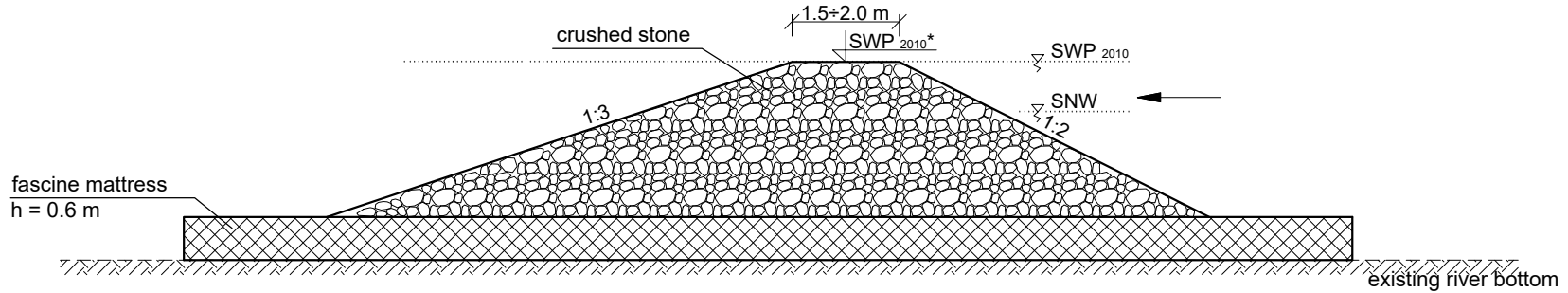


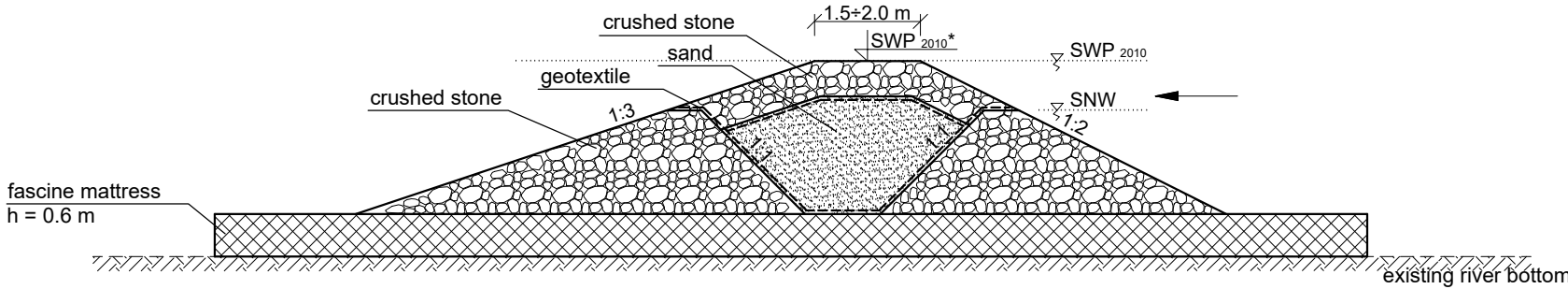
# CONSTRUCTION OF NEWLY-DESIGNED GROYNES

Cross-section  
Head part,  
stream part - type 1  
scale 1:100



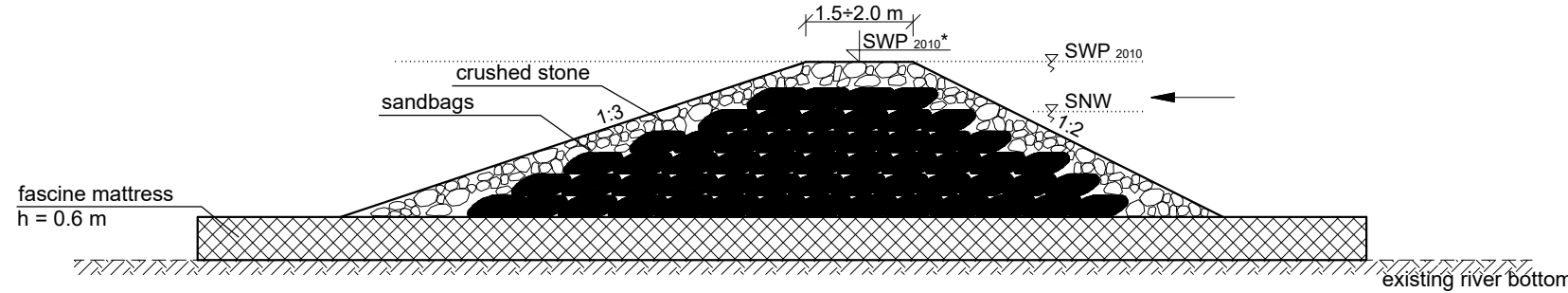
\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

Cross-section  
Stream part - type 2  
scale 1:100



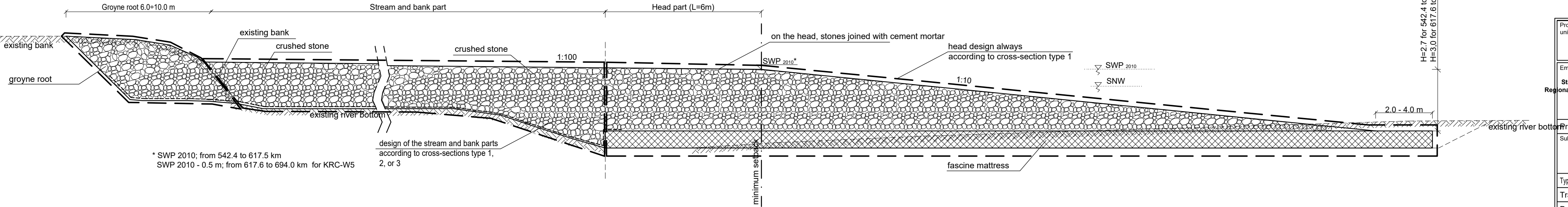
\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

Cross-section  
Stream part - type 3  
scale 1:100



\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

Longitudinal section  
scale 1:100  
[dimensions in m]; [elevations in mKr]

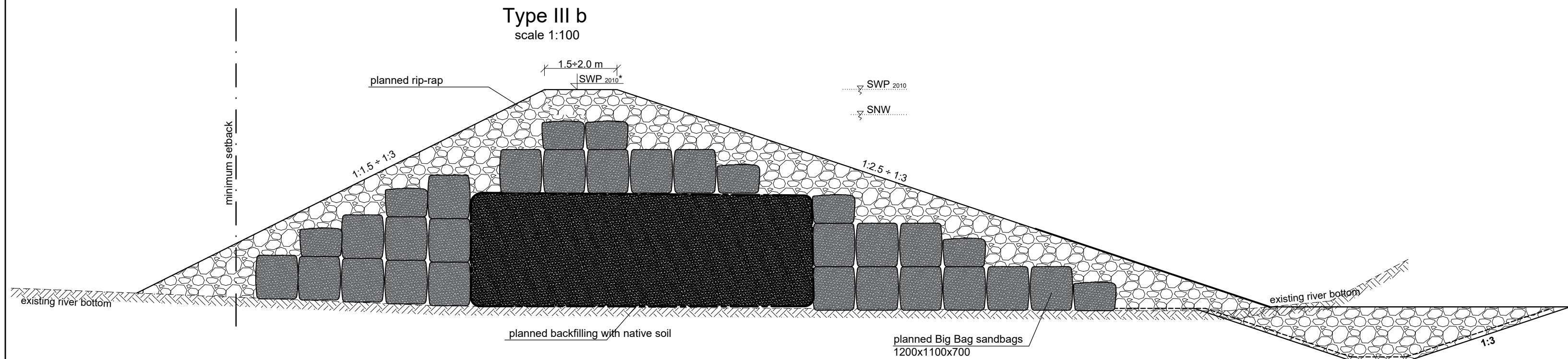
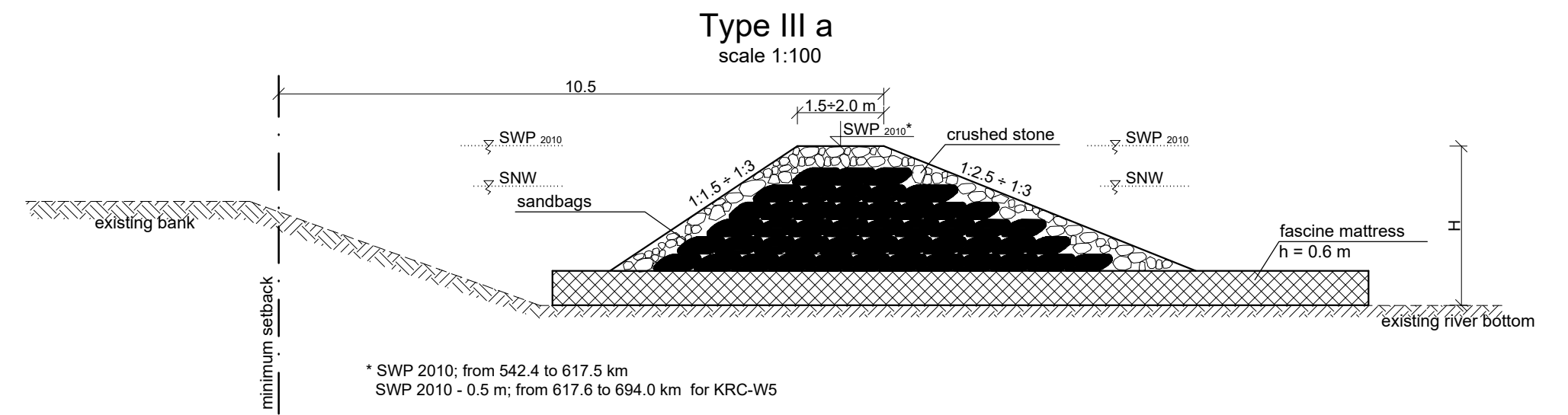
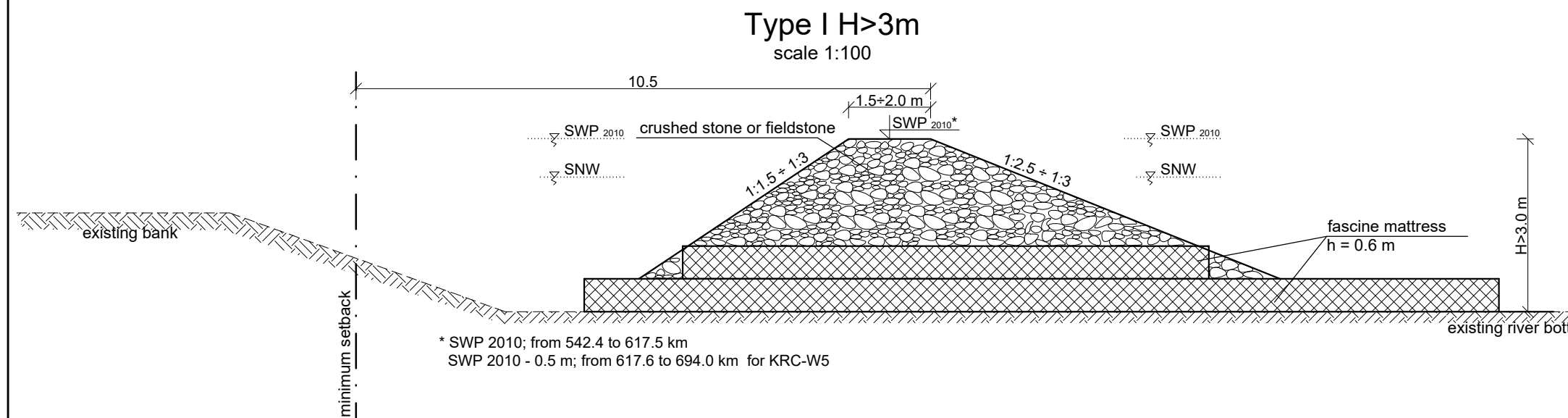
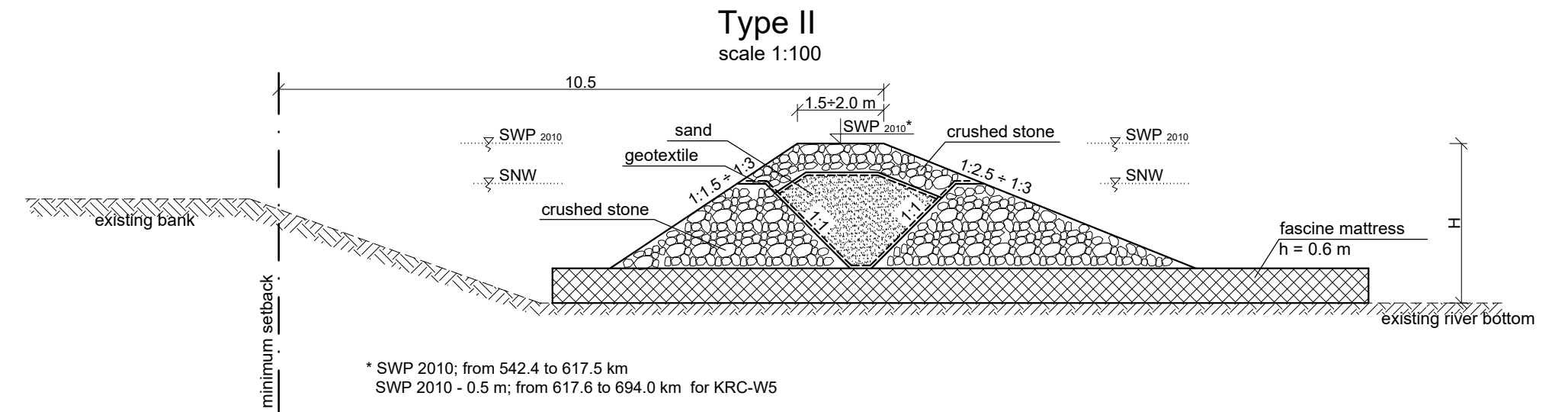
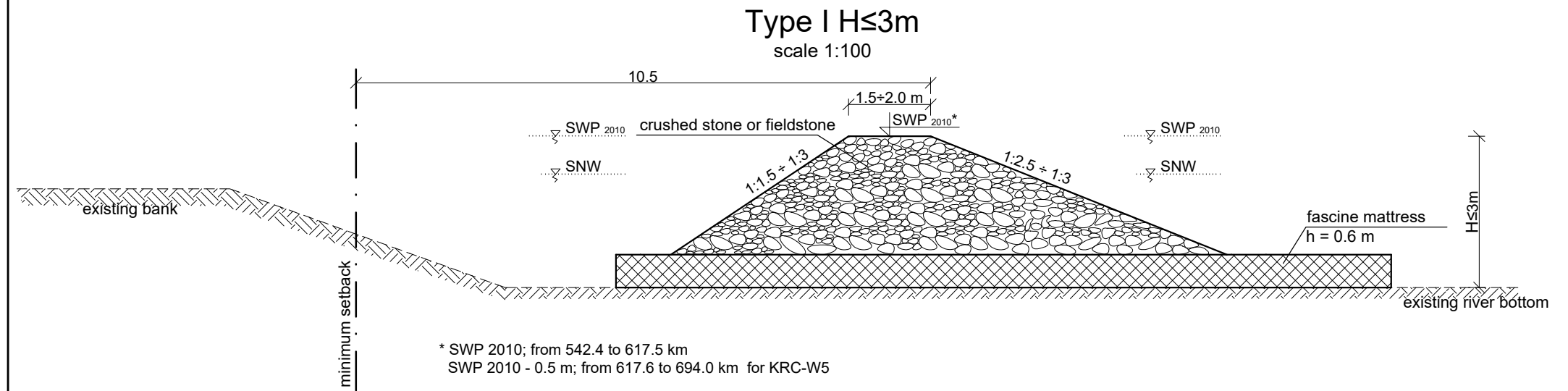


\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

- COMMENTS:
1. The type of construction of the stream part will depend on the availability of building materials.
  2. The surface of the groyne crest may be constructed as a paved structure for all three types.

|   |   |   |  |
|---|---|---|--|
| Project unit:<br><b>SWECO</b>   |   | Sweco Consulting Sp.z o.o.<br>60-829 Poznań,<br>ul. Franklina Roosevelta 22;<br>Tel. (0-61) 864 93 00;<br>Fax. (0-61) 864 93 01 | Sweco Consulting Sp.z o.o.<br>Office in Szczecin<br>71-641 Szczecin,<br>ul. Łyskowskiego 16;<br>Tel. 605 071 242 |
| Employer:<br>State Water Management Polish Waters<br>Regional Water Management Authority in Szczecin<br>ul. Tama Pomorzanska 13a<br>70-030 Szczecin   | Project title:<br>Odra-Vistula Flood Management Project Contract 5.4: Design and Construction Supervision for works, Project Management, Technical Assistance and Training Technical Support for the Project and Strengthening of PIU's Institutional Capacity for RZGW in Szczecin |   |  |
| Subject of document:<br>1B.2 Modernisation works on border Odra, Stage I: Modernisation works on border Odra to enable winter icebreaking<br>Stage II: Reconstruction of river control infrastructure |   | Project No.: 353688   | Fig. No.: 1  |
| Type of document: EMP   | Trade: Hydro engineering  | Figure title: Construction of newly-designed groynes  | Scale: 1:100   |
| Date: 04.2020   | Function: Title, full name  | Licence No., speciality   | Signature  |
| Chief designer: mgr inż. Witold Samolong  | 82/Sz/76<br>Special building qualifications hydrotechnical construction No. 875 from 48 § 13  |   |  |
| Designer: mgr inż. Łukasz Gontarz   | ZAP/0004/POOK/11<br>Engineering licence in construction and structures  |   |  |
| Checked by: mgr inż. Marek Chmielewski  | ZAP/0001/POOK/14<br>Engineering licence in construction and structures  |   |  |
| Prepared by:  |   |   |  |

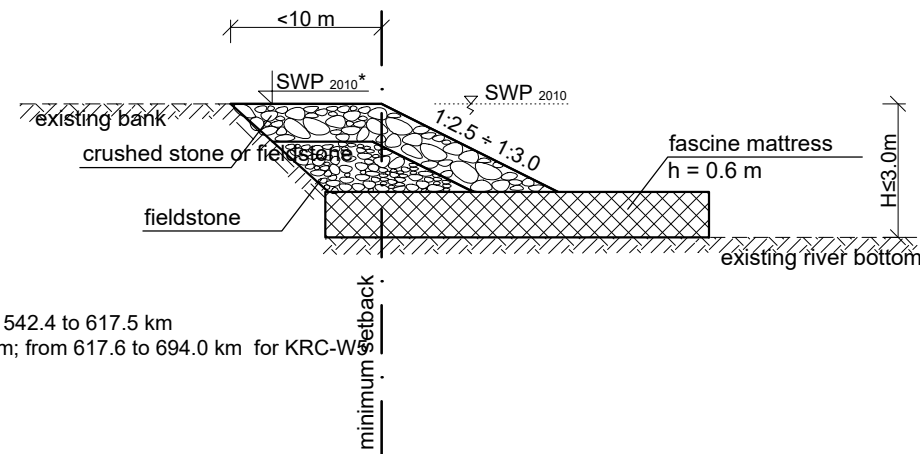
# CONSTRUCTION OF NEWLY-DESIGNED LONGITUDINAL DAMS



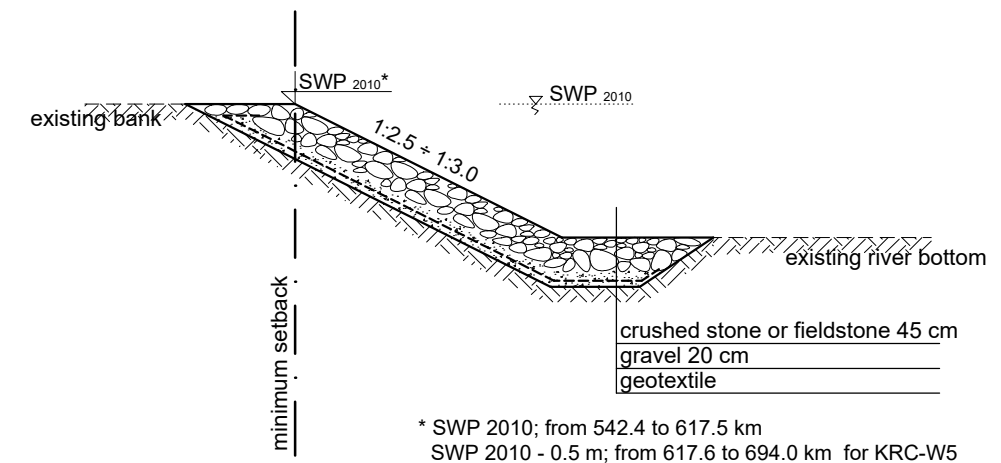
|   |   |   |  |
|---|---|---|--|
| Project unit:<br><b>SWECO</b>   |   | Sweco Consulting Sp.z o.o.<br>60-829 Poznań,<br>ul. Franklina Roosevelta 22;<br>Tel. (0-61) 864 93 00;<br>Fax. (0-61) 864 93 01 | Sweco Consulting Sp.z o.o.<br>Office in Szczecin<br>71-641 Szczecin,<br>ul. Łyskowskiego 16;<br>Tel. 605 071 242 |
| Employer:<br>State Water Management Polish Waters<br>Regional Water Management Authority in Szczecin<br>ul. Tama Pomorzańska 13a<br>70-030 Szczecin   | Project title:<br>Odra-Vistula Flood Management Project Contract 5.4: Design and Construction Supervision for works, Project Management, Technical Assistance and Training Technical Support for the Project and Strengthening of PIU's Institutional Capacity for RZGW in Szczecin | Project No.: 353688   |  |
| Subject of document:<br>1B.2 Modernisation works on border Odra, Stage I: Modernisation works on border Odra to enable winter icebreaking<br>Stage II: Reconstruction of river control infrastructure |   |   |  |
| Type of document: EMP   | Figure title:<br>Construction of newly-designed longitudinal dams   | Fig. No.: 2   |  |
| Trade: Hydro engineering  | Date: 04.2020   | Scale: 1:100  |  |
| Function:   | Title, full name  | Licence No., speciality   | Signature  |
| Chief designer:   | mgr inż. Witold Samoląg   | 82/Sz/76  |  |
| Designer:   | mgr inż. Łukasz Gontarz   | ZAP/0004/POOK/11  |  |
| Checked by:   | mgr inż. Marek Chmielewski  | ZAP/0001/POOK/14  |  |
| Prepared by:  |   |   |  |

# CONSTRUCTION OF RIVER WALLS AND REVETMENTS

River wall  $H \leq 3.0\text{m}$   
scale 1:100



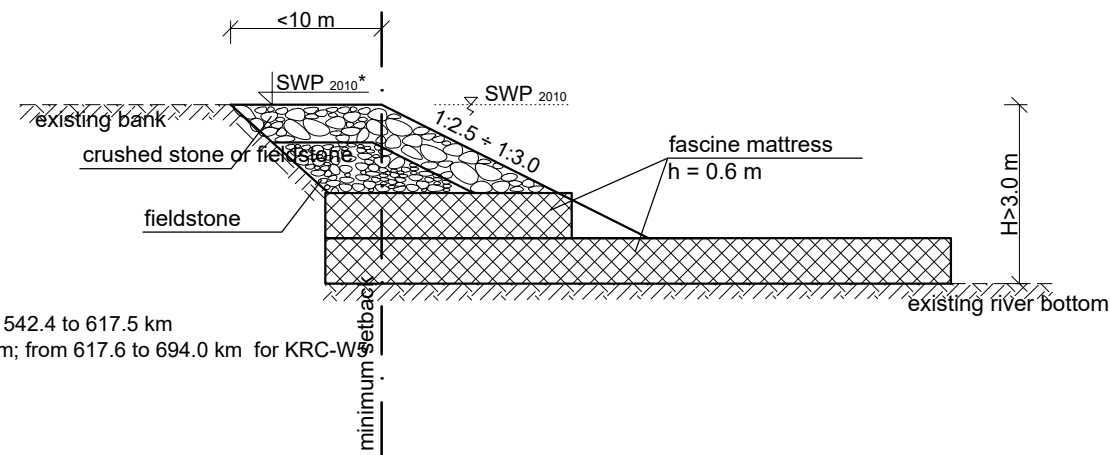
Revetment - type 1  
scale 1:100



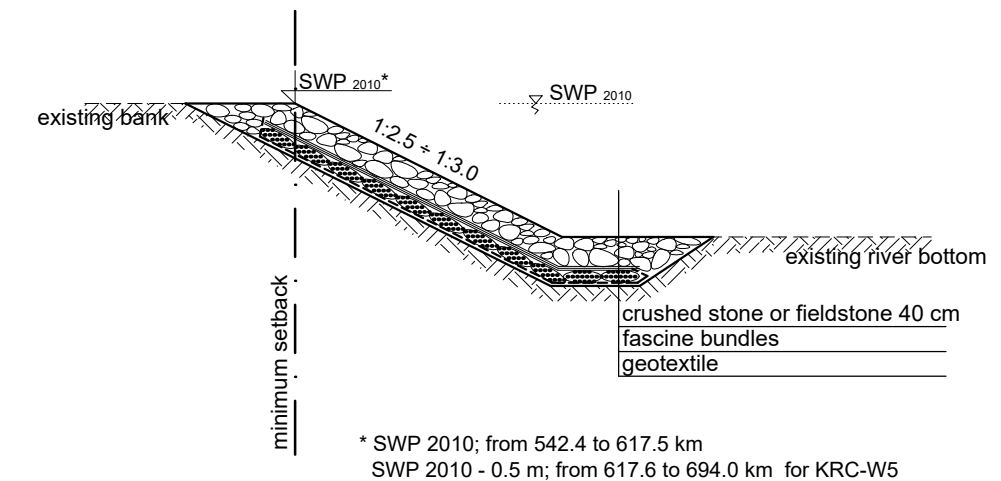
\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

River wall  $H > 3.0\text{m}$   
scale 1:100




Revetment - type 2  
scale 1:100



\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

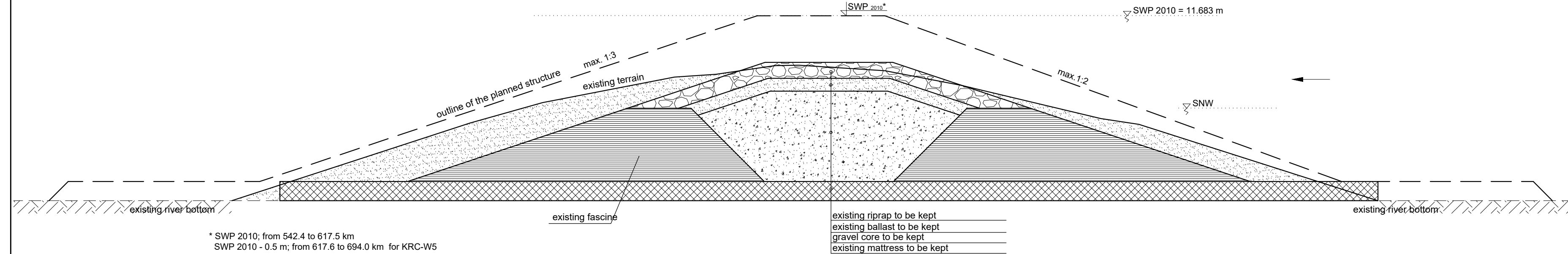
\* SWP 2010; from 542.4 to 617.5 km  
SWP 2010 - 0.5 m; from 617.6 to 694.0 km for KRC-W5

|  |   |   |  |
|--|---|---|--|
| Project unit:<br>   |   | Sweco Consulting Sp.z o.o.<br>60-829 Poznań,<br>ul. Franklina Roosevelta 22;<br>Tel. (0-61) 864 93 00;<br>Fax. (0-61) 864 93 01 | Sweco Consulting Sp.z o.o.<br>Office in Szczecin<br>71-641 Szczecin,<br>ul. Łyskowskiego 16;<br>Tel. 605 071 242 |
| Employer:<br>State Water Management Polish Waters<br>Regional Water Management Authority in Szczecin<br>ul. Tama Pomorzańska 13a<br>70-030 Szczecin  | Project title:<br>Odra-Vistula Flood Management Project Contract 5.4: Design and Construction Supervision for works, Project Management, Technical Assistance and Training Technical Support for the Project and Strengthening of PIU's Institutional Capacity for RZGW in Szczecin |   |  |
| Project No.: 353688  | Subject of document:<br>1B.2 Modernisation works on border Odra, Stage I: Modernisation works on border Odra to enable winter icebreaking<br>Stage II: Reconstruction of river control infrastructure   |   |  |
| Type of document: EMP<br>Trade: Hydro engineering<br>Date: 04.2020   | Figure title:<br>Construction of river walls and revetments   | Fig. No.:<br><b>3</b>   |  |
| Function:<br>Chief designer: mgr inż. Witold Samolong<br>Designer: mgr inż. Łukasz Gontarz<br>Checked by: mgr inż. Marek Chmielewski<br>Prepared by: | Title, full name<br>Title, full name<br>Title, full name  | Licence No., speciality<br>82/Sz/76<br>ZAP/0004/POOK/11<br>ZAP/0001/POOK/14   | Signature  |

# RECONSTRUCTION OF THE EXISTING GROUYNE

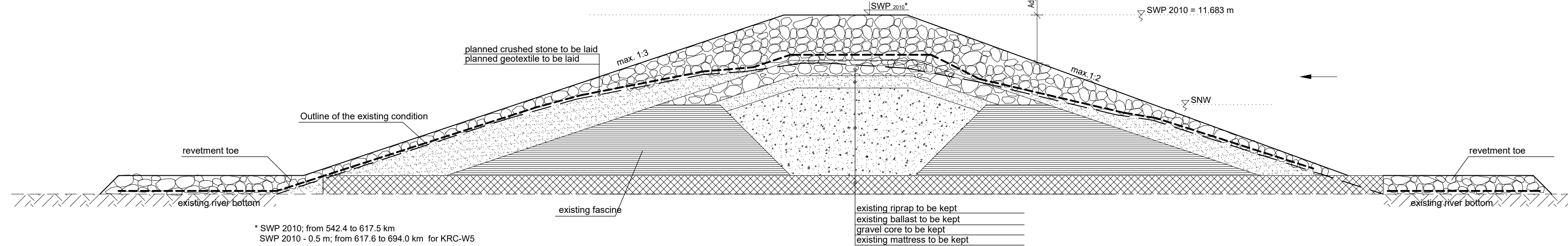
## EXISTING GROUYNE Cross-section

scale 1:50  
[dimensions in m]; [elevations in mKr]



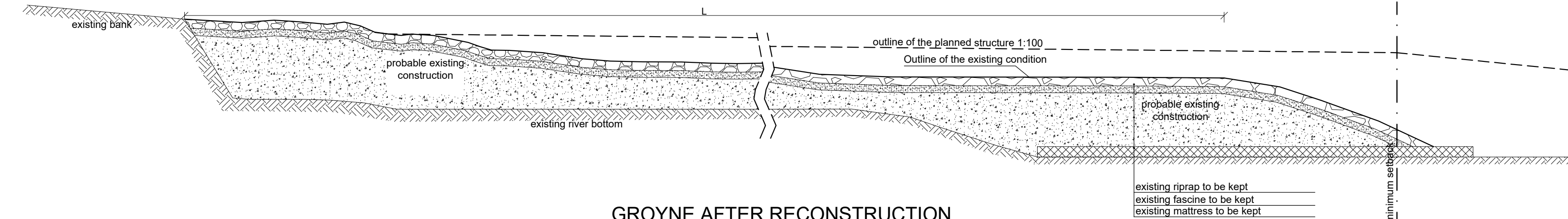
## GROUYNE AFTER RECONSTRUCTION Cross-section

scale 1:50  
[dimensions in m]; [elevations in mKr]



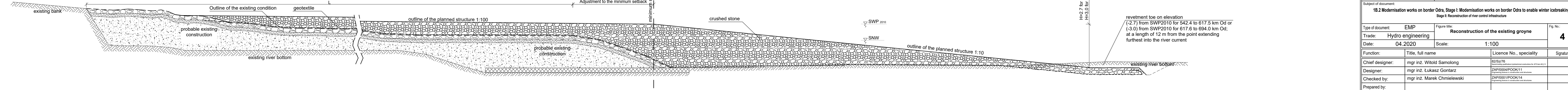
## EXISTING GROUYNE Longitudinal section

scale 1:100  
[dimensions in m]; [elevations in mKr]



## GROUYNE AFTER RECONSTRUCTION Longitudinal section

scale 1:100  
[dimensions in m]; [elevations in mKr]



### Comments:

1. Adaptation to the minimum setback consists in extending or shortening the groyne.
2. Adaptation to the regulatory elevation consists in raising or lowering the elevation of the groyne crest.
3. If the groyne crest elevation is lowered or raised by  $h < 50$  cm, the surface of the existing groyne should be demolished to a depth that will enable the laying of new riprap

|   |   |   |   |
|---|---|---|---|
| Project unit:<br><b>SWECO</b>   |   | Sweco Consulting Sp.z o.o.<br>60-829 Poznań,<br>ul. Franklina Roosevelta 22;<br>Tel. (0-61) 864 93 00;<br>Fax. (0-61) 864 93 01 | Sweco Consulting Sp.z o.o.<br>Office in Szczecin<br>71-641 Szczecin<br>ul. Lyskowski 16;<br>Tel. 605 071 242  |
| Employer:<br>State Water Management Polish Waters<br>Regional Water Management Authority in Szczecin<br>ul. Tama Pomorzanska 13a<br>70-030 Szczecin | Project title:<br>Odra-Vistula Flood Management Project Contract 5.4: Design and Construction Supervision for works, Project Management, Technical Assistance and Training Technical Support for the Project and Strengthening of PIU's Institutional Capacity for RZGW in Szczecin | Project No.:<br>353688  | Subject of document:<br>1B.2 Modernisation works on border Odra, Stage I: Modernisation works on border Odra to enable winter icebreaking<br>Stage II: Reconstruction of river control infrastructure |
| Type of document:<br>EMP  | Figure title:<br>Reconstruction of the existing groyne  | Fig. No.:<br>4  |   |
| Trade:<br>Hydro engineering   | Date:<br>04.2020  | Scale:<br>1:100   |   |
| Function:<br>Title, full name   | Licence No., speciality   | Signature   |   |
| Chief designer:<br>mgr inż. Witold Samoląg  | 82/Sz/76  |   |   |
| Designer:<br>mgr inż. Lukasz Gontarz  | ZAP/0004/POOK/11  |   |   |
| Checked by:<br>mgr inż. Marek Chmielewski   | ZAP/0001/POOK/14  |   |   |
| Prepared by:  |   |   |   |