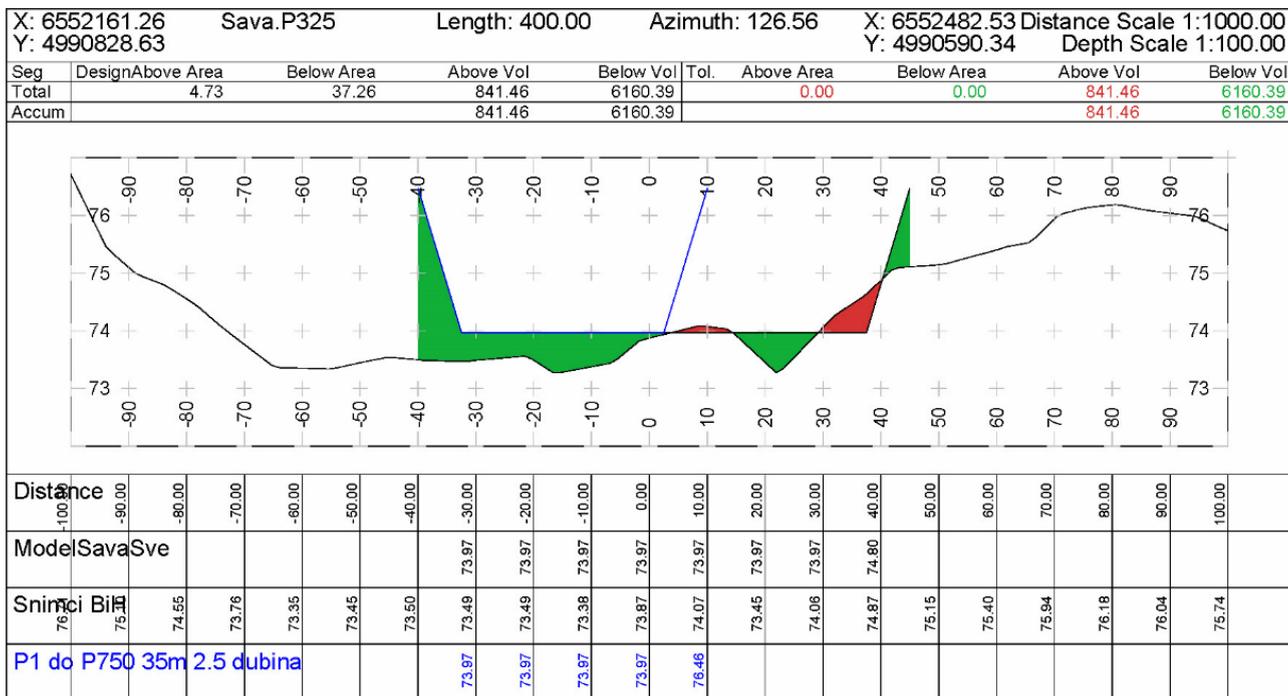
(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
310,5	70	0	30	3,35	0,99
311,6	70	30	60	5,38	1,48

Critical sector: Tolisa (rkm 275+000 – 277+000)

(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 275+100 (EV 525)



legend: 2017

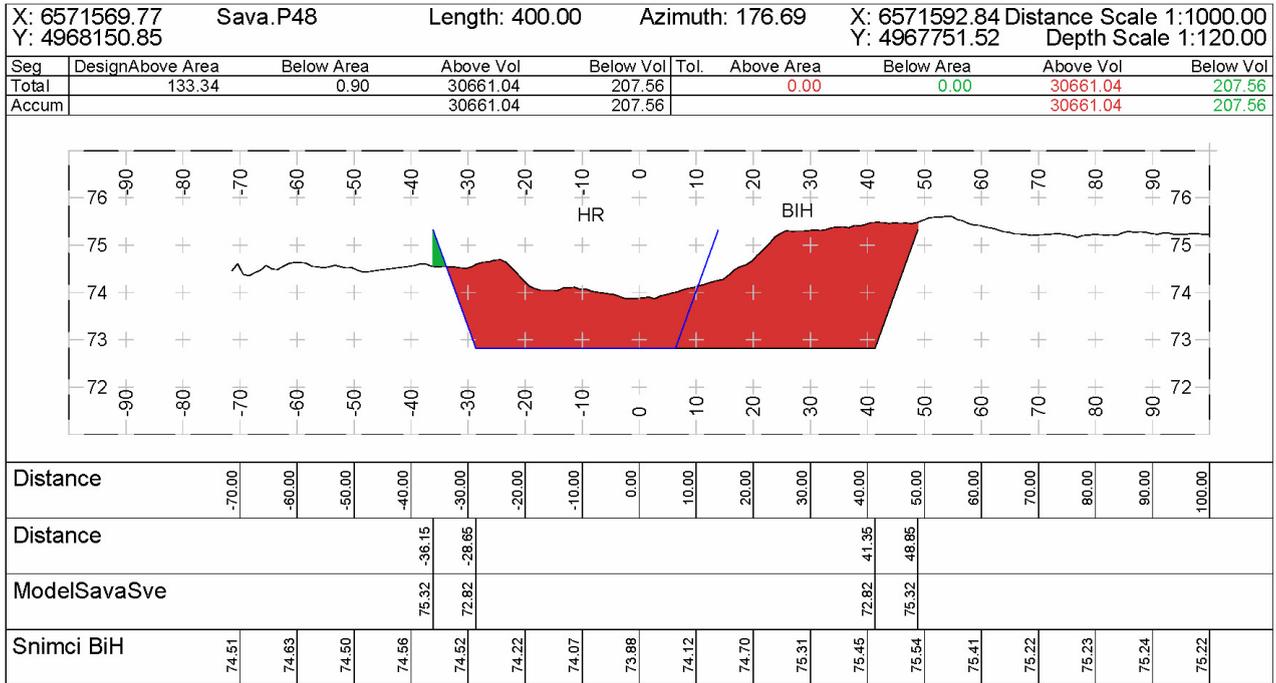
(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
275,1	70	40	90	3,19	1,41

Critical sector: Gunja (rkm 220+000 – rkm 223+000)

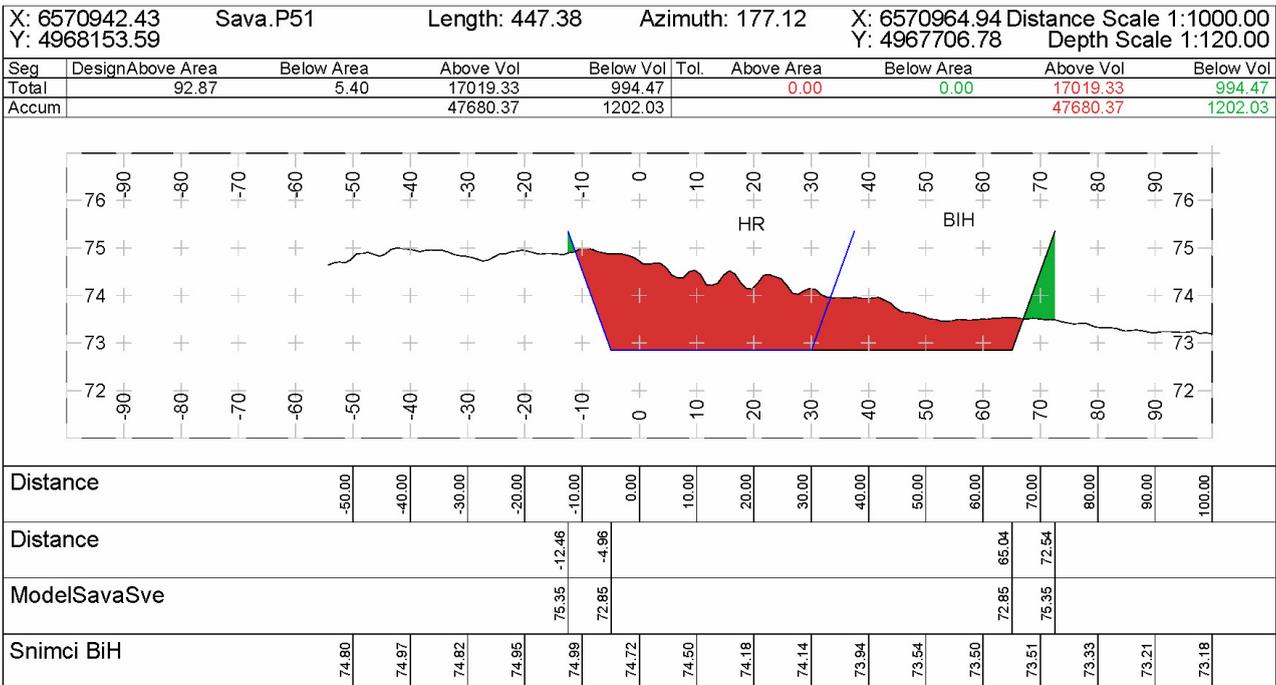
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 220+800 (EV 48)



legend: 2017

Profile at rkm 221+400 (EV 51)



legend: 2017

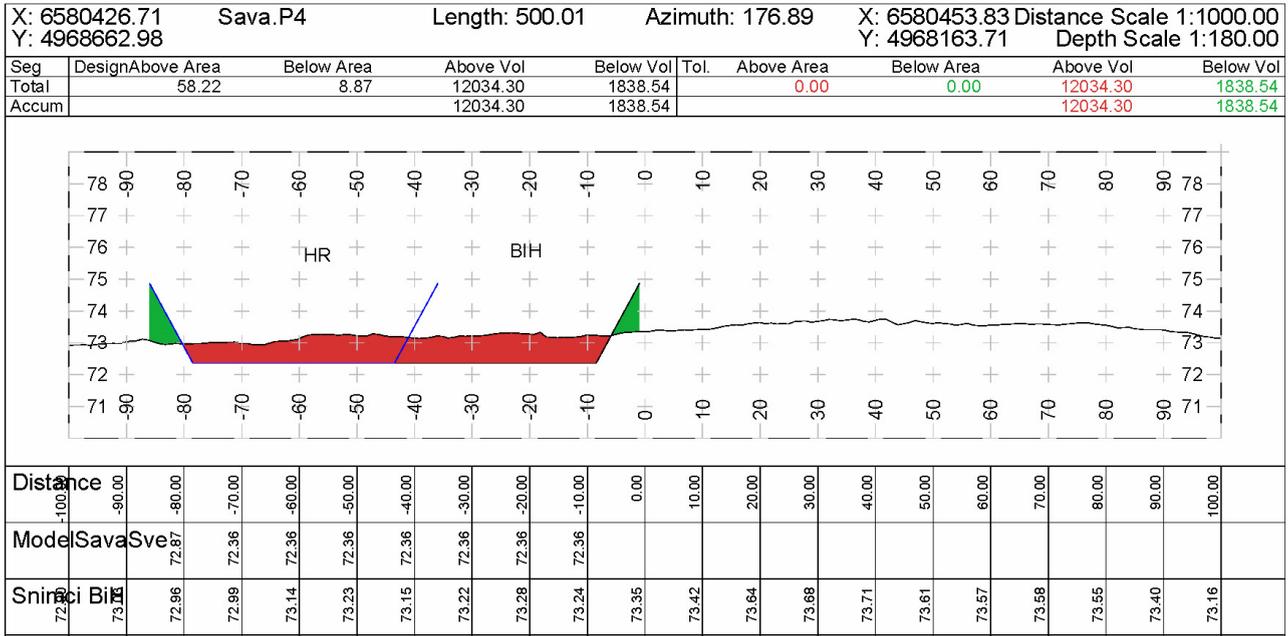
(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
220,8	70	0	0	1,32	0
221,4	70	0	0	1,86	0,51

Critical sector: Račinovci (rkm 210+800 – rkm 212+700)

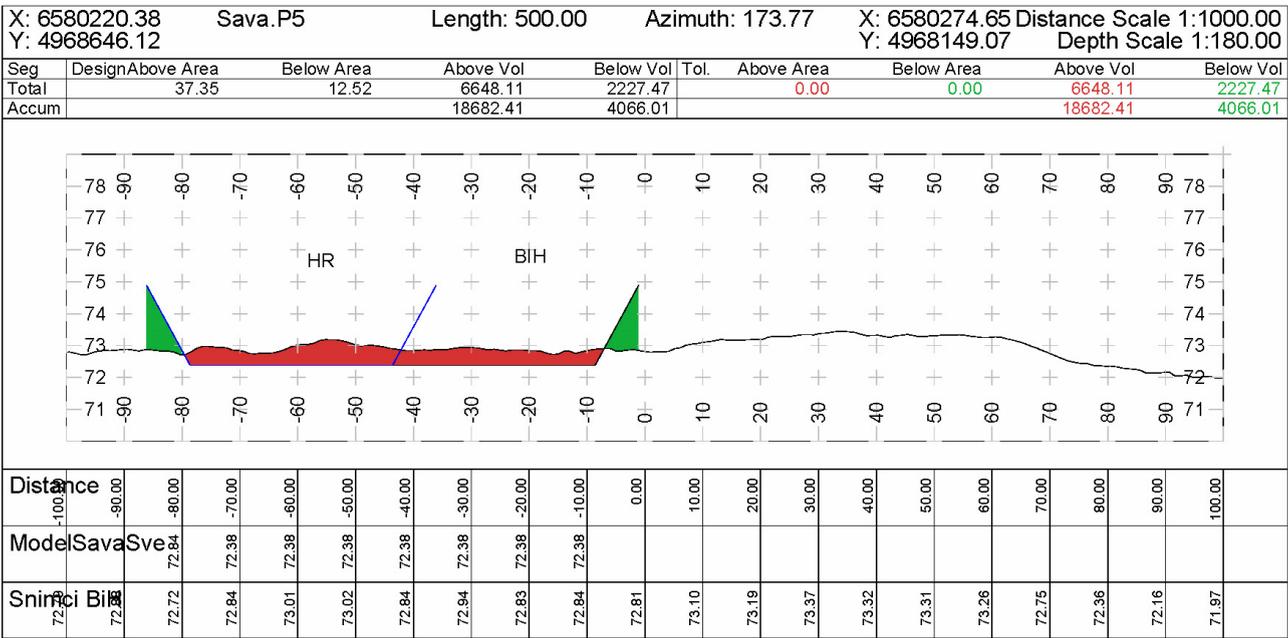
(a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Profile at rkm 211+800 (EV 4)



legend: ——— 2017

Profile at rkm 212+000 (EV 5)



legend: ——— 2017

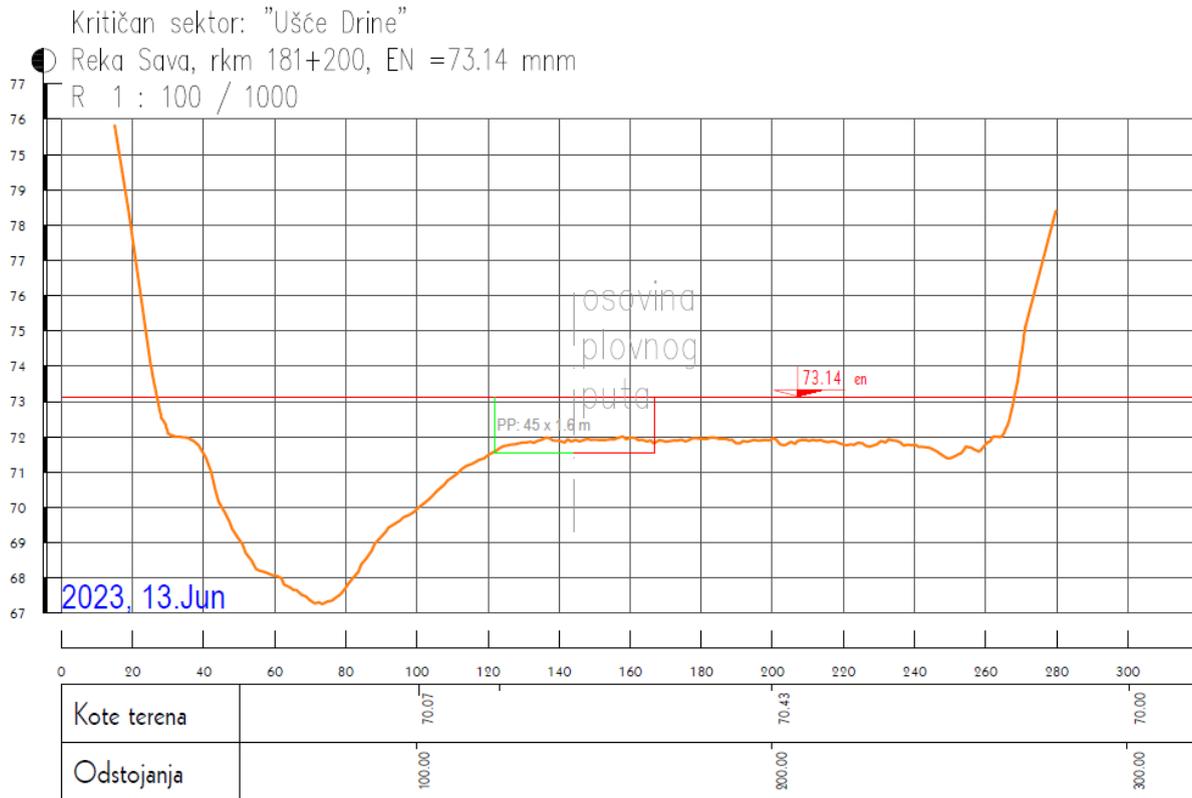
(b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
211,8	70	0	0	1,91	1,55
212,0	70	0	0	2,16	1,7

1.2.3. Hydromorphological changes at the Sava River section in Serbia

Critical sector: Confluence of the Drina River

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to the annual bathymetric survey performed on June 13, 2023)



- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
183+400	45	37	105	2.8	1.4
183+200	45	40	74	2.4	1.4
182+400	45	0	0	*	1.4
181+600	45	25	104	3.8	1.5
181+400	45	24	74	2.5	1.2
181+200	45	0	81	5.9	1.1
178+800	45	0	167	4.5	1.1
178+600	45	28	216	6	1
183+400	45	37	105	2.8	1.4

Critical sector: Klenak

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to the annual bathymetric survey on June 26, 2023)

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
-	55	55			

Critical sector: Šabac

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
-	55	50			

Note: Dredging works performed in 2018, 2019 and 2020 assured fairway parameters required by the waterway class over the whole stretch of the critical sector „Šabac“. Hydrographic images from 2022 revealed a slight deterioration in the waterway from the design.

Critical sector: Kamičak

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to annual bathymetric survey)

Note: Dredging works performed in 2017 assured fairway parameters required by the waterway class along the entire stretch of critical sector „Kamičak“.

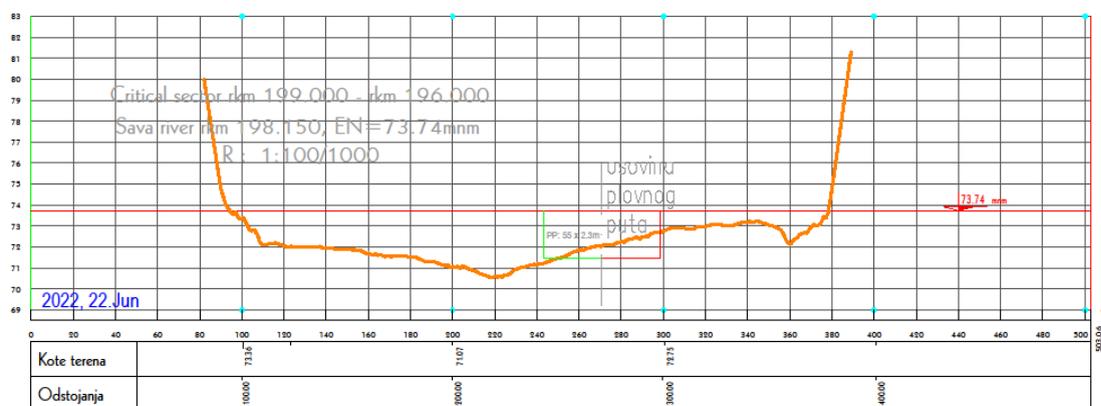
- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
-	55	55			

Other sectors with noticeable changes in river bed morphology in 2022

River stretch: rkm 199+000 - rkm 196+000

- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to the annual bathymetric survey on June 22, 2022)



- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
198+750	55	43	115	5.1	1.6
198+700	55	52	125	4.2	2.1
198+200	55	37	91	3.2	1.6
198+150	55	10	67	3.2	1
198+100	55	9	9	2.4	1
198+050	55	15	15	2.9	1.3
198+000	55	44	44	3.9	1.8
197+000	55	43	149	4.5	2
196+950	55	46	153	4.5	2.1
196+000	55	21	21	2.5	2.1

River stretch: rkm 196+000 - rkm 193+000

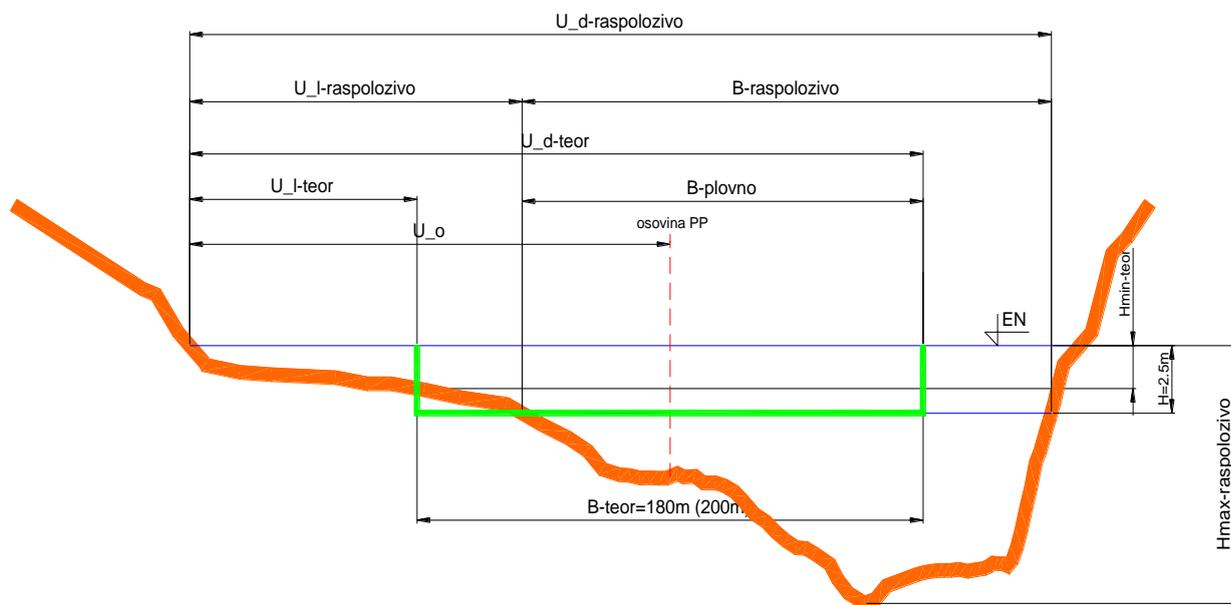
- (a) Characteristic cross-section profiles at critical sectors – hydromorphological changes in profiles (according to the annual bathymetric survey on June 13, 2023)

- (b) Waterway data/available (reduced) fairway parameters assessed to the waterway class

rkm	B-theor	B-navigable	B-available	Hmax-available	Hmin-theor
-	45	45			

Explanation of values in tables with Waterway data/available (reduced) fairway parameters assessed to the waterway class

- rkm** – Profile position
- B – theor** – Defined (theoretical) fairway width
- B-navigable** – Available waterway width corresponding to appropriate vessel draft at the low navigable water level LNL in defined (theoretical) fairway
- B-available** – Available waterway width corresponding to appropriate vessel draft at the low navigable water level LNL in the defined (theoretical) fairway in the whole cross-section profile
- Hmax- available** – Maximal depth in the available fairway corresponding to the low navigable water level LNL
- Hmin-teor** – Minimal depth in the defined (theoretical) fairway corresponding to the low navigable water level LNL



Note: Hydromorphological changes at specific sectors and parameters shown above were calculated in accordance with the waterway class given in the table below (ISRBC Decision 5/17 on Adoption of the Classification of the Sava River waterway), while the profiles with depicted morphological changes were provided by relevant waterway authorities from Croatia and Serbia.

Section of the Sava River		Length (km)	Waterway Class
downstream (rkm)	upstream (rkm)		
0,0 Sava Mouth	81,0 Kamičak	81,0	Va
81,0 Kamičak	176,0 Rača	95,0	IV
176,0 Rača	196,0 Domuskela	20,0	III
196,0 Domuskela	313,7 Slavonski Šamac Šamac	117,7	IV
313,7 Slavonski Šamac Šamac	338,2 Oprisavci Rit kanal	24,5	III
338,2 Oprisavci Rit kanal	371,2 Slavonski Brod Brod	33,0	IV
371,2 Slavonski Brod Brod	594,0 Sisak	222,8	III

2. MARKING PLAN

2.1. CODES OF SIGNS USED IN MARKING PLAN

MAIN SIGNS FOR WATERWAY MARKING	
A.1a	 No entry
A.2	 No overtaking
A.3	 No overtaking convoys by convoys
A.4	 No passing or overtaking
A.5	 No berthing (i.e. no anchoring or making fast to the bank)
A.6	 No anchoring or trailing of anchors, cables or chains
A.7	 No making fast to the bank
A.8	 No turning
A.9a	 Do not create wash
A.10	 No passing outside the area marked (in openings of bridges)
A.11	 Entry prohibited, but prepare to get underway
A.12	 Motorized crafts prohibited
A.13	 All sports or pleasure craft prohibited
A.14	 Water skiing prohibited
A.15	 Sailing vessels prohibited
A.16	 All craft other than motorized vessels or sailing craft prohibited
A.17	 Use of sailboats prohibited
A.18	 End of zone for high speed navigation of small sport and pleasure craft

Main signs for waterway marking (in accordance with Navigation rules on the Sava River):
A: Prohibitory signs;
B: Mandatory signs;
C: Restrictive signs;
D: Recommendaratory signs;
E: Informative signs.

A.19	 No launching or beaching of vessels
A.20	 Water bikes prohibited
B.1	 Proceed in the direction shown by the arrow
B.2a	 Move to the side of the fairway on your port side
B.2b	 Move to the side of the fairway on your starboard side
B.3a	 Keep to the side of the fairway on your port side
B.3b	 Keep to the side of the fairway on your starboard side
B.4a	 Cross fairway to port
B.4b	 Cross fairway to starboard
B.5	 Stop as prescribed in Regulations
B.6	 Do not exceed the speed indicated (in km/h)
B.7	 Give a sound signal
B.8	 Keep a particularly sharp lookout
B.9a	 Do not enter or cross the main waterway until certain that this will not oblige vessels proceeding on it to change their course or speed
B.9b	 Do not enter or cross the main waterway until certain that this will not oblige vessels proceeding on it to change their course or speed
B.10	 Vessels proceeding on the main waterway must, if necessary, change course and speed to allow vessels to leave harbours or tributary waterways
B.11a	 Obligation to enter into radiotelephone link
B.11b	 Obligation to enter into a radiophone link on the fairway as indicated on the board
C.1a	Depth of water limited

C.1b		Depth of water limited
C.2a		Headroom limited
C.2b		Headroom limited
C.3a		Width of passage or fairway limited
C.3b		Width of passage or fairway limited
C.4		There are restrictions on navigation: make enquiries
C.5		The fairway lies at a distance from the right (left) bank
D.1a		Recommended fairway in both directions
D.1b		Recommended fairway in both directions
D.1c		Recommended fairway only in the direction indicated (passage in the opposite direction prohibited)
D.1d		Recommended fairway only in the direction indicated (passage in the opposite direction prohibited)
D.1e		Recommended fairway only in the direction indicated (passage in the opposite direction prohibited)
D.1f		Recommended fairway only in the direction indicated (passage in the opposite direction prohibited)
D.2a		Recommendation to keep within the area indicated (in openings of bridges or weirs)
D.3a		You are recommended to proceed in the direction shown by the arrow
E.1a		Entry permitted (general sign)
E.2		Overhead cable crossing
E.3		Weir
E.4a		Ferry-boat not moving independently

E.4b		Ferry-boat moving independently
E.5		Berthing (anchoring or making fast to the bank) permitted
E.5.1		Berthing permitted on the stretch of water of the breadth measured from, and shown on the board in meters
E.5.2		Berthing permitted on the stretch of the water bounded by the two distances measured from, and shown on the board in meters
E.5.3		Maximum number of vessels permitted to berth abreast
E.5.4		Berthing area reserved for pushing-navigation vessels that are not required to carry the marking
E.5.5		Berthing area reserved for pushing-navigation vessels that are required to carry one blue light or one blue cone
E.5.6		Berthing area reserved for pushing-navigation vessels that are required to carry two blue lights or two blue cones
E.5.7		Berthing area reserved for pushing-navigation vessels that are required to carry three blue lights or three blue cones
E.5.8		Berthing area reserved for vessels other than pushing-navigation vessels that are not required to carry the marking
E.5.9		Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry one blue light or one blue cone
E.5.10		Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry two blue lights or two blue cones
E.5.11		Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry three blue lights or three blue cones
E.5.12		Berthing area reserved for all vessels that are not required to carry the marking
E.5.13		Berthing area reserved for all vessels that are required to carry one blue light or one blue cone
E.5.14		Berthing area reserved for all vessels that are required to carry two blue lights or two blue cones
E.5.15		Berthing area reserved for all vessels that are required to carry three blue lights or three blue cones
E.6		Anchoring or trailing of anchors, cables or chains permitted
E.7		Making fast to the bank permitted

E.7.1		Berthing area reserved for loading and unloading vehicles. (Maximum duration of berthing permitted may be added on an information plate below the board)
E.8		Turning area
E.9a		The waterways being approached are considered to be tributaries of the waterway
E.9b		The waterways being approached are considered to be tributaries of the waterway
E.10a		This waterway is considered to be a tributary of the waterway being approached
E.10b		This waterways is considered to be a tributary of the waterway being approached
E.11a		End of a prohibition or obligation applying to traffic in one direction only, or end of a restriction
E.11b		End of a prohibition or obligation applying to traffic in one direction only, or end of restriction
E.13		Drinking-water supply
E.14		Telephone
E.15		Motorized vessels permitted
E.16		Sports or pleasure craft permitted
E.17		Water skiing permitted
E.18		Sailing vessels permitted
E.19		Craft other than motorized vessels or sailing craft permitted
E.20		Use of sailboards permitted
E.21		Zone authorized for high speed navigation of small sport and pleasure craft
E.22		Launching or beaching of vessels permitted
E.23		Possibility of obtaining nautical information by radio-telephone on the channel indicated

E.24		Water bikes permitted
E.25		Available power supply
E.26		Winter harbour
E.26.1		Maximum number of vessels allowed in the winter harbour
E.27		Winter shelter
E.27.1		Maximum number of vessels allowed in the winter shelter - Maximum number of vessels permitted to berth abreast - Maximum number of rows of vessels permitted to berth abreast
		Kilometer mark

Plan for Waterway Marking and Maintenance on the Sava River and its Navigable Tributaries for 2024

1.A		Red buoy with light
1.B		Red buoy without light
1.C		Red float with a topmark
1.D		Red spar
1.F		Buoyage and marking of danger points and obstacles: right-hand side - spar-bouy
1.F1		Buoyage and marking of danger points and obstacles: right-hand side - spar
2.A		Green buoy with light
2.B		Green buoy without light
2.C		Green float
2.D		Green spar
2.F		Buoyage and marking of danger points and obstacles: left-hand side - spar-buoy
2.F1		Buoyage and marking of danger points and obstacles: left-hand side - spar
3.A		Bifurcation buoy with light
3.B		Bifurcation buoy without light
3.C		Bifurcation float with a topmark
3.D		Bifurcation spar
3.E		Bifurcation of the fairway with mark that indicates on which side it is preferable to pass
3.F		Bifurcation of the fairway with mark that indicates on which side it is preferable to pass
3.F1		Bifurcation of the fairway with mark that indicates on which side it is preferable to pass

Signs for fairway marking:
(in accordance with Navigation rules on the Sava River):
1-3: Floating signs for fairway marking;
4-6: Marks on land indicating the position of the fairway in relation to the banks;
8: Additional marking for navigation by radar

3.E1		Bifurcation of the fairway with mark that indicates on which side it is preferable to pass
4.A		Fairway near the right bank - with light
4.B		Fairway near the right bank - without light
4.C		Marking cross-overs - Right bank: with light
4.D		Marking cross-overs - Right bank: without light
4.F		Unlighted bank mark on the right bank marking danger points and obstacles
5.A		Fairway near the left bank - with light
5.B		Fairway near the left bank - without light
5.C		Marking cross-overs - Left bank: with light
5.D		Marking cross-overs - Left bank: without light
5.F		Unlighted bank mark on the left bank marking danger points and obstacles
6.A		Buoyage and marking of danger points and obstacles: bifurcation with light
6.B		Buoyage and marking of danger points and obstacles: bifurcation without light
8.C		Additional marking for navigation by radar: Marking of bridge piers (if necessary)
8.C1		Additional marking for navigation by radar: Yellow floats with radar reflector (placed upstream and downstream from piers)
8.C2		Pole with radar reflector placed upstream and downstream from bridge piers

2.2. SAVA RIVER

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	594.0			583.3	
	593.0			583.0	
	592.0			582.0	
	591.1			581.6	
	591.0			581.4	
	590.0			581.1	
	589.0			581.0	
	588.0			580.7	
	587.8			580.0	
	587.0			579.0	
	586.5			579.0	
	586.0			578.2	
	585.0			578.2	
	585.0			578.0	
	584.5			577.0	
	584.1			576.2	
	584.0			576.0	
	583.5			576.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	575.1			566.0	
	575.0			565.1	
	575.0			565.0	
	574.8			565.0	
	574.5			564.5	
	574.0			564.0	
	573.5			563.7	
	573.0			563.0	
	572.0			562.9	
	571.0			562.6	
	570.0			562.0	
	570.0			562.0	
	569.0			561.0	
	568.0			560.0	
	567.3			559.0	
	567.3			559.0	
	567.0			558.0	
	566.0			557.1	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	557.0			546.0	
	556.0			545.0	
	555.4			544.0	
	555.0			543.0	 
	554.8			542.1	
	554.2			542.0	
 	554.0			541.5	
	553.0	  		541.0	
	553.0			540.0	
	552.5			539.0	  
	552.0			539.0	
	551.0			538.0	
	550.5			537.9	
	550.0			537.0	
	549.0		 	536.0	
	548.0			535.2	
	547.0	 		535.0	
	546.0	  		534.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	533.0			520.0	
	532.6			519.0	
	532.1			518.5	  
	532.0	 		518.5	
	531.0	  		518.0	
	531.0			517.4	 
	530.0			517.0	
	529.0			516.3	
	528.8			516.2	
	528.0			516.0	
	527.0	 		515.9	
	526.0			515.8	
	525.5		 	515.6	 
	525.0			515.0	
	524.0			514.0	  
	523.0			514.0	  
	522.0			514.0	
	521.0			513.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	512.0			497.0	
	511.0	 		496.0	
	510.5			495.0	
	510.0			494.0	
	509.0			493.5	
	508.0			493.0	
	507.0			492.0	
	506.0			491.5	
	505.0			491.0	
	504.0			 490.0	
	503.0			 489.0	
	502.8			 488.0	
	502.0		  	487.0	
	501.0			487.0	
	500.9			486.7	
	500.0			486.0	
	499.0			485.0	  
	498.0			485.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	484.0			467.0	
	483.0			466.2	
	482.0			466.0	
	481.0			465.0	
	480.0			464.5	
	479.0			464.4	
	478.0			464.2	
	477.0			464.0	
	476.0			463.0	
	475.0			462.0	
	474.0			462.0	
	473.0			461.0	
	472.0			460.0	
	471.0			460.0	
	470.0			459.0	
	469.0			458.0	
	468.0			457.0	
	467.9			456.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	455.5			447.0	
	455.0			446.0	
	454.1			445.0	
	454.0			444.0	
	453.1			443.0	
	453.0			442.3	
	452.8			442.0	
	452.0			441.0	
	451.4			440.0	
	451.0			439.0	
	450.0			438.0	
	449.3			437.9	
	449.0	 		437.0	
	448.8			436.0	
	448.6			435.0	
	448.2			434.2	
	448.1			434.0	
	448.0			433.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	432.0			421.0	
	431.0			420.5	  
	430.5			420.5	
	430.3			420.2	
	430.0			420.0	
	429.1			419.7	
	429.0			419.0	
	428.5			418.0	  
	428.0	 		418.0	
	427.0			417.0	
	426.9			416.4	
	426.8			416.0	
	426.0	 		415.0	
	425.1			414.0	
	425.0			413.0	
	424.0			412.4	
	423.0	 		412.0	 
	422.0	 		411.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	410.0			395.0	
	409.0			394.8	
	408.0			394.0	
	407.0			393.0	
	406.0			392.0	
	405.0			391.0	
	404.0			390.0	
	403.0			389.9	
	402.0	 		389.3	
	401.1			389.1	
	401.0			389.0	
	400.5			388.7	
	400.0	 		388.6	
	399.0			388.3	
	398.0			388.0	
	397.4			387.0	
	397.0			386.0	
	396.0			385.3	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	385.0			376.4	
	384.1			376.0	
	384.0		  	375.0	 
	383.2		  	375.0	
	383.1			375.0	
	383.0			374.9	
 	382.0			374.8	
	381.0			374.5	
	380.8			374.2	
	380.0		  	374.1	
	379.4			374.1	
	379.0			374.0	
	378.6		  	373.8	
	378.1			373.8	
	378.0			373.6	
	377.0			373.0	
	376.7			372.0	
 	376.5			371.5	 

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	371.0			362.2	
	370.1			362.0	
	370.0			361.2	
	369.0			361.0	
	368.0			360.0	
	367.3			359.0	
	367.0			358.1	
	366.9			358.0	
	366.8			357.0	
	366.6			356.0	
	366.3			355.0	
	366.0			354.0	
	365.0			353.0	
	364.0			352.0	
	363.6			351.0	
	363.2			350.0	
	363.0			349.0	
	362.8			348.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	347.0			335.0	
	346.0			334.0	
	345.0			334.0	
	345.0			333.0	
	344.0			332.0	
	343.5			331.5	
	343.0			331.0	
	342.8			330.3	
	342.2			330.0	
	342.0			329.1	
	341.0			329.0	
	340.0			328.6	
	339.0			328.3	
	338.0			328.0	
	337.2			327.9	
	337.0			327.7	
	336.7			327.0	
	336.0			326.9	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	326.0			317.0	
	325.8			316.8	
	325.5			316.6	
	325.0			316.5	
	324.9			316.1	
	324.0	 		316.0	
	323.0	 		315.0	 
	322.1			314.0	
	322.0			313.0	
	321.7			312.9	
	321.3			312.8	
	321.0			312.5	
	320.8			312.1	
	320.5			312.0	
	320.0	 		311.8	  
	319.0	 		311.3	
	318.0			311.0	
	317.1			310.9	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	310.8		  	302.0	
	310.0			302.0	
	309.3			301.0	
	309.0	 		300.5	
	308.5			300.0	 
	308.0			299.8	
	307.5			299.5	 
	307.4			299.0	 
	307.0	 		298.0	
	306.6			297.0	
	306.4			296.6	
	306.0			296.0	 
	305.0	 		295.0	 
	304.7			294.6	
	304.0	 	 	294.0	
	303.5			293.7	
	303.2			293.0	
	303.0			292.3	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	292.0			278.0	
	291.2			277.1	 
	291.0			277.0	
	290.0			276.8	
	289.0			276.5	
	288.5			276.4	
	288.0			276.0	 
	287.0	  		275.8	
	286.0			275.4	
	285.0			275.2	
	284.0			275.0	 
	283.0	 		274.0	 
	282.0			273.0	
	281.0			272.5	
	280.0			272.0	 
	279.9			271.6	 
	279.6	 		271.0	
	279.0	 		270.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	269.0			257.5	
	268.7			257.0	
	268.0			256.7	
	267.0			256.4	
	266.0			256.0	
	265.7			255.0	
	265.0			254.9	
	264.0			254.0	
	263.0			253.0	
	262.9			252.0	
	262.7			251.0	
	262.5			250.0	
	262.0	 		249.9	
	261.6	 		249.0	
	261.0			248.0	
	260.0			247.0	
	259.0			246.0	
	258.0		 	245.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	244.0			229.0	
	243.7			228.6	
	243.0			228.4	
	242.0			228.2	
	241.0			228.1	
	240.0			228.0	
	239.0			227.5	
	238.0			227.3	
	237.0			227.0	
	236.0			226.9	
	235.0			226.4	
	234.5			226.0	
	234.0			225.0	
	233.0			224.9	
	232.0			224.0	
	231.0			223.2	
	230.4			223.0	
	230.0			222.2	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	222.0			211.0	
	221.4			210.7	
	221.0			210.0	
	220.8			209.0	
	220.0			208.5	
	219.7			208.0	
	219.0		 	207.0	
	218.0		  	206.0	
	217.0			206.0	
	216.7			205.0	
	216.0			204.0	  
	215.5			204.0	
	215.0			203.0	
	214.0			202.0	
	213.8			201.8	
	213.0			201.0	
	212.0			200.2	
	211.5			200.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	199.0			183.4	
	198.0			183.3	
	197.0			183.1	
	196.0			183.0	
	195.0			182.0	
	194.0			181.0	
	193.0			180.0	
	192.0			179.7	
	191.0			179.0	
	190.7			178.7	
	190.0			178.0	
	189.0			177.0	
	188.0			176.9	
	187.0	 		176.0	
	186.0			175.2	
	185.0			175.0	
	184.3			174.8	
	184.0			174.0	

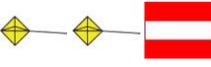
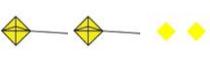
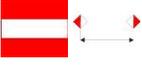
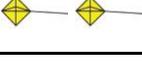
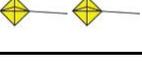
RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	173.4			160.0	
	173.0			159.0	
	172.4			158.0	
	172.0			157.0	
	171.5			156.0	
	171.0			155.6	
	170.0			155.0	
	169.0		154.0		
	168.0		153.0		
	167.0		152.0		
	166.0			151.0	
	165.4			150.0	
	165.0		149.0		
	164.0		148.0		
	163.0		147.0		
	162.0		146.0		
	161.4		145.0		
	161.0		144.0		

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	143.0			135.7	
	142.0			135.0	
	141.0			134.8	
	140.0			134.4	
	139.9			134.0	
	139.3			133.0	
	139.0			132.0	
	138.9			131.0	
	138.9			130.0	
	138.8			129.0	
	138.5			128.0	
	138.4			127.0	
	138.1			126.0	
	138.0			125.0	
	137.0			124.0	
	136.6			123.0	
	136.0			122.0	
	135.9			121.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	120.0			109.0	
	119.0			108.4	
	118.0			108.0	
	117.0			107.5	
	116.0		 	107.0	
	115.0			107.0	
	114.0			106.2	
	113.0			106.0	
	112.5			105.0	
	112.0		 	104.5	
	111.1			104.0	
	111.0			103.0	
	110.7			102.4	
	110.6			102.0	
	110.3			101.0	
	110.2			100.9	
	110.0			100.0	
	109.3			99.7	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	99.0			91.0	
	98.9			90.1	
	98.5			90.0	
	98.4			89.0	
	98.0			89.0	
	98.0			88.6	
	97.8			88.0	
	97.3			87.8	
	97.2			87.0	
	97.0			86.1	
	96.9			86.0	
	96.0			85.0	
	95.0			84.0	
	94.0			83.0	
	93.6			82.3	
	93.0			82.0	
	92.0			81.0	
	91.3			81.0	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	80.0			67.0	
	79.0			66.0	
	78.3			65.0	
	78.0			64.0	
	77.0			63.0	
	76.0			62.0	
	75.3		 	61.0	
	75.0			60.0	
	74.2			59.0	
	74.1			58.6	
	74.0			58.0	
	73.0			57.3	
	72.8			57.0	
	72.0			56.0	
 	71.0			55.9	
	70.0			55.4	
	69.0			55.0	
	68.0			54.6	

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	54.0			40.0	
	53.0			39.0	
	52.0			38.0	
	51.0			37.0	
	50.0		36.0		
	49.0		35.3		
48.3			35.0		
48.0			34.0		
47.0			33.0		
46.0	 		32.9		
45.0			32.0		
44.0				31.0	
	43.1			30.8	
43.0				30.0	
	42.5			29.0	
	42.5		28.2		
	42.0			28.0	
	41.0			27.9	

Plan for Waterway Marking and Maintenance on the Sava River and its Navigable Tributaries for 2024

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
 	27.0			15.5	
	26.0			15.4	
 	25.0			15.4	 
 	24.3			15.4	
	24.0			15.3	
	23.0			15.1	
	22.0			15.0	 
	21.0			15.0	
	20.0			14.0	
	19.6			13.0	
	19.3			12.6	
	19.0			12.0	 
 	18.0			11.0	
	17.6			10.0	
	17.0			9.0	
	16.5			8.0	
	16.2		  	7.4	
	16.0			7.4	

Plan for Waterway Marking and Maintenance on the Sava River and its Navigable Tributaries for 2024

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	7.0			2.5	
	6.3			2.0	
	6.0			1.6	
	6.0			1.5	
	5.8			1.4	
	5.0			1.0	
	5.0			0.9	
	5.0			0.7	
	4.0			0.7	
	3.9			0.7	
	3.6			0.5	
	3.2			0.4	
	3.1			0.2	
	3.0			0.0	
	3.0				
	2.8				
	2.7				
	2.6				

2.3. KUPA RIVER

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	140.0	km		70.0	km
km	139.0		km	65.0	
	138.0	km		60.0	km
	137.0	km	km	55.0	
	136.0	km		50.0	km
km	135.0			45.0	km
	130.0	km	km	40.0	
km	125.0			35.0	km
	120.0	km	km	30.0	
	115.0	km		25.0	km
km	110.0			20.0	km
	105.0	km	km	15.0	
km	100.0		km	10.0	
	95.0	km	km	9.0	
	90.0	km	km	8.0	
km	85.0			7.0	km
	80.0	km		6.0	km
	75.0	km		5.0	km

RIGHT BANK	Distance rkm	LEFT BANK	RIGHT BANK	Distance rkm	LEFT BANK
	4.5				
	4.0				
	3.5				
	3.0				
	2.0				
	1.9				
	1.8				
	1.5				
	1.1				
	1.0				

2.4. SUMMARY OF USED MARKING SIGNS BY TYPE

SAVA RIVER	rkm 594,0 – rkm 0,0	Croatia	B&H	Serbia	All
Type of signs	Description				Sum
Main signs for waterway marking	Prohibitory, mandatory, restrictive, recommendatory, informative signs	124	55	145	324
Buoyage of the waterway	Buoys with light, Buoy without light, Floats and spars	78	65	43	186
Marks on land indicating the position of the fairway in relation to the banks	On the water, banks, with lights and without lights	37	34	23	94
Signs for marking danger points and obstacles	Unlighted bank mark	0	4	18	22
Additional marking for navigation by radar	Radar reflectors on the bridge piers	0	10	12	22
Signs on the water for marking broad waterways and lakes		0	0	0	0
Extraordinary signs	Kilometer mark	252	149	196	597
	Σ	491	317	437	1245
KUPA RIVER	rkm 5,0 – rkm 0,0				
Type of signs	Description				Sum
Main signs for waterway marking	Prohibitory, mandatory, restrictive, recommendatory, informative signs	6			6
Buoyage of the waterway	Buoys with light, Buoy without light, Floats and spars	4			4
Marks on land indicating the position of the fairway in relation to the banks	On the water, banks, with lights and without lights	0			0
Signs for marking danger points and obstacles	Unlighted bank mark	0			0
Additional marking for navigation by radar	Radar reflectors on the bridge piers				
Signs on the water for marking broad waterways and lakes					
Extraordinary signs	Kilometer mark	40			40
	Σ	50			50
Σ (Sava and Kupa)		541	317	435	1295

2.5. EXPLANATORY NOTES

Note from Croatia

Marking plan on the Sava River from rkm 594.0 to rkm 343.0 for the year 2024 was prepared on the grounds of the actual state of the waterways and navigation safety objects on the Sava River, as well as the perceived morphological changes of the riverbed.

While preparing the Marking Plan, all valid regulations and rulebooks related to navigation on inland waterways of the Republic of Croatia, Bosnia and Herzegovina and the Republic of Serbia, as well as the decisions of the Sava Commission, were taken into account.

All changes to the Marking Plan that are to be performed during the year, as well as the information on the waterway state, will be timely addressed through the official state institutions to the authorized bodies for navigation safety – Port Masters Offices – which will further inform all other navigation actors by the Notices to Skippers (NtS) about the changes that have arisen.

All changes in the Marking Plan will be presented in the appropriate application on the Sava Commission website in a timely manner.

In the overview of the Marking Plan for the Sava River waterway from rkm 594 to rkm 343 (in the ISRBC web application for waterway marking), it is not possible to archive the following marks that have been removed: rkm 425+100 on the right bank – 4.A (Channel near the right bank with light), rkm 376+500 on the left and right bank – A6. (No anchoring or trailing of anchors, cables or chains) and rkm 376+ 400 on the left and right bank A6. (No anchoring or trailing of anchors, cables or chains). In the summary overview, the mentioned signs have not been counted.

Note from Bosnia and Herzegovina (Port Master Office of Brčko District)

Port Master Office of Brčko District provided the information that there were no changes in the waterway marking plan related to the section within the jurisdiction of the Republic of Srpska.

Note from Serbia

The marking Plan and Program of maintenance of the marking system on the Sava River from rkm 210,8 to rkm 0,0 (through the Republic of Serbia) for the year 2024 were prepared on the grounds of the actual state of the waterways and navigation safety objects on the Sava River, as well as the perceived morphological changes of the riverbed.

All valid regulations and rulebooks related to navigation on inland waterways of the Republic of Serbia, as well as the decisions of the Sava Commission, were taken into account for the preparation of the Marking Plan.

All changes to the Marking Plan that are to be performed during the year, as well as the information on the state of the waterways, will be timely addressed through the official state institutions to the authorized bodies for navigation safety – Port Masters Offices – which will further inform all other navigation actors by the Notices to Skippers (NtS) about the arisen changes.

All changes in the Marking Plan will be presented in the appropriate application on the Sava Commission website in a timely manner.

3. REGULATION MEASURES PLAN FOR THE MAINTENANCE OF REQUIRED DIMENSIONS OF THE SAVA RIVER FAIRWAY

3.1. MAINTENANCE OF DEFINED PARAMETERS OF THE FAIRWAY

3.1.1. Dredging works planned in Croatia

Name of the sector	Section	Dredging quantities (m ³)	Bank side	Comment
Bobovac	559,9 - 560,7	5.000	LB/RB	Dredged material is to be disposed of along the LB/RB
Lonja - Strmen	552,0 - 556,0	40.000	LB/RB	Dredged material is to be disposed of along the LB
Drenov Bok - Višnjica	523,0 - 525,0	15.000	LB/RB	Dredged material is to be disposed of along the LB/RB
Dolina	445,5 - 449,5	40.000	LB/RB	Dredged material to be disposed of along the LB on the Croatian side

3.1.2. Dredging works planned in Bosnia and Herzegovina

No information on dredging works on the BiH side has been provided.

3.1.3. Dredging works planned in Serbia

Following the long-term determination of MCTI and the Directorate for Inland Waterways to ensure required fairway parameters at critical sectors by intensive dredging works during the period from October 2022 to December 2022 as part of the regular fairway technical maintenance, the dredging works of the waterway on the Sava River at the sector "Barička Ada", rkm 27,5 were performed. Due to the sudden rise in the water level, the works were temporarily interrupted on December 15, 2022. (impossibility of carrying out works due to the impeded performance of the dredger) which will be continued following favourable hydrological conditions.

Commercial dredging will be regularly performed on the Sava River following new relevant procedures ("Rulebook on the establishment of the river sediment extraction plan" - "Official gazette RS", No. 107 - 12. Nov 2021). Those procedures include conditions prescribed, among others, by MCTI-Directorate for inland waterways and are created considering morphological changes in the river bed and fairway position and its required class. Therefore, additional dredging quantities with a dual purpose (for works of public importance and fairway maintenance) will be performed in 2024.

3.2. MAINTENANCE OF EXISTING AND CONSTRUCTION OF NEW RIVER ENGINEERING STRUCTURES

3.2.1. Construction works planned in Croatia

The Ministry of the Sea, Transport and Infrastructure does not plan works on construction and maintenance of navigation security facilities in 2024. However, particular works on the bank regulation - restoration and construction of the embankment – have been planned by Croatian Waters in the framework of the program for protection against the harmful effects of water.

3.2.2. Construction works planned in Bosnia and Herzegovina

No information on the construction of new or maintenance of existing river engineering structures on the BIH side has been provided for 2024.

3.2.3. Construction works planned in Serbia

No works on the maintenance of existing or construction of new river engineering works have been planned to maintain the required dimensions of the Sava River fairway in 2024.