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Legend:

- Locality
- Upstream / Downstream Project Limits
- Rivers
- Critical Points (01-12)
- Critical Zones (1-5)
- Counties (RO) borders / Provinces (BG) borders
- River-side roads

Critical Points Coordinates (Stereo70)

Sector	Critical Point	km	X (m)	Y (m)
Romanian Administration	01 - Garia Mare	839	320584	302917
		837	321942	300999
	02 - Salcia	824	331363	294045
		820	334729	291512
	03 - Bogdan-Seclan	786	329316	273729
		782	327979	269988
Bulgarian Administration	04 - Dobrina	782	339796	258576
		756	345704	257924
	05 - Bechet	678	416888	250484
		673	421441	248782
	06 - Corabia	632	458964	251908
		628	464888	251367
	07 - Belene	577	508598	243198
		580	523916	239852
	08 - Vardim	542	540280	238910
		539	543605	238876
	09 - Iantura	537	545370	239165
		534	547951	240644
	10 - Batin	530	551151	242631
		520	580886	245351
	11 - Kosul	428	633273	288816
		423	638154	288222
	12 - Popina	408	651480	294263
		401	657969	295347

Project:
Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube

Client:
Galati Lower Danube River
Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213328, F: +40 246211744, www.afdr.ro

Partner:
Ruse Danube River Exploration
and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.apdd-bg.org/

HALCROW ROMANIA SRL **JACOBS**
companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 065 376; F: +40 311 034 189; www.jacobs.com

General Layout Plan -
Critical zones 1 - 5 -
Critical points 01 - 12

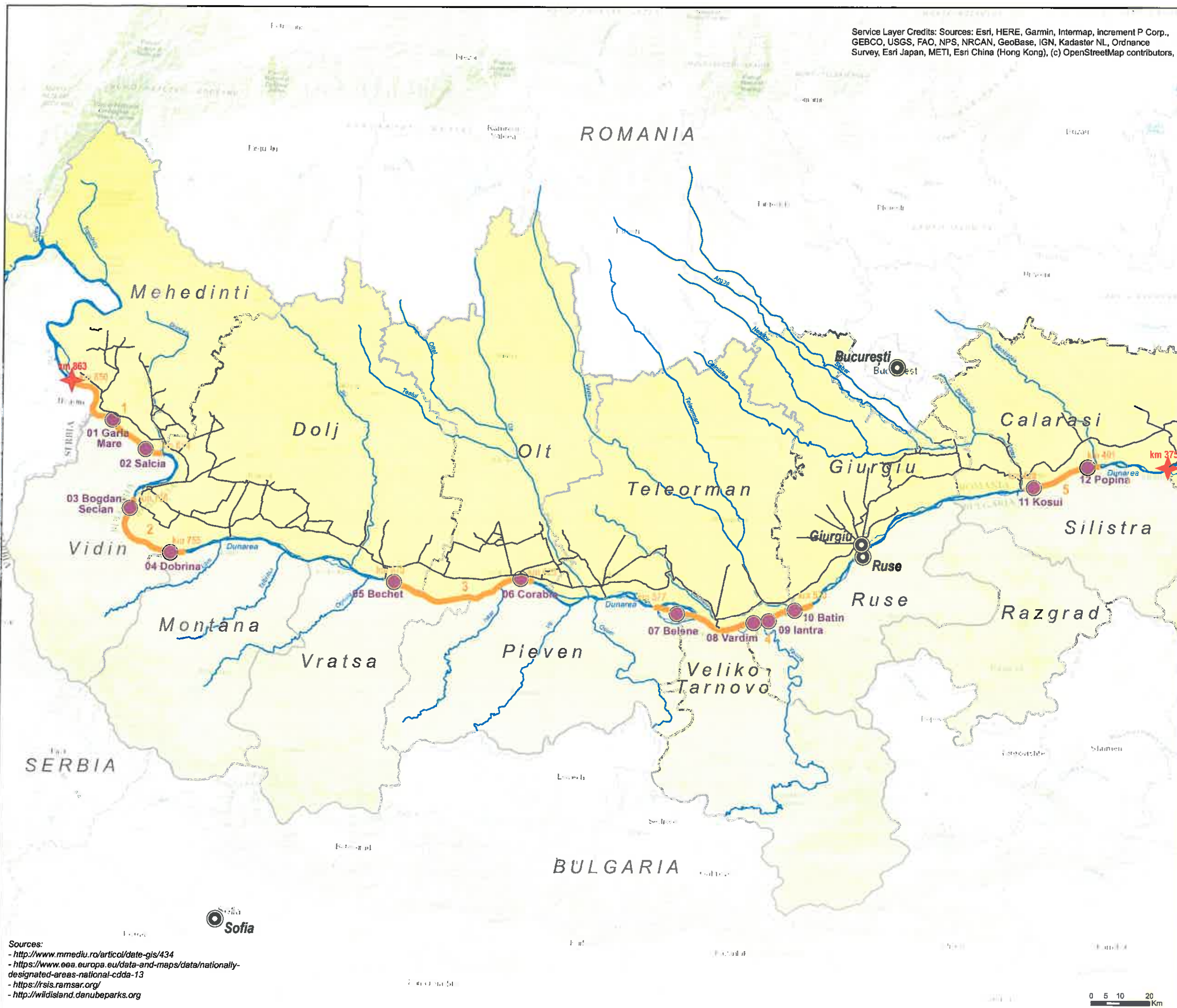
Scenario 1
Plan no.

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschiviu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 12,000 m Rev No. 4 Date: 6/20/2019



Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>

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Legend:

- ⊙ Locality
- + Benchmarks
- Critical Point Limit
- - - Current fairway
- ▨ Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- ▨ SPA
- ▨ SCI

Islands

- With natural value

Potential sturgeon habitats

	RO (DDN) Juices aug 2018	BG ("MEASURE" Project)
Wintering		S S S S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
 str. Portului, nr. 32, 800225, Galati, Romania
 T: +40 246213329, F: +40 246211744, www.sldj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
 Ruse, Slavyanska 6, p.c. 7000, Bulgaria
 T: (052) 823133, (082) 823134, F: (082) 823131
 www.rppd-bg.org

HALCROW ROMANIA SRL **JACOBS**
 companie din JACOBS Engineering Group Inc.
 str. Carol Davila, nr. 85, Cam. A, Etaj 2 050453,
 sector 5, Bucuresti, Romania
 T: +40 311 065 375, F: +40 311 034 189, www.jcr.ro

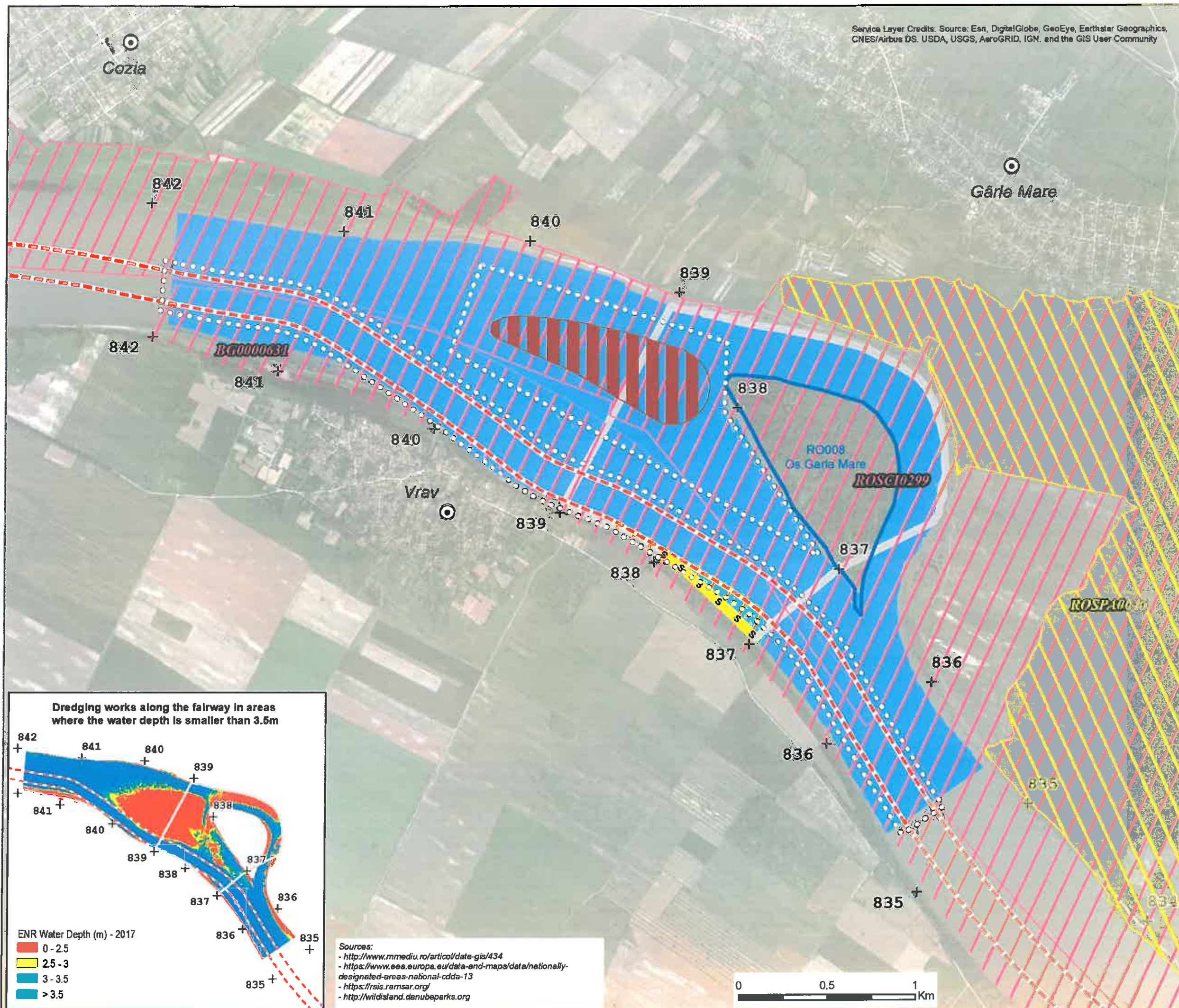
Plan:
Critical Zone 1, Critical Point 01 Gârla Mare, Scenario 1 - Dredge only

Scenario 1
 Plan no. 2

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs
 Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tanara, Jacobs

Scale: 1 cm = 200 m | RevNo. 2 | Date: 6/20/2019



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- The Danube River
- Works Area Limit
- Protected areas**
 - SCI
- Islands**
 - In natural state

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdr.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slevyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.sppd-bg.org/

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str. Carol Davila, nr. 85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 085 376; F: +40 311 034 189; www.jacobs.com

Plan:
Critical Zone 1,
Critical Point 02 Salcia,
Scenario 1 - Dredge only

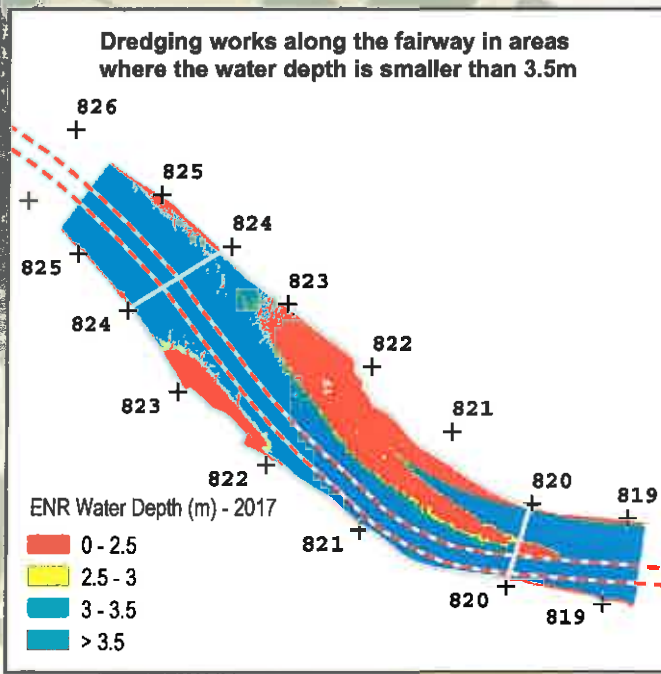
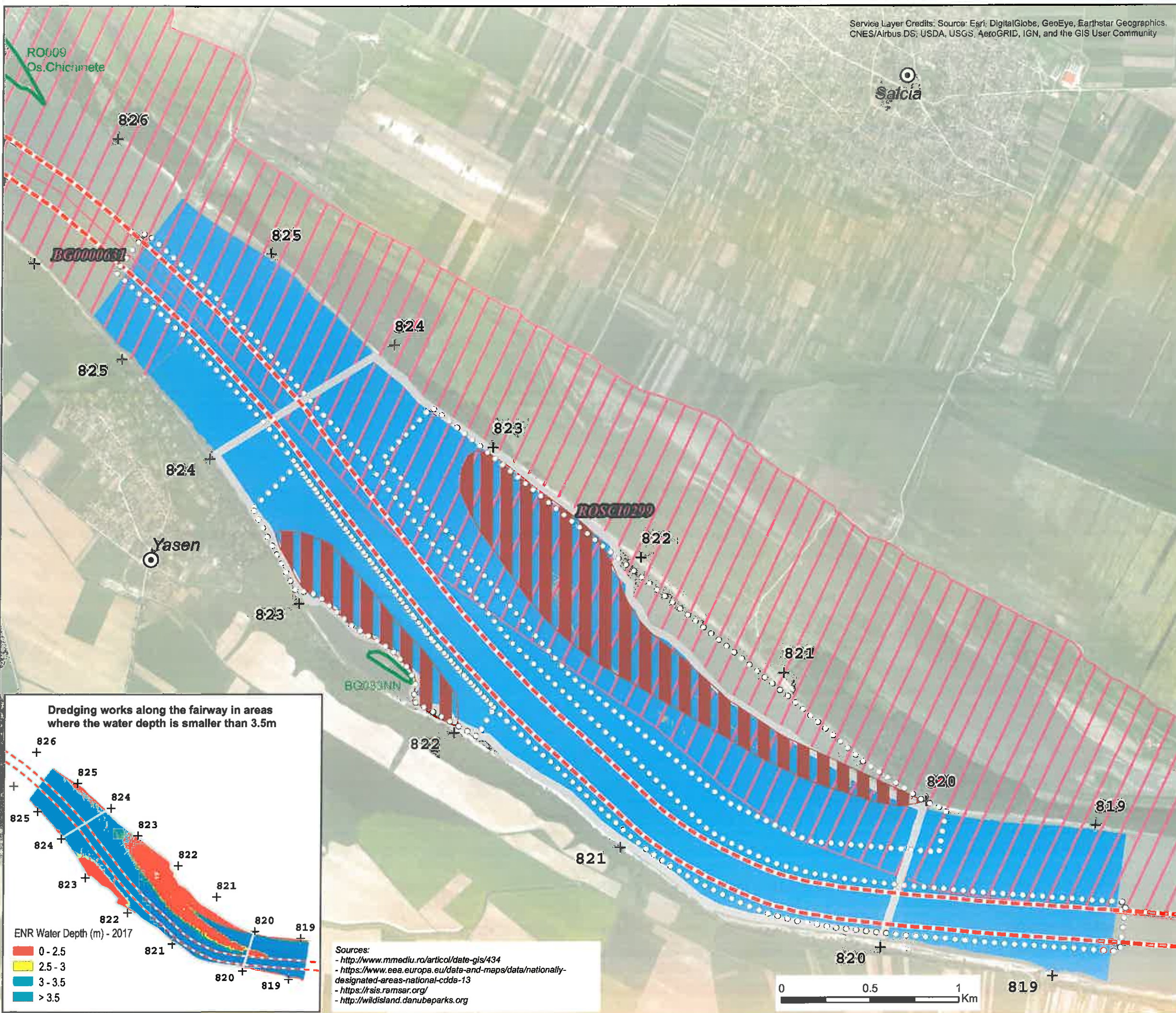
Scenario 1
Plan no. 3

Drawn by: Ionel Zlate, Alexandra Lechkin, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

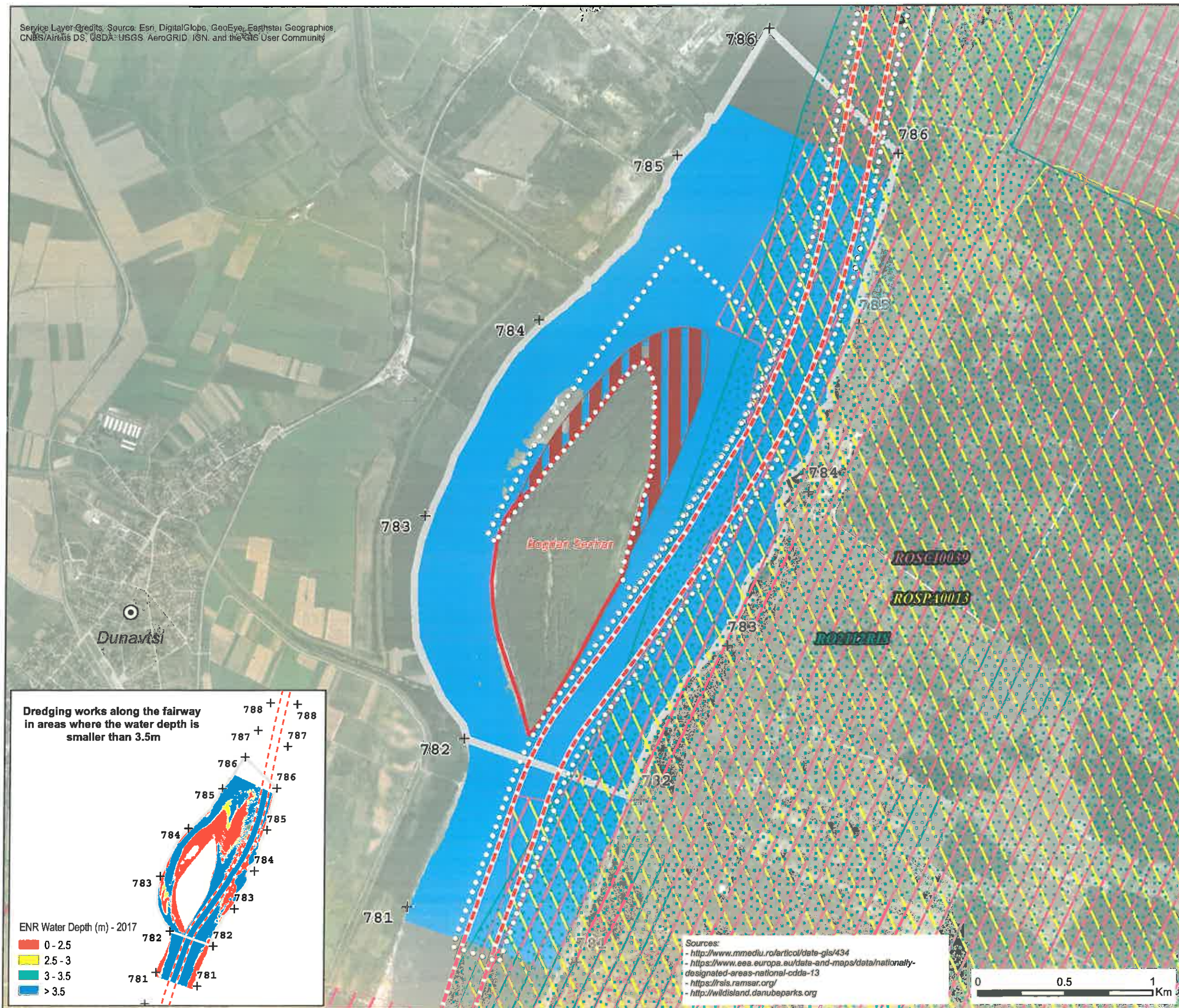
Scale: 1 cm = 200 m Rev No. 2 Date: 6/20/2019



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsls.ramsar.org/>
- <http://wildisland.danubeparks.org>

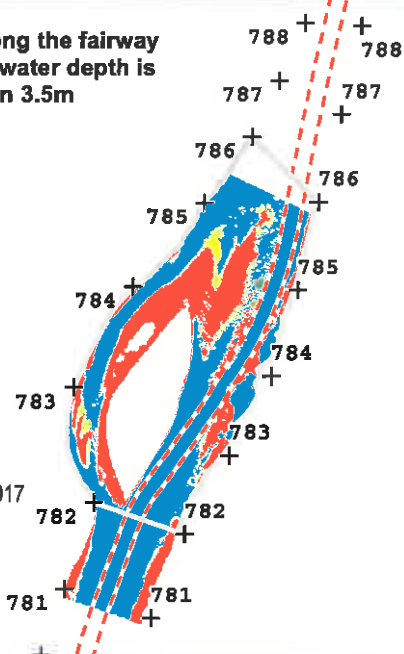
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Dredging works along the fairway in areas where the water depth is smaller than 3.5m

ENR Water Depth (m) - 2017

- 0 - 2.5
- 2.5 - 3
- 3 - 3.5
- > 3.5



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationality-designated-areas-national-cdde-13>
- <https://rsls.ramsar.org/>
- <http://wildisland.danubeparks.org>



Legend:

- ⊙ Locality
- + Benchmarks
- ▭ Critical Point Limit
- ▭ Current fairway
- ▭ Dredged material disposal area
- ▭ The Danube River
- Works Area Limit
- Protected areas**
 - ▭ SPA
 - ▭ SCI
 - ▭ RAMSAR
- Islands**
 - ▭ Disturbed by human action

Project :
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213326, F: +40 246211744, www.afd.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 623133, (082) 823134, F: (082) 823131
www.sppd-bg.org/

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 365 378; F: +40 311 034 189; www.jacobs.com

Plan:
Critical Zone 2, Critical Point 03 Bogdan-Secian, Scenario 1 - Dredge only

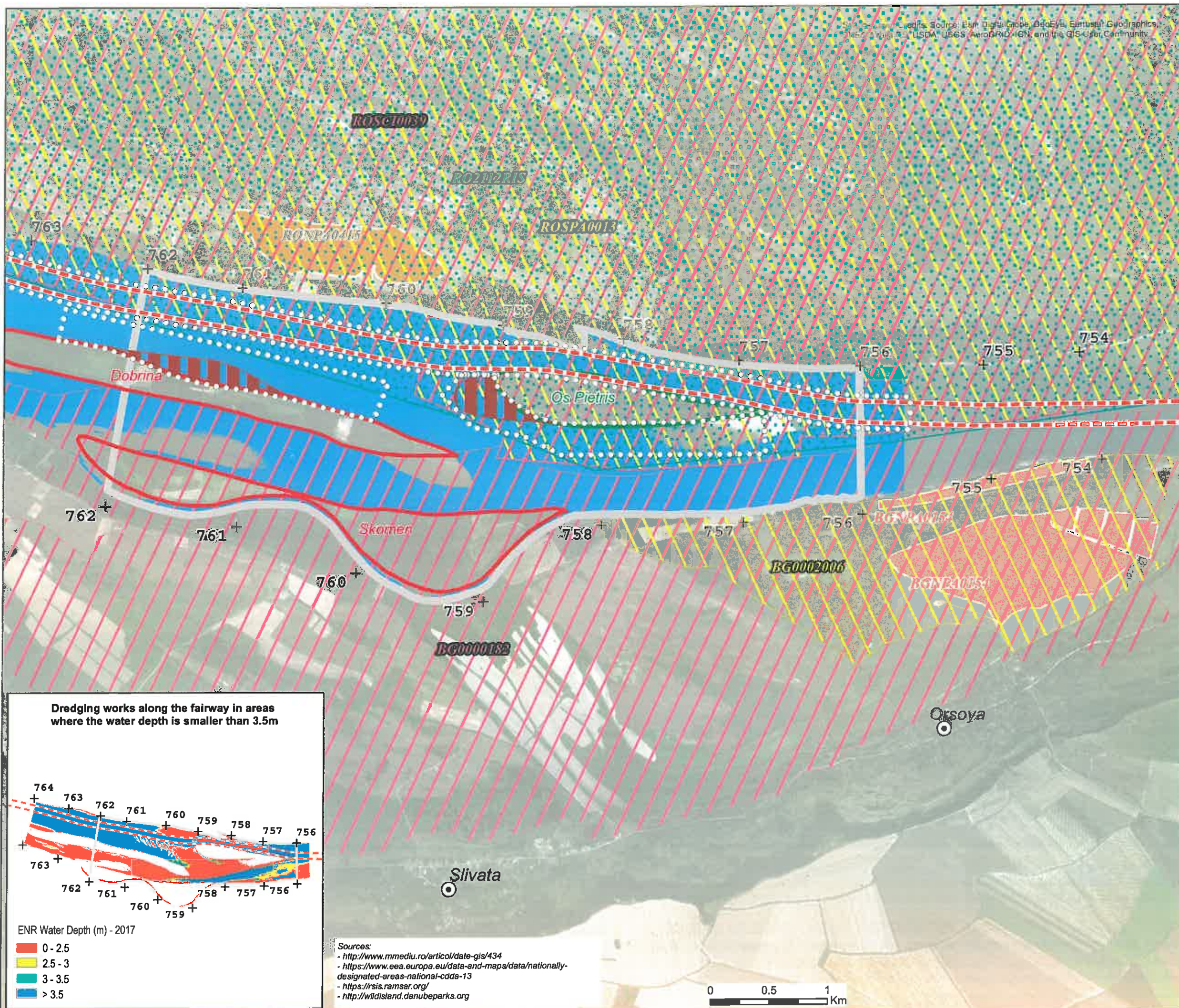
Scenario 1
Plan no. 4

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivoli, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m RevNo. 2 Date: 6/20/2019



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- RAMSAR
- Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- In natural state
- Disturbed by human action

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Rue 3, Slavyanska 8, p.c. 7000, Bulgaria
T: (002) 823133, (002) 823134, F: (002) 823131
www.app-bg.org/

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr. 85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 085 376, F: +40 311 034 189; www.jacobs.com

Plan:
Critical Zone 2,
Critical Point 04 Dobrina,
Scenario 1 - Dredge only

Scenario 1
Plan no.
5

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m RevNo. 2 Date: 6/20/2019

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Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Dredged material disposal area
- Bank protection
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit
- Protected areas**
 - SPA
 - SCI
 - RAMSAR
- Islands**
 - Disturbed by human action
- Potential sturgeon habitats**

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Spawning		
Wintering		

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 248213328, F: +40 248211744, www.afdr.ro

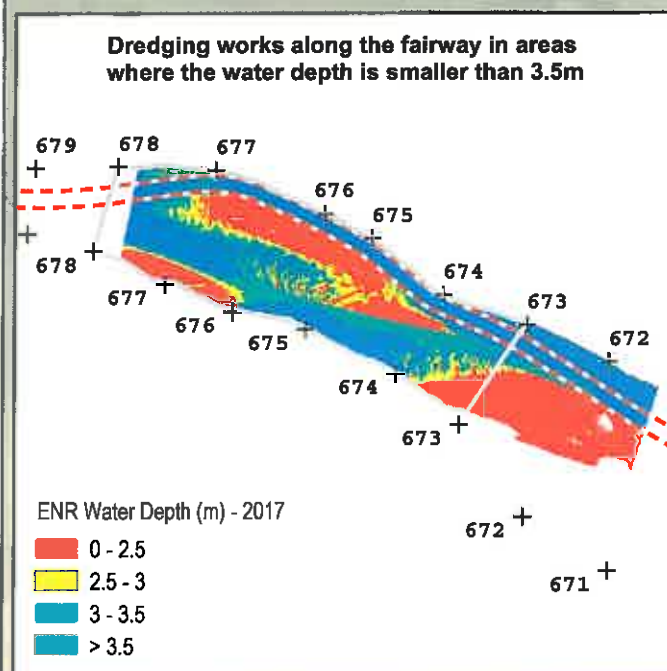
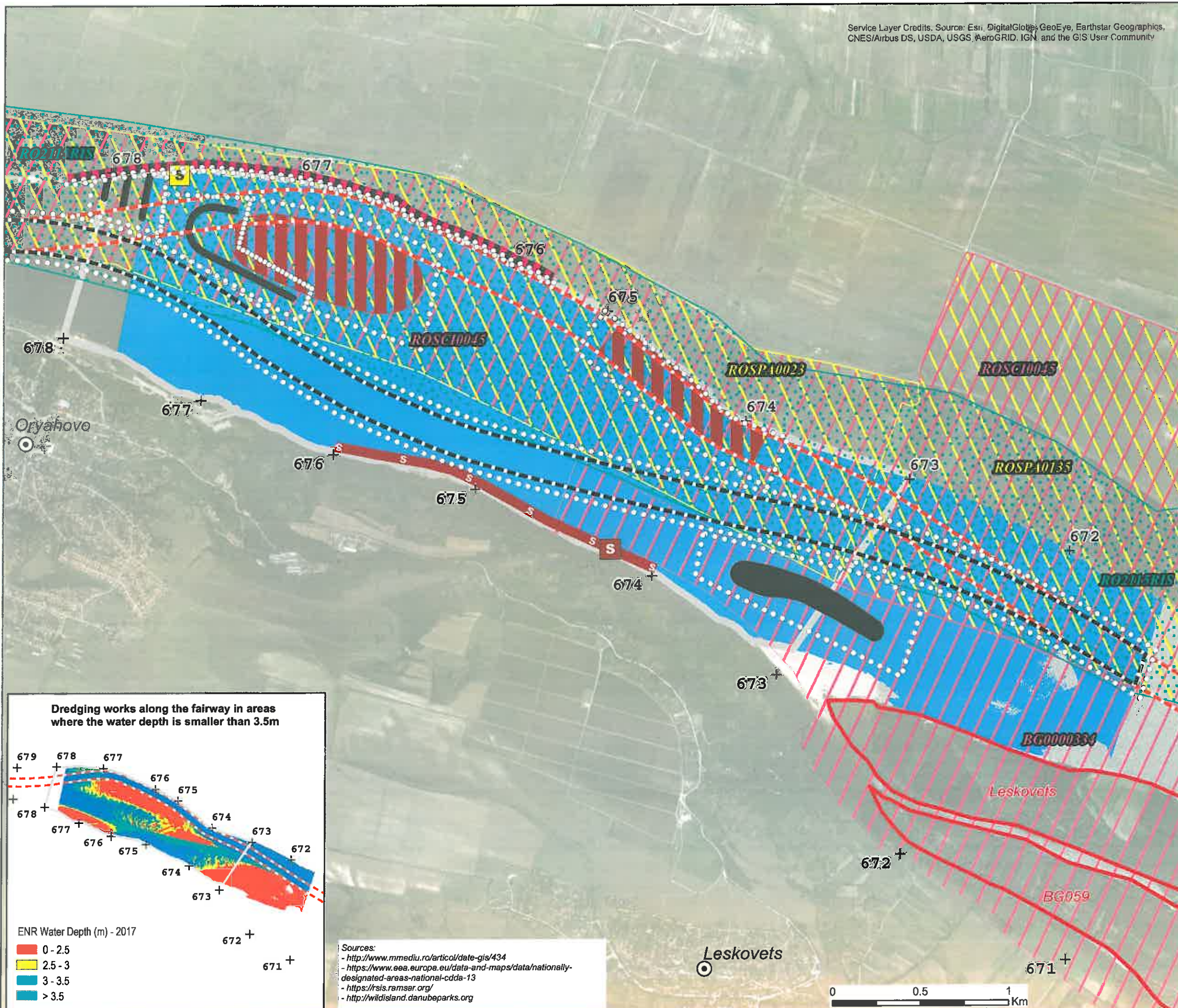
Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slevyanaka 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.sppd-bg.org/

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453, sector 5, Bucuresti, Romania
T: +40 311 085 376; F: +40 311 034 189; www.jacobs.com

Critical Zone 3, Critical Point 06 Bechet, Scenario 1- Morpho-engineering works

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs
Checked by: Daniela Paraschivoiu, Jacobs
Approved by: Dan Tarzara, Jacobs

Scale: 1 cm = 200 m RevNo. 3 Date: 6/20/2019



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
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- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Port access branch (project SWIM)
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- RAMSAR
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- In natural state
- With natural value
- Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Feeding		
Spawning		

Project:
**Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube**

Client:
**Galati Lower Danube River
Administration, A.A.**
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afd.ro

Partner:
**Ruse Danube River Exploration
and Maintenance Agency**
Ruse, Slavyenska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.ruse-danube.org

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str. Carol Davila, nr. 85, Cam. A, Etaj 2 060465,
sector 5, Bucuresti, Romania
T: +40 311 085 376; F: +40 311 034 189; www.jacobs.com

Plan:
**Critical Zone 3,
Critical Point 08 Corabia,
Scenario 1 - Dredge only**

Scenario 1
Plan no.
7

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

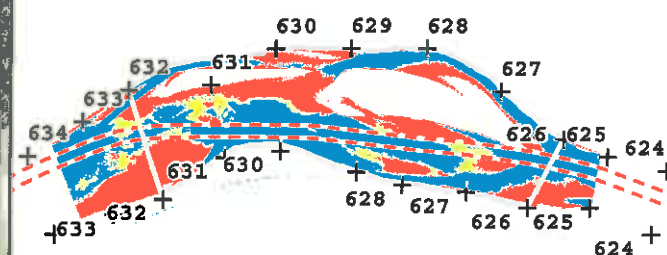
Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m | Rev No. 3 | Date: 6/20/2019

Sources:
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- <https://rsls.ramsar.org/>
- <http://wildisland.danubeparks.org>

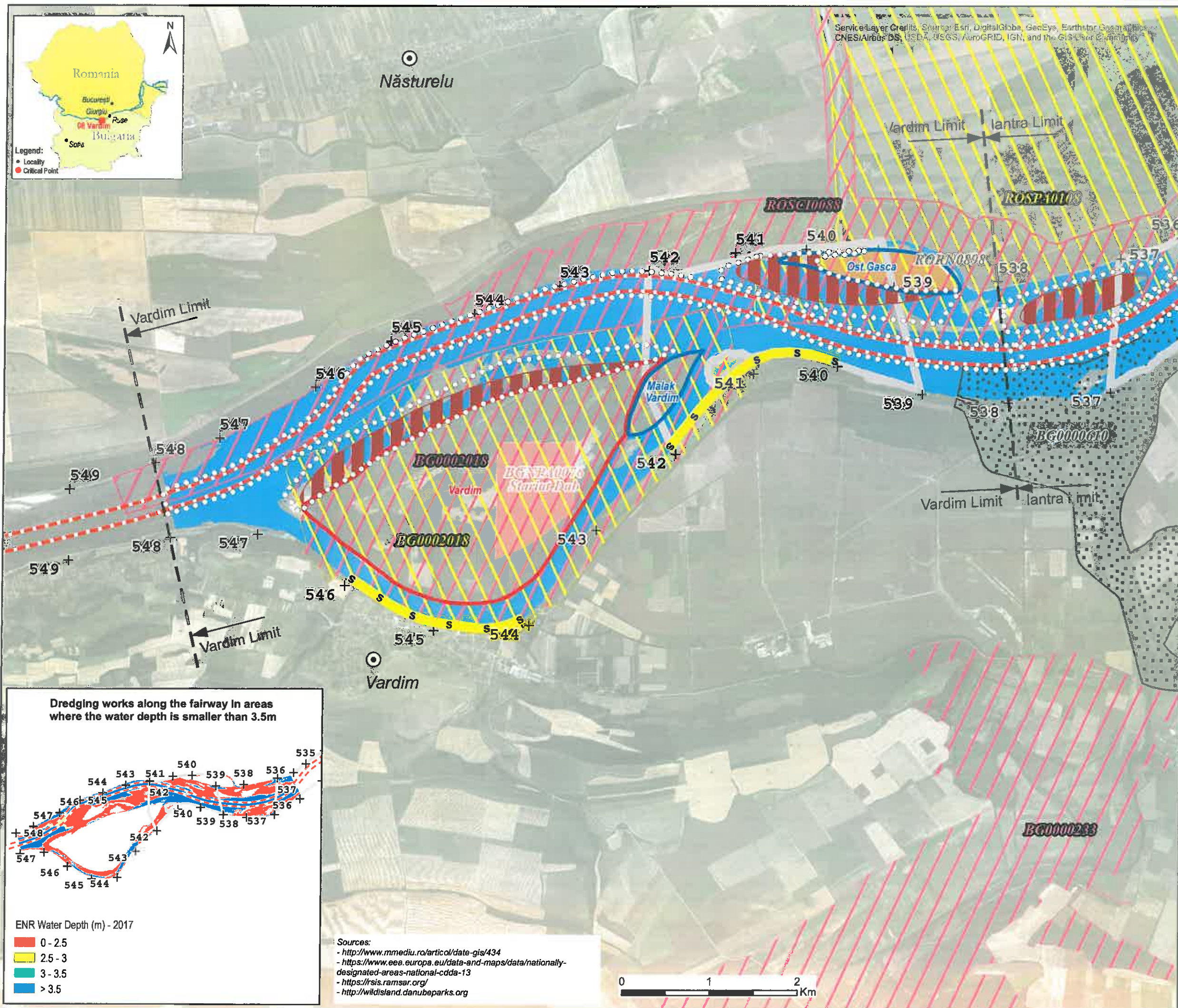
0 1 2 Km

Dredging works along the fairway in areas
where the water depth is smaller than 3.5m



ENR Water Depth (m) - 2017

- 0 - 2.5
- 2.5 - 3
- 3 - 3.5
- > 3.5 m symbol"/> > 3.5



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- SAC
- Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- With natural value
- Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Wintering		S S S S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800023, Galati, Romania
T: +40 246213329, F: +40 246211744, www.sfdj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyenska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.sppd-bg.org/

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 055 976; F: +40 311 034 189; www.jacobs.com

Plan:
Critical Zone 4, Critical Point 08 Vardim, Scenario 1 - Dredge only

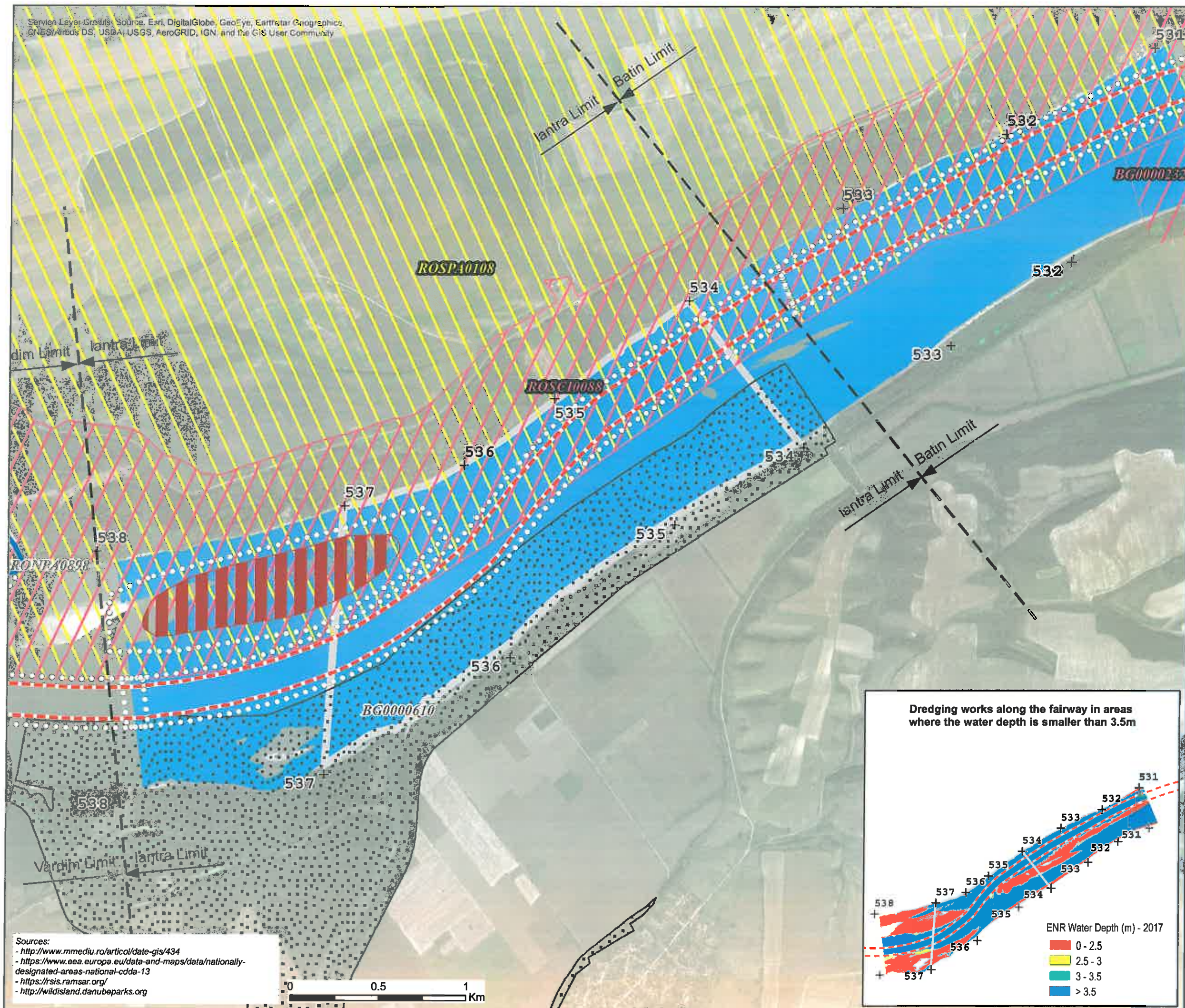
Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

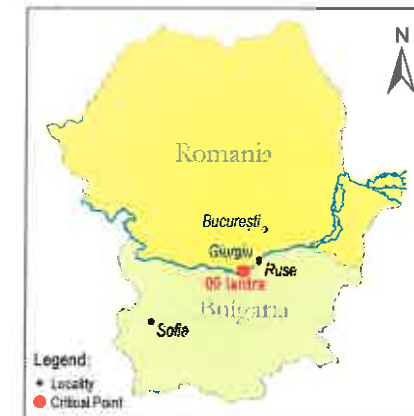
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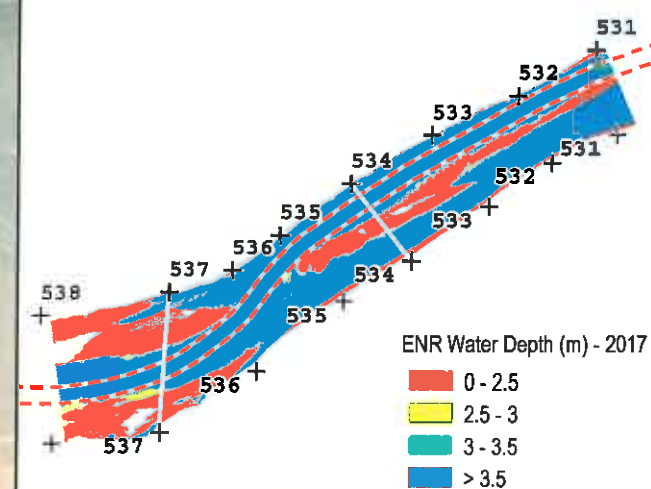
Sources:
<http://www.mmediu.ro/articol/date-gis/434>
<https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
<https://rsls.ramsar.org/>
<http://wildisland.danubeparks.org>



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- The Danube River
- Works Area Limit
- Protected areas**
 - SPA
 - SCI
 - SAC

Dredging works along the fairway in areas where the water depth is smaller than 3.5m



Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
 str. Portului, nr. 32, 600026, Galati, Romania
 T: +40 248213329, F: +40 248211744, www.fldj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
 Ruse, Slavyanska 6, p.c. 7000, Bulgaria
 T: (082) 823133, (082) 823134, F: (082) 823131
 www.rpd-bg.org/

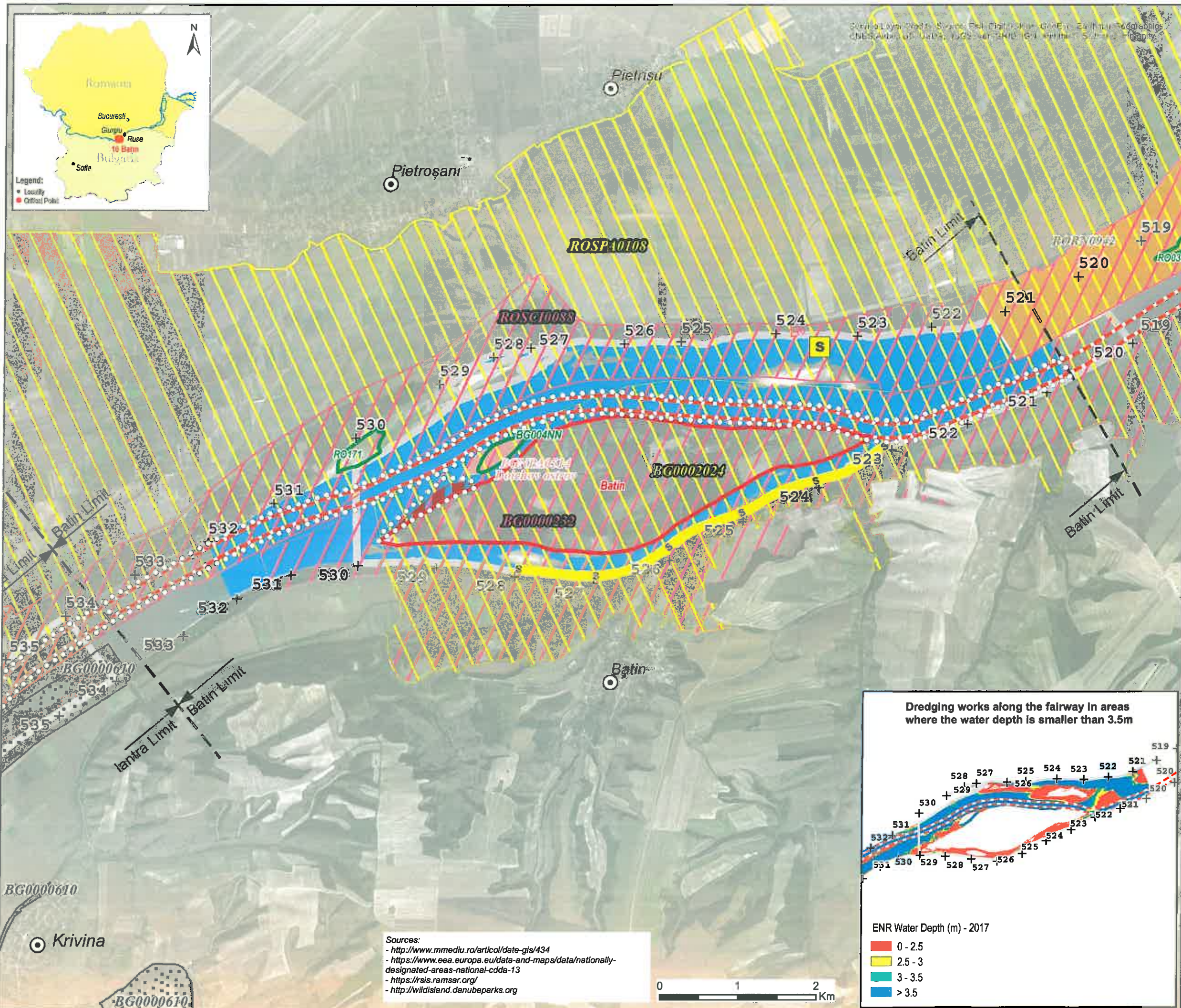
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 companie din JACOBS Engineering Group Inc.
 str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
 sector 5, Bucuresti, Romania
 T: +40 311 065 376; F: +40 311 034 189; w: v.jacobs.com

Critical Zone 4, Critical Point 09 Iantra, Scenario 1 - Dredge only

Scenario 1
 Plan no. 10

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs
 Checked by: Daniela Paraschivoliu, Jacobs
 Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m Rev No. 4 Date: 6/20/2019



- Legend:**
- Locality
 - Benchmarks
 - Critical Point Limit
 - Current fairway
 - Dredged material disposal area
 - The Danube River
 - Works Area Limit
- Protected areas**
- SPA
 - SCI
 - Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
 - Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGMPA = Other natural protected areas

- Islands**
- In natural state
 - Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Wintering	S	S S S S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.efdj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavjanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.ruse-danube.org

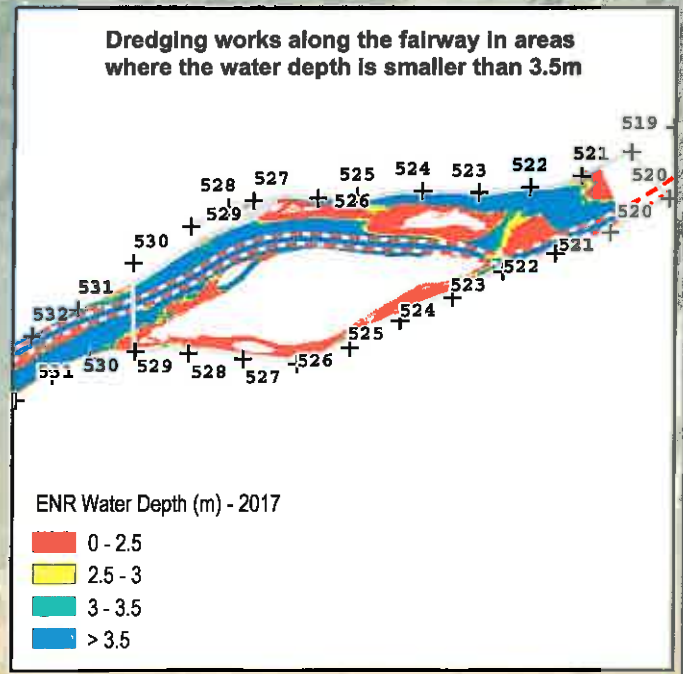
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sector 5, Bucuresti, Romania
T: +40 311 065 376; F: +40 311 034 189; www.jacobs.com

Critical Zone 4, Critical Point 10 Batin, Scenario 1 - Dredge only

Scenario 1
Plan no. 11

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs
Checked by: Daniela Paraschivoiu, Jacobs
Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 450 m Rev No. 4 Date: 6/20/2019



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
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- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- In natural state
- Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Feeding		S S S S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213328, F: +40 246211744, www.srdj.ro

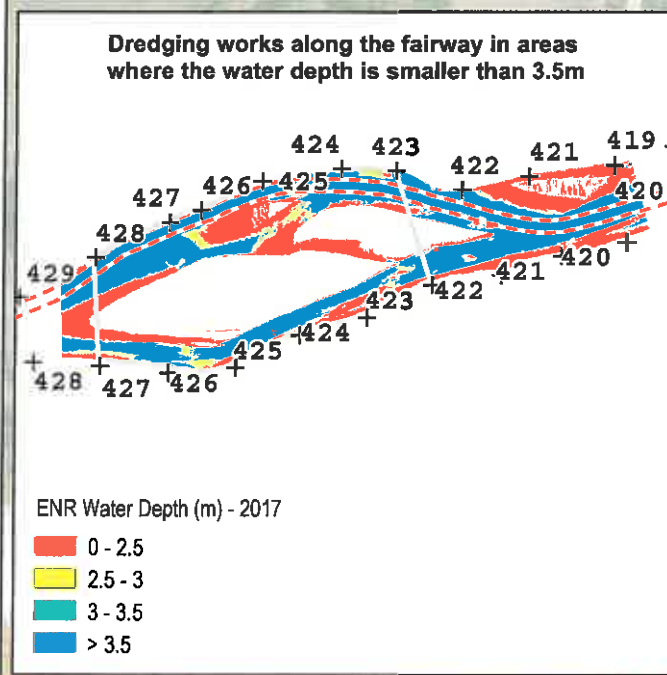
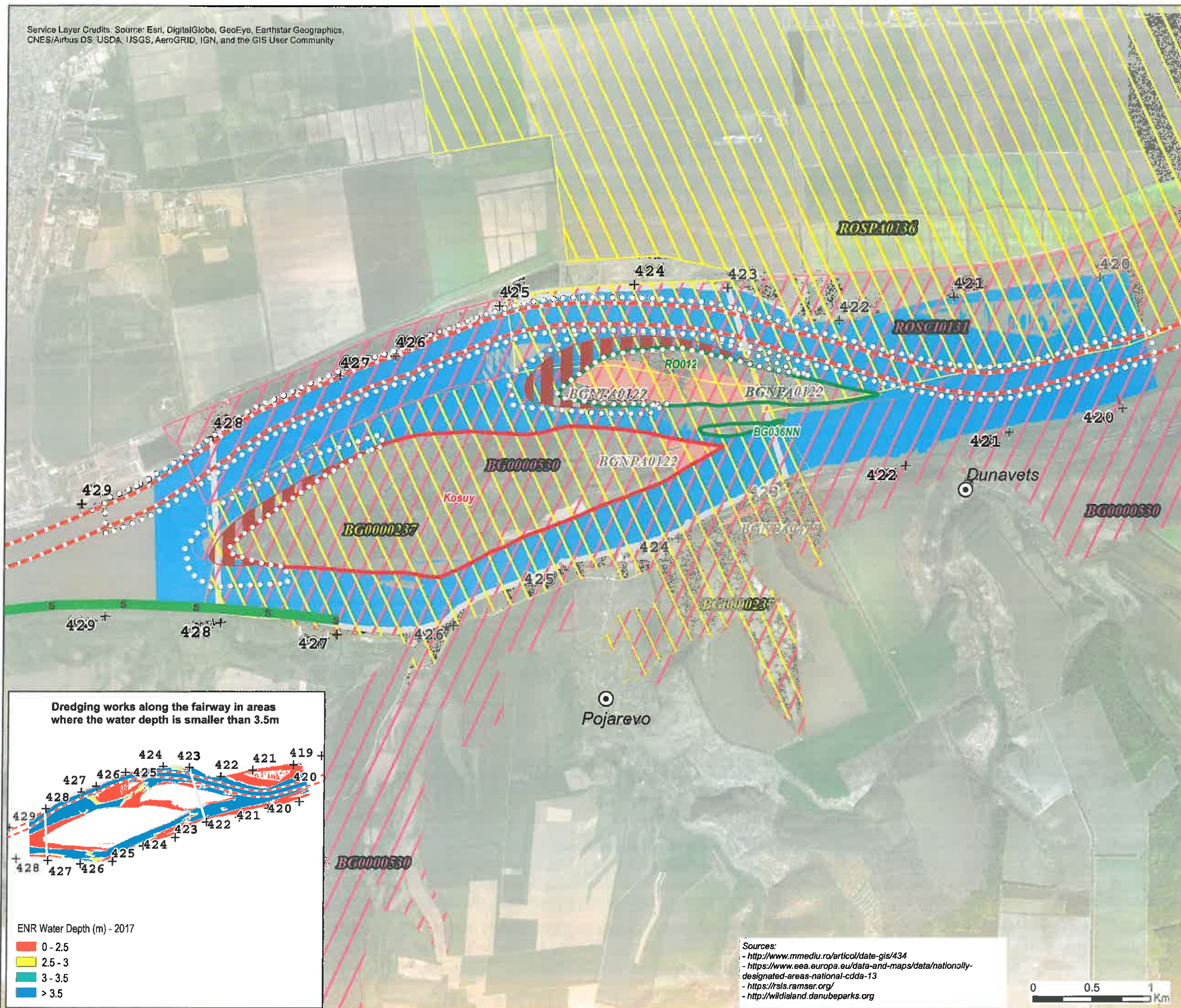
Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavianska 6, p.c. 7000, Bulgaria
T: (082) 623133, (082) 623134, F: (082) 623131
www.rapd-bg.org

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Critical Zone 5, Critical Point 11 Kosui, Scenario 1 - Dredge only

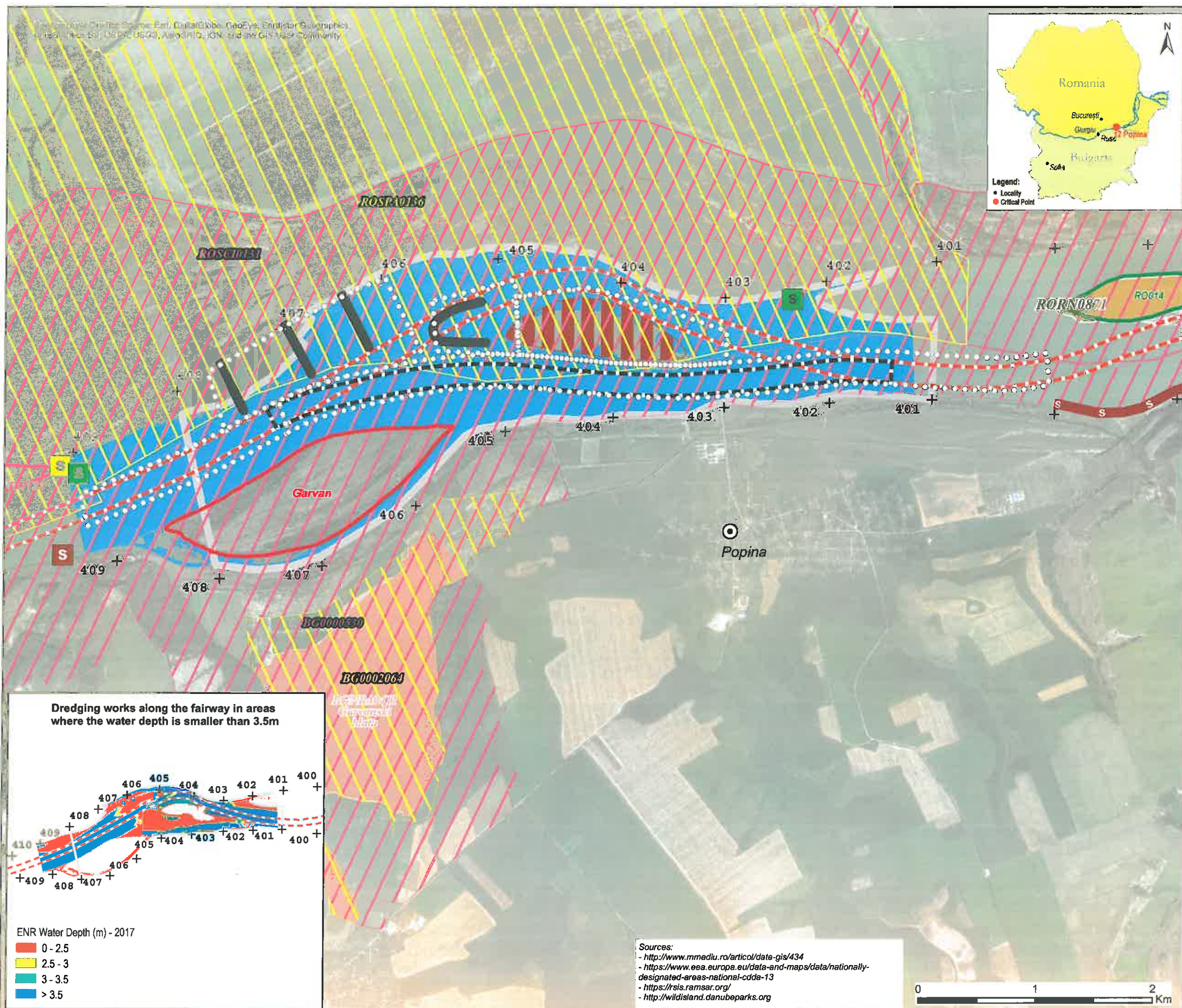
Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs
Checked by: Daniela Paraschivoiu, Jacobs
Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m Rev No. 3 Date: 6/20/2019



Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rfs.ramsar.org/>
- <http://wildisland.danubeparks.org>

0 0.5 1 Km



Legend:

- ⊙ Locality
- ⊕ Benchmarks
- Critical Point Limit
- - - Current fairway
- - - Fairway realignment
- ▨ Dredged material disposal area
- ▬ Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit

Protected areas

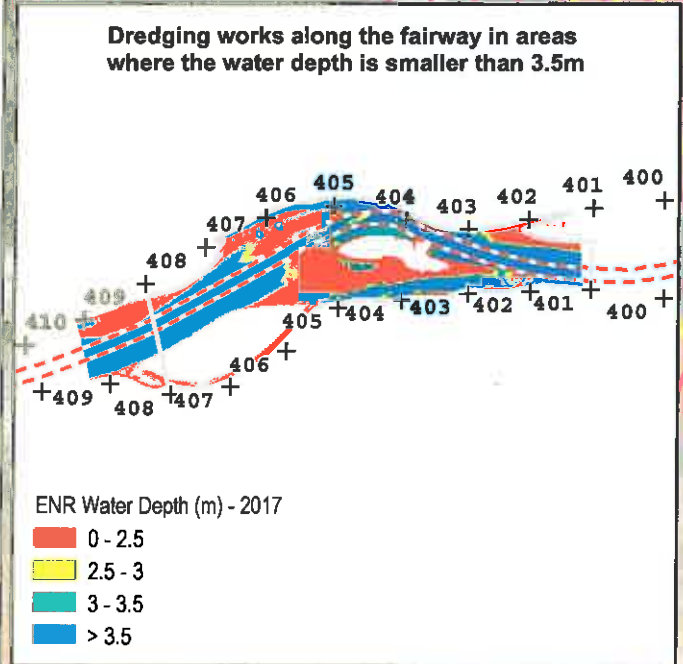
- ▨ SPA
- ▨ SCI
- Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- ▭ In natural state
- ▭ Disturbed by human action

Potential sturgeon habitats

	RO (DDMI Tulcea, Aug 2018)	BG ("MEASURE" Project)
Feeding	S	S S S S
Spawning	S	S S S S
Wintering	S	S S S S



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>



Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 248213329, F: +40 248211744, www.wafdr.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
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Critical Zone 5, Critical Point 12 Popina, Scenario 1-Engineering works (1)

Scenario 1 Plan no. 13

Drawn by: Ionel Zlate, Alexandrina Lechikun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m Rev No. 4 Date: 6/20/2019

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Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI

Insule

- With natural value

Potential sturgeon habitats

RO (DDN) Tulcea, aug 2018	BG (MEASURE) Project
Wintering	SSSS

Project:
**Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube**

Client:
**Galati Lower Danube River
Administration, A.A.**

str: Portului, nr. 32, 803026, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afd.ro

Partner:
**Ruse Danube River Exploration
and Maintenance Agency**
Ruse, Slavyanskia 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
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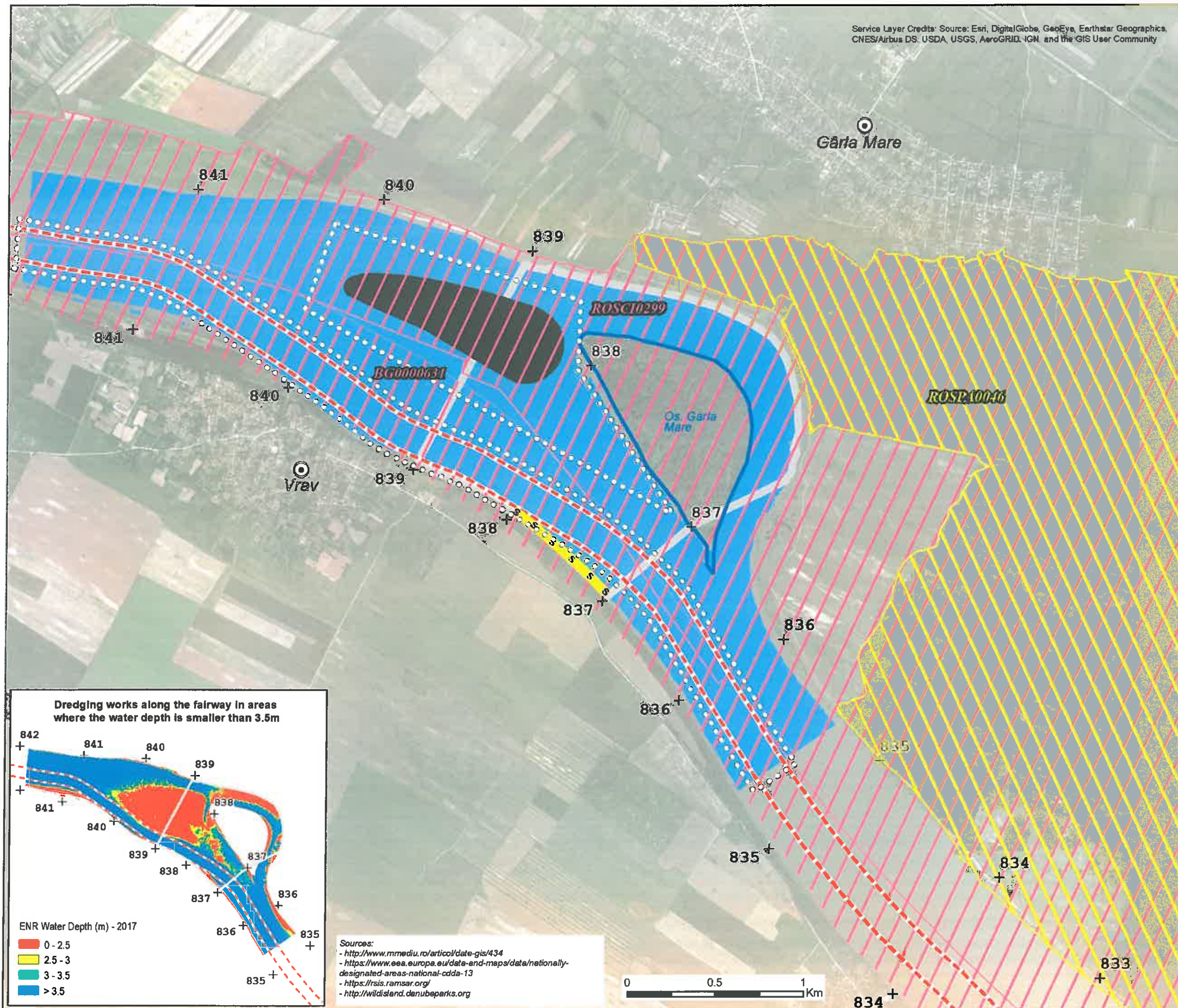
**Critical Zone 1,
Critical Point 01 SGaria Mare**
Scenario 2
Plan no. 14
Scenario 2 - Morphological works

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs

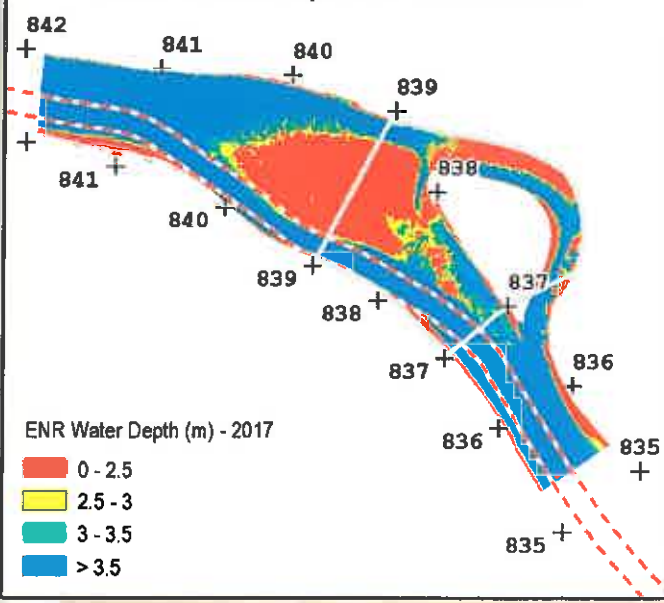
Checked by: Daniela Paraschivoliu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m Rev No. 2 Date: 6/20/2019



**Dredging works along the fairway in areas
where the water depth is smaller than 3.5m**



Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>

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Legend:

- ⊙ Locality
- ⊕ Benchmarks
- ▭ Critical Point Limit
- ▭ Current fairway
- ▨ Dredged material disposal area
- ▬ Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit
- Protected areas**
- ▨ SCI
- Islands**
- ▭ In natural state

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.aldj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
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Critical Zone 1, Critical Point 02 Salcia, Scenario 2 - Engineering works

Scenario 2
Plan no.
15

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs

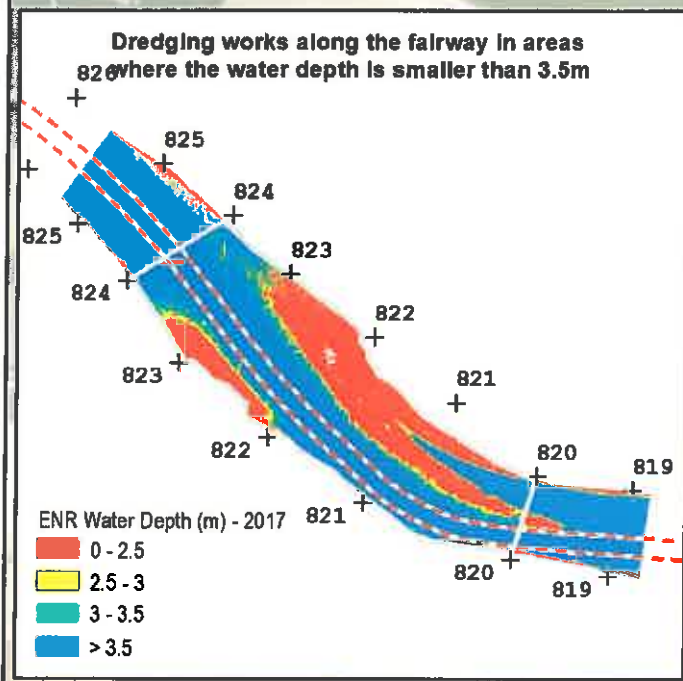
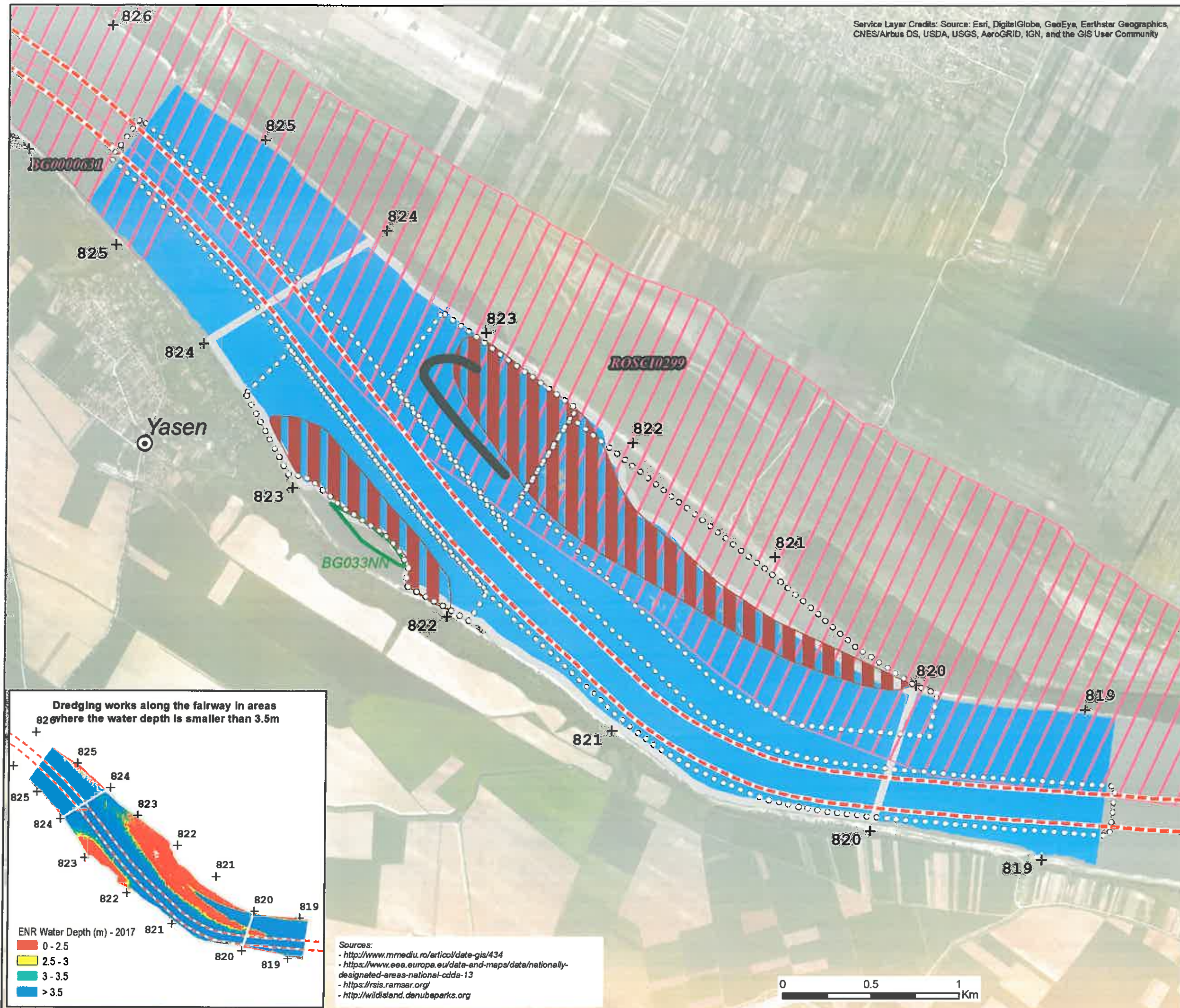
Checked by: Daniela Paraschiviciu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m

Rev No. 2

Date: 6/20/2019



Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Dredged material disposal area
- Bank protection
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- SIT RAMSAR

Islands

- Disturbed by human action

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
 str. Portului, nr. 32, 800025, Galati, Romania
 T: +40 246213320, F: +40 246211744, www.aldj.ro

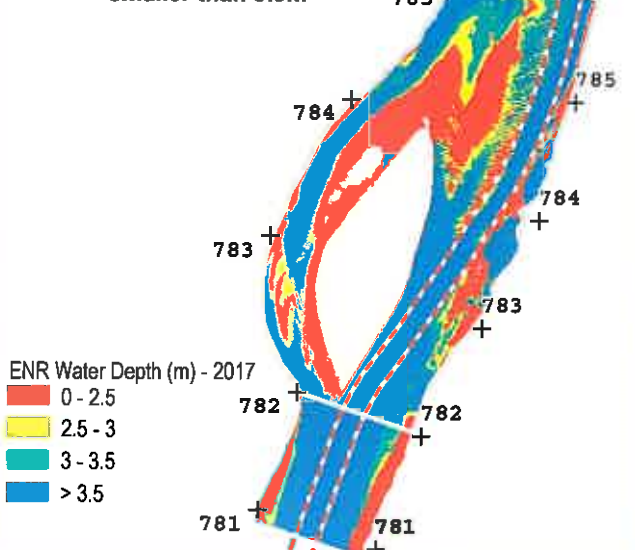
Partner:
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 Ruse, Slavyanska 6, p.c. 7000, Bulgaria
 T: (082) 823133, (062) 823134, F: (082) 823131
 www.rpd-bg.org

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Critical Zone 2
Critical Point 03 Bogdan-Secian
Scenario 2 - Engineering works

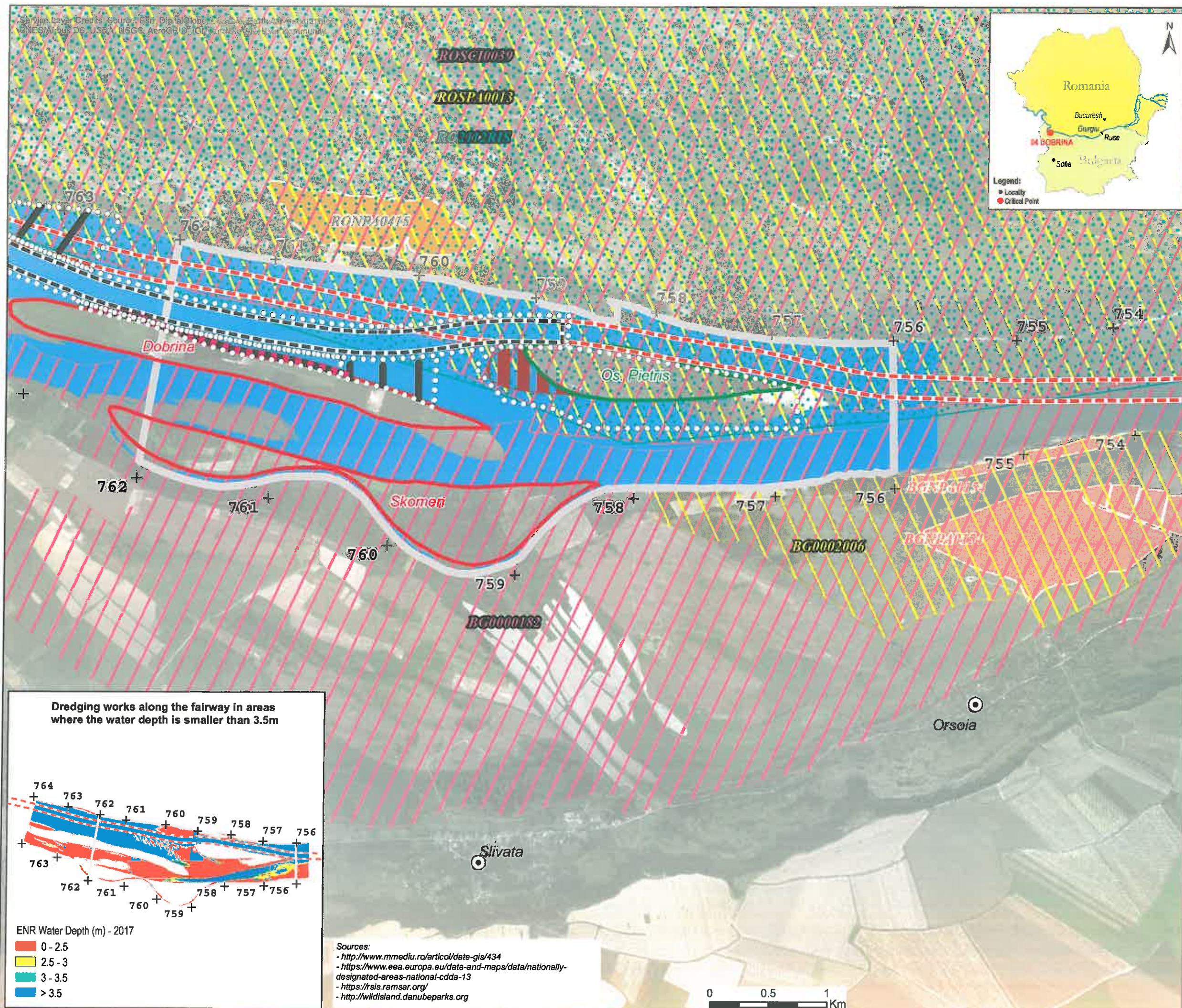
Scenario 2
 Plan no. 16
 Drawn by: Ionel Zlate, Alexandrina Leckun, Jacobs
 Checked by: Daniela Paraschivou, Jacobs
 Approved by: Dan Tarara, Jacobs
 Scale: 1 cm = 200 m Rev No. 2 Date: 6/20/2019

Dredging works along the fairway in areas where the water depth is smaller than 3.5m

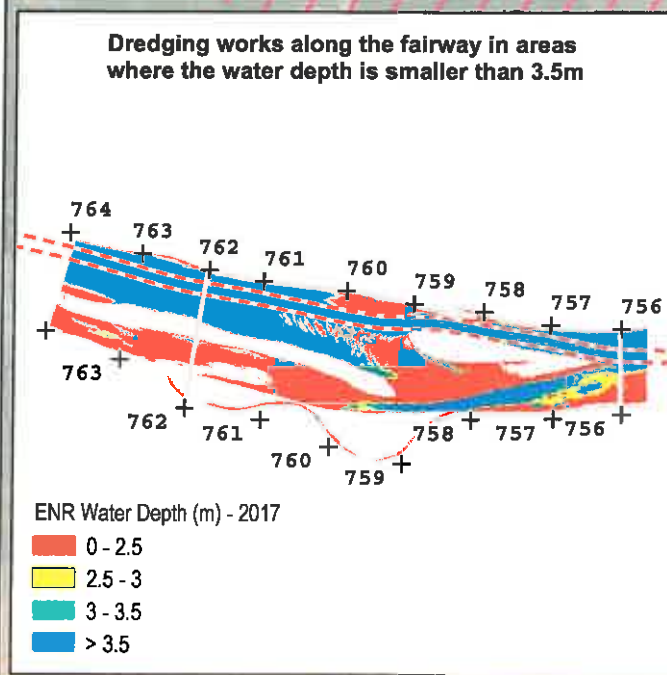


Sources:
<http://www.mmediu.ro/articol/date-gis/434>
<https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
<https://rsis.ramsar.org/>
<http://wildisland.danubeparks.org>

0 0.5 1 Km



- Legend:**
- ⊙ Locality
 - + Benchmarks
 - ▬ Critical Point Limit
 - ▬ Current fairway
 - ▬ Fairway realignment
 - ▬ Bank protection
 - ▬ Dredged material disposal area
 - ▬ Structures (groynes/chevrons/islands)
 - ▬ The Danube River
 - Works Area Limit
- Protected areas**
- ▬ SPA
 - ▬ SCI
 - ▬ RAMSAR
 - Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
 - Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas
- Islands**
- ▬ In natural state
 - ▬ Disturbed by human action



Sources:

- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsis.ramsar.org/>
- <http://wildisland.danubeparks.org>

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdr.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
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Critical Zone 2, Critical Point 04 Dobrina, Scenario 2 - Engineering works

Scenario 2
Plan no. 17

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivou, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m Rev No. 2 Date: 6/20/2019

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Dredged material disposal area
- Bank protection
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit
- Protected areas
 - SPA
 - SCI
 - RAMSAR
- Islands
 - Disturbed by human action
- Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Spawning	S	S S S S
Wintering	S	S S S S

Project:
Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube

Client:
Galati Lower Danube River
Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.aifd.ro

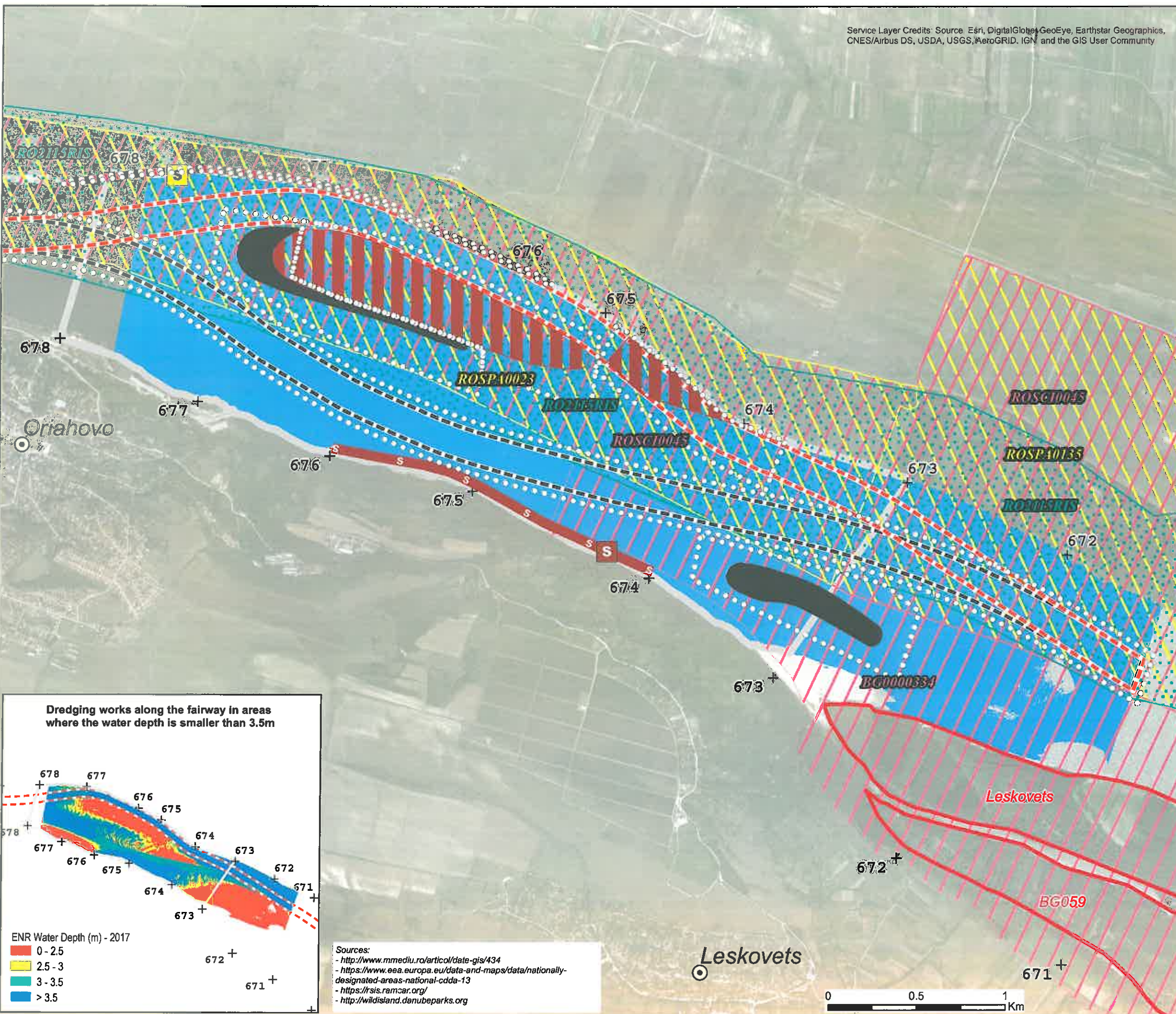
Partner:
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and Maintenance Agency
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www.rappd-bg.org/

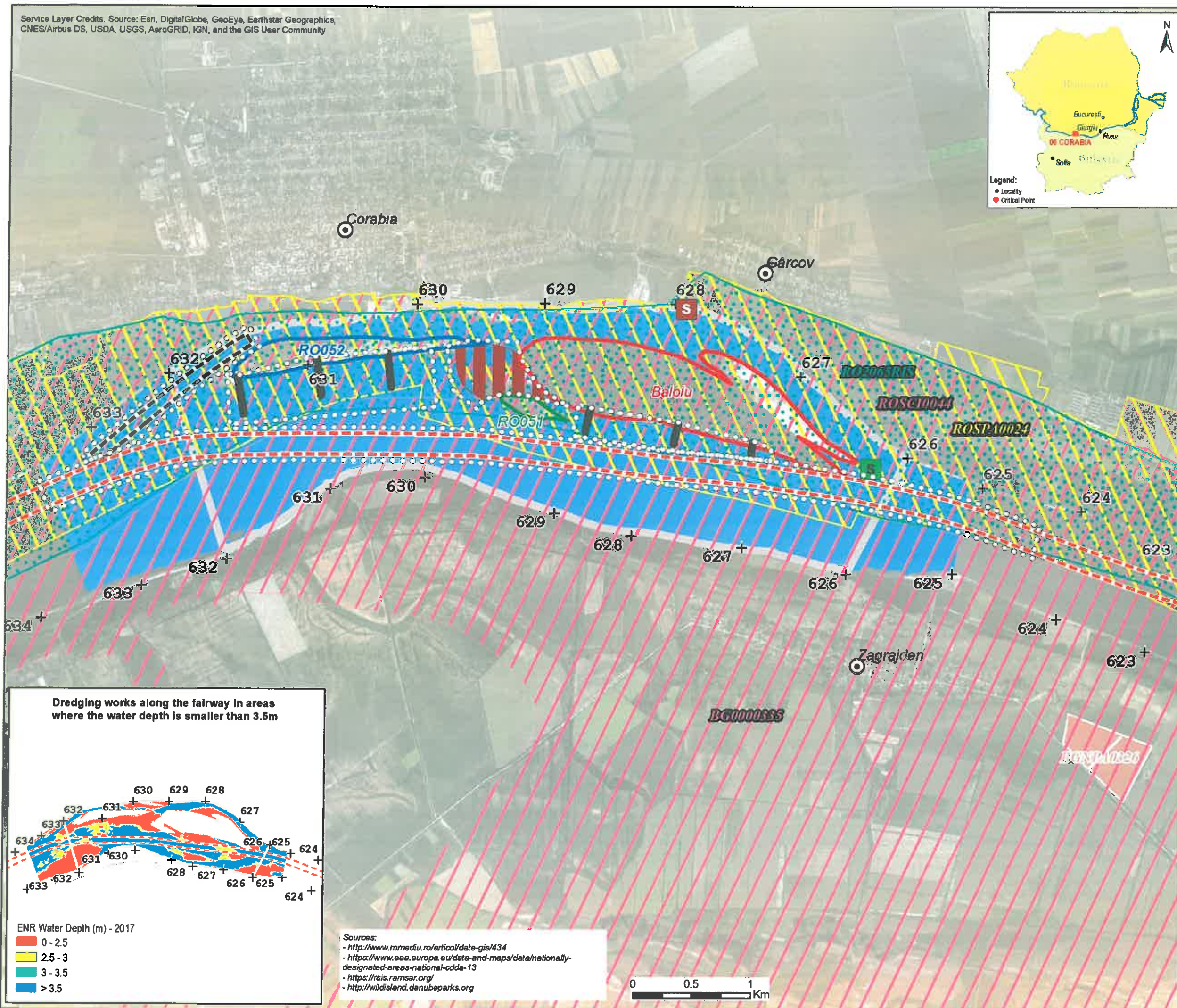
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Critical Zone 3
Critical Point 05 Bechet
Scenario 2 - Morphological works
Plan no. 18

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs
Checked by: Daniela Paraschivoliu, Jacobs
Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m Rev No. 0 Date: 6/20/2019





Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Port access branch (project SWIM)
- Dredged material disposal area
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit
- Protected areas**
 - SPA
 - SCI
 - RAMSAR
 - Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas
- Islands**
 - In natural state
 - With natural value
 - Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2016)	BG ("MEASURE" Project)
Feeding	S	S
Spawning	S	S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800026, Galati, Romania
T: +40 246213329, F: +40 246211744, www.aldj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyansk 6, p.c. 7000, Bulgaria
T: (002) 823133 (002) 823134, F: (002) 823131
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Critical Zone 3, Critical Point 06 Corabia, Scenario 2 - Engineering works

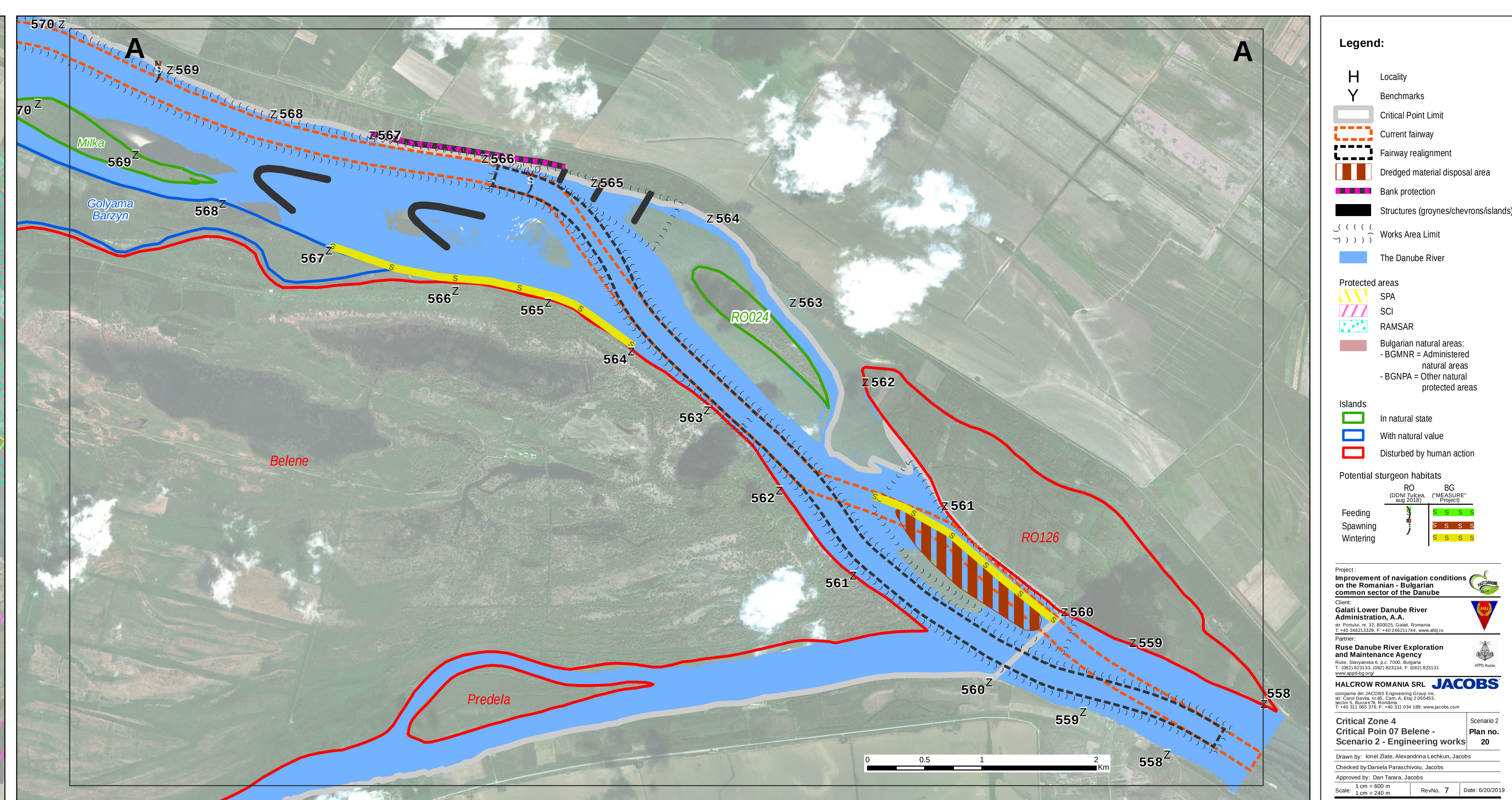
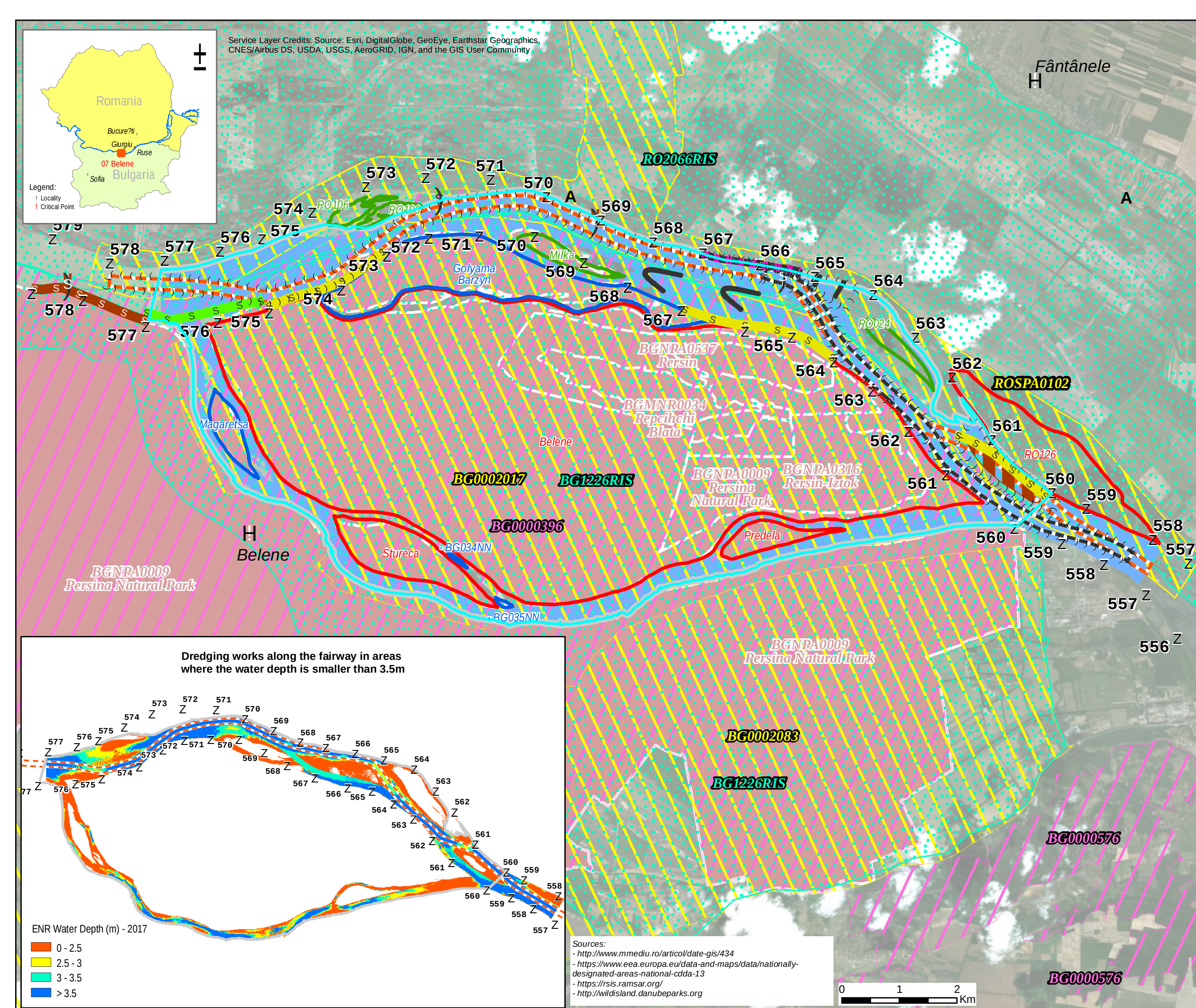
Scenario 2
Plan no. 19

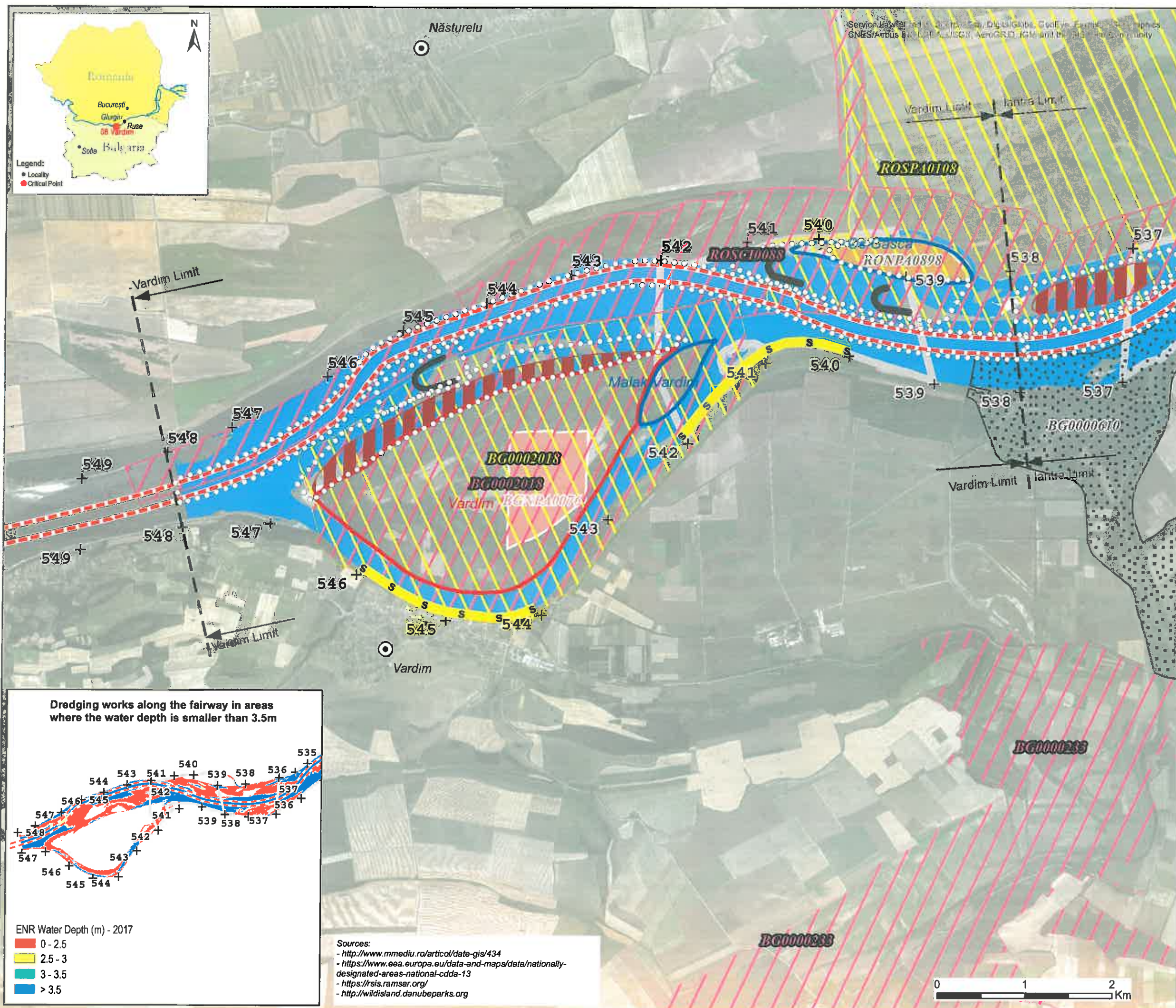
Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivou, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m Rev No. 2 Date: 6/20/2019





Legend:

- Locality
 - Benchmarks
 - Critical Point Limit
 - Current fairway
 - Dredged material disposal area
 - Structures (groynes/chevrons/islands)
 - The Danube River
 - Works Area Limit
- Protected areas**
- SPA
 - SCI
 - SAC
- Romanian natural areas**
- RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:**
- BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas
- Islands**
- With natural value
 - Disturbed by human action
- Potential sturgeon habitats**
- | | RO (DDNI Tulcea, aug 2018) | BG ("MEASURE" Project) |
|-----------|----------------------------|------------------------|
| Wintering | | S S S S |

Project:
Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube

Client:
Galati Lower Danube River
Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdr.ro

Partner:
Ruse Danube River Exploration
and Maintenance Agency
Ruse, Slavianska B, p.c. 7000, Bulgaria
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Critical Zone 4 -
Critical Point 08 Vardim -
Scenario 2 - Engineering works

Scenario 2
Plan no.
21

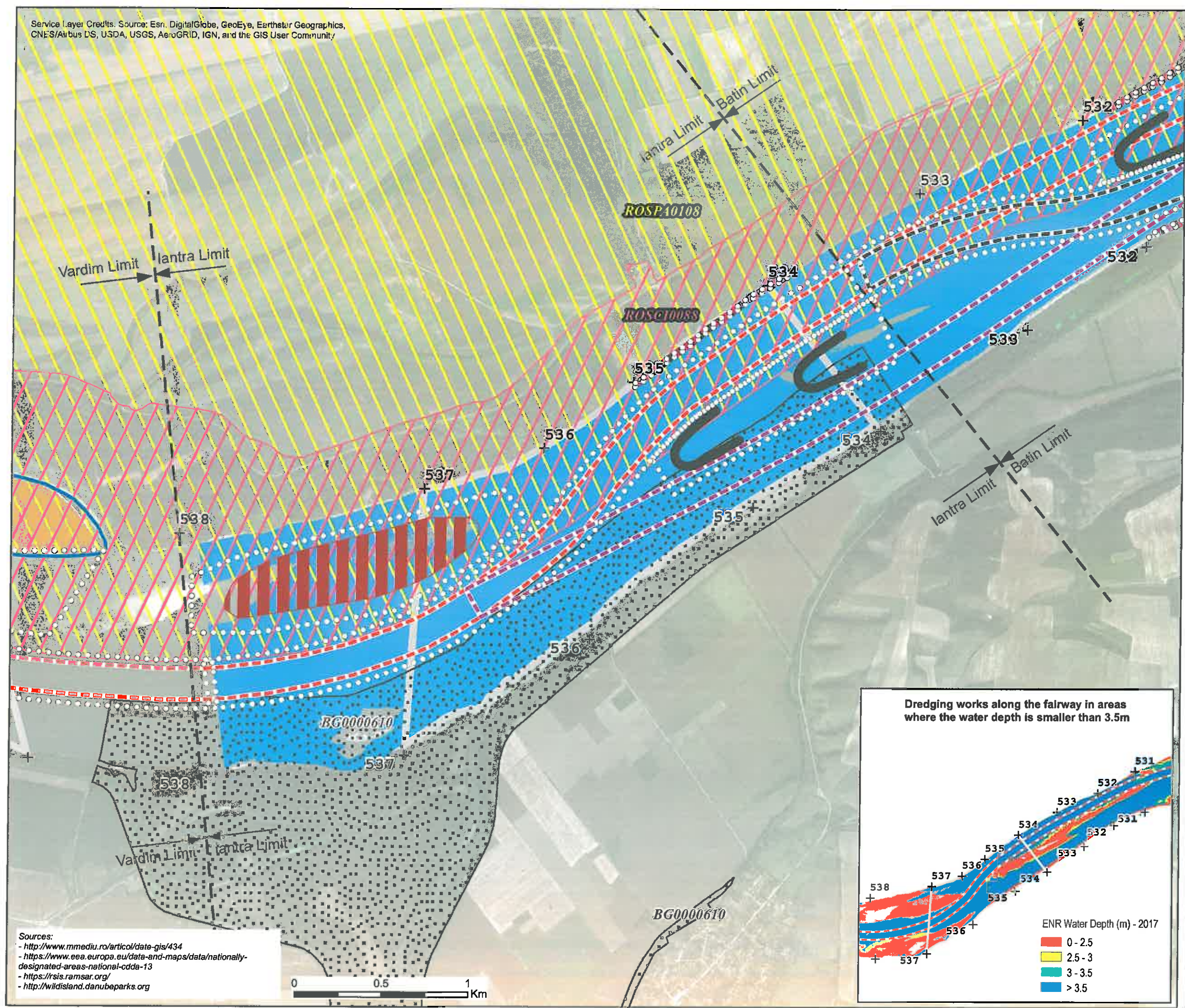
Drawn by: Ionel Zlate, Alexandrina Lechikun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 400 m Rev No. 2 Date: 6/20/2019

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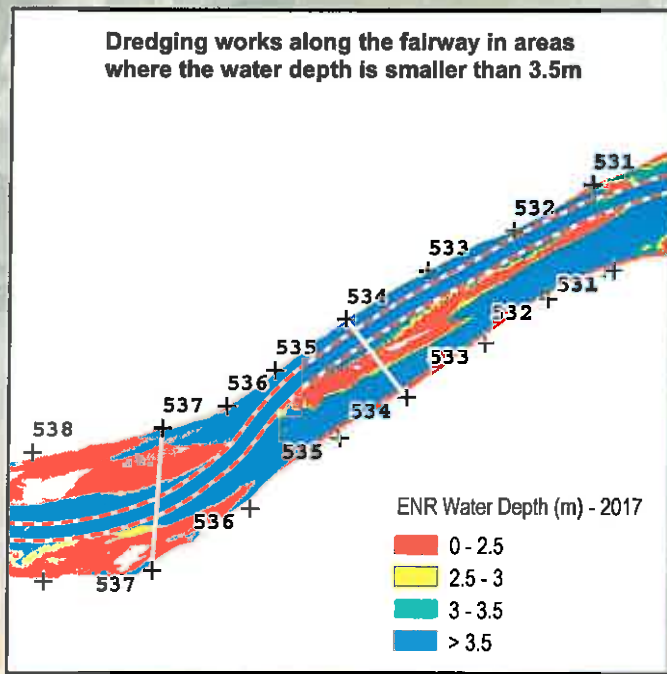


Legend:

- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway 2018
- Fairway realignment
- Structures (groynes/chevrons/islands)
- Bank protection
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- SAC



Sources:
<http://www.mmediu.ro/articol/date-gis/434>
<https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-odda-13>
<https://rsls.ramsar.org/>
<http://wildisland.danubeparks.org>

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
 str. Portului, nr. 32, L00025, Galati, Romania
 T: +40 246213329, F: +40 246211744, www.afdj.ro

Partner:
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 Ruse, Slavianska 6, p.c. 7000, Bulgaria
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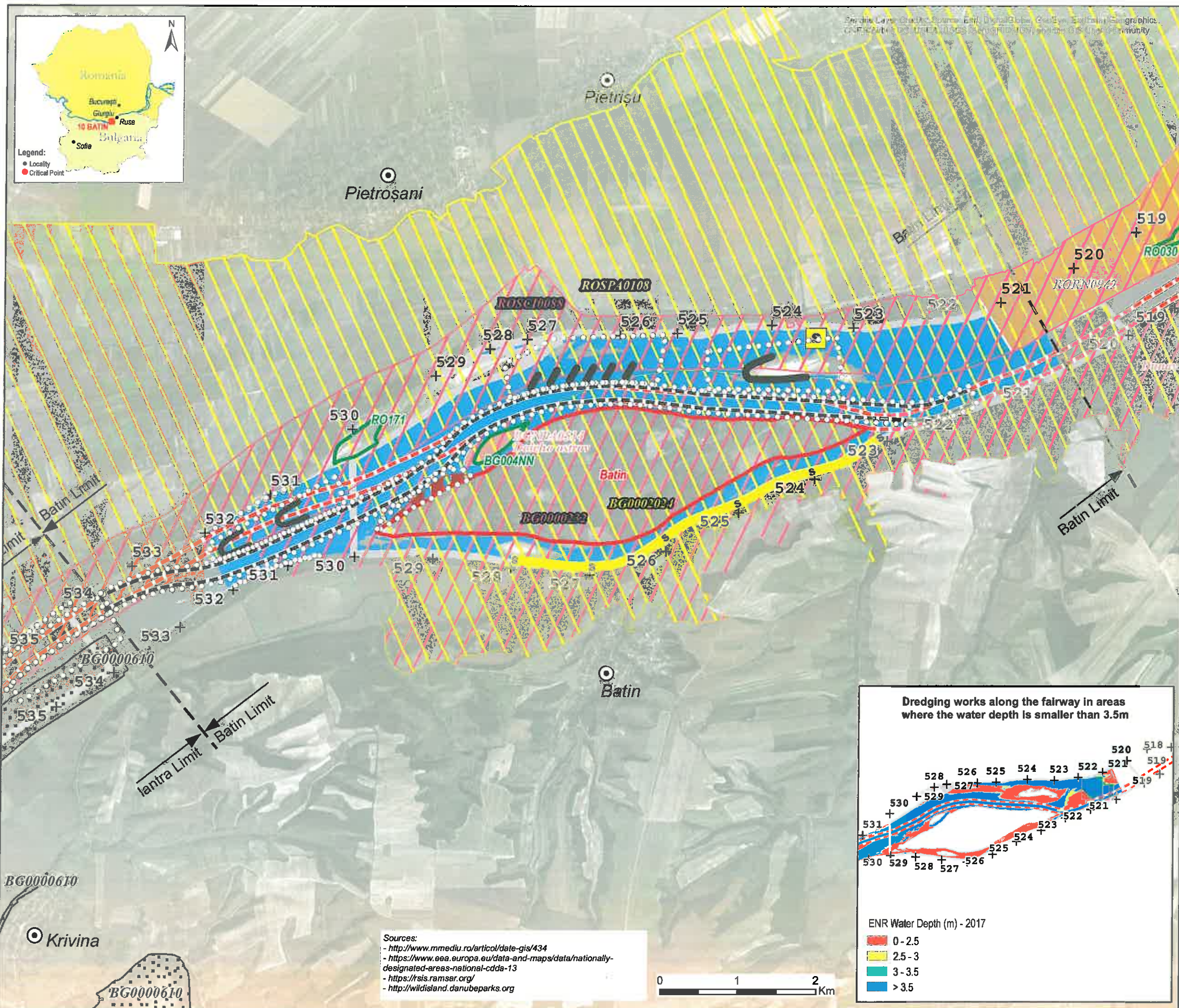
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 T: +40 311 365 376; F: +40 311 034 189; www.jacobs.com

Critical Zone 4 - Critical Point 09 Iantra - Scenario 2 - Engineering works

Scenario 2
 Plan no. 122

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs
 Checked by: Daniela Paraschivoliu, Jacobs
 Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 200 m Rev No. 2 Date: 6/20/2019



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Structures (groynes/chevrons/islands)
- Dredged material disposal area
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- In natural state
- Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG ("MEASURE" Project)
Wintering		

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213328, F: +40 246211744, www.afdr.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.eppd-bj.org/

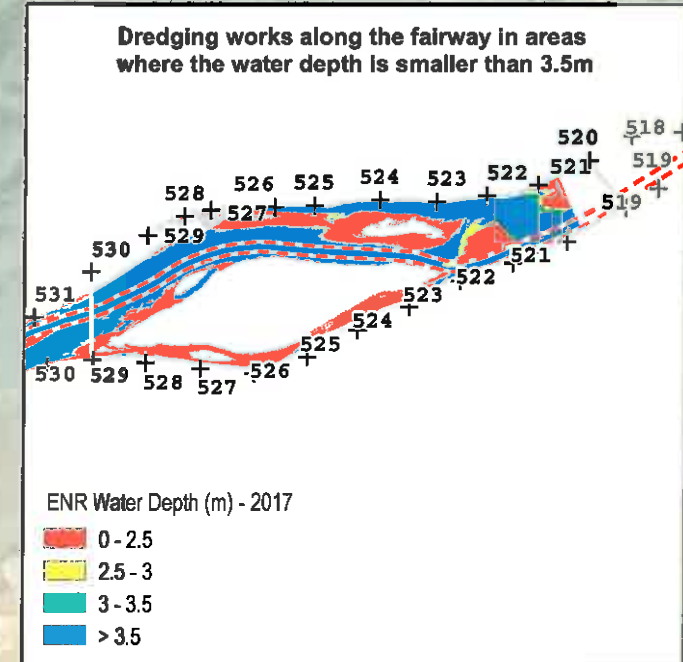
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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
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Critical Zone 4 - Critical Point 10 Batin - Scenario 2 - Morpho engineering works

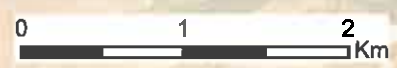
Scenario 2 Plan no. 23

Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs
Checked by: Daniela Paraschivoliu, Jacobs
Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 450 m Rev No. 2 Date: 6/20/2019



Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsls.ramsar.org/>
- <http://wildisland.danubeparks.org>



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Legend:

- ⊙ Locality
- + Benchmarks
- ▭ Critical Point Limit
- ▭ Current fairway
- ▭ Structures (groynes/chevrons/islands)
- ▭ The Danube River
- Works Area Limit

Protected areas

- ▭ SPA
- ▭ SCI
- ▭ Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- ▭ In natural state
- ▭ Disturbed by human action

Potential sturgeon habitats

	RO (DDMI Tulcea, aug 2018)	BG (MEASURE Project)
Feeding		S S S S

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.apod-bg.org/

HALCROW ROMANIA SRL **JACOBS**
companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, București, România
T: +40 311 065 376; F: +40 311 034 189; www.jacobs.com

Critical Zone 5 - Critical Point 11 Kosui - Scenario 2
Scenario 2 - Morphological works Plan no. 24

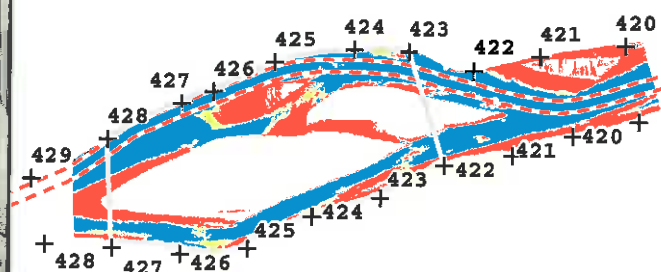
Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 300 m Rev No. 2 Date: 6/20/2019

Dredging works along the fairway in areas where the water depth is smaller than 3.5m

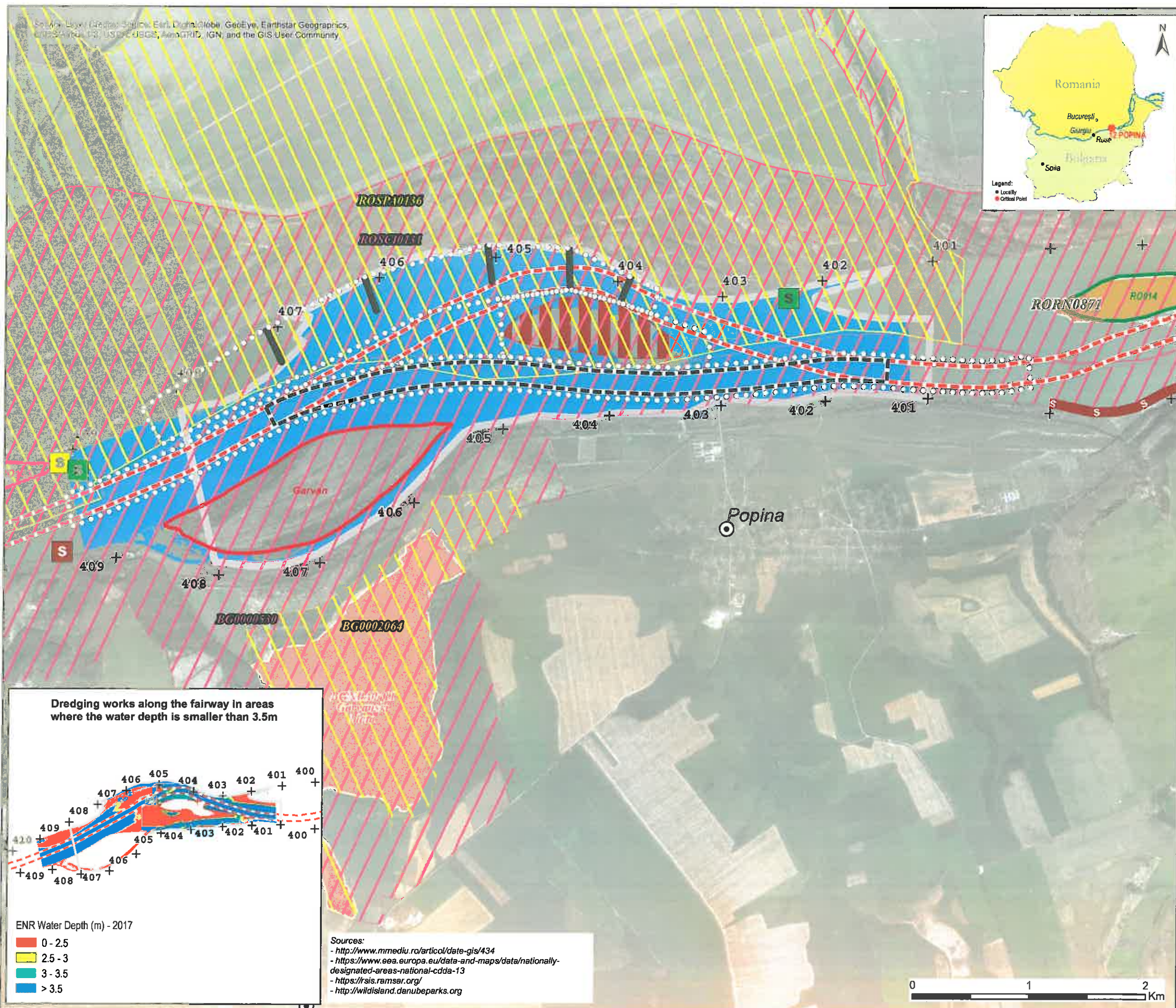


ENR Water Depth (m) - 2017

- ▭ 0 - 2.5
- ▭ 2.5 - 3
- ▭ 3 - 3.5
- ▭ > 3.5

Sources:
- <http://www.mmediu.ro/articol/date-gis/434>
- <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13>
- <https://rsls.ramsar.org/>
- <http://wildisland.danubeparks.org>

0 1 2 Km



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Dredged material disposal area
- Structures (groynes/chevrons/islands)
- The Danube River
- Works Area Limit

Protected areas

- SPA
- SCI
- Romanian natural areas
 - RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:
 - BGMNR = Administered natural areas
 - BGNPA = Other natural protected areas

Islands

- In natural state
- Disturbed by human action

Potential sturgeon habitats

	RO (DDNI Tulcea, aug 2018)	BG (“MEASURE” Project)
Feeding	S	S S S S
Spawning	S	S S S S
Wintering	S	S S S S

Project:
Improvement of navigation conditions
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Client:
Galati Lower Danube River
Administration, A.A.

str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdr.ro

Partner:

Ruse Danube River Exploration
and Maintenance Agency

Ruse, Slavynska 6, p.o. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.aprd-bg.org/

HALCROW ROMANIA SRL **JACOBS**

companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050463,
sector 5, Bucuresti, Romania
T: +40 311 065 375; F: +40 311 034 169; www.jacobs.com

Critical Zone 5 -
Critical Point 12 Popina -
Scenario 2 - Engineering works

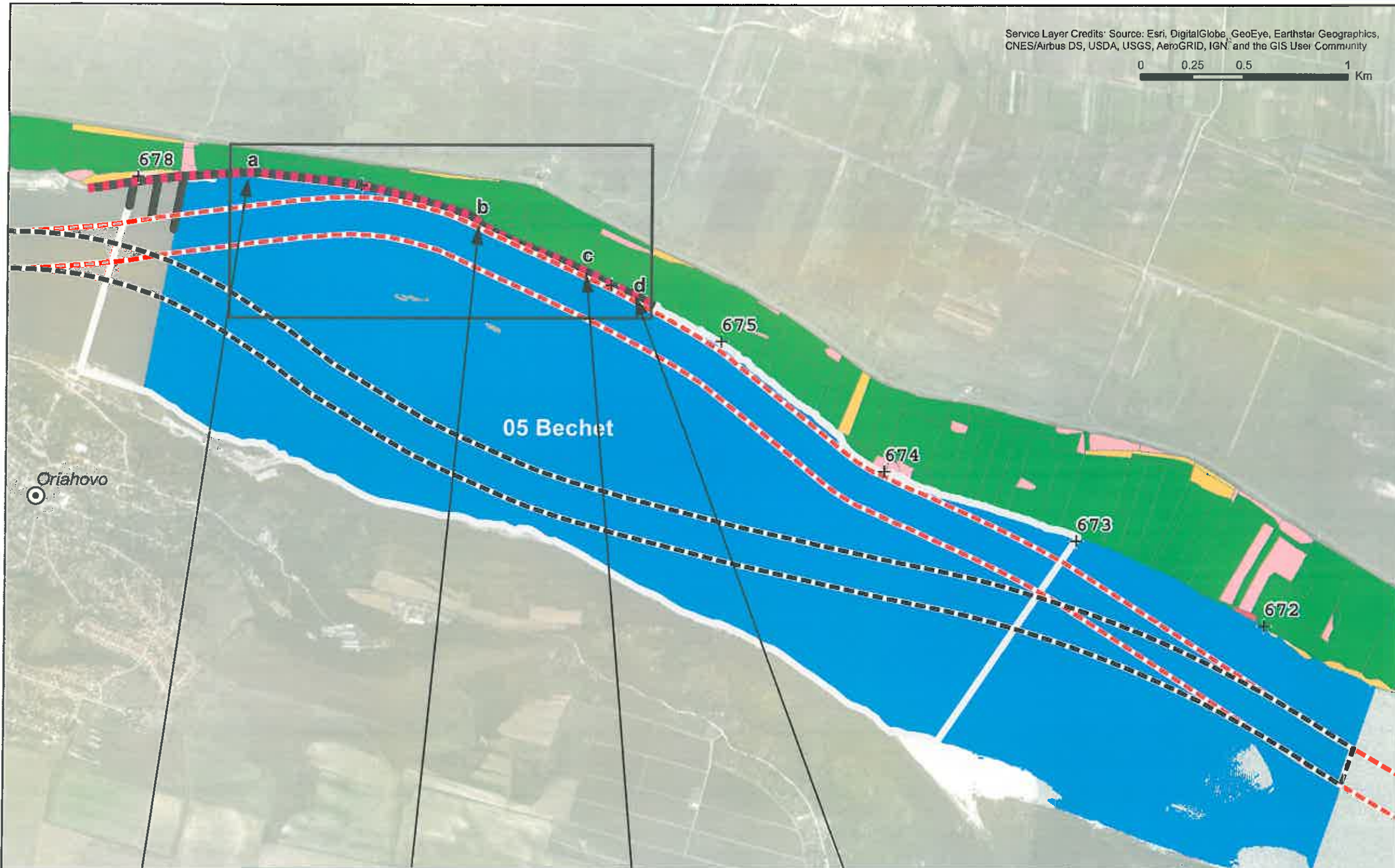
Scenario 2
Plan no.
125

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

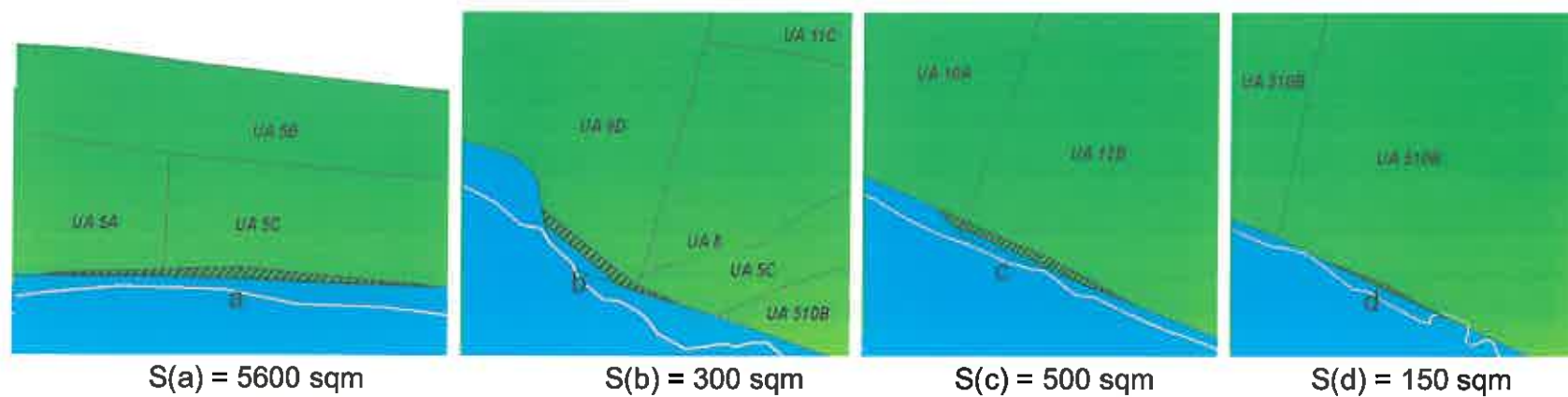
Scale: 1 cm = 300 m Rev No. 2 Date: 6/20/2019



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Bank protection
- Structures - groynes
- The Danube River

Dabuleni Forest District, Production Unit no. 1



Project:
**Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube**

Client:
**Galati Lower Danube River
Administration, A.A.**
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 248213329, F: +40 248211744, www.afdr.ro

Partner:
**Ruse Danube River Exploration
and Maintenance Agency**
Ruse, Slavyanska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.apdd-bg.org/

APDD Ruse

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr.85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 055 376; F: +40 311 034 189; www.jacobs.com

**Critical zone 3 -
Critical point 05 Bechet -
Surfaces estimated to be removed
from the forest circuit**

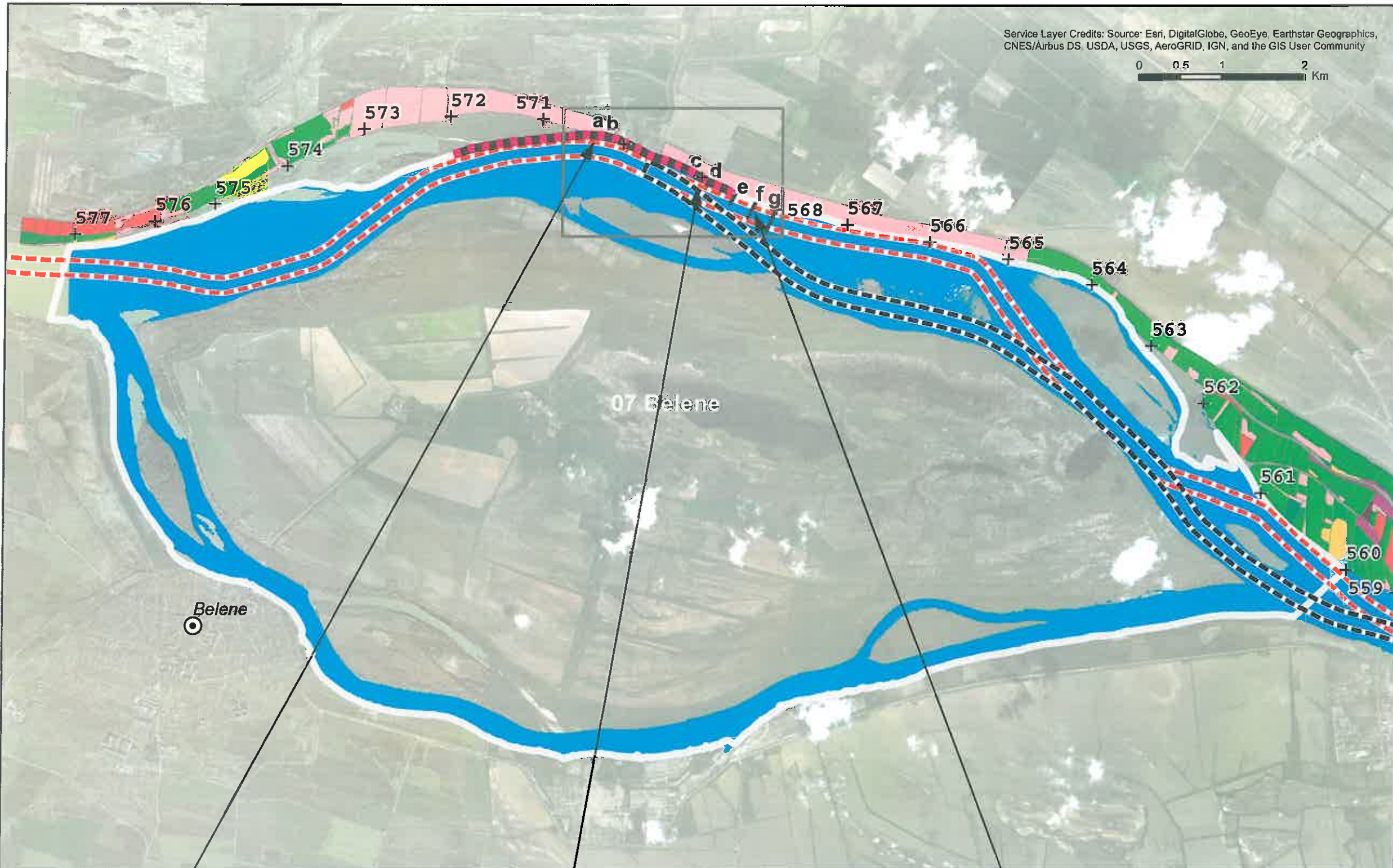
Scenario 1
Plan no.
26

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

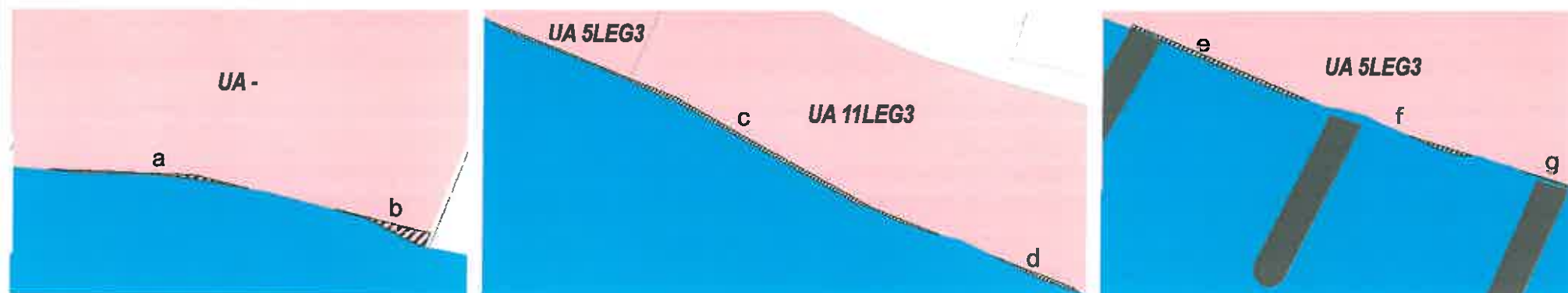
Scale: 1 cm = 200 m Rev No. 2 Date: 6/20/2019



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Bank protection
- Structures - groynes
- The Danube River

Alexandria Forest District, Production Unit no. 2



$$S(a) + S(b) = 110 \text{ sqm}$$

$$S(c) + S(d) = 2700 \text{ sqm}$$

$$S(e) + S(f) + S(g) = 2100 \text{ sqm}$$

Project:
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.aldj.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slevyenska 6, p.o. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.sppd-bg.org/

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companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr. 85, Cam. A, Etaj. 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 055 376; F: +40 311 034 189; www.jacobs.com

Critical zone 4 - Critical point 07 Belene - Surfaces estimated to be removed from the forest circuit

Scenario 1
Plan no. 27

Drawn by: Ionel Zlate, Alexandrina Lechun, Jacobs

Checked by: Daniela Paraschivou, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 500 m Rev No. 2 Date: 6/20/2019



Legend:

- Locality
- Benchmarks
- Critical Point Limit
- Current fairway
- Fairway realignment
- Bank protection
- Structures - groynes
- The Danube River

Legend:

- Deforestation
- Landscape Unit
- Non-forest use
- Willow
- Various hardwood species
- Poplar - various hardwood species - various softwood species

Total estimated surface
Stot = 10170 sqm

Source:
Regia Nationala a Padurilor "ROMSILVA"



Project:
**Improvement of navigation conditions
on the Romanian - Bulgarian
common sector of the Danube**

Client:
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Administration, A.A.**
str. Portului, nr. 32, 800025, Galati, Romania
T: +40 246213329, F: +40 246211744, www.afdj.ro

Partner:
**Ruse Danube River Exploration
and Maintenance Agency**
Ruse, Slavenska 6, p.c. 7000, Bulgaria
T: (082) 823133, (082) 823134, F: (082) 823131
www.aprd-bg.org/

HALCROW ROMANIA SRL **JACOBS**
companie din JACOBS Engineering Group Inc.
str. Carol Davila, nr. 85, Cam. A, Etaj 2 050453,
sector 5, Bucuresti, Romania
T: +40 311 065 376, F: +40 311 034 189, www.jacobs.com

**Critical zone 5 -
Critical point 12 Popina -
Surfaces estimated to be removed
from the forest circuit**

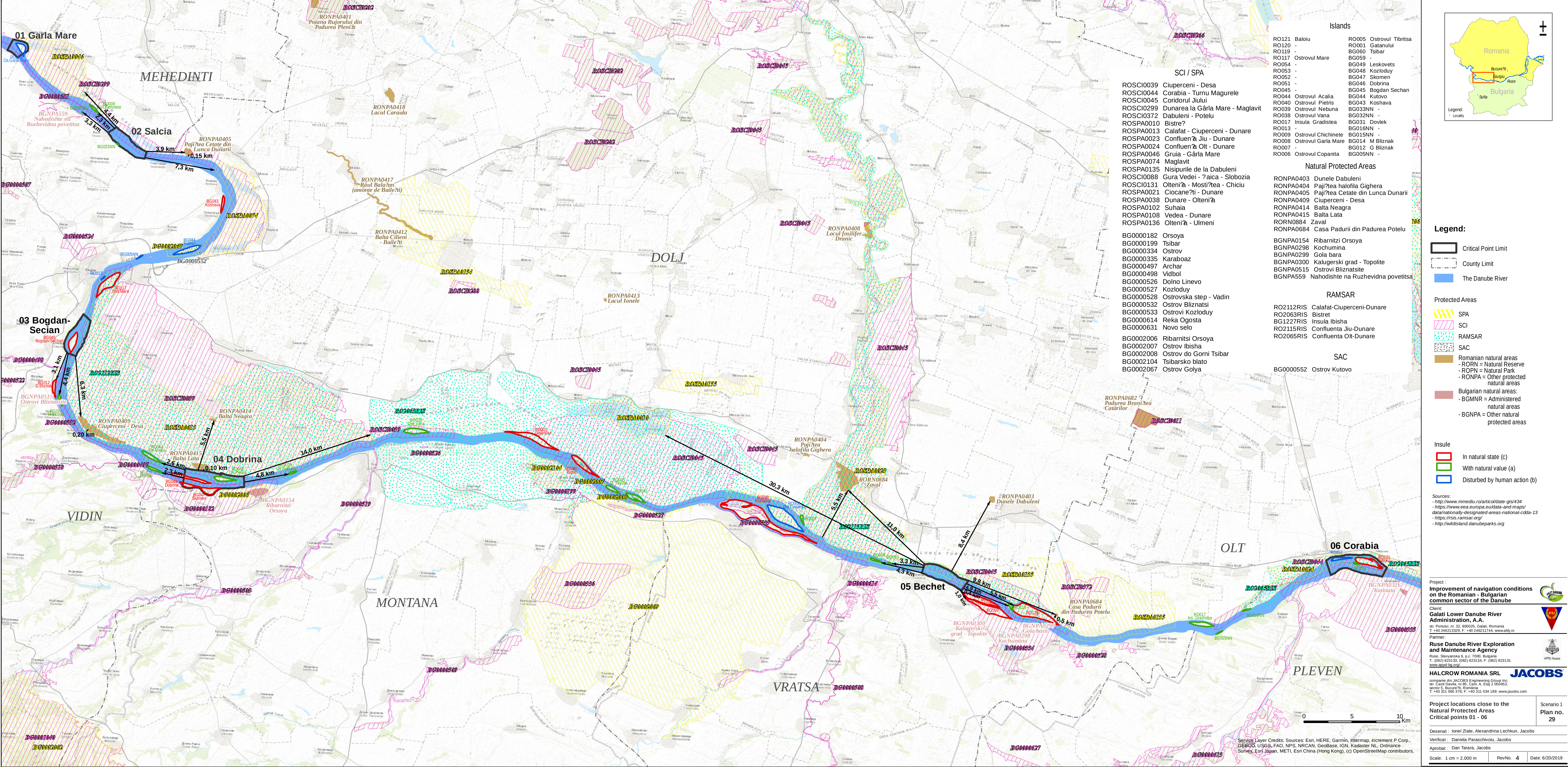
Drawn by: Ionel Zlate, Alexandrina Lechkun, Jacobs

Checked by: Daniela Paraschivoiu, Jacobs

Approved by: Dan Tarara, Jacobs

Scale: 1 cm = 150,000 m Rev No. 0 Date: 6/20/2019

Scenario 1
Plan no.
28



- SCI / SPA**
- ROSCI0039 Ciupercei - Desa
 - ROSCI0044 Corabia - Tunu Magurele
 - ROSCI0045 Coridorul Jiului
 - ROSCI0299 Dunarea la Gârla Mare - Maglavit
 - ROSCI0372 Dabuleni - Potelu
 - ROSPA0010 Bistre?
 - ROSPA0013 Calafat - Ciupercei - Dunare
 - ROSPA0023 Confluența Jiu - Dunare
 - ROSPA0024 Confluența Olt - Dunare
 - ROSPA0046 Grăia - Gârla Mare
 - ROSPA0074 Maglavit
 - ROSPA0135 Nisipurile de la Dabuleni
 - ROSCI0088 Gura Vedei - Țaica - Slobozia
 - ROSCI0131 Oltenița - Mostiștea - Chiciu
 - ROSPA0021 Ciocanești - Dunare
 - ROSPA0038 Dunare - Oltenița
 - ROSPA0102 Suhuia
 - ROSPA0108 Vedeia - Dunare
 - ROSPA0136 Oltenița - Ulmeni
- Natural Protected Areas**
- RONPA0403 Dunele Dabuleni
 - RONPA0404 Pajiștea halofila Gighera
 - RONPA0405 Pajiștea Cetate din Lunca Dunării
 - RONPA0409 Ciupercei - Desa
 - RONPA0414 Balta Neagra
 - RONPA0415 Balta Lata
 - ROBN0884 Zaval
 - RONPA0684 Casa Padurii din Padurea Potelu
- RAMSAR**
- RO2112RIS Calafat-Ciupercei-Dunare
 - RO2063RIS Bistret
 - BG1227RIS Insula Ibisha
 - RO2115RIS Confluența Jiu-Dunare
 - RO2065RIS Confluența Olt-Dunare
- SAC**
- BG0000552 Ostrov Kutovo

- Legend:**
- Critical Point Limit
 - County Limit
 - The Danube River
- Protected Areas**
- SPA
 - SCI
 - RAMSAR
 - SAC
- Romanian natural areas**
- RORN = Natural Reserve
 - ROPN = Natural Park
 - RONPA = Other protected natural areas
- Bulgarian natural areas:**
- BGMMNR = Administered natural areas
 - BGNPA = Other natural protected areas
- Insule**
- In natural state (c)
 - With natural value (a)
 - Disturbed by human action (b)
- Sources:**
- <http://www.mmediu.ro/articol/date-gis/434>
 - <https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cddis-13>
 - <https://rns.ramsar.org/>
 - <http://wildside.danubeparks.org>

Project :
Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube

Client:
Galati Lower Danube River Administration, A.A.
Bd. Petru Poni, nr. 25, 80005, Galati, Romania
T: +40 246213329, F: +40 246211744, www.aafr.ro

Partner:
Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska S, p.c. 7000, Bulgaria
T: 0800 823133, 0800 823134, F: 0800 823131
www.apppd.bg.org/

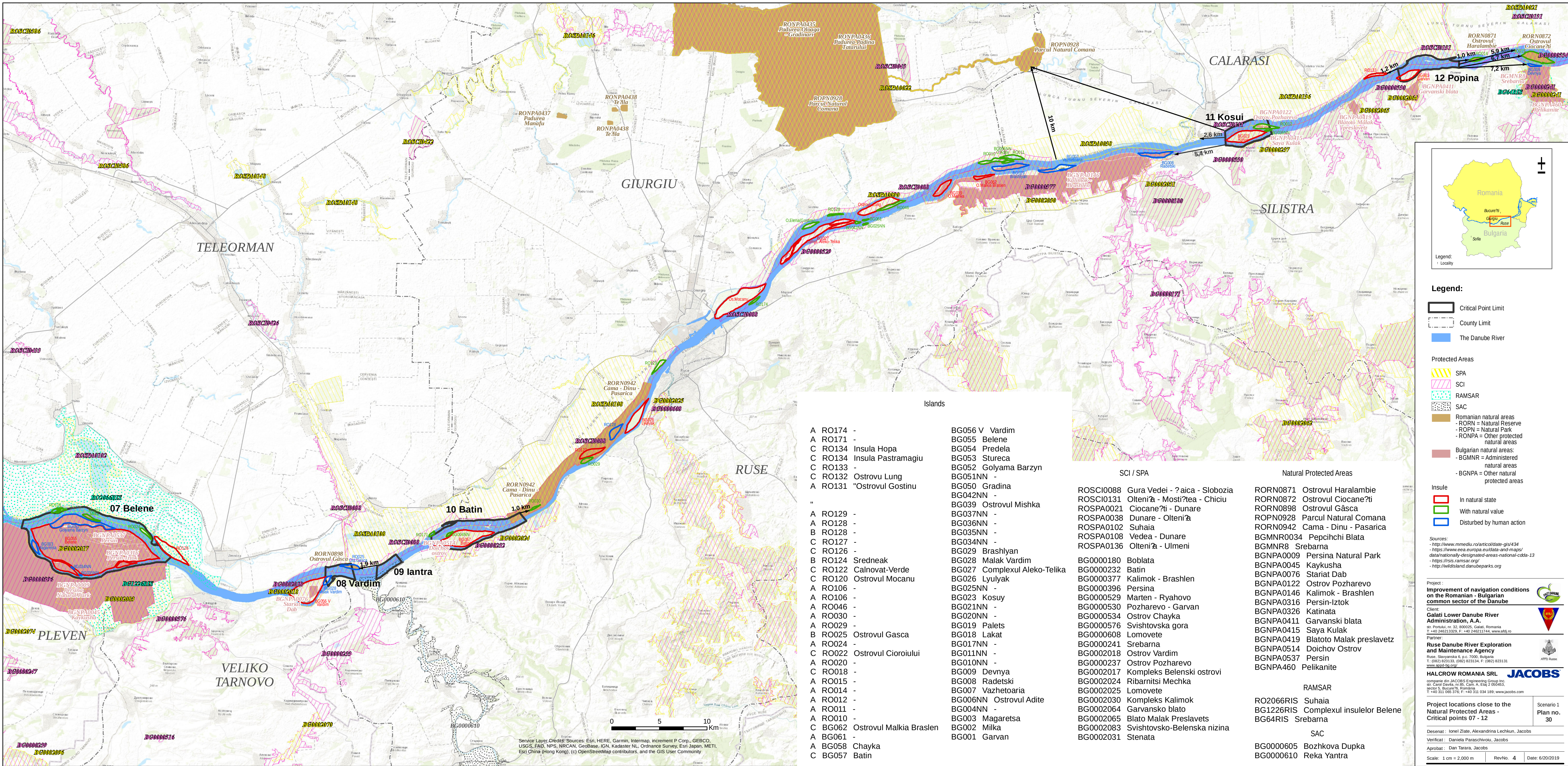
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Project locations close to the Natural Protected Areas
Critical points 01 - 06

Scenario 1
Plan no.
29

Desenat : Ionel Zlate, Alexandrina Lechiu, Jacobs
Verificat : Daniela Paraschiv, Jacobs
Aprobat : Dan Tarara, Jacobs

Scale: 1 cm = 2,000 m RevNo. 4 Date: 6/20/2019



- A RO174 -
A RO171 -
C RO134 Insula Hopa
C RO134 Insula Pastramagiu
C RO133 -
C RO132 Ostrovu Lung
A RO131 "Ostrovul Gostinu

- A RO129 -
A RO128 -
B RO128 -
C RO127 -
C RO126 -
B RO124 Sredneak
C RO122 Calnovat-Verde
C RO120 Ostrovul Mocanu
A RO106 -
A RO106 -
A RO046 -
A RO030 -
A RO029 -
B RO025 Ostrovul Gasca
A RO024 -
C RO022 Ostrovul Cioroiului
A RO020 -
C RO018 -
A RO015 -
A RO014 -
A RO012 -
A RO011 -
A RO010 -
C BG062 Ostrovul Malkia Braslen
A BG061 -
A BG058 Chayka
C BG057 Batin

- BG056 V Vardim
BG055 Belene
BG054 Predela
BG053 Stureca
BG052 Golyama Barzyn
BG051NN -
BG050 Gradina
BG042NN -
BG039 Ostrovul Mishka
BG037NN -
BG036NN -
BG035NN -
BG034NN -
BG029 Brashlyan
BG028 Malak Vardim
BG027 Complexul Aleko-Telika
BG026 Lyulyak
BG025NN -
BG023 Kosuy
BG021NN -
BG020NN -
BG019 Palets
BG018 Lakat
BG017NN -
BG011NN -
BG010NN -
BG009 Devnya
BG008 Radetski
BG007 Vazhetoaria
BG006NN Ostrovul Adite
BG004NN -
BG003 Magaretsa
BG002 Milka
BG001 Garvan

- SCI / SPA
ROSCI0088 Gura Vedei - ? aica - Slobozia
ROSCI0131 Oltieni?a - Mosti?tea - Chiciu
ROSPA0021 Ciocane?ii - Dunare
ROSPA0038 Dunare - Oltieni?a
ROSPA0102 Suhaia
ROSPA0108 Vedeia - Dunare
ROSPA0136 Oltieni?a - Ulmeni

- BG0000180 Boblata
BG0000232 Batin
BG0000377 Kalimok - Brashlen
BG0000396 Persina
BG0000529 Marten - Ryahovo
BG0000530 Pozharevo - Garvan
BG0000534 Ostrov Chayka
BG0000576 Svishtovska gora
BG0000608 Lomovete
BG0000241 Srebarna
BG0000218 Ostrov Vardim
BG0000237 Ostrov Pozharevo
BG0000217 Kompleks Belenski ostrovi
BG0002024 Ribarnitsi Mechka
BG0002025 Lomovete
BG0002030 Kompleks Kalimok
BG0002064 Garvansko blato
BG0002065 Blato Malak Preslavets
BG0002083 Svishtovsko-Belenska nizina
BG0002031 Stenata

- Natural Protected Areas
RORN0871 Ostrovul Haralambie
RORN0872 Ostrovul Ciocane?ii
RORN0898 Ostrovul Gasca
ROPN0928 Parcul Natural Comana
RORN0942 Cama - Dinu - Pasarica
BGMNR0034 Pepcichi Blata
BGMNR8 Srebarna
BGNPA0009 Persina Natural Park
BGNPA0045 Kaykusha
BGNPA0076 Stariat Dab
BGNPA0122 Ostrov Pozharevo
BGNPA0146 Kalimok - Brashlen
BGNPA0316 Persin-Iztok
BGNPA0326 Katinata
BGNPA0411 Garvanski blata
BGNPA0415 Saya Kulak
BGNPA0419 Blatoto Malak preslavetz
BGNPA0514 Doichov Ostrov
BGNPA0537 Persin
BGNPA460 Pelikanite

- RAMSAR
RO2066RIS Suhaia
BG1226RIS Complexul insulelor Belene
BG64RIS Srebarna

- SAC
BG0000605 Bozhkova Dupka
BG0000610 Reka Yantra



Legend:

- Critical Point Limit
County Limit
The Danube River

Protected Areas

- SPA
SCI
RAMSAR
SAC
Romanian natural areas
- RORN = Natural Reserve
- ROPN = Natural Park
- RONPA = Other protected natural areas
Bulgarian natural areas
- BGMNR = Administered natural areas
- BGNPA = Other natural protected areas

Isule

- In natural state
With natural value
Disturbed by human action

Sources:

- http://www.mmediu.ro/nationalcode-gs434
https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-13
https://rds.ramsar.org/
http://wildlifeanddanubeparks.org

Project:

- Improvement of navigation conditions on the Romanian - Bulgarian common sector of the Danube
Client:
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Bd. Petru Poni, nr. 33, 80005, Galati, Romania
T: +40 240213329, F: +40 240211744, www.ardf.ro

Partner:

- Ruse Danube River Exploration and Maintenance Agency
Ruse, Slavyanska St, p.c. 7000, Bulgaria
T: 0803 823133, 0803 823134, F: 0803 823131
www.apmrd.org.ro
HALCROW ROMANIA SRL
JACOBS

- Project locations close to the Natural Protected Areas - Critical points 07 - 12

- Scenario 1
Plan no. 30
Desenat: Ionel Zlate, Alexandrina Lechian, Jacobs
Verificat: Daniela Paraschiv, Jacobs
Aprobat: Dan Tarnita, Jacobs
Scale: 1 cm = 2,000 m
RevNo: 4
Date: 6/20/2019