

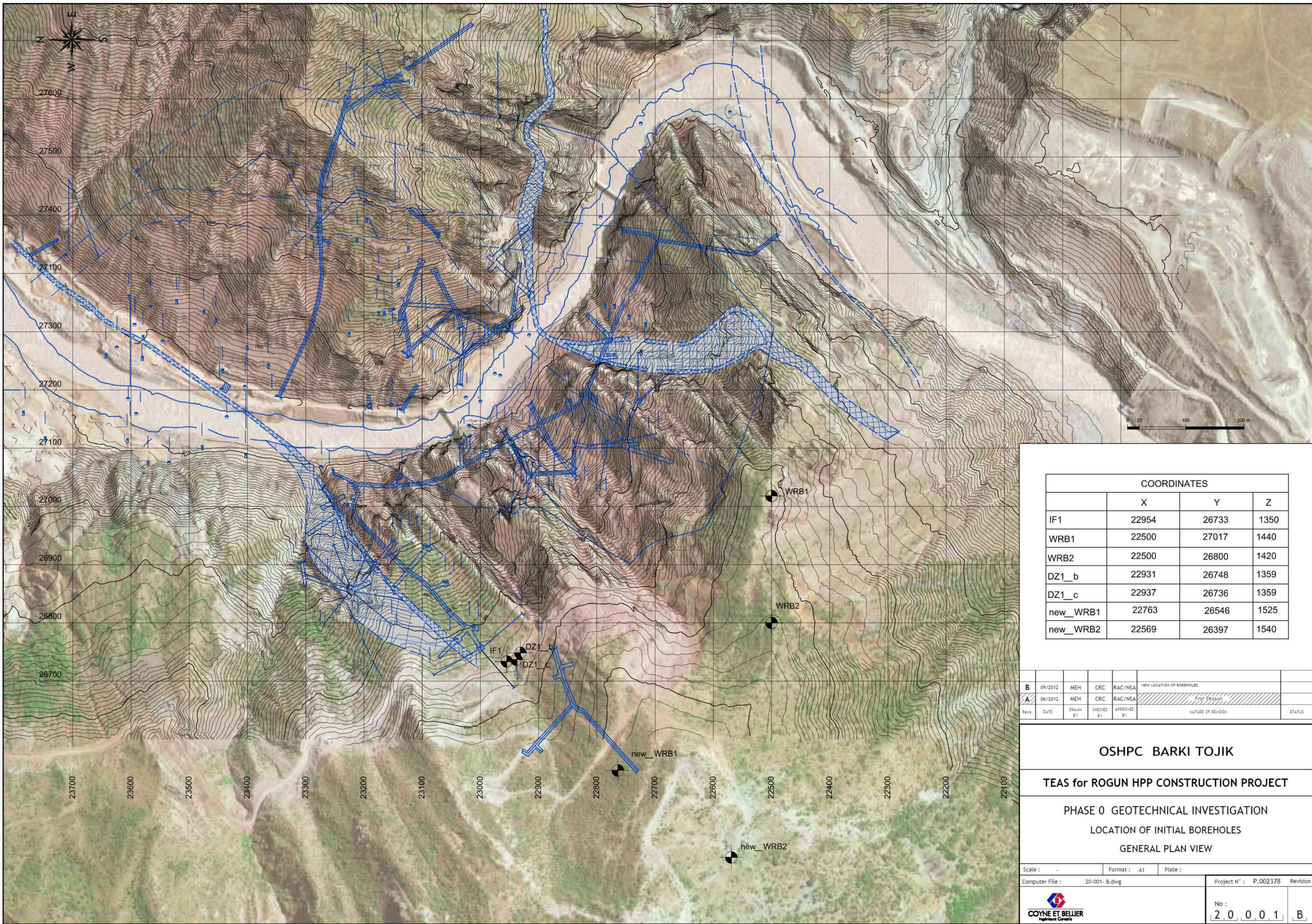
Volume 3: Engineering & Design

Chapter 4 : Drawings

| Drawing N° | | Rev. | TITLE | | |
|---|-----|------|--------------------------------------|--------------------------------------|---|
| Geology | | | | | |
| 20 | 001 | A | Phase 0 - Geotechnical Investigation | Location of initial boreholes | General Plan view |
| Access | | | | | |
| 30 | 001 | B | General Plan View | | |
| 30 | 002 | B | General Plan View | | |
| 30 | 003 | B | General Layout | | |
| 30 | 004 | B | General Plan View | | |
| 30 | 005 | B | Roads Profiles | General plan view | |
| 30 | 006 | A | Roads Profiles | Access road from Douchanbe & Obigarm | |
| 30 | 007 | B | General Plan View | Existing road | |
| 30 | 008 | B | General plan view | Batching Plants and Aggregate Plants | Layout |
| Ionakhsh fault treatment | | | | | |
| 40 | 001 | A | Ionakhsh Fault Treatment | Plan View | Sections - Details |
| 40 | 002 | A | Ionakhsh Fault Treatment | Salt rise & Salt Leaching | Monitoring - Principles |
| Alternative 1 - FSL=1290 m.a.s.l | | | | | |
| 40 | 101 | A | Dam Alternative FSL=1290 m.a.s.l | Dam Plan View | |
| 40 | 102 | A | Dam Alternative FSL=1290 m.a.s.l | Section A-A | Crest Details |
| 40 | 103 | A | Dam Alternative FSL=1290 m.a.s.l | Stage 1 at 1110 m.a.s.l | Plan view - Sections |
| 40 | 104 | A | Dam Alternative FSL=1290 m.a.s.l | Core Excavation Details | Plan view |
| 40 | 105 | A | Dam Alternative FSL=1290 m.a.s.l | Core Excavation Details | Elevation Upstream & Downstream |
| 40 | 106 | A | Dam Alternative FSL=1290 m.a.s.l | Three Dimensional Model View | Plan view |
| 40 | 107 | A | Dam Alternative FSL=1290 m.a.s.l | Three Dimensional Model View | Upstream view |
| 40 | 108 | A | Dam Alternative FSL=1290 m.a.s.l | Three Dimensional Model View | Downstream view |
| 40 | 111 | B | Dam Alternative FSL 1290 m a.s.l. | Diversion Tunnels | General Plan |
| 40 | 113 | B | Dam Alternative FSL 1290 m a.s.l. | High Level Tunnel Spillways | General Plan |
| 40 | 114 | A | Dam Alternative FSL 1290 m a.s.l. | Mid Level Outlets | General Plan |
| 40 | 115 | A | Dam Alternative FSL 1290 m a.s.l. | Mid Level Outlet 1 | Inlet Culvert |
| 40 | 117 | B | Dam Alternative FSL 1290 m a.s.l. | Surface Spillway - First Stage | General Plan |
| 40 | 118 | B | Dam Alternative FSL 1290 m a.s.l. | Surface Spillway - Final Stage | General Plan |
| 40 | 119 | B | Dam Alternative FSL 1290 m a.s.l. | - | General Layout - First Stage |
| 40 | 120 | B | Dam Alternative FSL 1290 m a.s.l. | - | General Layout - Final Stage |
| 40 | 121 | B | Dam FSL 1290 - 1255 - 1220 | DT3 Tunnel | Profile, Intake, Gates Chamber and Sections |
| 40 | 122 | B | Dam FSL 1290 - 1255 - 1220 | DT3 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 123 | A | Dam FSL 1290 - 1255 - 1220 | DT3 Tunnel | Fault Crossing Structure - Pressure Stretch |
| 40 | 124 | A | Dam FSL 1290 - 1255 - 1220 | DT3 Tunnel | Fault Crossing Structure - Free Flow Stretch |
| 40 | 134 | A | Dam FSL 1290 - 1255 - 1220 | MLO1 Tunnel | Profile, Intake, Gates Chamber and Sections |
| 40 | 135 | A | Dam FSL 1290 - 1255 - 1220 | MLO1 Tunnel | Profile, Gates Chamber and Sections |
| 40 | 136 | A | Dam FSL 1290 - 1255 - 1220 | MLO1 Tunnel | Outlet - Plan and Profile |
| 40 | 141 | B | Dam FSL 1290 | MLO2 Tunnel | Profile, Intake, Gates Chamber and Sections |

| Drawing N° | | Rev. | TITLE | | |
|--|-----|------|-----------------------------------|--------------------------------|---|
| 40 | 142 | B | Dam FSL 1290 | MLO2 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 143 | B | Dam FSL 1290 | MLO2 Tunnel | Vortex Chambers and Shafts - Plan and Sections |
| 40 | 144 | A | Dam FSL 1290 | MLO2 Tunnel | Fault Crossing Structure |
| 40 | 151 | B | Dam FSL 1290 | HLST1 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 152 | B | Dam FSL 1290 | HLST1 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 153 | B | Dam FSL 1290 | HLST1 Tunnel | Outlet - Profile and Sections |
| 40 | 154 | B | Dam FSL 1290 | HLST2 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 155 | B | Dam FSL 1290 | HLST2 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 156 | B | Dam FSL 1290 | HLST2 Tunnel | Outlet - Profile and Sections |
| 40 | 171 | B | Dam Alternative FSL=1290 m a.s.l. | Surface Spillway | Final Stage - Plan View |
| 40 | 172 | A | Dam Alternative FSL=1290 m a.s.l. | Surface Spillway | Final Stage - Longitudinal Profile Along Tunnel 5 & 6 Axis and Sections |
| 40 | 173 | B | Dam Alternative FSL=1290 m a.s.l. | Surface Spillway | First Stage - Plan View |
| 40 | 174 | B | Dam Alternative FSL=1290 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profiles Along Tunnel 2, 3 & 4 |
| 40 | 175 | B | Dam Alternative FSL=1290 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profile Along Tunnel 1 Axis and Sections |
| 40 | 181 | A | Dam FSL 1290 | Multi Level Intakes | General Plan |
| 40 | 182 | A | Dam FSL 1290 | Multi Level Intakes | Plan View and Sections |
| 40 | 183 | A | Dam FSL 1290 | Multi Level Intakes | Typical Profile |
| Alternative 2- FSL=1255 m.a.s.l | | | | | |
| 40 | 201 | A | Dam Alternative FSL=1255 m.a.s.l | Dam plan view | |
| 40 | 202 | A | Dam Alternative FSL=1255 m.a.s.l | Section A-A | Crest details |
| 40 | 203 | A | Dam Alternative FSL=1255 m.a.s.l | Stage 1 at 1090 m.a.s.l | Plan view - Sections |
| 40 | 204 | A | Dam Alternative FSL=1255 m.a.s.l | Core excavation details | Plan view |
| 40 | 205 | A | Dam Alternative FSL=1255 m.a.s.l | Core excavation details | Elevation upstream & downstream |
| 40 | 206 | A | Dam Alternative FSL=1255 m.a.s.l | Three Dimensional Model View | Plan view |
| 40 | 207 | A | Dam Alternative FSL=1255 m.a.s.l | Three Dimensional Model View | Upstream view |
| 40 | 208 | A | Dam Alternative FSL=1255 m.a.s.l | Three Dimensional Model View | Downstream view |
| 40 | 211 | B | Dam Alternative FSL 1255 m a.s.l. | Diversion Tunnels | General Plan |
| 40 | 213 | B | Dam Alternative FSL 1255 m a.s.l. | High Level Tunnel Spillways | General Plan |
| 40 | 214 | A | Dam Alternative FSL 1255 m a.s.l. | Mid Level Outlet | General Plan |
| 40 | 217 | B | Dam Alternative FSL 1255 m a.s.l. | Surface Spillway - First Stage | General Plan |
| 40 | 218 | B | Dam Alternative FSL 1255 m a.s.l. | Surface Spillway - Final Stage | General Plan |
| 40 | 219 | B | Dam Alternative FSL 1255 m a.s.l. | - | General Layout - First Stage |
| 40 | 220 | B | Dam Alternative FSL 1255 m a.s.l. | - | General Layout - Final Stage |
| 40 | 251 | B | Dam FSL 1255 | HLST1 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 252 | B | Dam FSL 1255 | HLST1 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 253 | B | Dam FSL 1255 | HLST1 Tunnel | Outlet - Profile and Sections |
| 40 | 254 | B | Dam FSL 1255 | HLST2 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 255 | B | Dam FSL 1255 | HLST2 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 256 | B | Dam FSL 1255 | HLST2 Tunnel | Outlet - Profile and Sections |
| 40 | 257 | B | Dam FSL 1255 | HLST3 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 258 | B | Dam FSL 1255 | HLST3 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 259 | B | Dam FSL 1255 | HLST3 Tunnel | Outlet - Profile and Sections |
| 40 | 271 | B | Dam Alternative FSL=1255 m a.s.l. | Surface Spillway | Final Stage - Plan View |
| 40 | 272 | A | Dam Alternative FSL=1255 m a.s.l. | Surface Spillway | Final Stage - Longitudinal Profile Along Tunnel 5 & 6 Axis and Sections |

| Drawing N° | | Rev. | TITLE | | |
|---|-----|------|-----------------------------------|--------------------------------|---|
| 40 | 273 | B | Dam Alternative FSL=1255 m a.s.l. | Surface Spillway | First Stage - Plan View |
| 40 | 274 | B | Dam Alternative FSL=1255 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profiles Along Tunnel 2, 3 & 4 |
| 40 | 275 | B | Dam Alternative FSL=1255 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profile Along Tunnel 1 Axis and Sections |
| 40 | 281 | A | Dam FSL 1255 | Multi Level Intakes | General Plan |
| 40 | 282 | A | Dam FSL 1255 | Multi Level Intakes | Plan View and Sections |
| 40 | 283 | A | Dam FSL 1255 | Multi Level Intakes | Typical Profile |
| Alternative 3 - FSL=1220 m.a.s.l | | | | | |
| 40 | 301 | A | Dam Alternative FSL=1220 m.a.s.l | Dam plan view | |
| 40 | 302 | A | Dam Alternative FSL=1220 m.a.s.l | Section A-A | Crest details |
| 40 | 303 | A | Dam Alternative FSL=1220 m.a.s.l | Stage 1 at 1075 m.a.s.l | Plan view - Sections |
| 40 | 304 | A | Dam Alternative FSL=1220 m.a.s.l | Core excavation details | Plan view |
| 40 | 305 | A | Dam Alternative FSL=1220 m.a.s.l | Core excavation details | Elevation upstream & downstream |
| 40 | 306 | A | Dam Alternative FSL=1220 m.a.s.l | Three Dimensional Model View | Plan view |
| 40 | 307 | A | Dam Alternative FSL=1220 m.a.s.l | Three Dimensional Model View | Upstream view |
| 40 | 308 | A | Dam Alternative FSL=1220 m.a.s.l | Three Dimensional Model View | Downstream view |
| 40 | 311 | B | Dam Alternative FSL 1220 m a.s.l. | Diversion Tunnels | General Plan |
| 40 | 313 | B | Dam Alternative FSL 1220 m a.s.l. | High Level Tunnel Spillway | General Plan |
| 40 | 314 | A | Dam Alternative FSL 1220 m a.s.l. | Mid Level Outlet | General Plan |
| 40 | 317 | A | Dam Alternative FSL 1220 m a.s.l. | Surface Spillway - First Stage | General Plan |
| 40 | 318 | B | Dam Alternative FSL 1220 m a.s.l. | Surface Spillway - Final Stage | General Plan |
| 40 | 319 | B | Dam Alternative FSL 1220 m a.s.l. | - | General Layout - First Stage |
| 40 | 320 | A | Dam Alternative FSL 1220 m a.s.l. | - | General Layout - Final Stage |
| 40 | 351 | B | Dam FSL 1220 | HLST1 Tunnel | Profile, Intake, Gates Chamber and Section |
| 40 | 352 | B | Dam FSL 1220 | HLST1 Tunnel | Gates Chamber and Outlet - Profile, Plan and Sections |
| 40 | 353 | B | Dam FSL 1220 | HLST1 Tunnel | Outlet - Profile and Sections |
| 40 | 371 | B | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | Final Stage - Plan View |
| 40 | 372 | B | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | Final Stage - Longitudinal Profile Along Tunnel 1 Axis and Sections |
| 40 | 373 | B | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | Final Stage - Longitudinal Profiles Along Tunnel 3 & 2 |
| 40 | 374 | B | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | Final Stage - Longitudinal Profiles Along Tunnel 4, 5 & 6 |
| 40 | 375 | A | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | First Stage - Plan View |
| 40 | 376 | A | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profile Along Tunnel 1 Axis and Sections |
| 40 | 377 | A | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profiles Along Tunnel 3 & 2 |
| 40 | 378 | A | Dam Alternative FSL=1220 m a.s.l. | Surface Spillway | First Stage - Longitudinal Profiles Along Tunnel 4 |
| 40 | 381 | A | Dam FSL 1220 | Multi Level Intakes | General Plan |
| 40 | 382 | A | Dam FSL 1220 | Multi Level Intakes | Plan View and Sections |
| 40 | 383 | A | Dam FSL 1220 | Multi Level Intakes | Typical Profile |
| Dam monitoring | | | | | |
| 40 | 401 | A | Dam monitoring | Principles | Dam plan view |
| 40 | 402 | A | Dam monitoring | Principles | Section |




| COORDINATES | | | |
|-------------|-------|-------|------|
| | X | Y | Z |
| IF1 | 22954 | 26733 | 1350 |
| WRB1 | 22500 | 27017 | 1440 |
| WRB2 | 22500 | 26800 | 1420 |
| DZ1_b | 22931 | 26748 | 1359 |
| DZ1_c | 22937 | 26736 | 1359 |
| new_WRB1 | 22763 | 26546 | 1525 |
| new_WRB2 | 22569 | 26397 | 1540 |

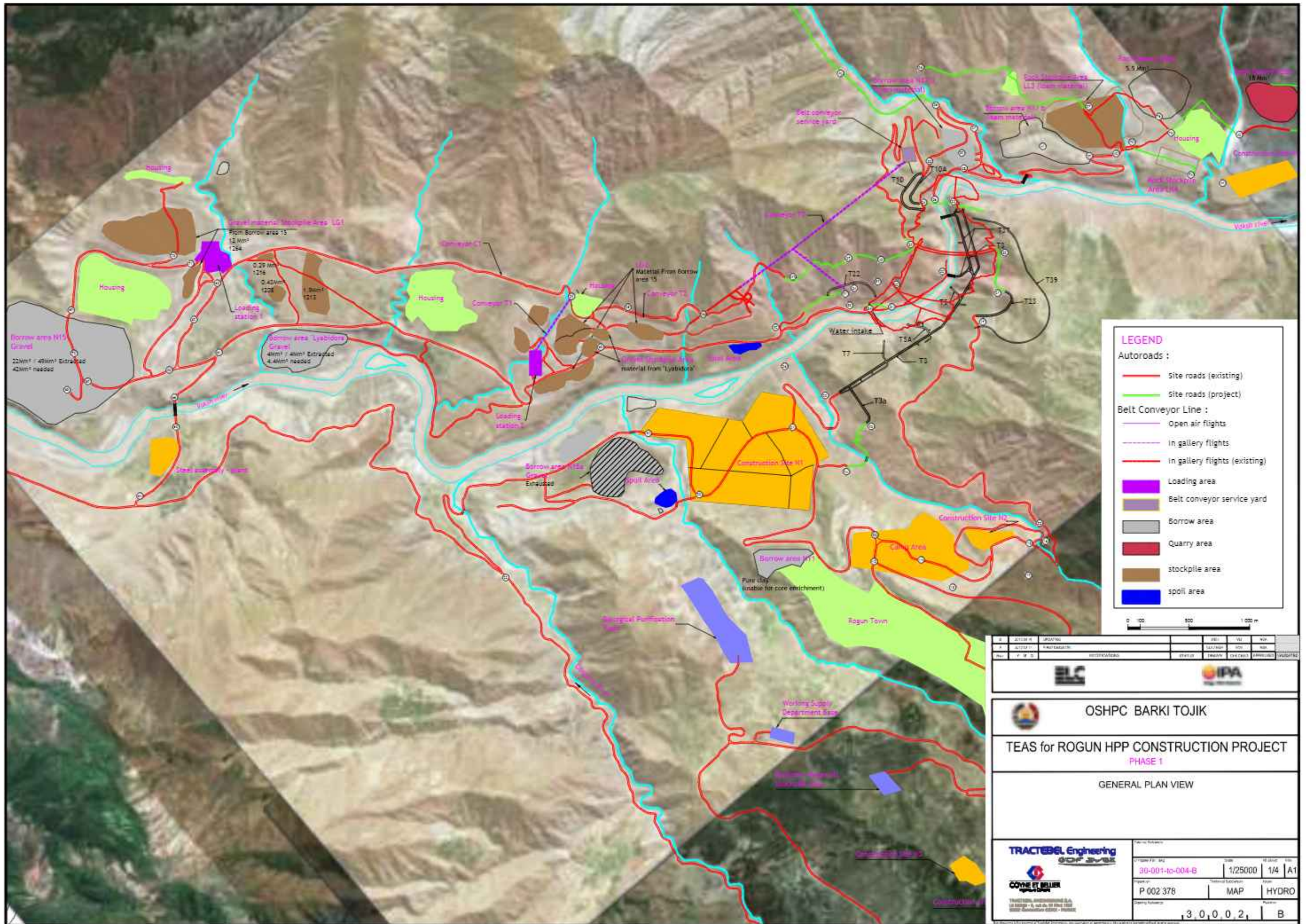
| Revis | DATE | DRAWN BY | CHECKED BY | APPROVED BY | NATURE OF REVISION | STATUS |
|-------|---------|----------|------------|-------------|---------------------------|--------|
| B | 09/2012 | MEH | CRC | RAC/NSA | NEW LOCATION OF BOREHOLES | |
| A | 06/2012 | MEH | CRC | RAC/NSA | First Edition | |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE 0 GEOTECHNICAL INVESTIGATION
LOCATION OF INITIAL BOREHOLES
GENERAL PLAN VIEW

| | | |
|---|---------------|----------------------------|
| Scale : | Format : A1 | Plate : |
| Computer File : | 20-001- B.dwg | Project N° : P.002378 |
|  | | No : 2 0 0 0 1 B |



LEGEND

Autoroads :

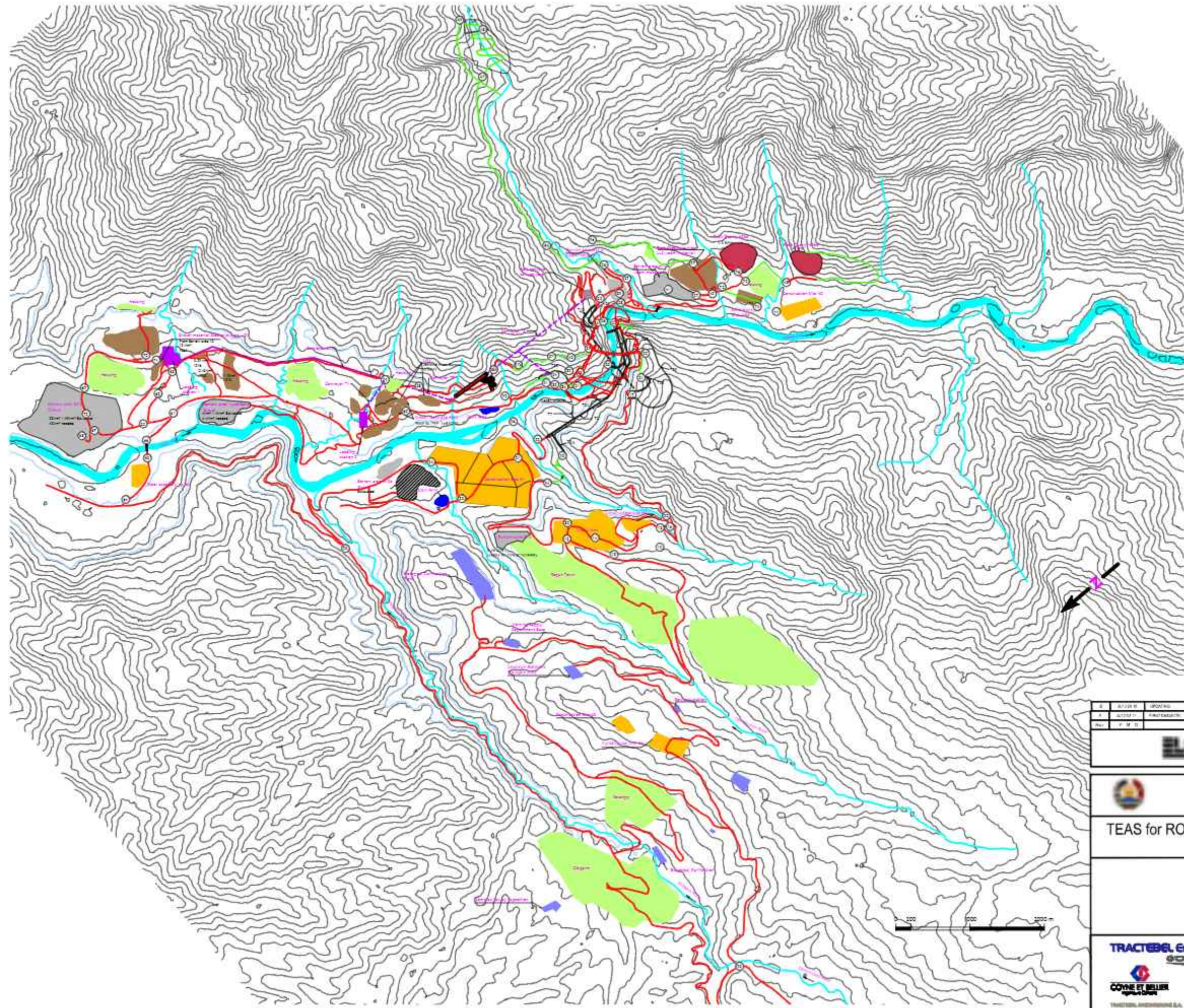
- Site roads (existing)
- Site roads (project)

Belt Conveyor Line :

- Open air flights
- In gallery flights
- In gallery flights (existing)

- Loading area
- Belt conveyor service yard
- Borrow area
- Quarry area
- stockpile area
- spoil area

| | | | |
|---|-----------------------------|-----------------------------|--------------------------------------|
| | | | |
| | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 1 | | | |
| GENERAL PLAN VIEW | | | |
| | | | |
| Project No: 30-001-to-004-B | Scale: 1/25000 | Drawing No: 1/4 | Date: A1 |
| Project Code: P 002 378 | Drawing Type: MAP | Discipline: HYDRO | Revision: 3, 0, 0, 0, 2, B |



LEGEND

Autoroads :

- Site roads (existing)
- Site roads (project)

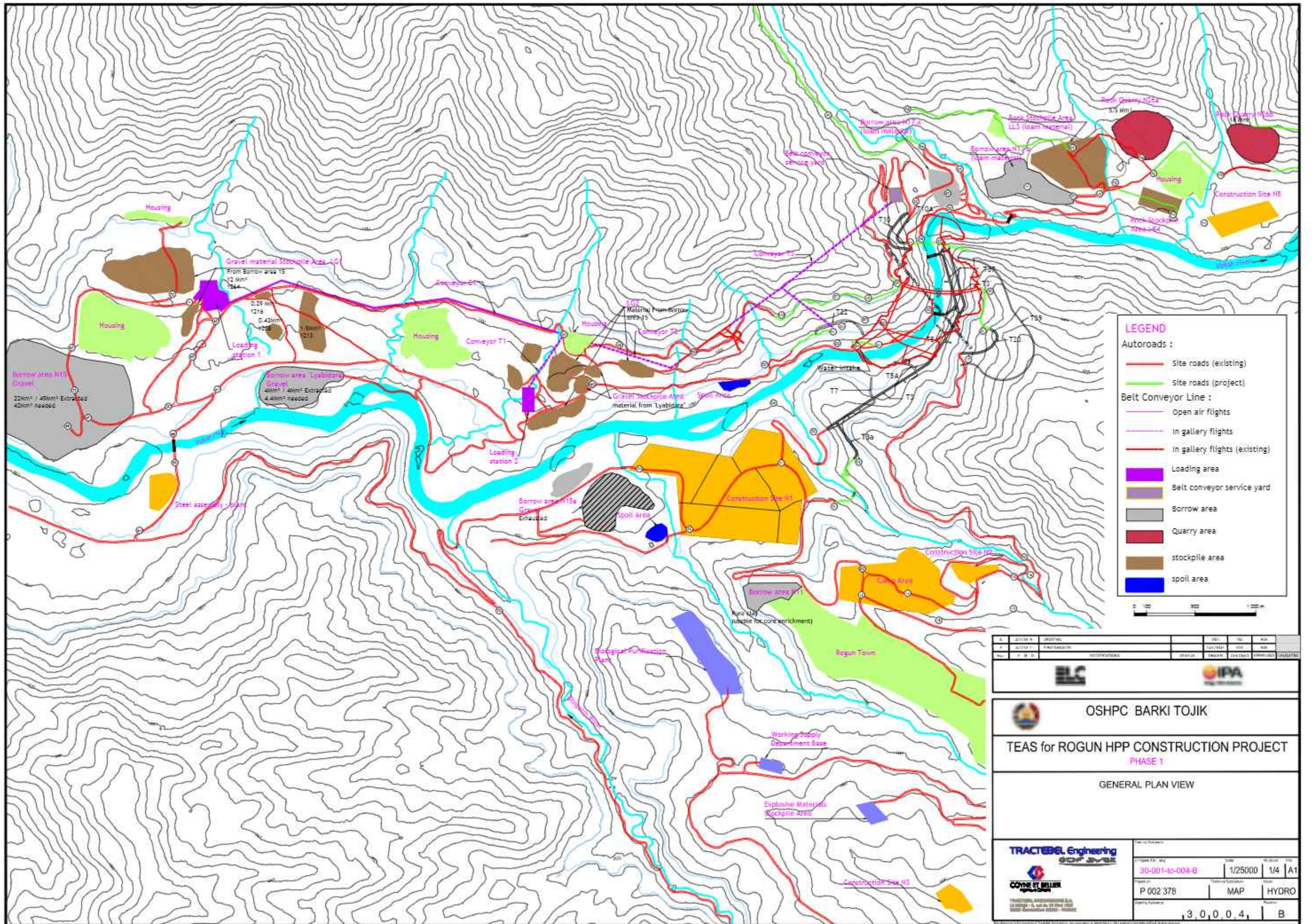
Belt Conveyor Line :

- Open air flights
- In gallery flights
- In gallery flights (existing)

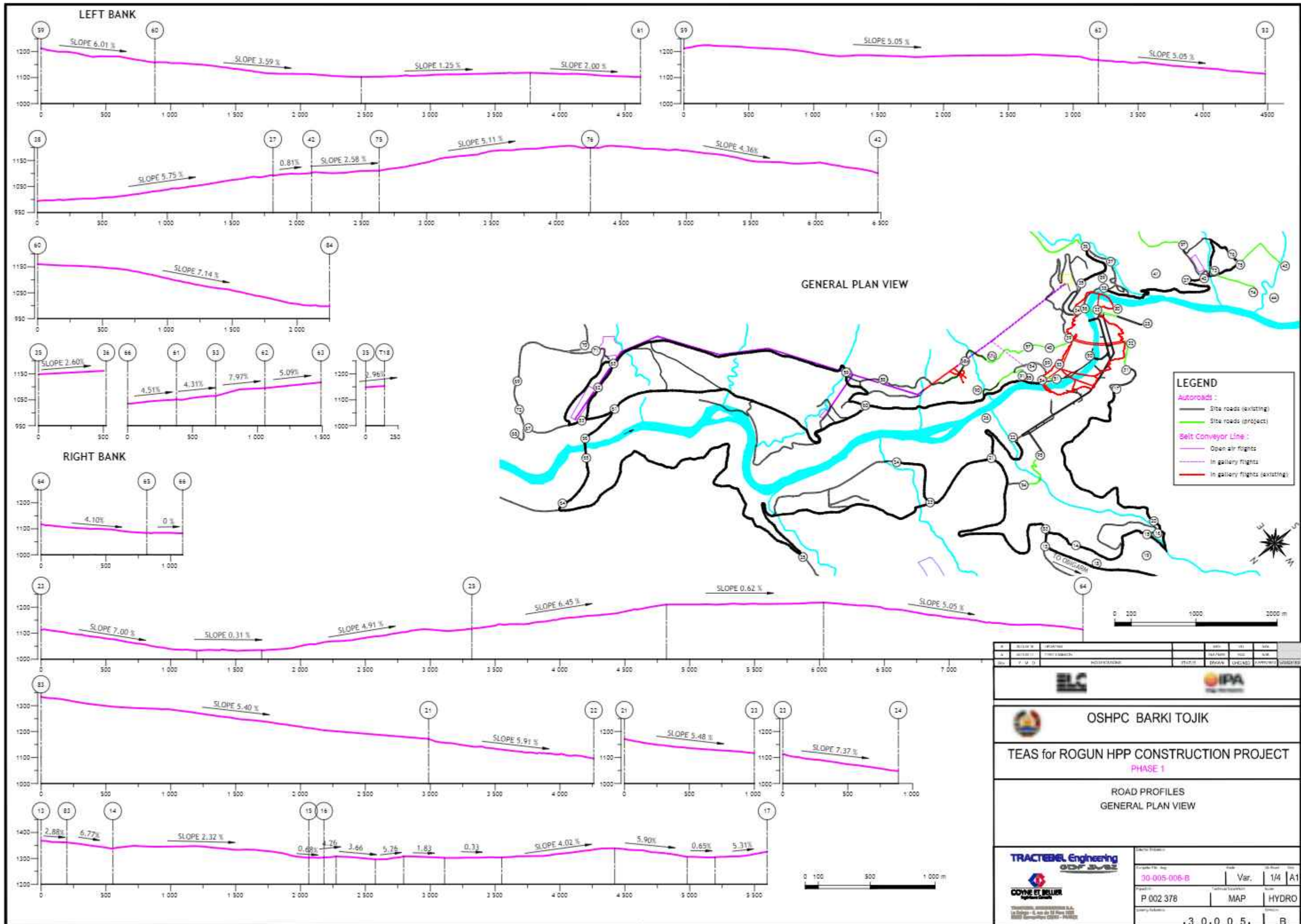
- Loading area
- Belt conveyor service yard
- Borrow area
- Quarry area
- stockpile area
- spoil area

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-----------------|---------|-------------|-------|--------|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------|-----------------|--------|---------|--------|-----|--------|----|----------|-----------|-----------------|-----|-------------|-------|----|----|--------------------|-----------|----|----|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GENERAL PLAN VIEW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | <table border="1"> <tr> <td>Project No:</td> <td>30-001-to-004-B</td> <td>Scale:</td> <td>1/25000</td> <td>Sheet:</td> <td>1/4</td> <td>Block:</td> <td>A1</td> </tr> <tr> <td>Project:</td> <td>P 002 378</td> <td>Sheet Location:</td> <td>MAP</td> <td>Discipline:</td> <td>HYDRO</td> <td colspan="2"></td> </tr> <tr> <td>Project Reference:</td> <td colspan="3">3 0 0 0 3</td> <td>Block:</td> <td colspan="2">B</td> <td></td> </tr> </table> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Project No: | 30-001-to-004-B | Scale: | 1/25000 | Sheet: | 1/4 | Block: | A1 | Project: | P 002 378 | Sheet Location: | MAP | Discipline: | HYDRO | | | Project Reference: | 3 0 0 0 3 | | | Block: | B | | | | | | | | | | | | | | | | | | |
| Project No: | 30-001-to-004-B | Scale: | 1/25000 | Sheet: | 1/4 | Block: | A1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project: | P 002 378 | Sheet Location: | MAP | Discipline: | HYDRO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Reference: | 3 0 0 0 3 | | | Block: | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

L:\PROJETS\2010\2010-001\2010-001-004-B\2010-001-004-B-001.dwg



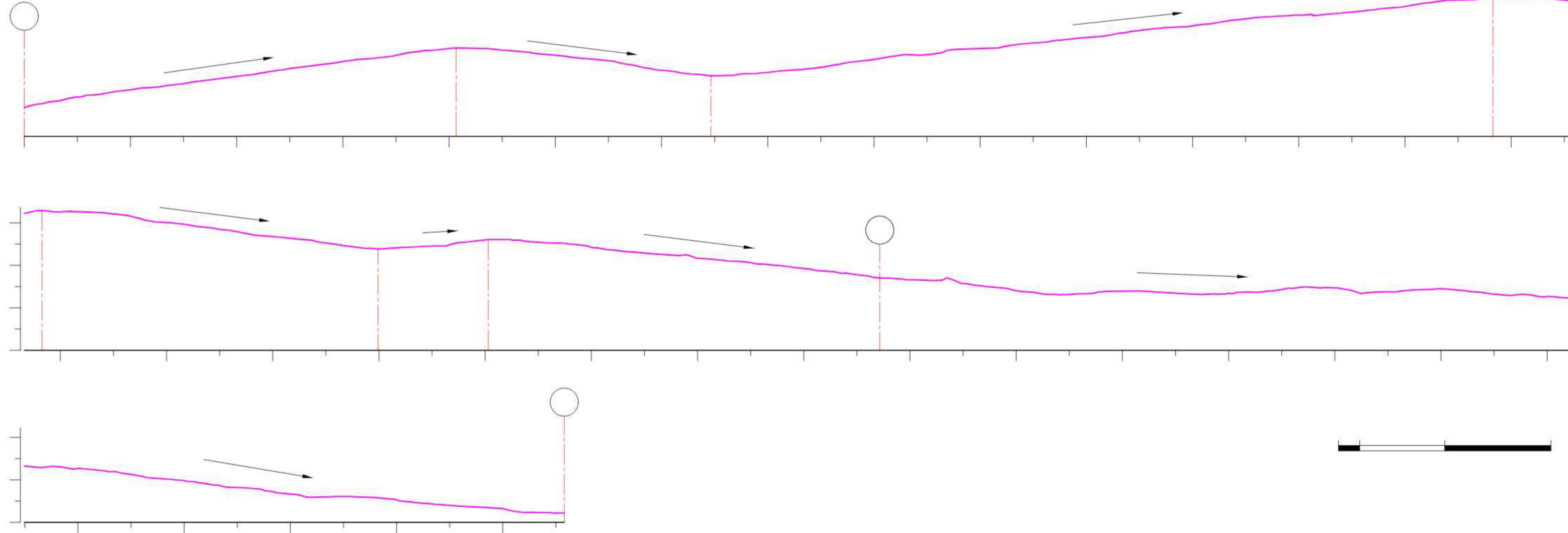
| | | | | | | | | |
|--|------------|-------------------------|-------|--|-----|------------|----------|-------|
| № | DATE | BY | FOR | SCALE | NO. | DATE | BY | FOR |
| 1 | 2023.04.10 | TRACETEL | OSHPC | 1:25000 | 1/4 | 2023.04.10 | TRACETEL | OSHPC |
| ILC | | IPA | | OSHPC BARKI TOJK | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | | | | | | |
| PHASE 1 | | | | | | | | |
| GENERAL PLAN VIEW | | | | | | | | |
| TRACTEBEL Engineering | | COYNE ET BELLIER | | Project No: 30-001-to-004-B Scale: 1/25000 Sheet: 1/4 A1 Drawing No: P 002 378 Title: MAP Discipline: HYDRO Revision: 3, 0, 0, 0, 4, B | | | | |



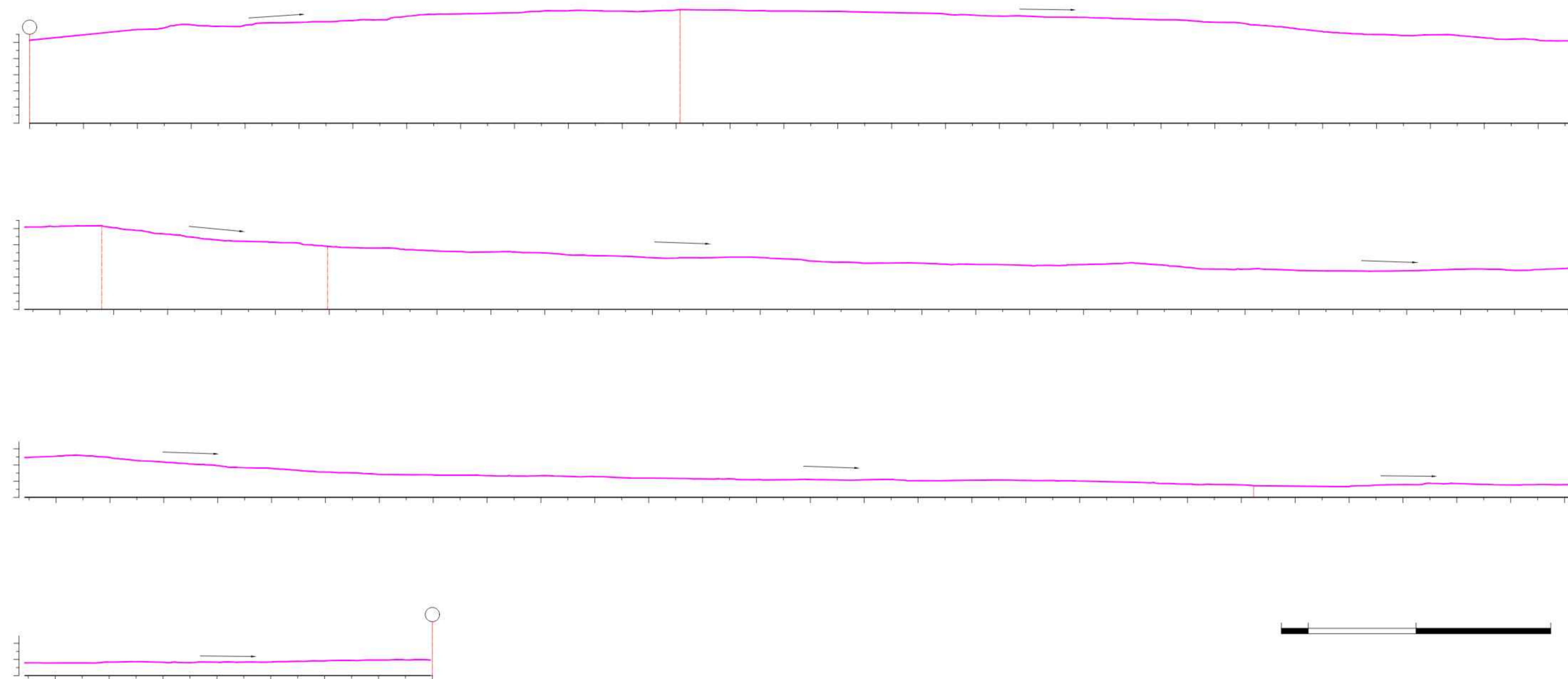
| | | | | | |
|----|------------|----------------|----------|-------|-------|
| NO | DATE | REVISION | BY | CHK | APP |
| 1 | 2023.05.15 | INITIAL DESIGN | TRACIBEL | OSHPC | OSHPC |
| 2 | 2023.05.25 | REVISION | TRACIBEL | OSHPC | OSHPC |
| 3 | 2023.06.10 | FINAL DESIGN | TRACIBEL | OSHPC | OSHPC |

| | | | |
|--|--------------|------------------------|-------------|
| ILC | | IPA | |
| OSHPC BARKI TOJK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| PHASE 1 | | | |
| ROAD PROFILES | | | |
| GENERAL PLAN VIEW | | | |
| TRACTIBEL Engineering SDF SVEZ | | COYNE ET BELIER | |
| Project No: | 30-005-006-B | Scale: | Var. 1/4 A1 |
| Sheet No: | P 002 378 | Discipline: | MAP HYDRO |
| Revision: | 3.0.0.0.5 | Author: | B |

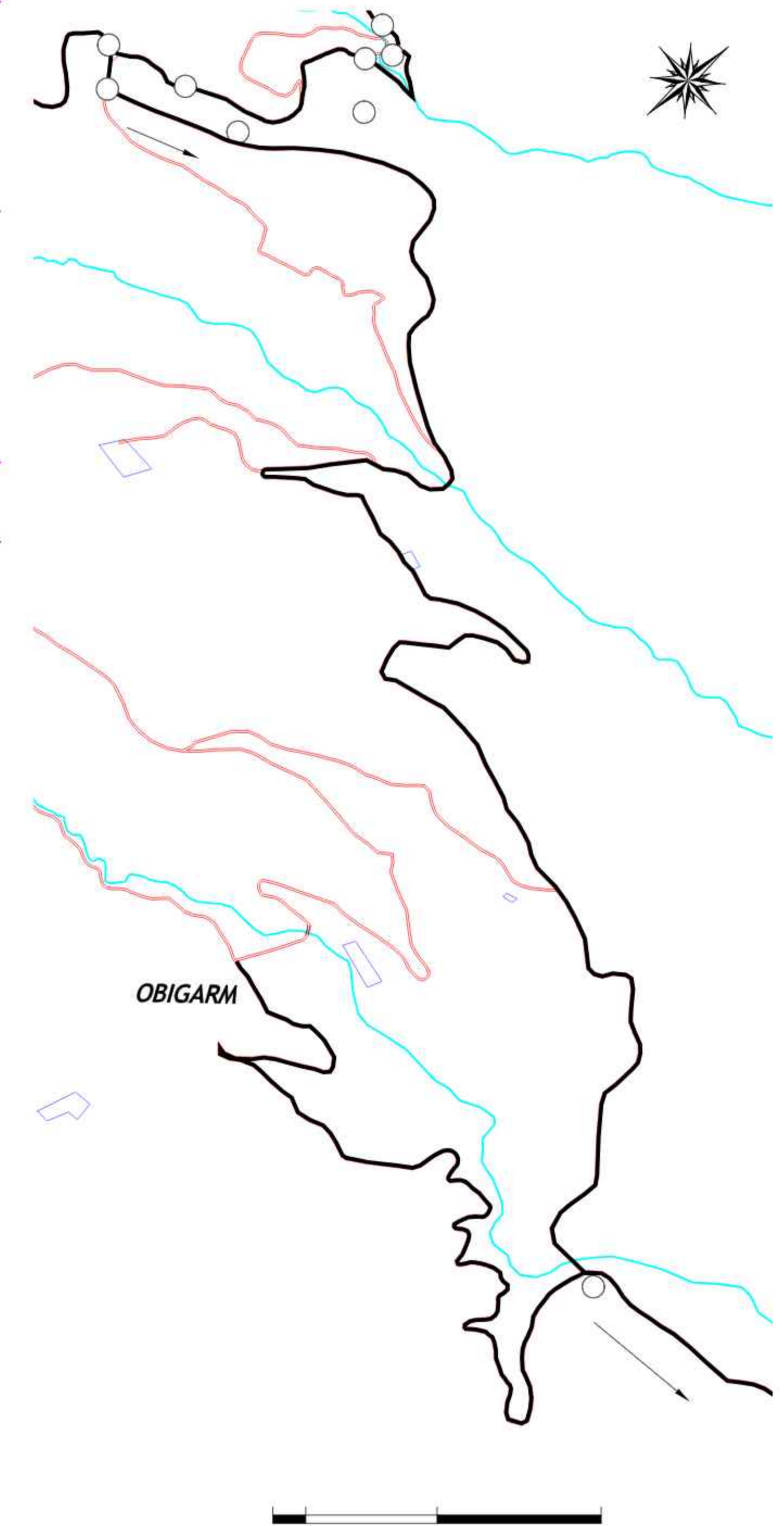
13 TO 90 / 90 TO OBIGARM



90 TO DOUCHANBE






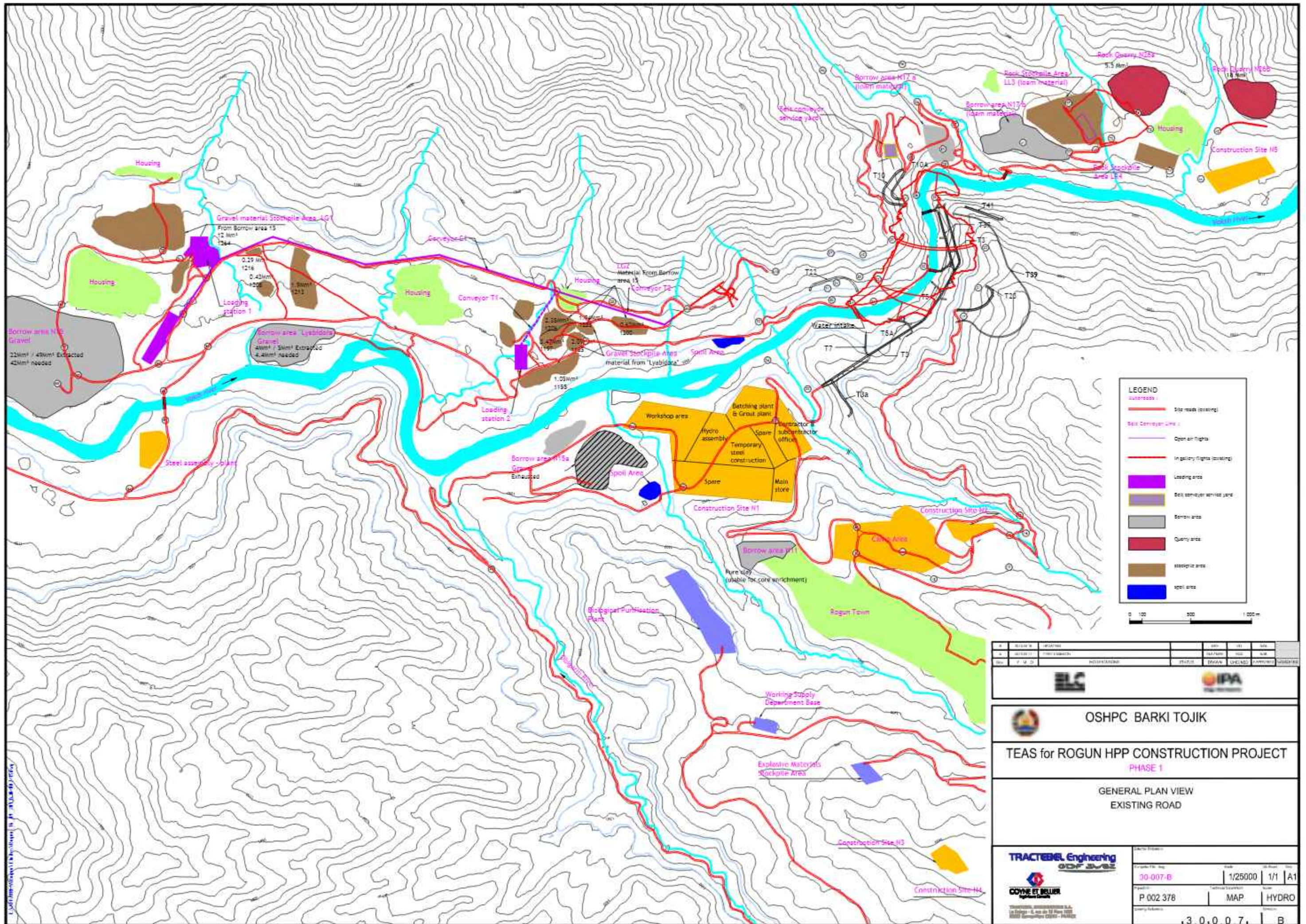
PLAN VIEW



| | |
|---|--|
|   | |
|---|--|

| | |
|--|--|
|  OSHPC BARKI TOJIK | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 1 | |

| | | | |
|--|-----------|-----|-------|
|    <small>TRACTEBEL ENGINEERING S.A. Le Dilage - 5, rue du 19 Mars 1962 93022 Gennevilliers CEDEX - FRANCE</small> | Var. | 1/4 | A1 |
| | P 002 378 | MAP | HYDRO |



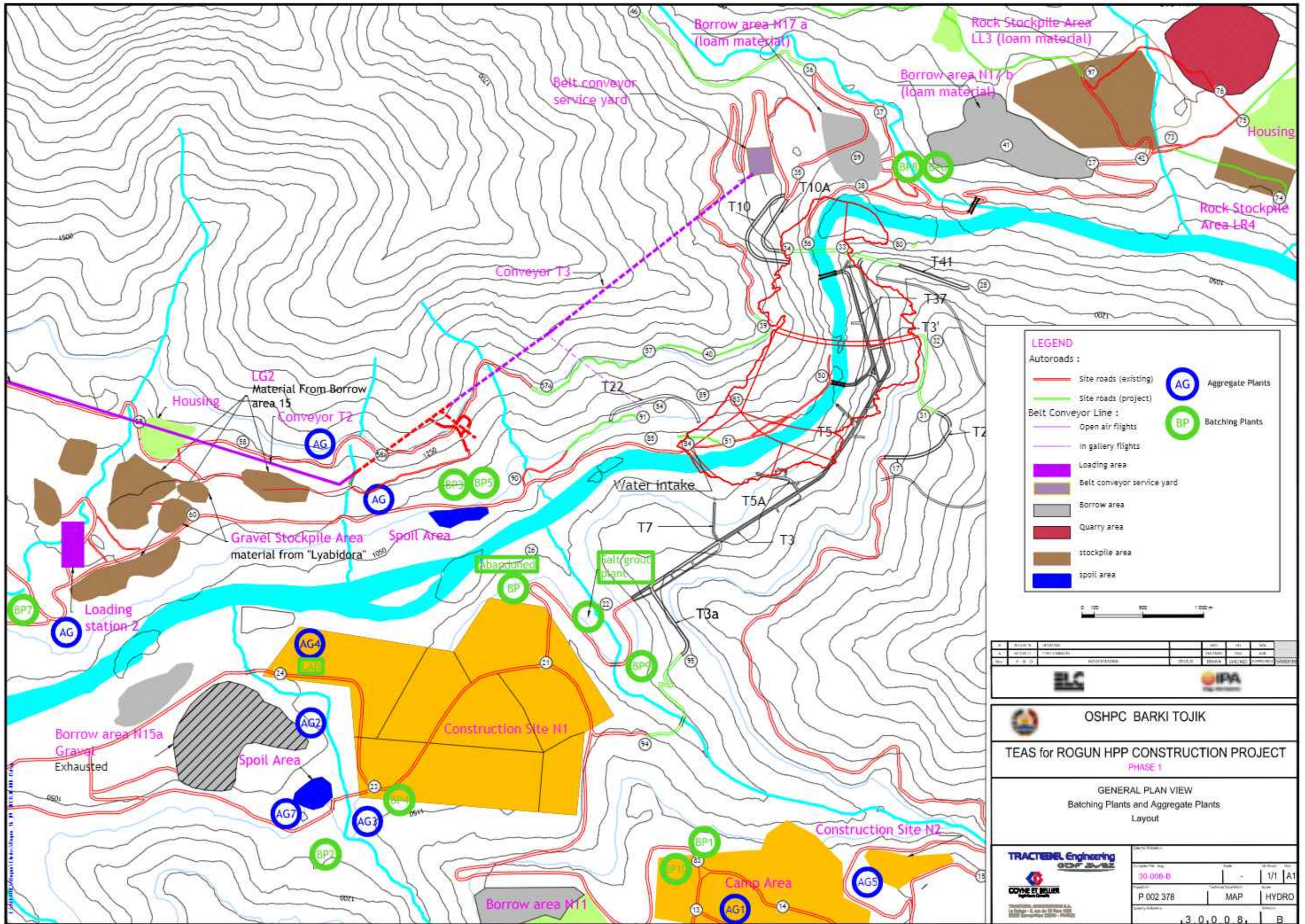
| | | | | |
|---|------------|----------|----------|----------|
| № | DATE | BY | CHK | APP |
| 1 | 01.08.2023 | TRACIBEL | TRACIBEL | TRACIBEL |
| 2 | 01.08.2023 | TRACIBEL | TRACIBEL | TRACIBEL |
| 3 | 01.08.2023 | TRACIBEL | TRACIBEL | TRACIBEL |

OSHPC BARKI TOJK

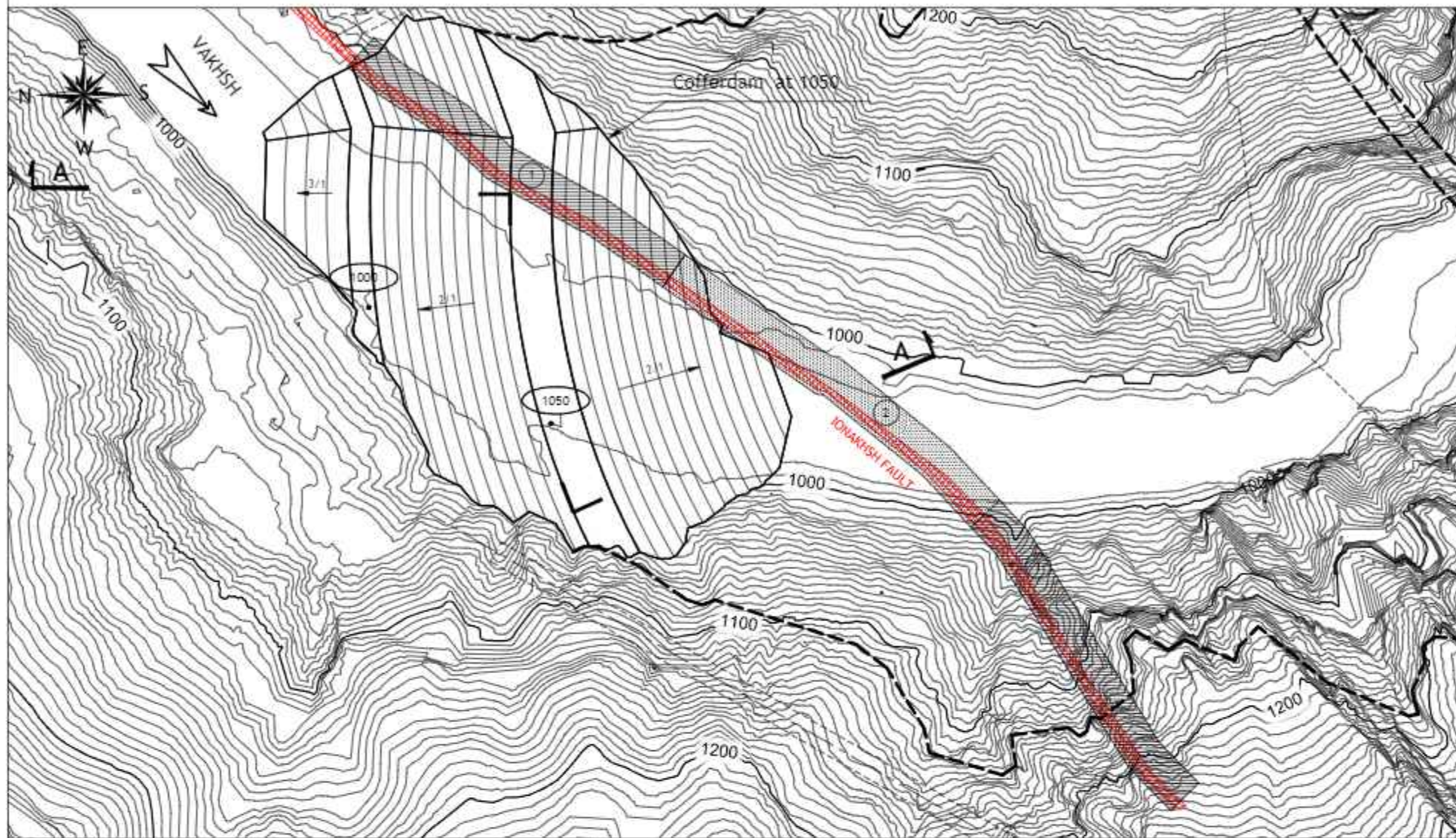
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

GENERAL PLAN VIEW
EXISTING ROAD

| | | | |
|-------------------|-----------------|----------------|---------------|
| Project No: | Scale: | Sheet No: | Sheet Size: |
| 30-007-B | 1/25000 | 1/1 | A1 |
| Project Name: | Map Scale: | Map Type: | Map Category: |
| P 002 378 | MAP | MAP | HYDRO |
| Project Location: | Project Status: | Project Phase: | Project Date: |
| 3 0 0 0 7 | B | | |



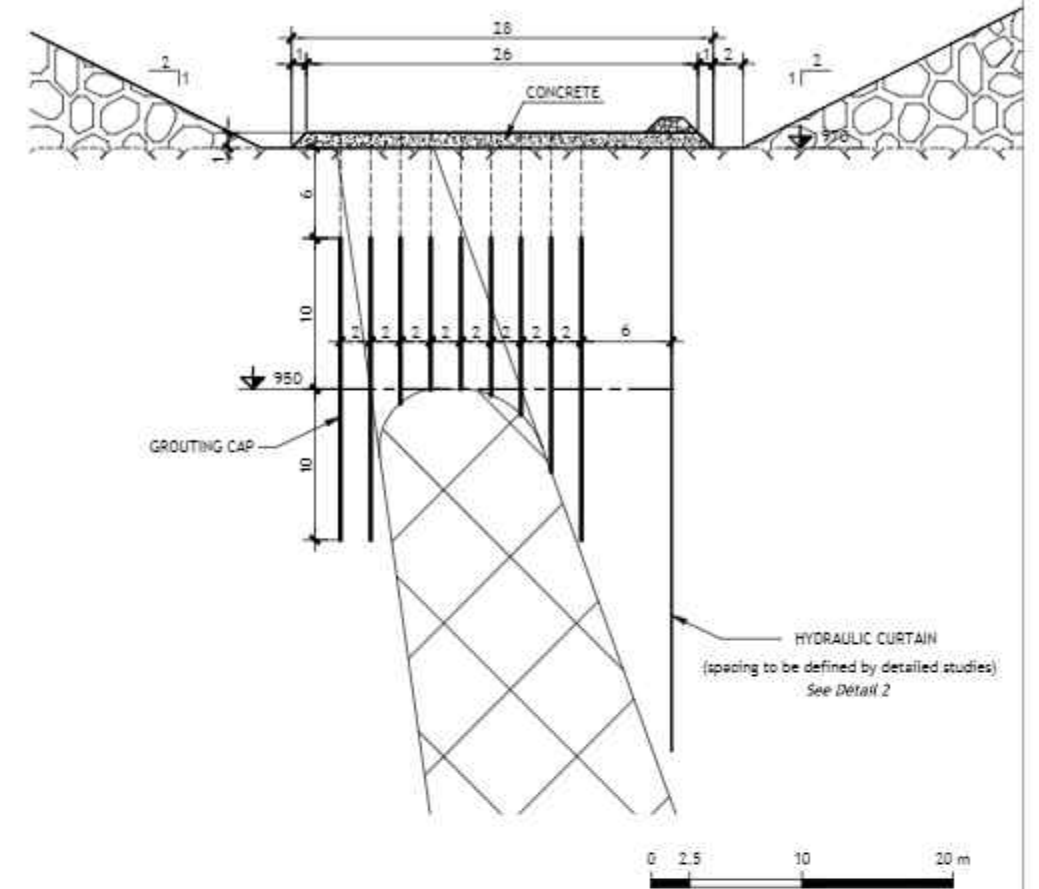
PLAN VIEW



LEGEND :

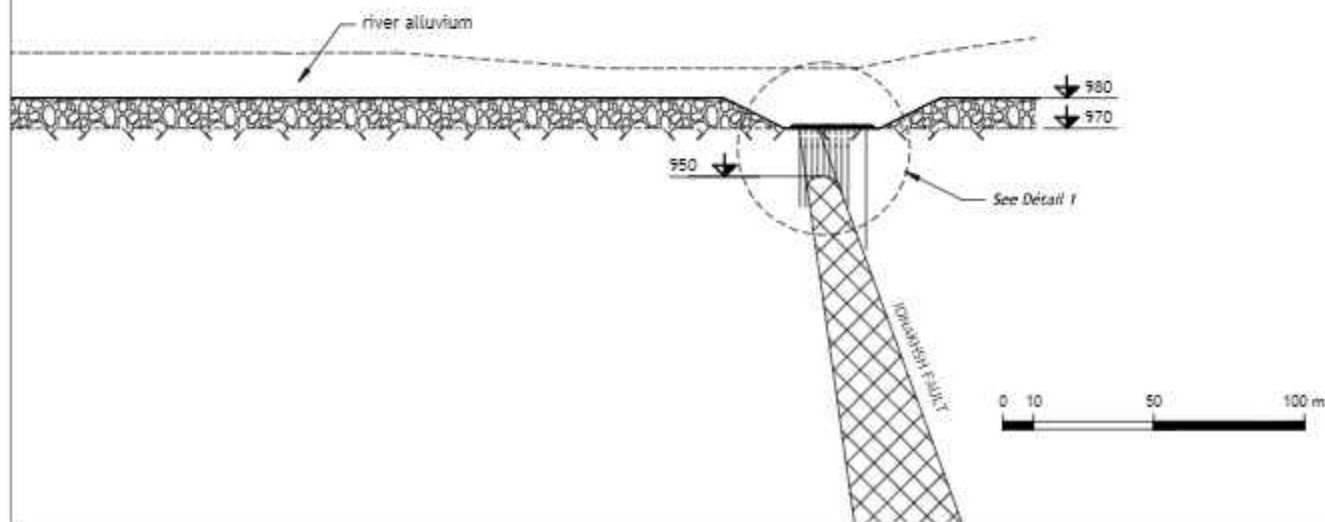
- ALREADY IMPLEMENTED
- WORK REMAINING TO BE DONE (approximative location)

DETAIL
(CONCEPT OF MITIGATION MEASURES TO AVOID SALT LEACHING)

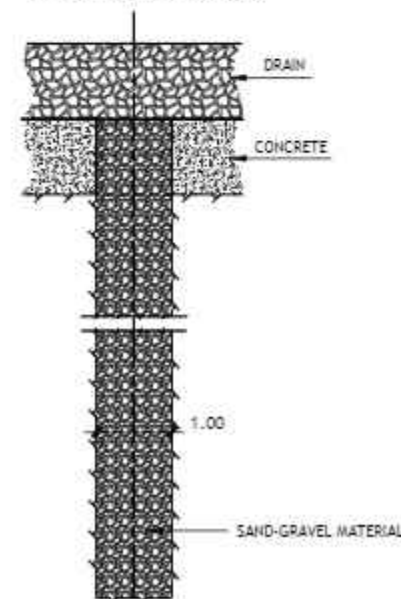


GENERAL NOTE:
THIS DRAWING PRESENT ONLY THE PRINCIPLES OF MITIGATION MEASURES TO AVOID SALT LEACHING, IT SHALL BE ADAPTED DEPENDING UPON DETAILED STUDIES AND ACCORDING TO LOCATION ALONG THE FAULT.

SECTION A-A

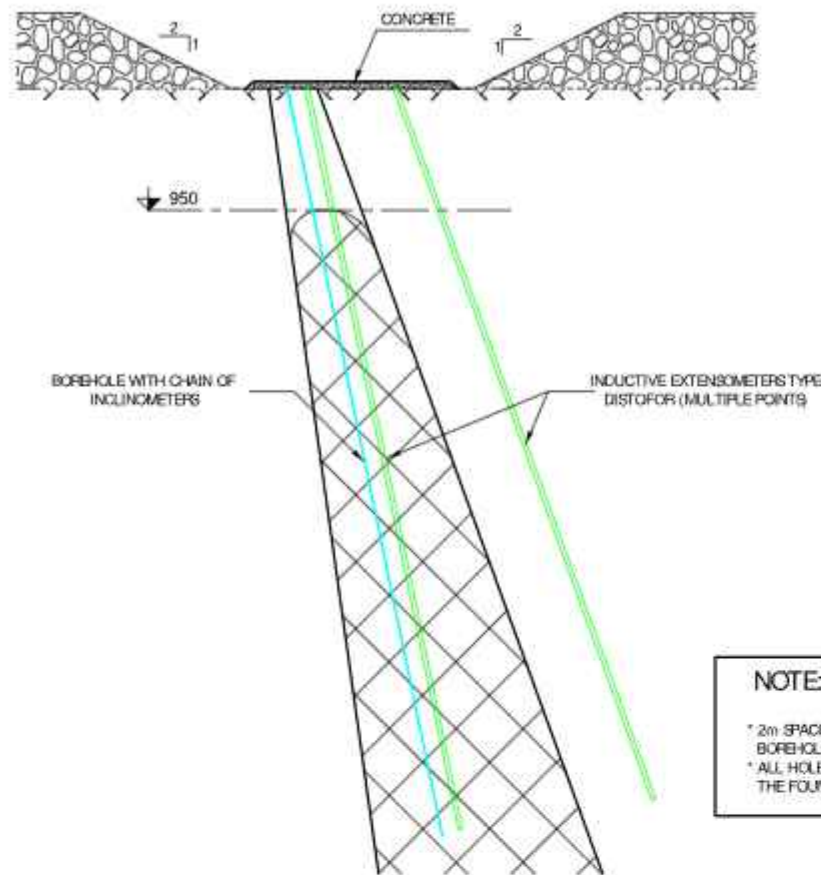


DETAIL 2
HYDRAULIC CURTAIN

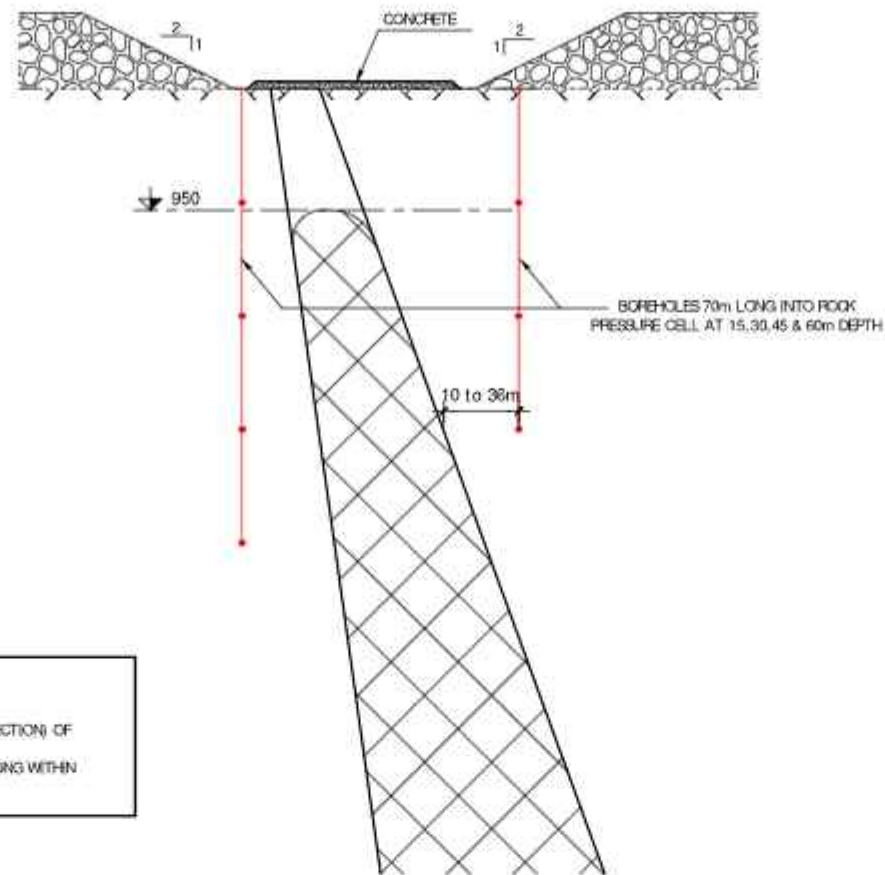


| | | | | | | | | | | | | | |
|--|--|------|--|------|--|----|--|-----------------------|--|----------|--|-------|--|
| No. | | REV. | | DATE | | BY | | CHECKED | | APPROVED | | DRAWN | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| OSHPC BARKI TOJK | | | | | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | | | | | | | | | | | |
| PHASE 0 | | | | | | | | | | | | | |
| IONAKHSH FAULT TREATMENT | | | | | | | | | | | | | |
| PLAN VIEW | | | | | | | | | | | | | |
| SECTIONS | | | | | | | | | | | | | |
| DETAILS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Project No. 40-001-A - 15042013 | | Var. | | 1/1 | | A3 | | Drawing No. P 002 376 | | FORM | | HYDRO | |
| 4 0 0 0 1 A | | | | | | | | | | | | | |

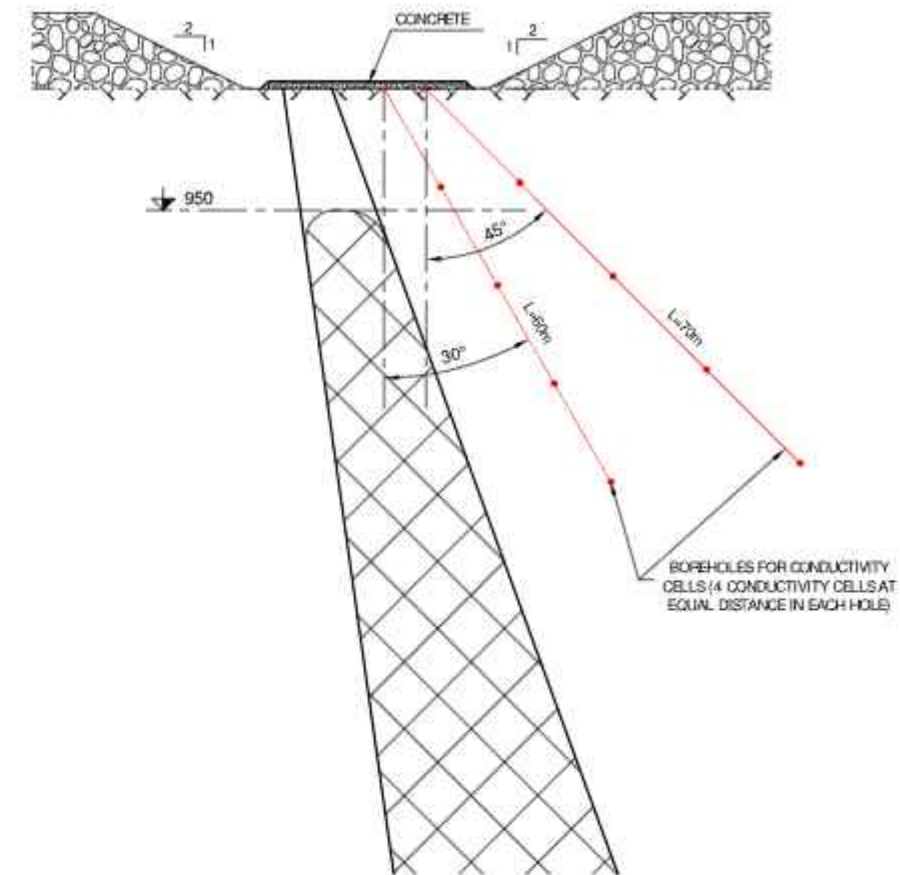
PROFILE FOR MONITORING OF SALT RISING RATE (section 1-1-SR)



SALT LEACHING MONITORING PRESSURE CELLS

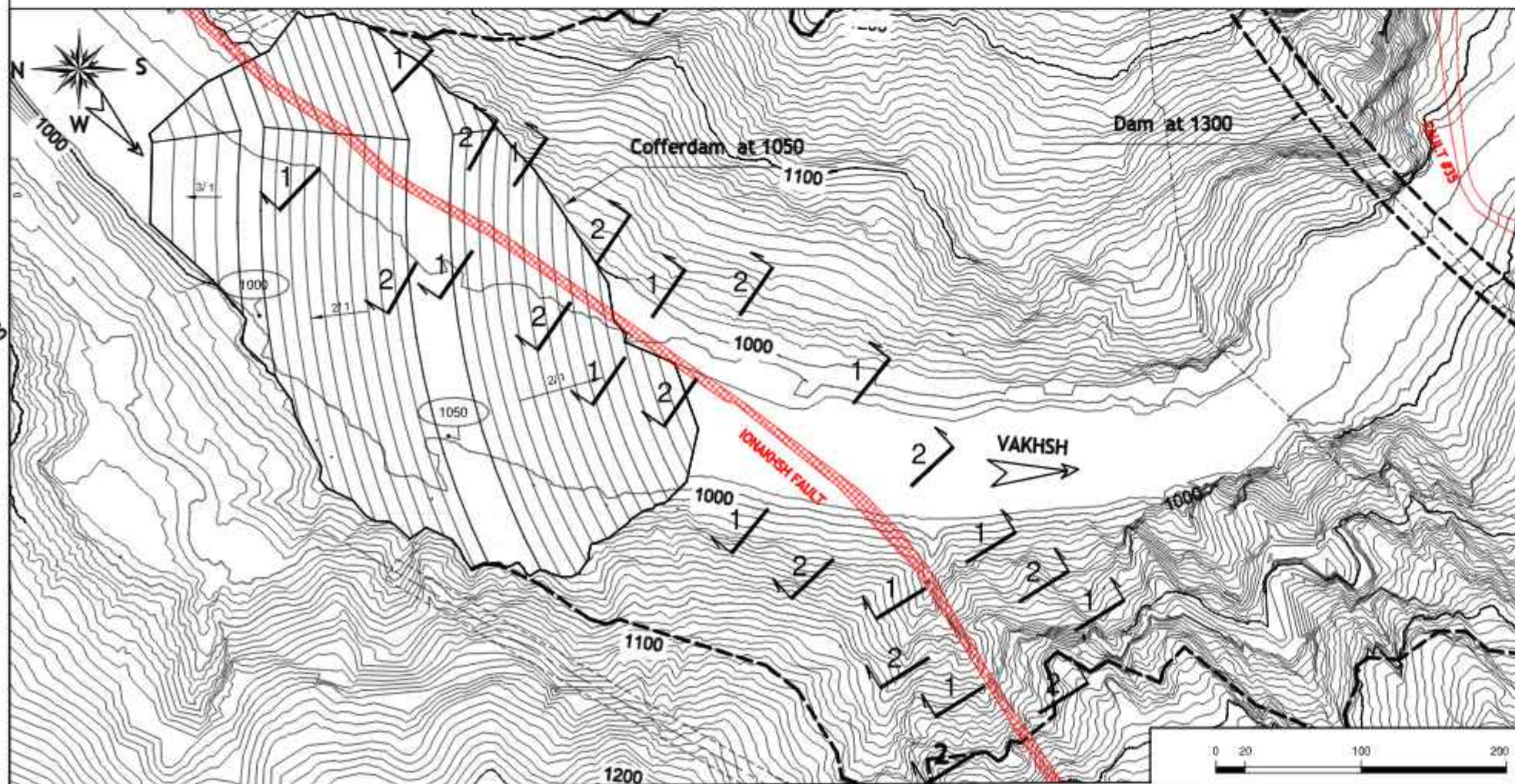


SALT LEACHING MONITORING CONDUCTIVITY (section 2-2)

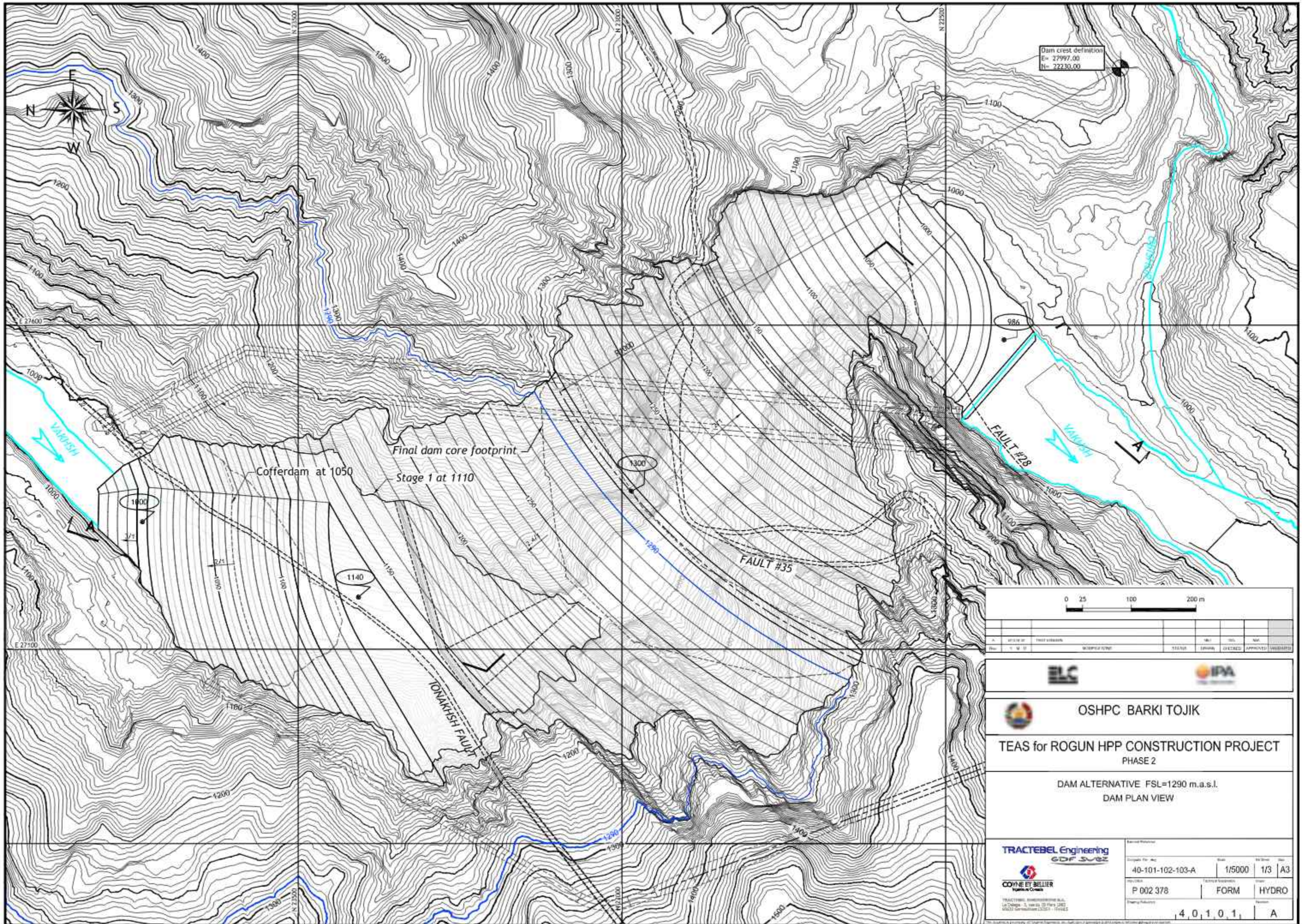


NOTE:
 * 2m SPACING (TRANSVERSAL TO SECTION) OF BOREHOLES WITHIN SALT ROCK
 * ALL HOLES ARE MINIMUM 100m LONG WITHIN THE FOUNDATION

PLAN VIEW TENTATIVE DISTRIBUTION OF MONITORING PROFILES



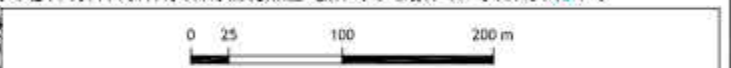
| | |
|---|---|
|  | |
| OSHPC BARKI TOJIK | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 0 | |
|  | Var. 1/1 / P 002 378 FORM HYDR |



Dam crest definition
 E= 27997.00
 N= 22230.00

Cofferdam at 1050
 Final dam core footprint
 Stage 1 at 1110

FAULT #35



| | | | | |
|--------|-----------------|--------|-------|------|
| Author | Project Manager | Scale | Sheet | Date |
| Rev. 1 | 1 | 1/5000 | 1/3 | 2023 |



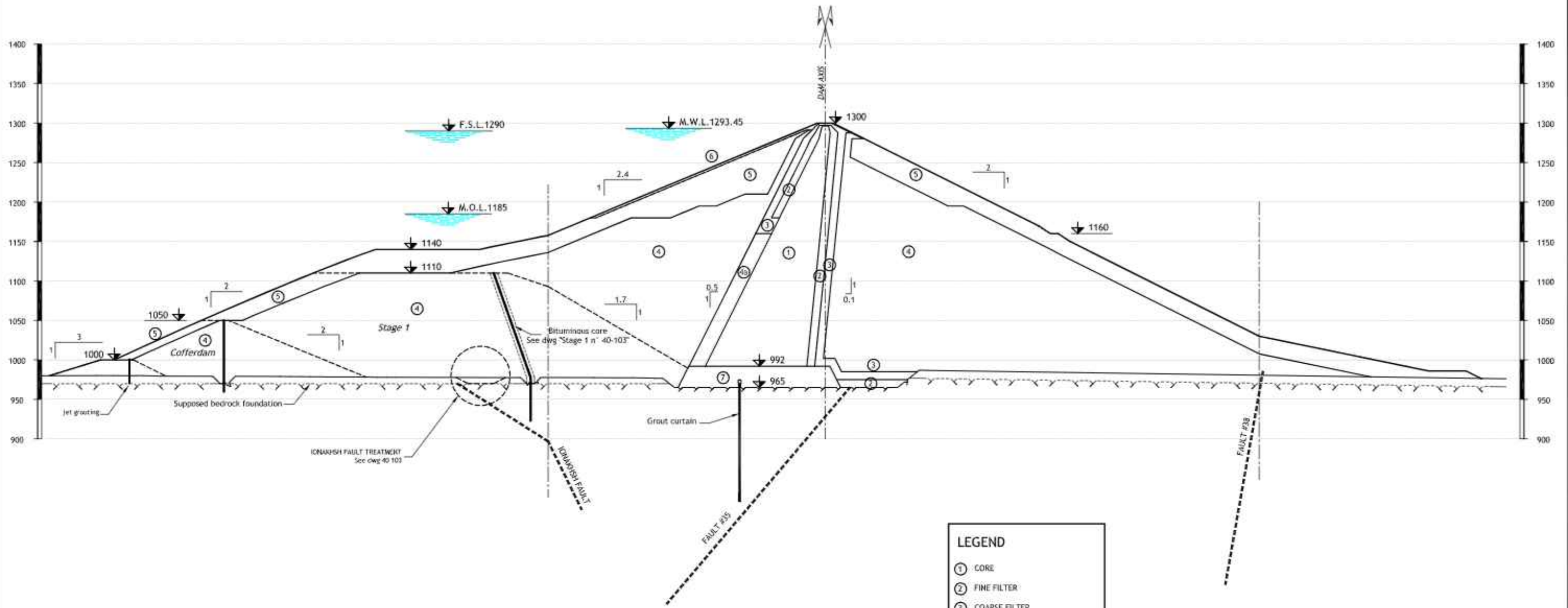
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1290 m.a.s.l.
 DAM PLAN VIEW

TRACTEBEL Engineering
GDF SUEZ
COYNE ET BELLIER
 Ingénierie et Conseil

| | | | |
|------------------|--------------|------------|----------|
| Project No. | Scale | Sheet | Date |
| 40-101-102-103-A | 1/5000 | 1/3 | A3 |
| Revision | Project Name | Discipline | Author |
| P 002 378 | FORM | HYDRO | |
| Drawing Number | | | Revision |
| 4 0 1 0 1 | | | A |

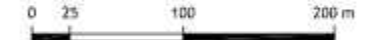
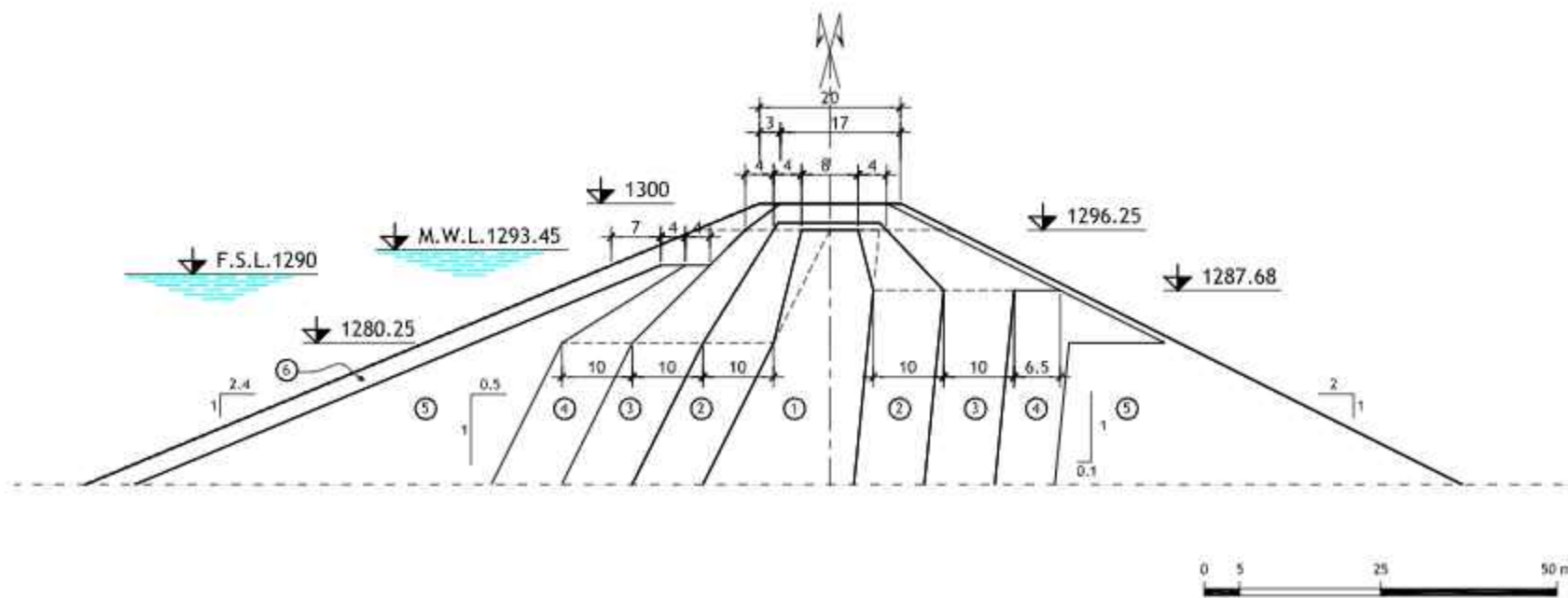
SECTION A-A



- LEGEND**

 - ① CORE
 - ② FINE FILTER
 - ③ COARSE FILTER
 - ④ ALLUVIUM SHELL
 - ⑥ ALLUVIUM SCREENED (<200mm)
 - ⑤ ROCKFILL SHELL
 - ⑥ RIP RAP
 - ⑦ CONCRETE FOUNDATION

CREST DETAILS

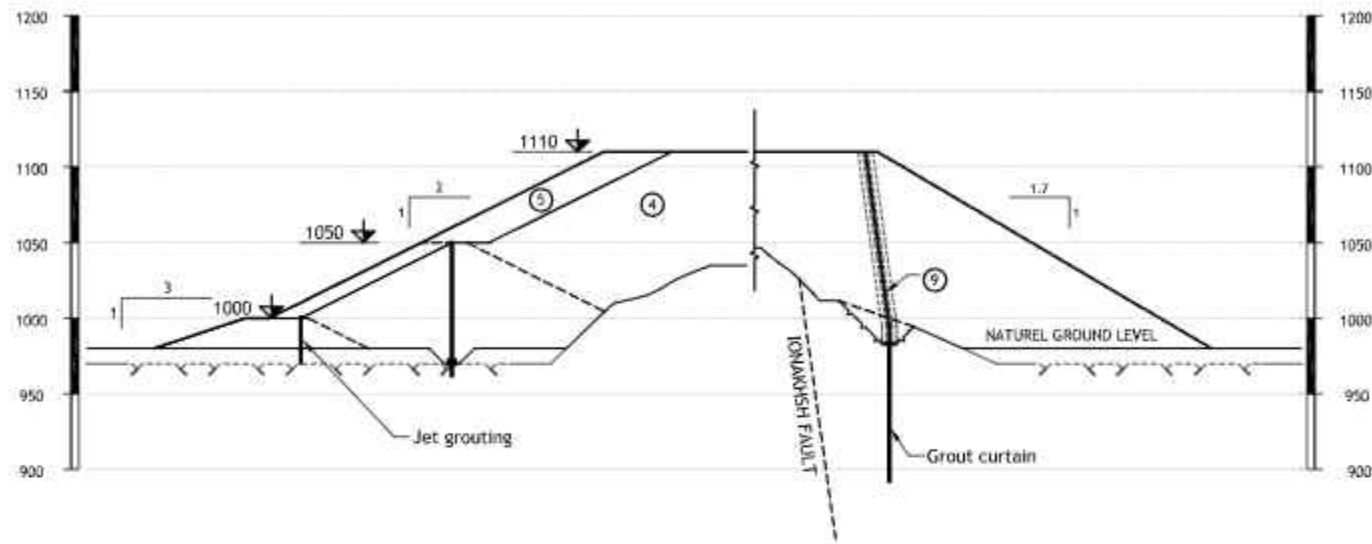


| Project Information | | Revision | | Status | |
|---|--|---|-------------------|----------------------------------|--|
| | | | | | |
| | | | OSHPC BARKI TOJIK | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | | | |
| DAM ALTERNATIVE FSL=1290 m.a.s.l. SECTION A-A CREST DETAILS | | | | | |
| TRACTEBEL Engineering | | Drawing No: 40-101-102-103-A Scale: 1/5000 No: 2/3 Sheet: A3 | | | |
| COYNE ET BELLIER Ingénierie Conseil | | Project No: P 002 378 Discipline: FORM Category: HYDRO | | Date: 4 0 1 0 2 1 Location: A | |

TRACTEBEL Engineering
 GDF SUEZ
 COYNE ET BELLIER
 Ingénierie Conseil

C:\MICROPLANNING\BARKI\40-101-102-103-A.dwg

SECTION B-B

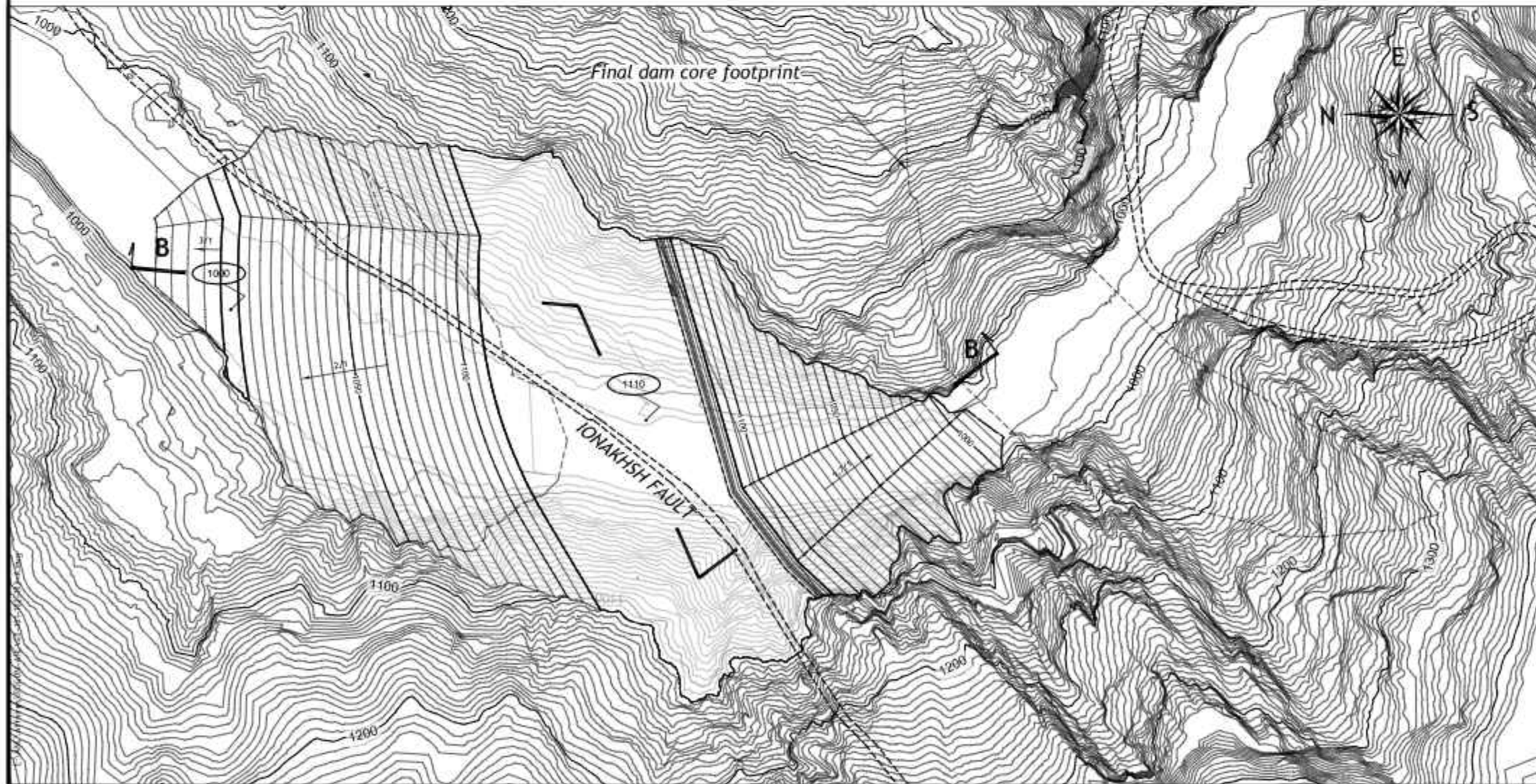
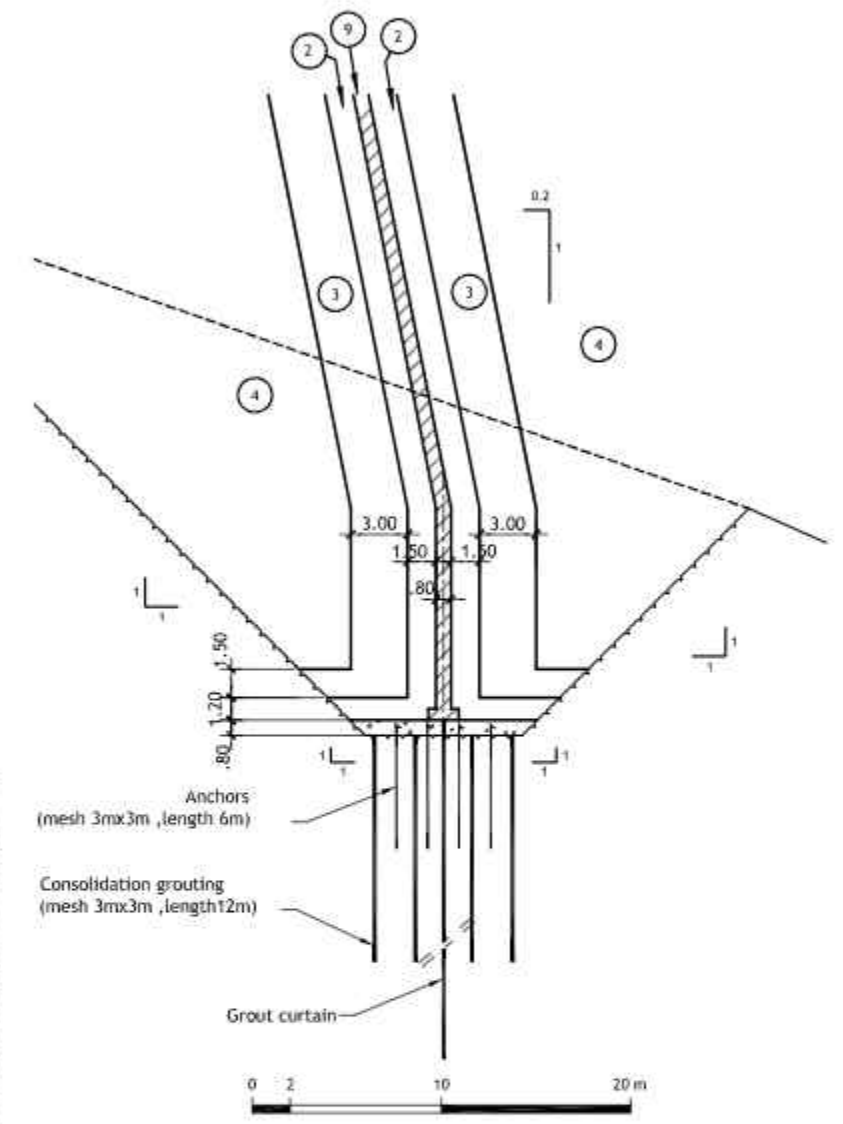


LEGEND

- ② FINE FILTER
- ③ COARSE FILTER
- ④ ALLUVIUM SHELL
- ⑤ ROCKFILL SHELL
- ⑥ BITUMINOUS CORE



DETAIL BITUMINOUS CORE



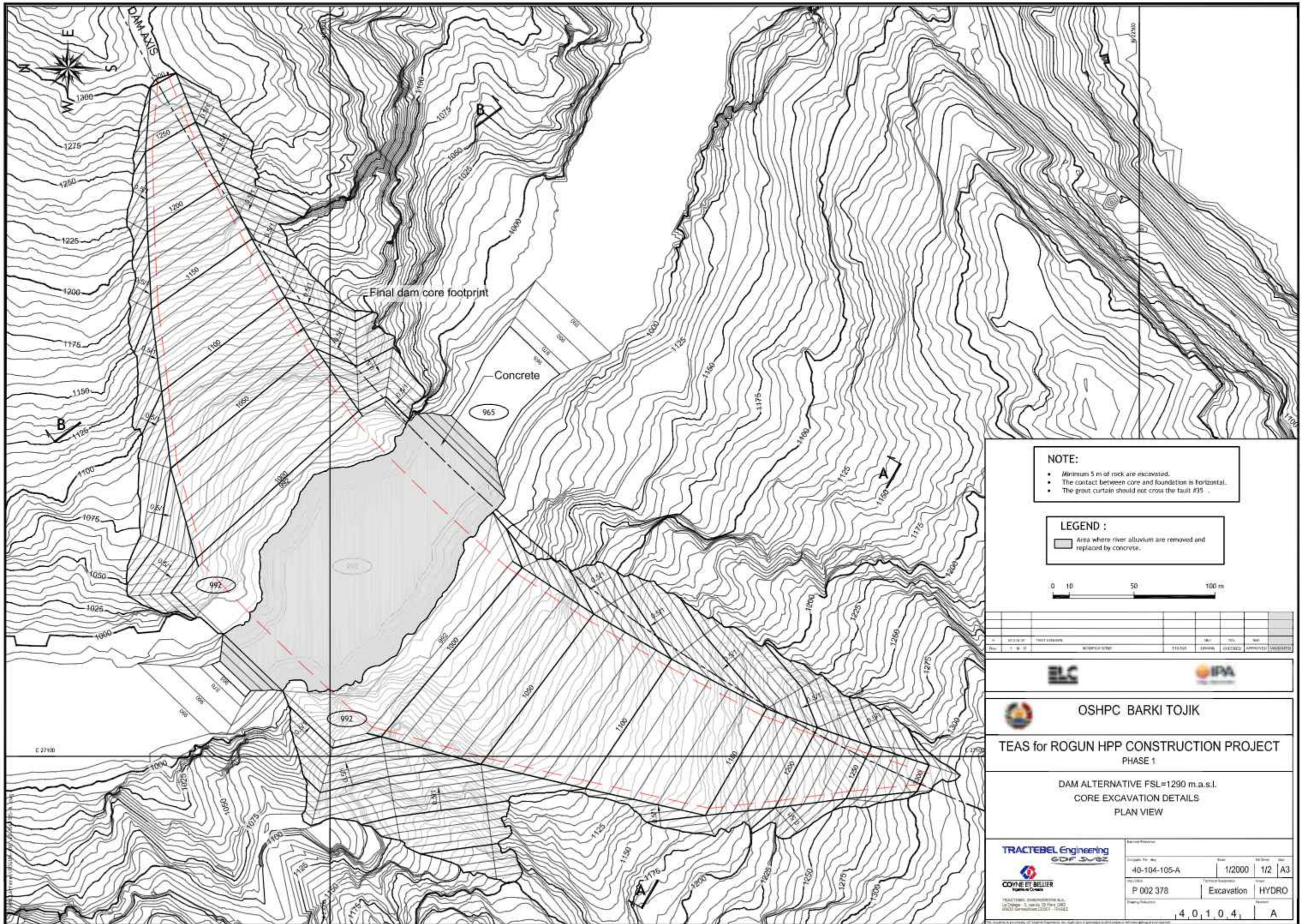
| | | | | |
|--------|-----------------|--------|-------|--------|
| Author | Project Manager | Scale | Sheet | Number |
| Rev. 1 | 1 | 1/5000 | 3/3 | A3 |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1290 m.a.s.l.
 STAGE 1 at 1110 m.a.s.l.
PLAN VIEW
SECTIONS

| | | | | |
|------|------------------|-----------|-----------|-------|
| | Project No. | Scale | Sheet No. | Sheet |
| | 40-101-102-103-A | 1/5000 | 3/3 | A3 |
| | Project Name | Form | Hydro | |
| | P 002 378 | FORM | HYDRO | |
| | Project No. | 4 0 1 0 3 | | A |

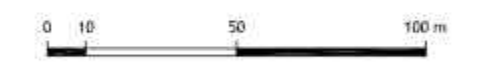


NOTE:

- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the fault #35.

LEGEND :

- Area where river alluvium are removed and replaced by concrete.



| Rev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------|---|---|---|---|---|---|---|---|---|----|
| Author | | | | | | | | | | |
| Checked | | | | | | | | | | |
| Drawn | | | | | | | | | | |
| Station | | | | | | | | | | |
| Issued | | | | | | | | | | |
| Approved | | | | | | | | | | |
| Released | | | | | | | | | | |



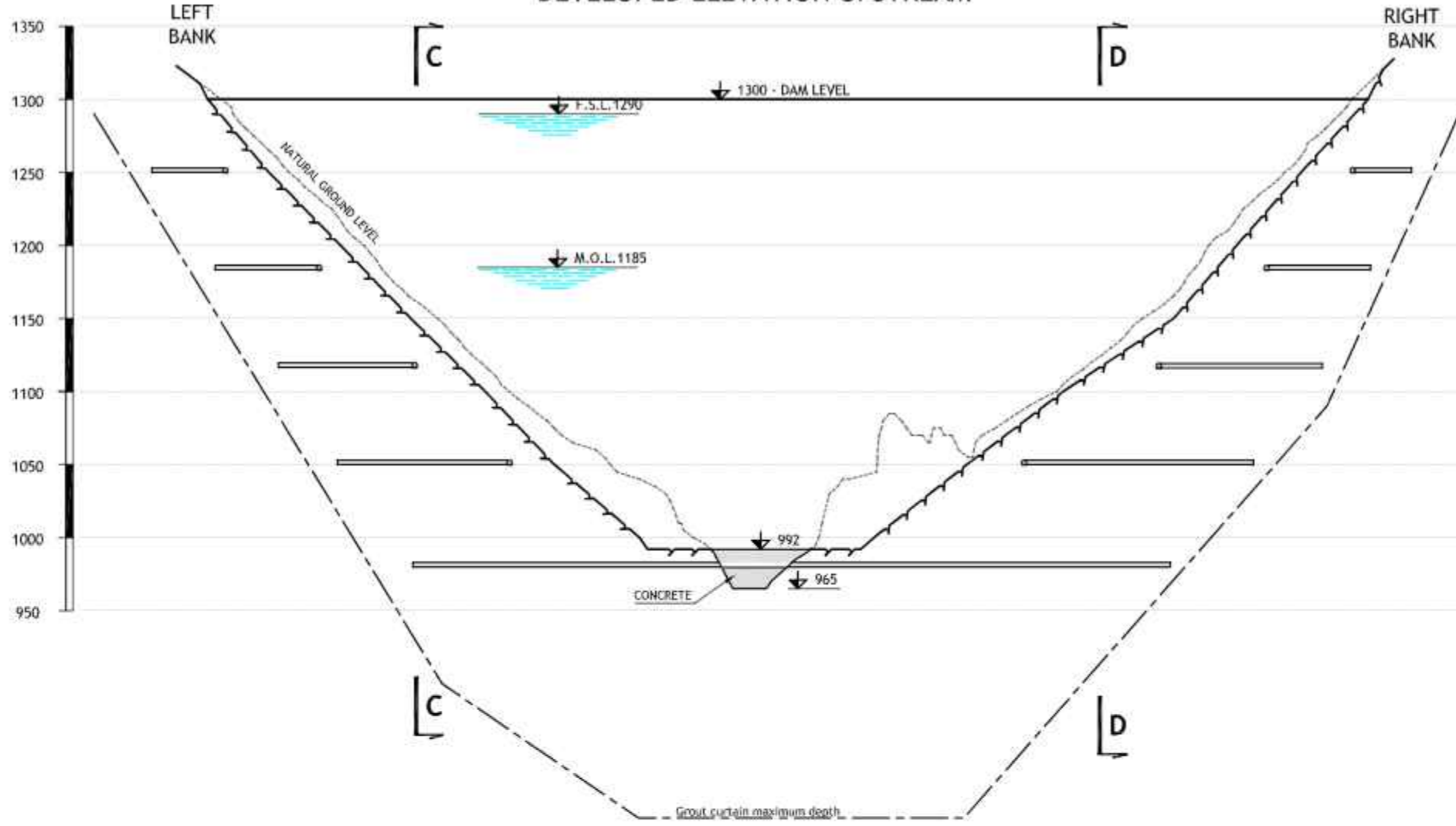
OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

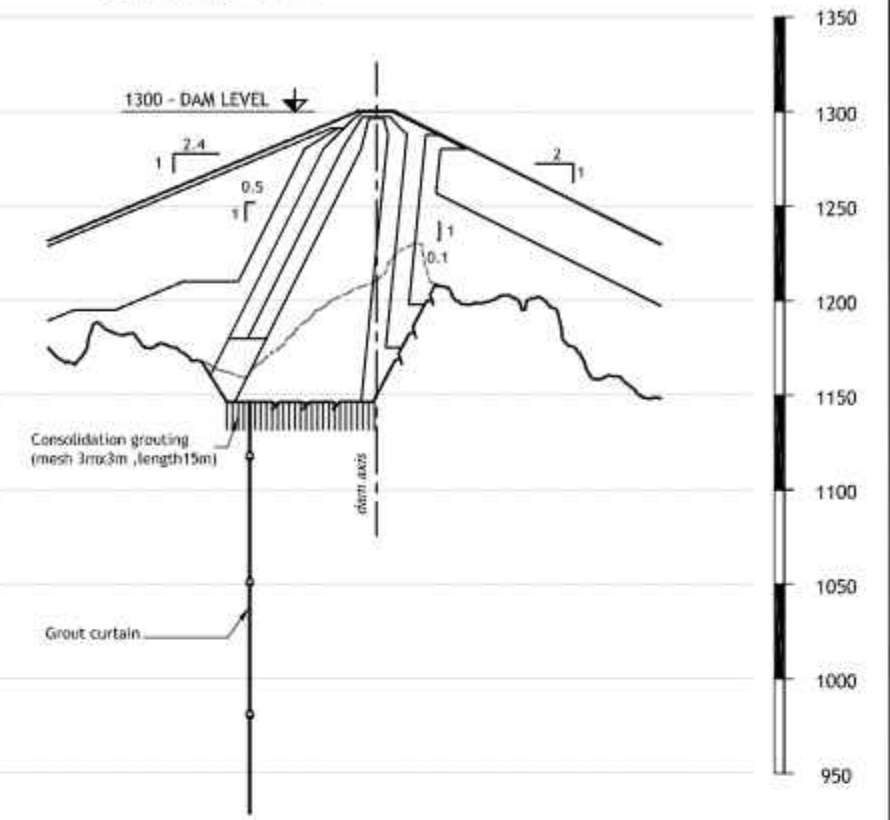
DAM ALTERNATIVE FSL=1290 m.a.s.l.
CORE EXCAVATION DETAILS
PLAN VIEW

| | | | | | | | | |
|------|-------------|--------------|-----------|------------|-------------|-------|-------------|---------------|
| | Project No: | 40-104-105-A | Scale: | 1/2000 | Sheet: | 1/2 | Total: | A3 |
| | Revision: | P 002 378 | Activity: | Excavation | Discipline: | HYDRO | Drawing No: | |
| | | | | | | | | 4 0 1 0 4 A |

DEVELOPED ELEVATION UPSTREAM



SECTION C-C

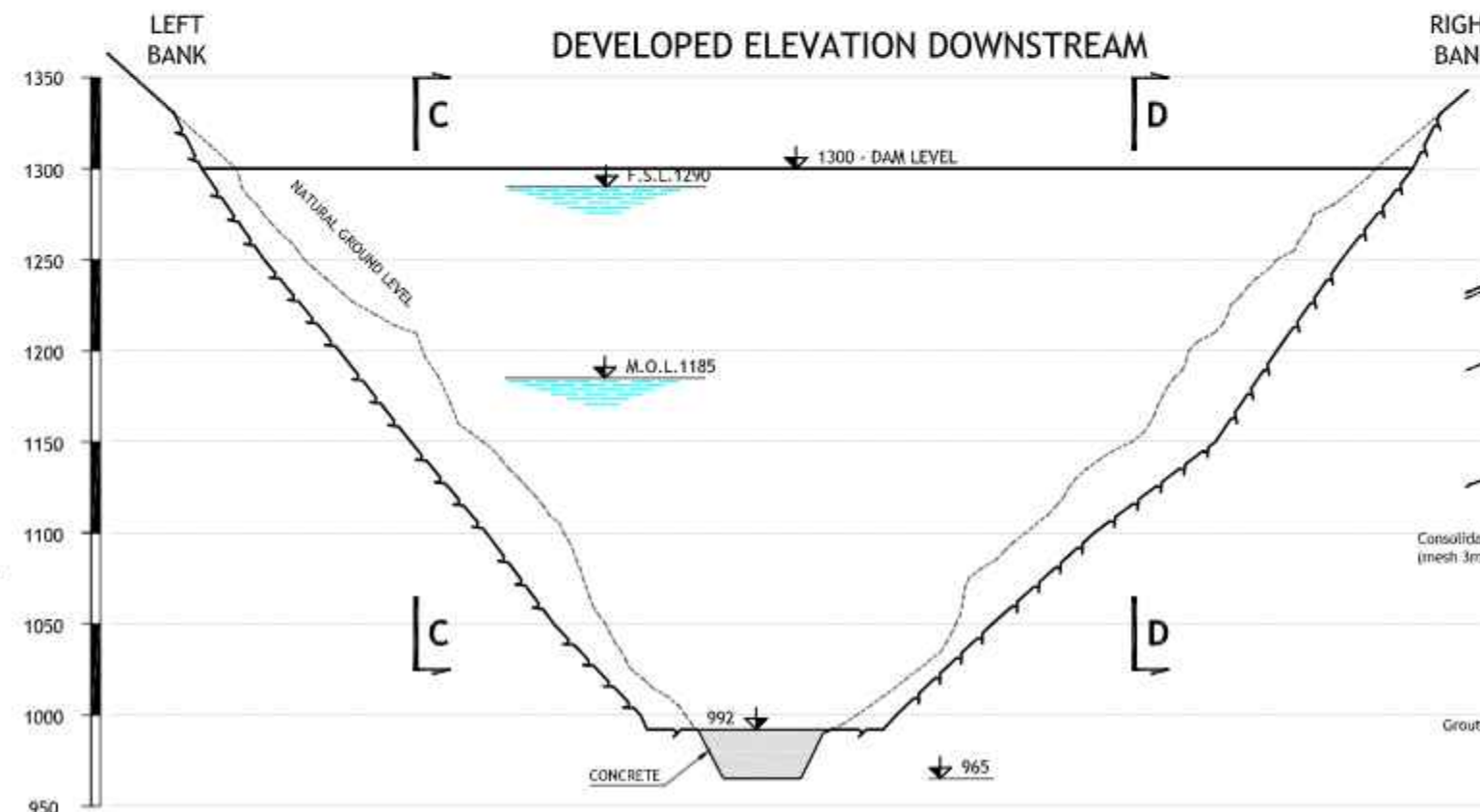


NOTE:

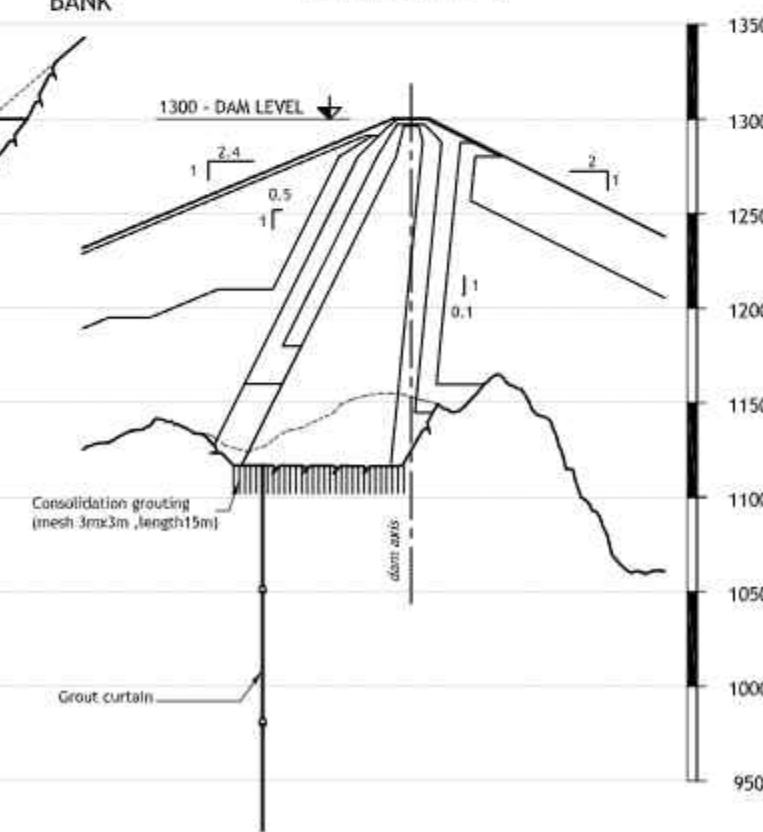
- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the fault #35.



DEVELOPED ELEVATION DOWNSTREAM



SECTION D-D

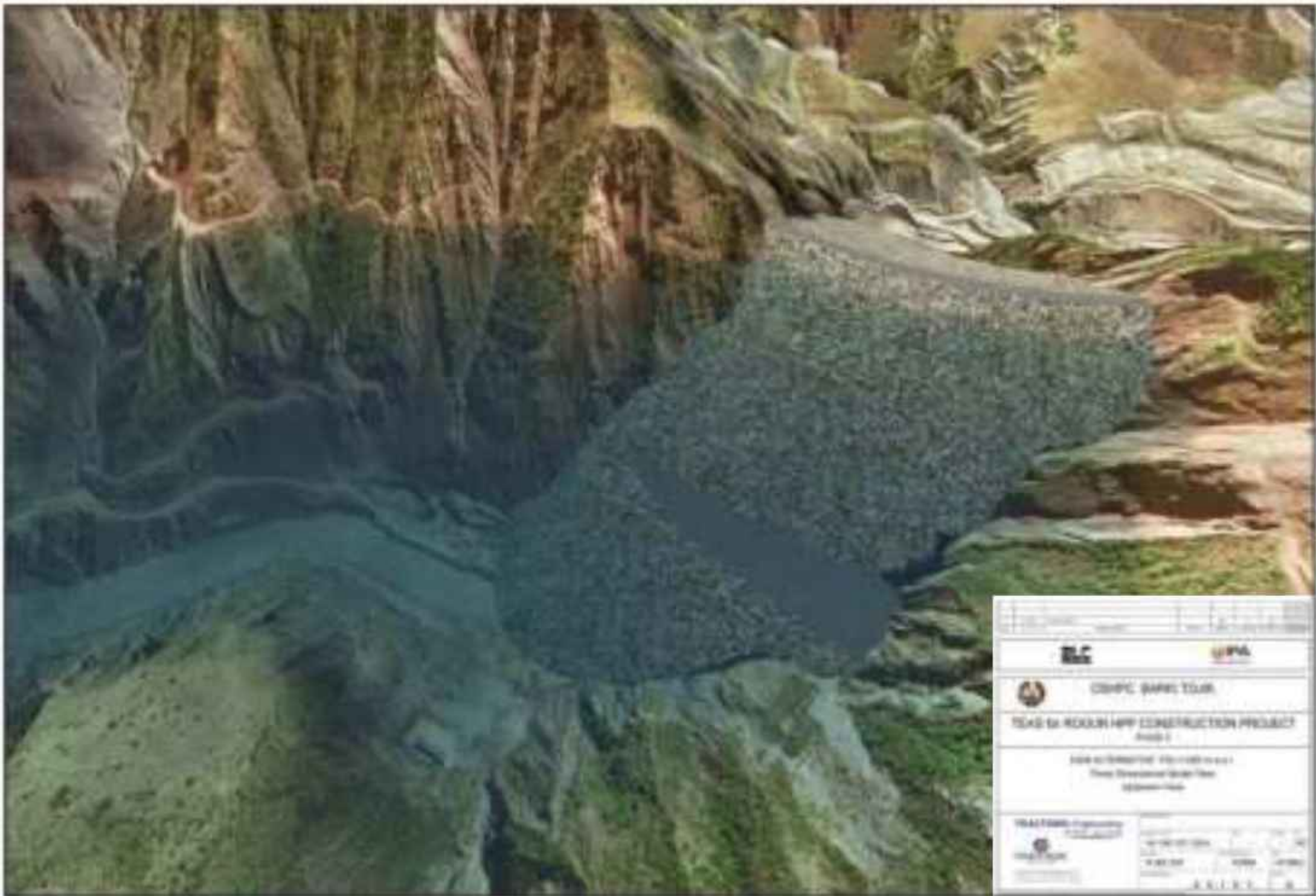


| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-------------|--------------|----------|--------|--------|-----|------|----|---------------|-----------|-------------|------------|----------|-------|--|--|--|--|--|-----------|--|--|--|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| OSHPC BARKI TOJIK | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| DAM ALTERNATIVE FSL=1290 m.a.s.l. CORE EXCAVATION DETAILS ELEVATIONS UPSTREAM & DOWNSTREAM | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>Project No:</td> <td>40-104-105-A</td> <td>Scale:</td> <td>1/4000</td> <td>Sheet:</td> <td>2/2</td> <td>Rev:</td> <td>A3</td> </tr> <tr> <td>Project Name:</td> <td>P 002 378</td> <td>Discipline:</td> <td>Excavation</td> <td>Subject:</td> <td>HYDRO</td> <td colspan="2"></td> </tr> <tr> <td colspan="3"></td> <td colspan="2" style="text-align: center;">4 0 1 0 5</td> <td colspan="2"></td> <td style="text-align: center;">A</td> </tr> </table> | Project No: | 40-104-105-A | Scale: | 1/4000 | Sheet: | 2/2 | Rev: | A3 | Project Name: | P 002 378 | Discipline: | Excavation | Subject: | HYDRO | | | | | | 4 0 1 0 5 | | | | A |
| Project No: | 40-104-105-A | Scale: | 1/4000 | Sheet: | 2/2 | Rev: | A3 | | | | | | | | | | | | | | | | | | |
| Project Name: | P 002 378 | Discipline: | Excavation | Subject: | HYDRO | | | | | | | | | | | | | | | | | | | | |
| | | | 4 0 1 0 5 | | | | A | | | | | | | | | | | | | | | | | | |

E:\WORK\PROJECTS\ROGUN\BARKI\40-104-105-A.dwg



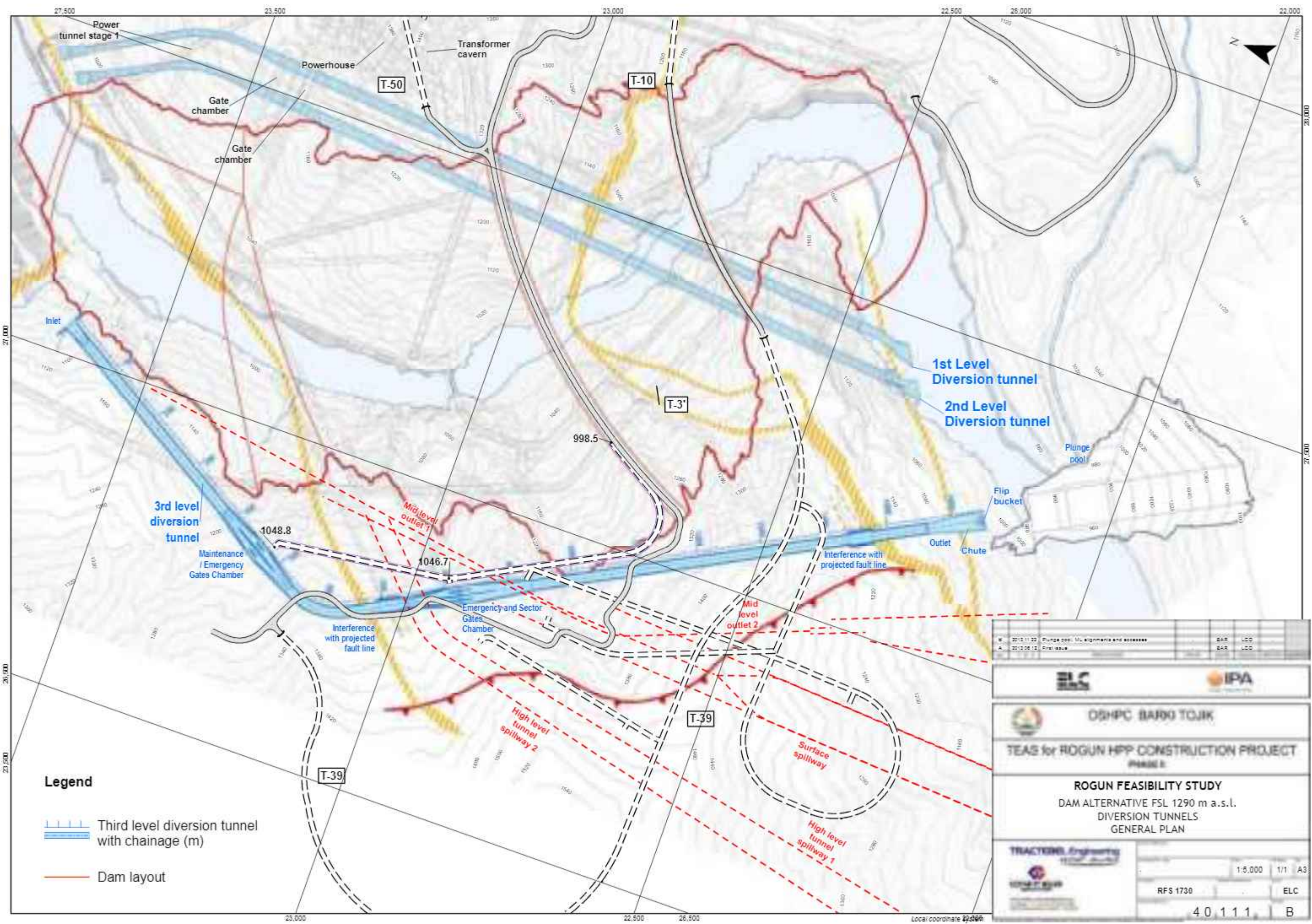
| | |
|---|--|
|   | |
|  CDMP-2 BARRI TOUR | |
| TEAM for WOODIN VWP CONSTRUCTION PROJECT PHASE 2 | |
| SHELBY HERRINGTON, P.E., CDMP-2 Lead The Woodlands Wood Tour May 2024 | |
| Drawn by:  SLC | Checked by:  WPP |
| ASSET 1.A | |





| | | | |
|---|--|---|--|
| DATE: _____ | | SCALE: _____ | |
| PROJECT NO: _____ | | SHEET NO: _____ | |
| DRAWN BY: _____ | | CHECKED BY: _____ | |
| DATE: _____ | | DATE: _____ | |
|  CONTRACTOR | |  CLIENT | |
|  CONSTRUCTION PROJECT | | | |
| ROAD CONSTRUCTION PROJECT | | | |
| Phase 1 | | | |
| Site Plan | | | |
| Scale: 1:500 | | | |
| Date: 2024-08-20 | | | |
|  DESIGN FIRM | |  ENGINEERING FIRM | |
| DATE: _____ | | DATE: _____ | |
| DRAWN BY: _____ | | CHECKED BY: _____ | |
| DATE: _____ | | DATE: _____ | |



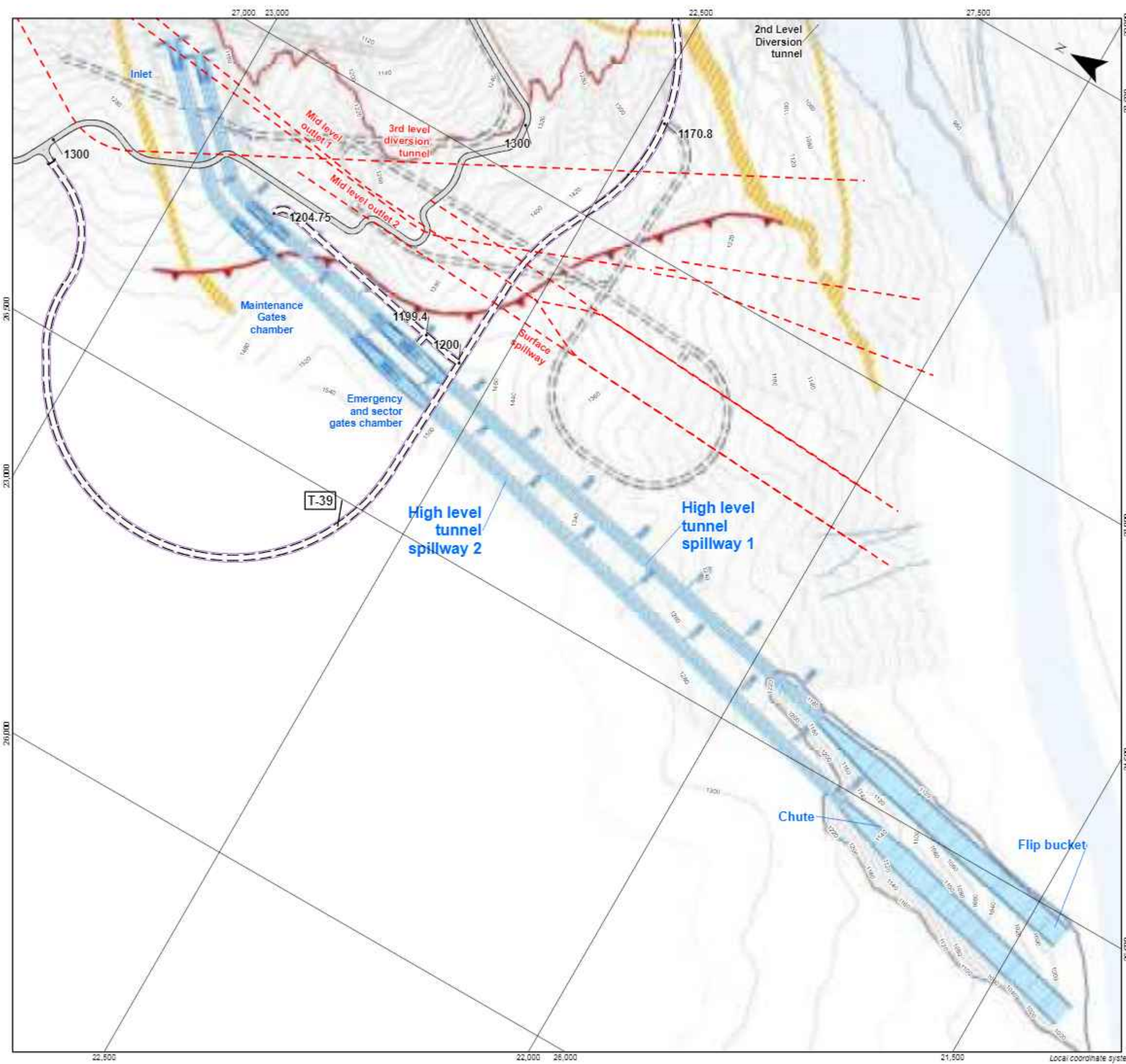
| | | | | | | | | | |
|---|--|--------|--------|------------|-----|--------------|---------------|-----------|----|
|   | | | | | | | | | |
|  EPCL SRIYATIKA | | | | | | | | | |
| TEAM FOR KOSUMBAH CONSTRUCTION PROJECT <small>Phase 1</small> | | | | | | | | | |
| WORK ON DRAWING: 1502/2024-001 <small>Work on Construction Method Construction Plan</small> | | | | | | | | | |
| DATE: 01/08/2024  | <table border="1"> <tr> <td>Scale:</td> <td>1:1000</td> </tr> <tr> <td>Sheet No.:</td> <td>1/1</td> </tr> <tr> <td>Project No.:</td> <td>1502/2024-001</td> </tr> <tr> <td>Revision:</td> <td>01</td> </tr> </table> | Scale: | 1:1000 | Sheet No.: | 1/1 | Project No.: | 1502/2024-001 | Revision: | 01 |
| Scale: | 1:1000 | | | | | | | | |
| Sheet No.: | 1/1 | | | | | | | | |
| Project No.: | 1502/2024-001 | | | | | | | | |
| Revision: | 01 | | | | | | | | |





- Legend**
-  Third level diversion tunnel with chainage (m)
 -  Dam layout

| | | | |
|---|--|----------|--------|
| 2012.11.22 Plunge pool, ML alignment and accesses 2012.06.12 First issue | | BAR | LCD |
|   | | BAR | LCD |
|  OSHPC BARDU TOJK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | | | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1290 m a.s.l. DIVERSION TUNNELS GENERAL PLAN | | | |
|  | | 1:5,000 | 1/1 A3 |
|  | | RFS 1730 | ELC |
|  | | 40111 | B |

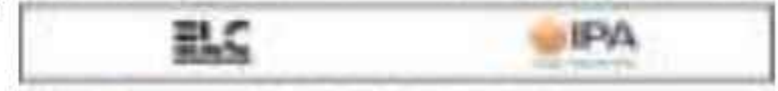
Local coordinate 22066



Legend

-  High level tunnel spillway with chainage (m)
-  Dam layout

| | | | |
|------------|---------------------------|-----|-----|
| 2012.11.22 | HL alignment and easement | BAR | LOD |
| 2012.05.12 | Final issue | BAR | LOD |

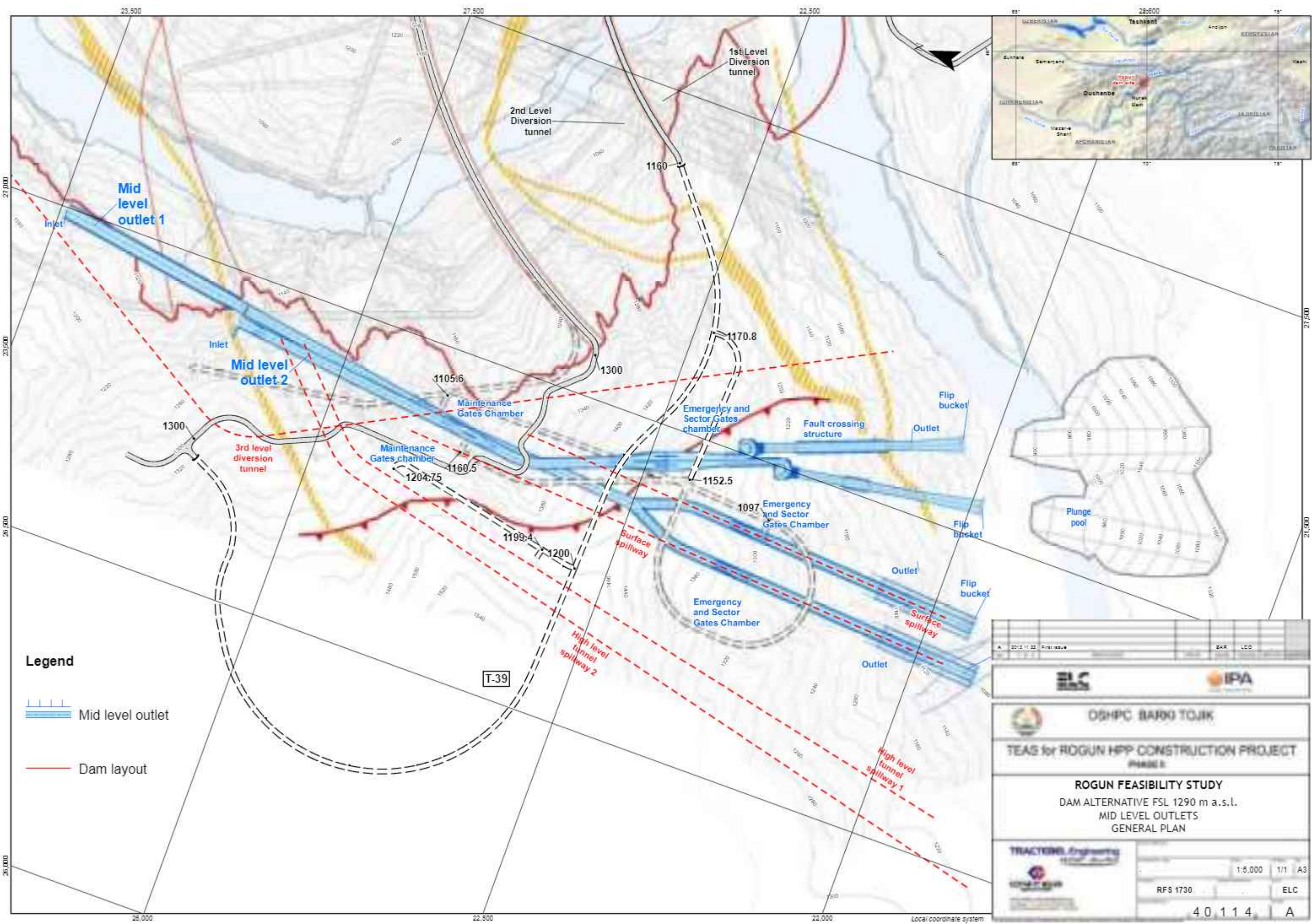


OSHPC BARDU TOJK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II



ROGUN FEASIBILITY STUDY
 DAM ALTERNATIVE FSL 1290 m a.s.l.
 HIGH LEVEL TUNNEL SPILLWAYS
 GENERAL PLAN

| | | | |
|---|----------|-----|-----|
|  | 1:5,000 | 1/1 | A3 |
| | RFS 1730 | | ELC |
| 40113 | | | B |

Local coordinate system

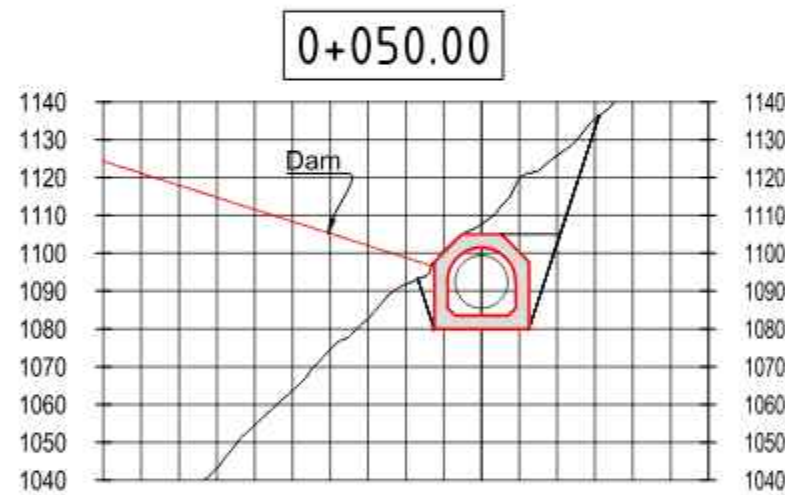
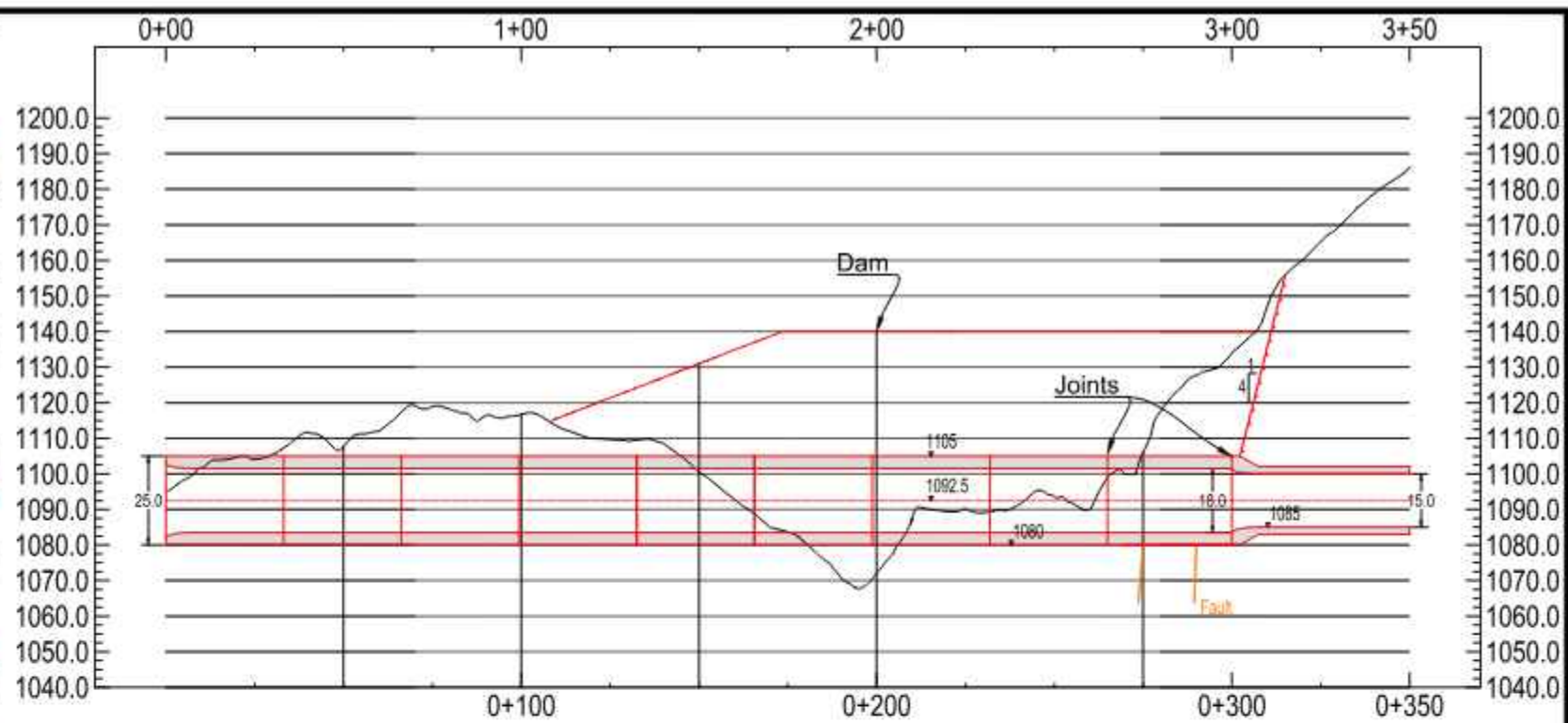
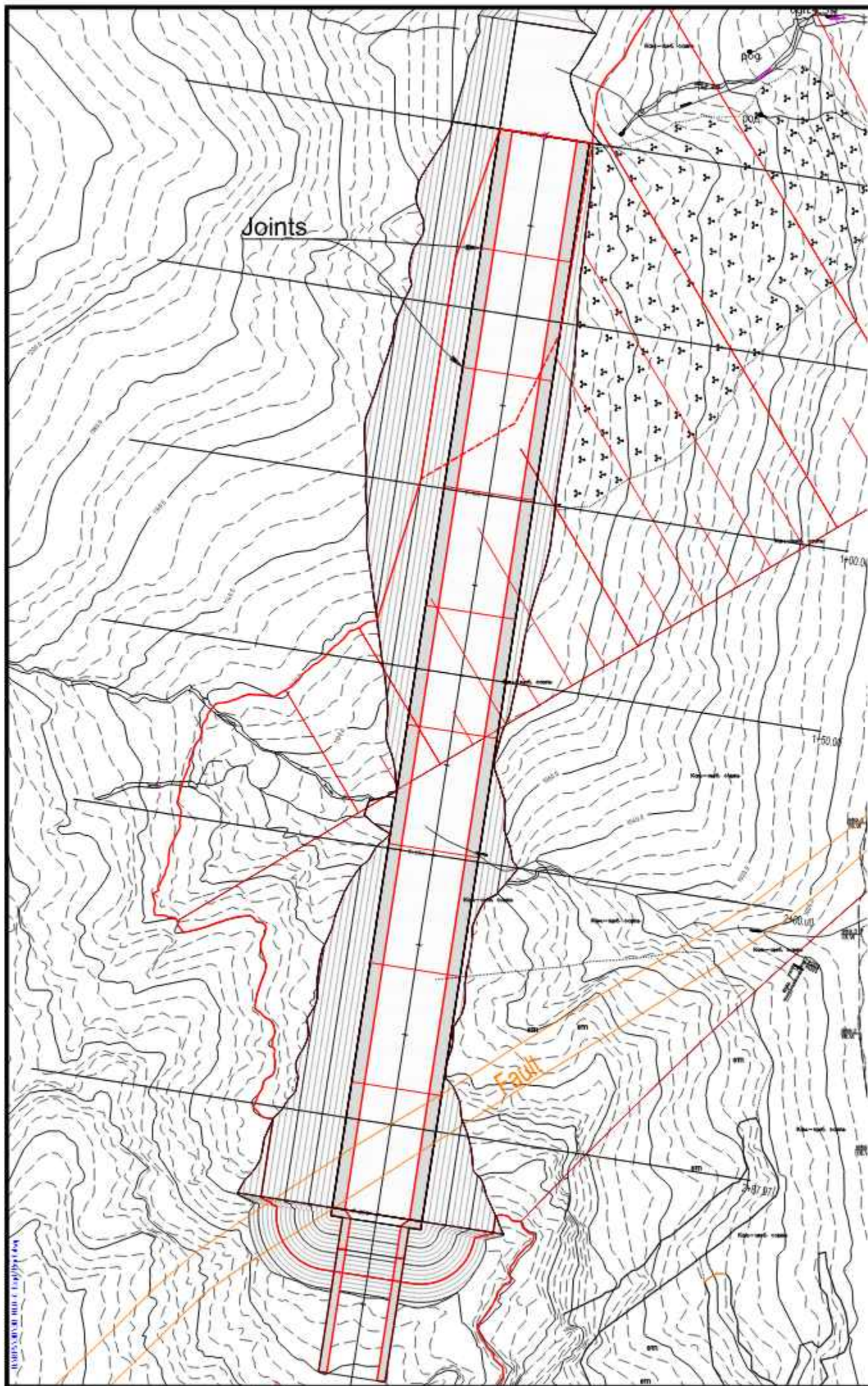


Legend

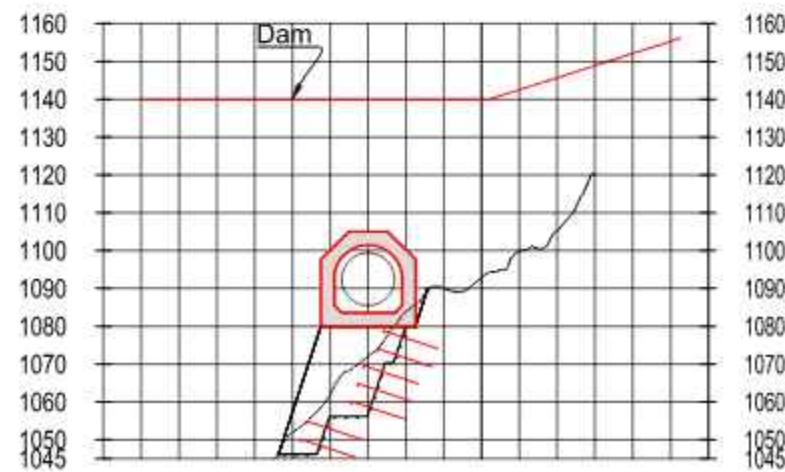
-  Mid level outlet
-  Dam layout

| | |
|---|--------------------------------------|
|   | |
|  OSHPC BAIKO TOJK | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1290 m a.s.l. MID LEVEL OUTLETS GENERAL PLAN | |
|  | 1:5,000 1/1 A3 RFS 1730 ELC |
| 40114 A | |

Local coordinate system



0+200.00



| | | | | | | | | | |
|-----|--|------------|--|------------|--|---------|--|----------|--|
| No. | | Date | | Status | | Checked | | Approved | |
| 1 | | 2017/04/10 | | ADDITIONAL | | OK | | OK | |

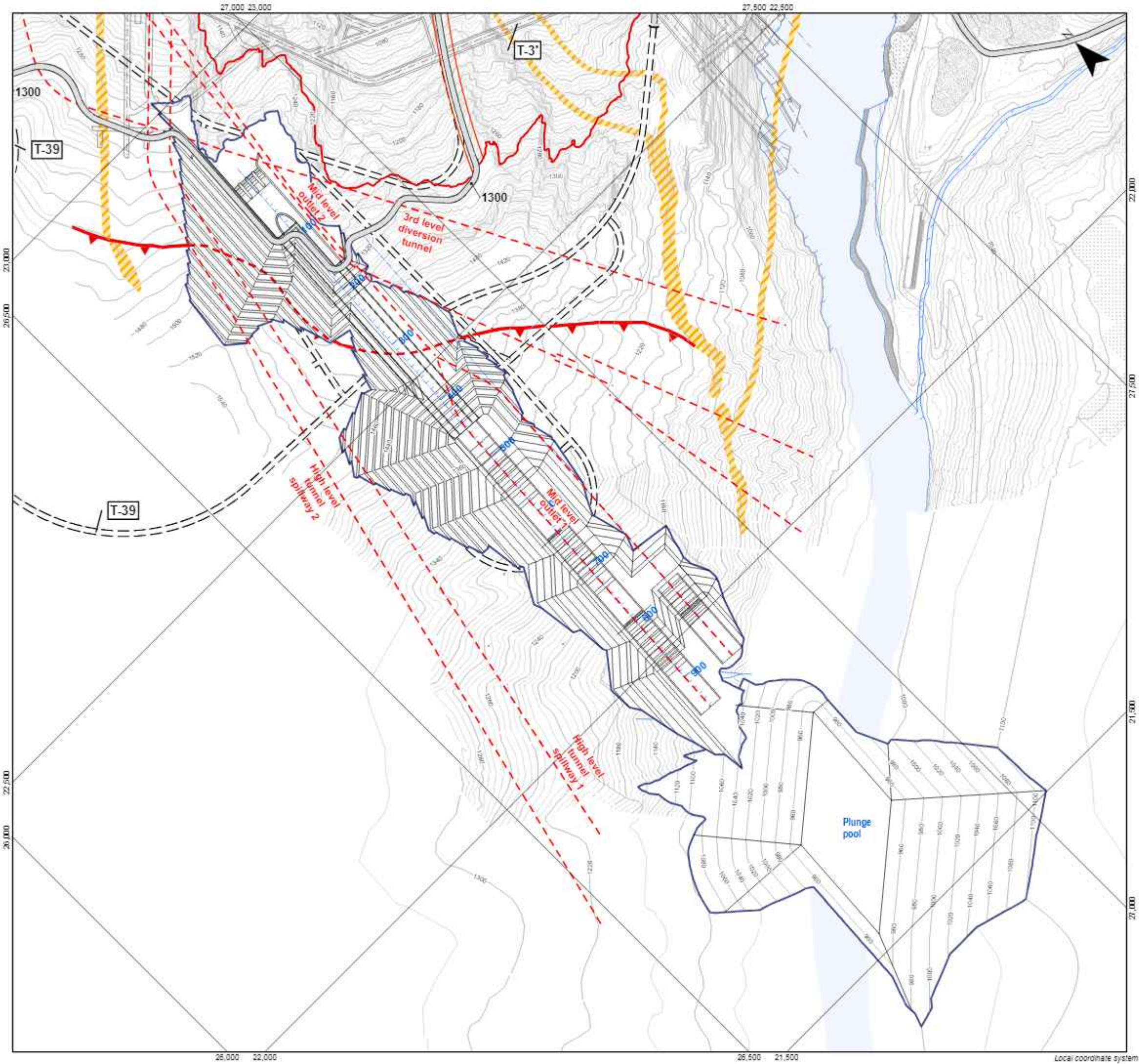
OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT



ROGUN FEASIBILITY STUDY
DAM ALTERNATIVE FSL 1290 m a.s.l.
MID LEVEL OUTLET 1
INLET CULVERT

COYNE ET BELIER

| | | |
|-----------------|------------------|-----------|
| Project No. | Scale | Sheet No. |
| RFS 1730 | | 1 / A3 |
| Working Station | 4, 0, 1, 1, 5, A | |

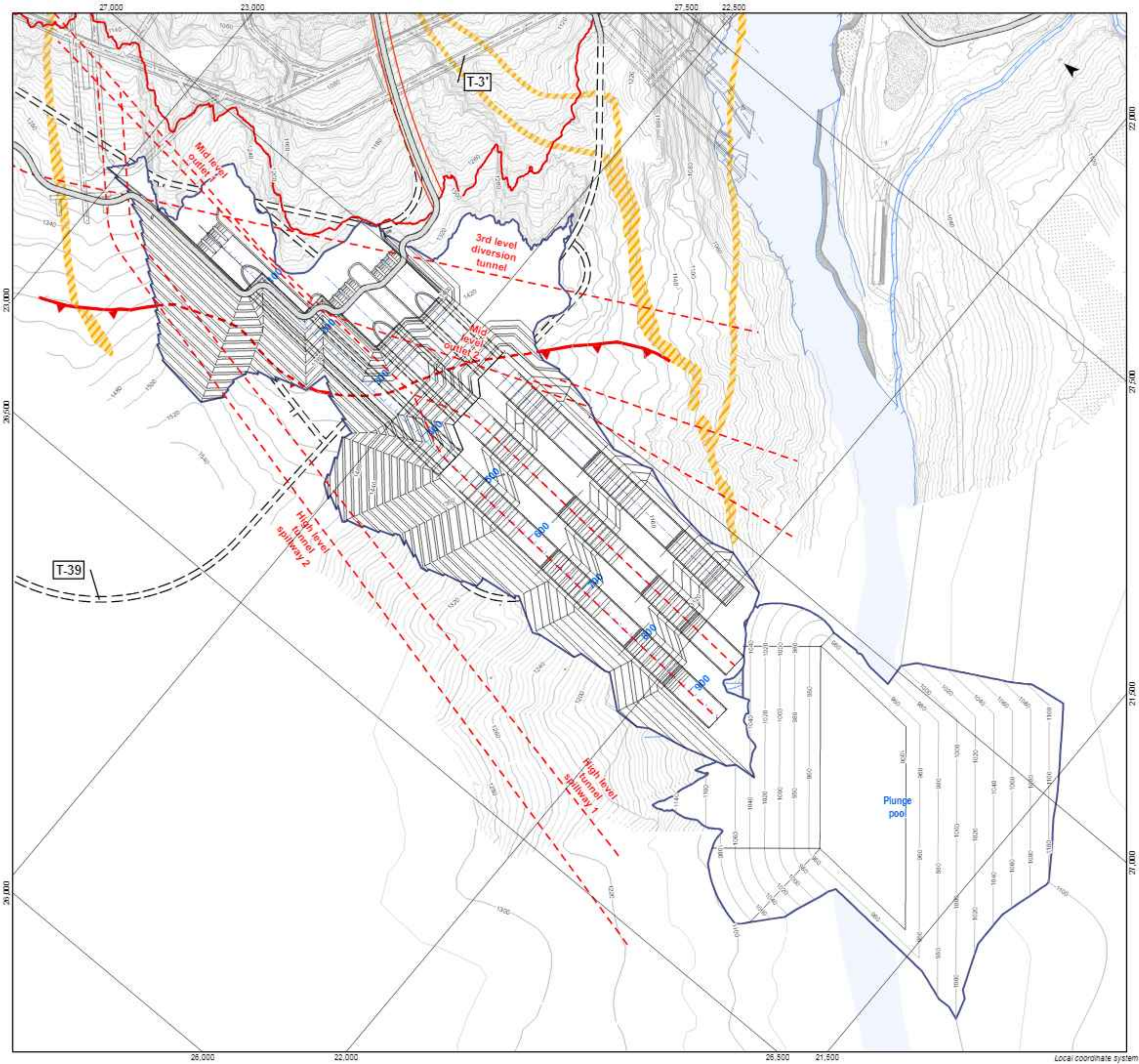


Legend

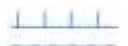

-  Surface spillway with chainage (m)
-  Dam layout

| | | | |
|---|--|---|-----|
| B: 2012.11.22 Plunge pool and accesses | | BAR | LCD |
| A: 2013.06.12 First issue | | BAR | LCD |
|  | |  | |
|  | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| ROGUN FEASIBILITY STUDY | | | |
| DAM ALTERNATIVE FSL 1290 m a.s.l. | | | |
| SURFACE SPILLWAY - FIRST STAGE | | | |
| GENERAL PLAN | | | |
|  | | 1:5,000 1/1 A3 | |
| RFS 1730 | | ELC | |
| 40117 | | B | |

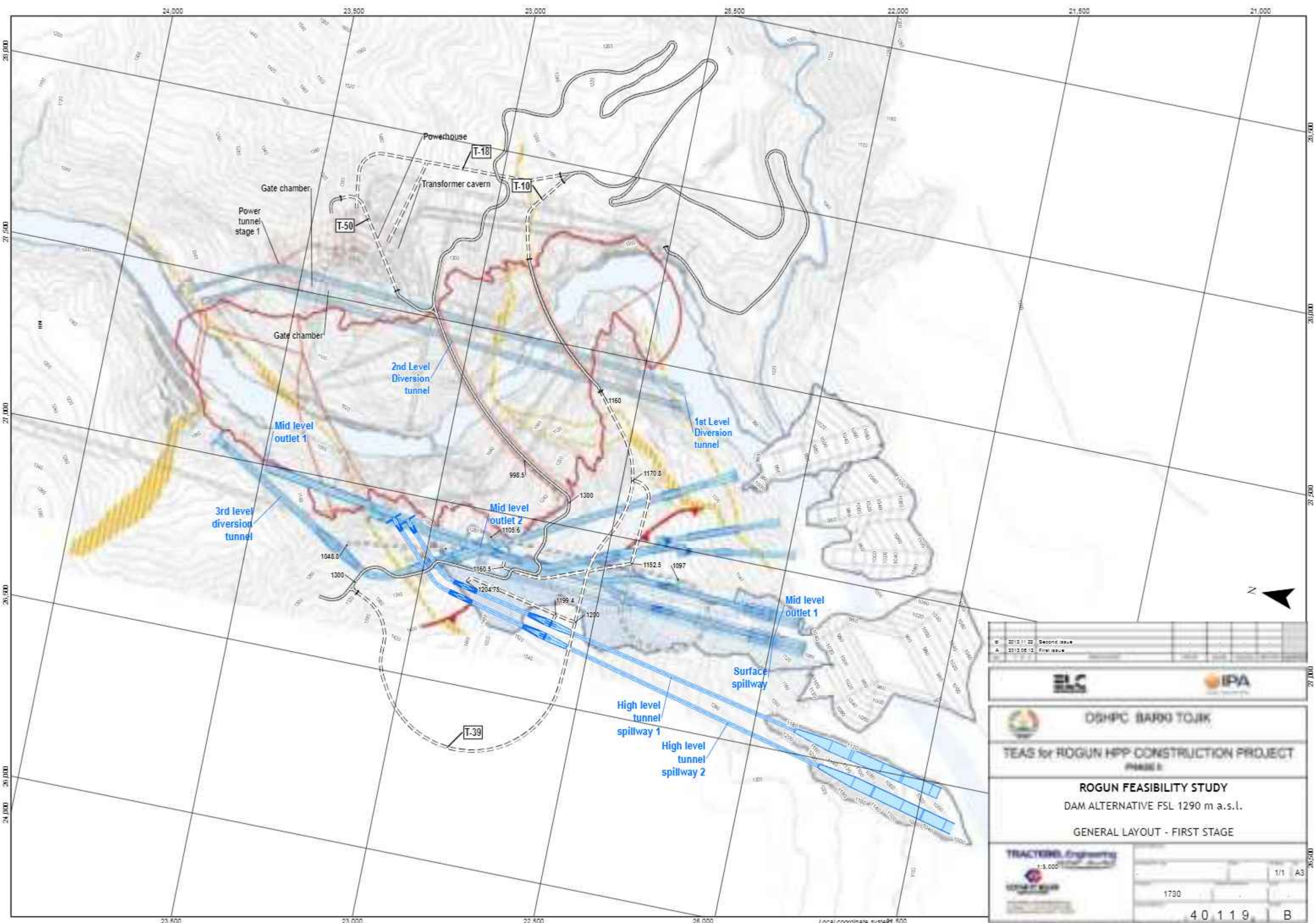
Local coordinate system



Legend

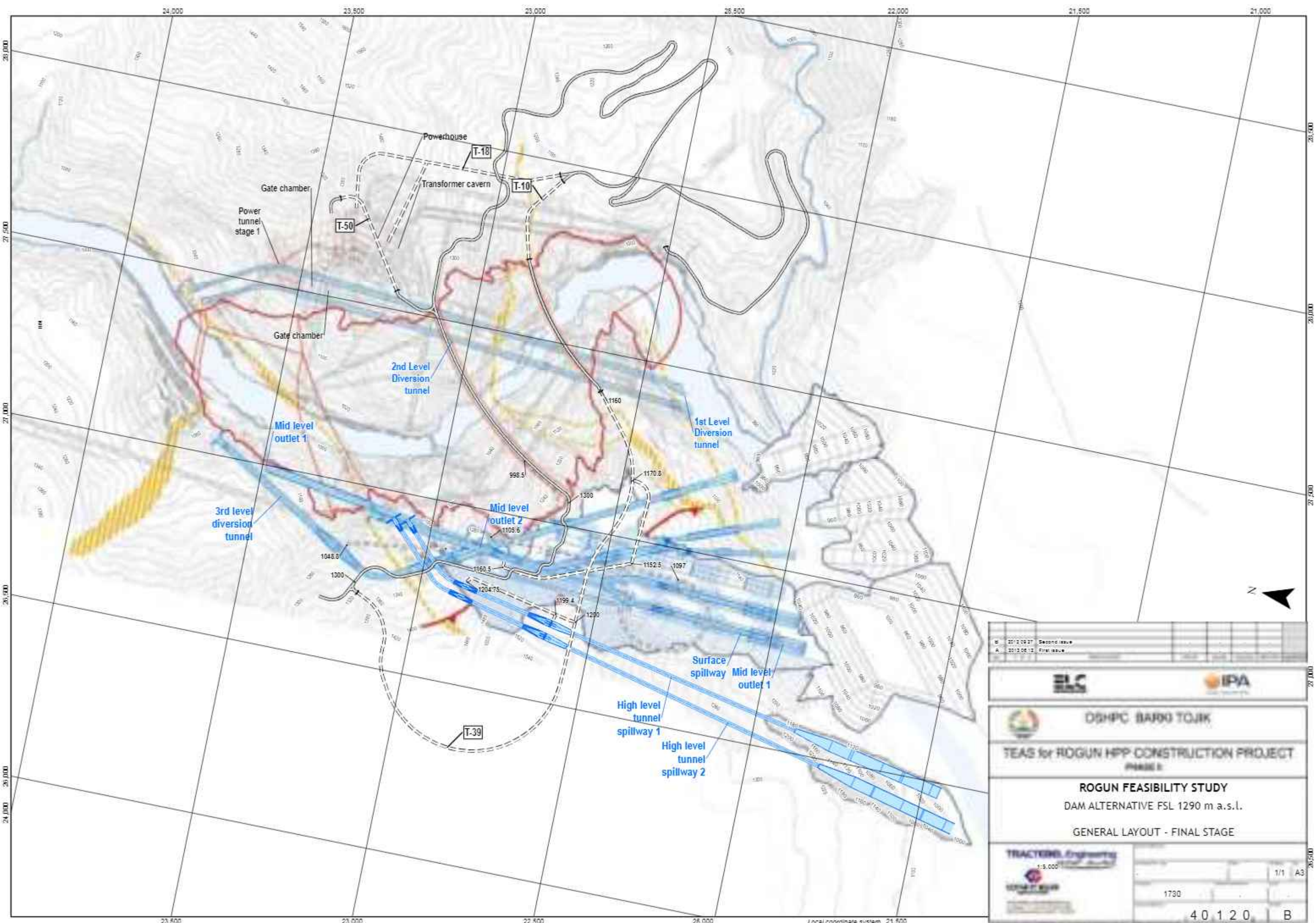
-  Surface spillway with chainage (m)
-  Dam layout

| | | | |
|---|--|---|-----|
| B 2012.06.12 Plunge pool | | BAR | LCC |
| A 2012.06.12 First issue | | BAR | LCC |
|  | |  | |
| ODHPC BARDU TOJK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| ROGUN FEASIBILITY STUDY | | | |
| DAM ALTERNATIVE FSL 1290 m a.s.l. | | | |
| SURFACE SPILLWAY - FINAL STAGE | | | |
| GENERAL PLAN | | | |
|  | | 1:5,000 1/1 A3 | |
| RFS 1730 | | ELC | |
| 40118 | | B | |



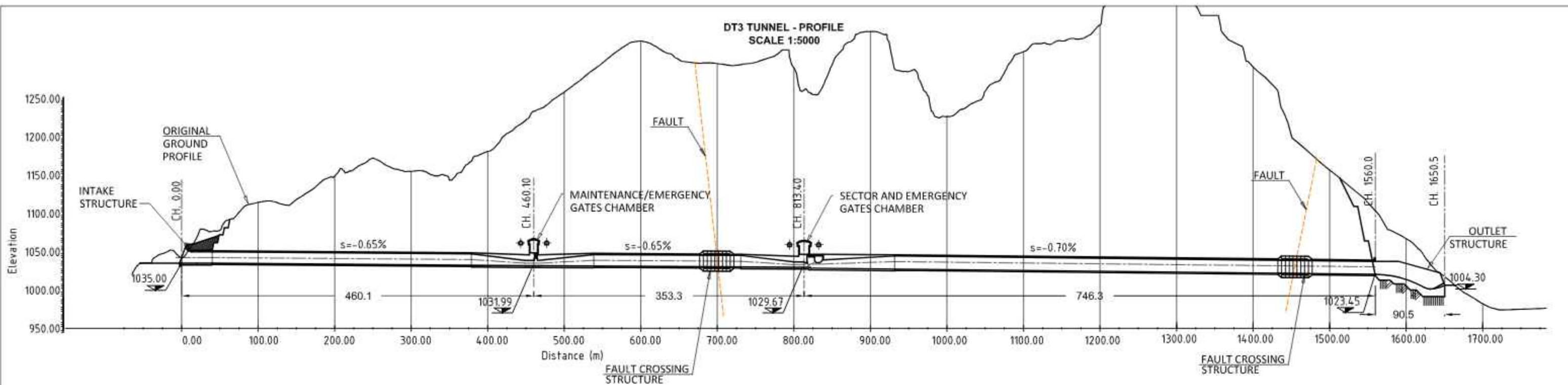
| | |
|---|-------------------|
| © 2012.11.22 Second issue A 2012.06.12 First issue | |
| | |
| | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1290 m a.s.l. GENERAL LAYOUT - FIRST STAGE | |
| | 1:5,000 |
| 1730 | 1/1 A3 40119 B |

Local coordinate system of 500

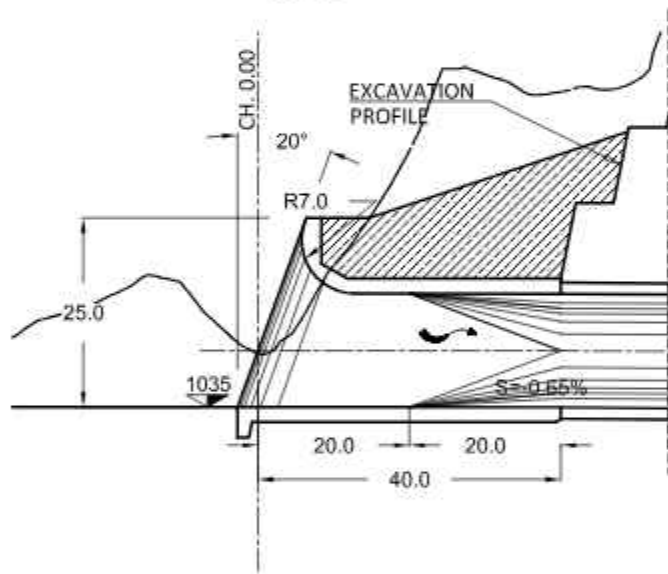


| | |
|---|-------------|
| 2012.09.27 Second issue A 2012.06.12 First issue | |
| | |
| | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1290 m a.s.l. GENERAL LAYOUT - FINAL STAGE | |
| | 1:5,000 |
| 1/1 A3 40120 B | |

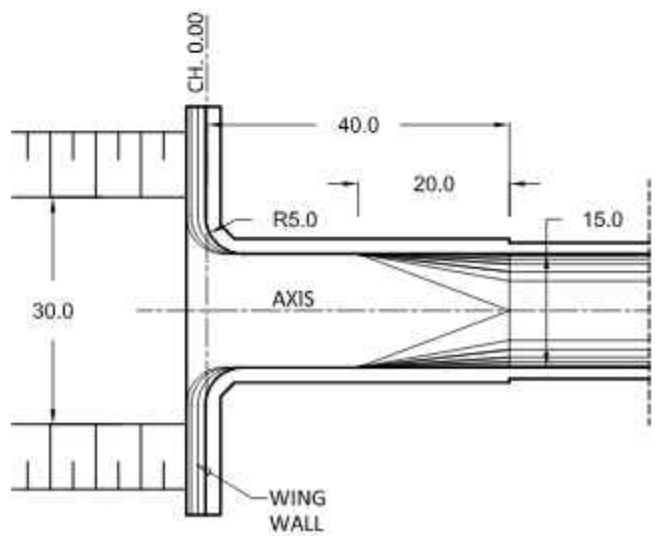
23,500 23,000 22,500 26,000 26,500 Local coordinate system 21,500



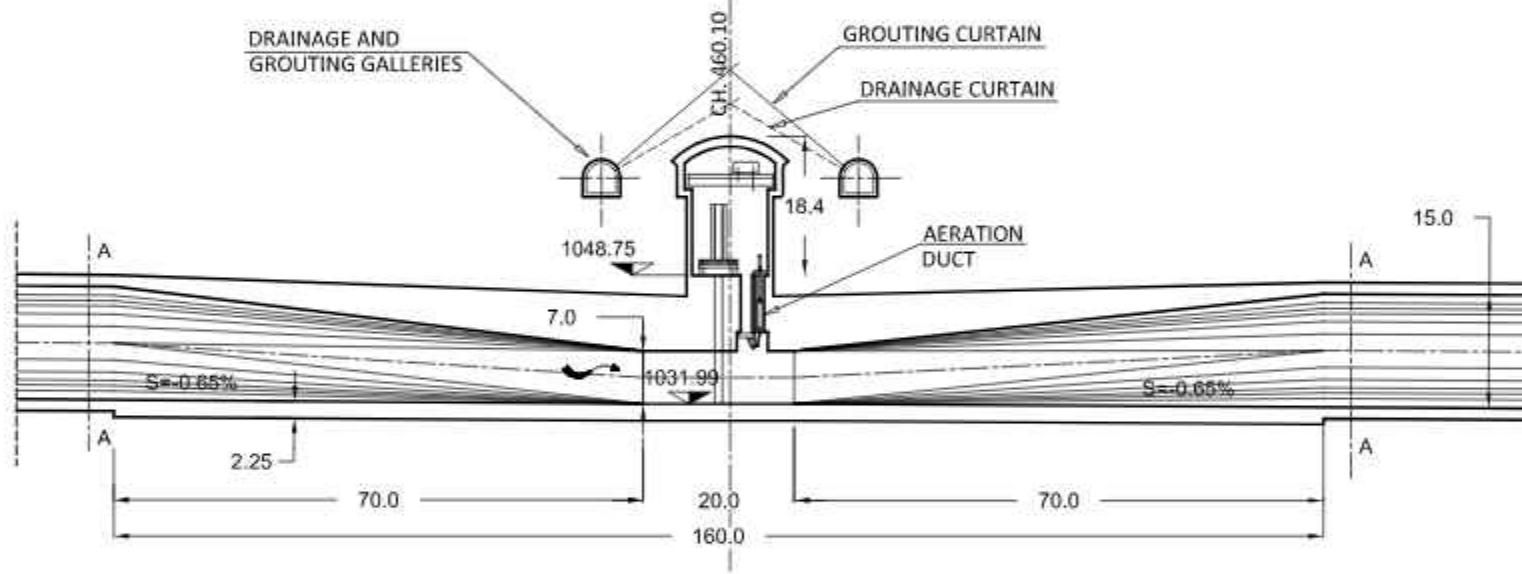
INTAKE - PROFILE
1:1.000



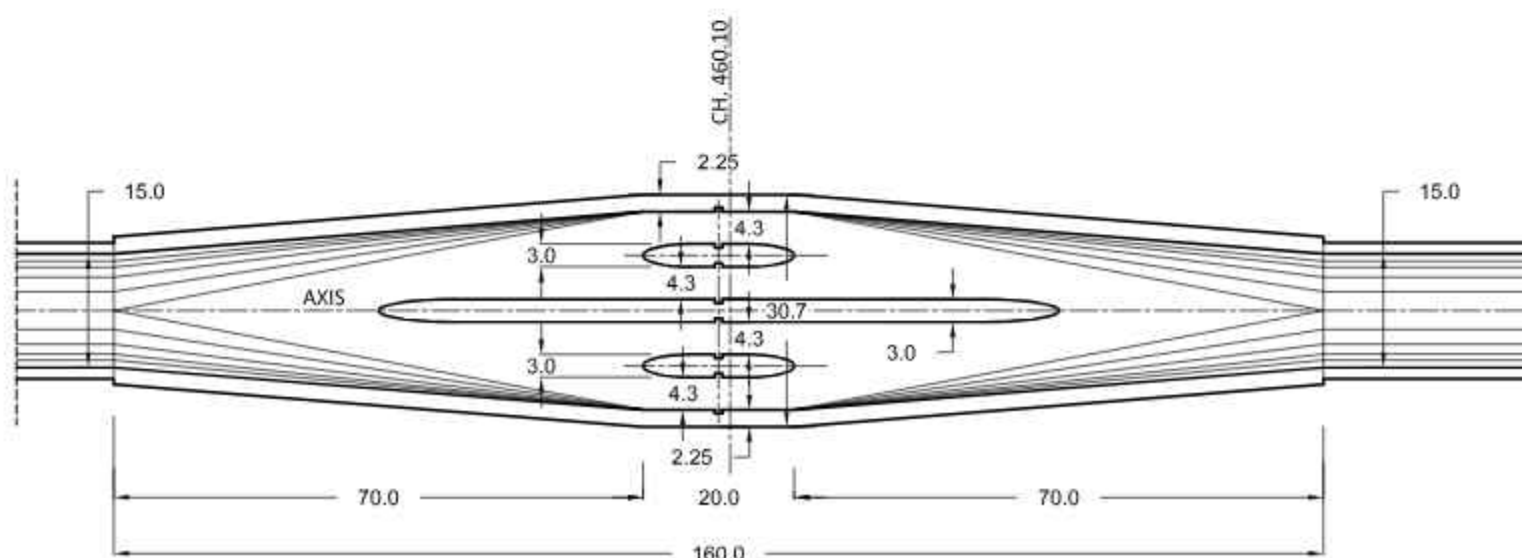
INTAKE - PLAN
1:1.000



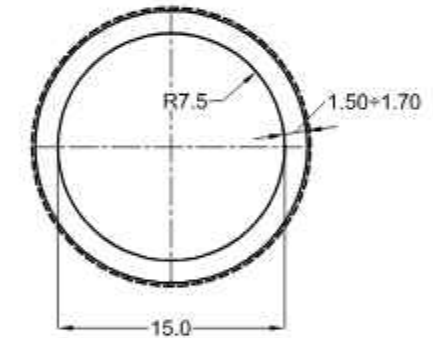
MAINTENANCE/EMERGENCY GATES CHAMBER - AXIS PROFILE
1:1.000



MAINTENANCE/EMERGENCY GATES CHAMBER - PLAN
1:1.000



SECTION A-A
1:500



| Rev. | Y | M | D | DESCRIPTION | STATUS | DESIGN | CHECKED | APPROVED | VALIDATED |
|------|------|----|----|-------------|--------|--------|---------|----------|-----------|
| B | 2015 | 12 | 15 | INLET WALLS | | PKB | LDG-DT | LDG | |
| A | 2015 | 04 | 15 | PROJ DESIGN | | PKB | LDG-PAB | LDG-PAB | |

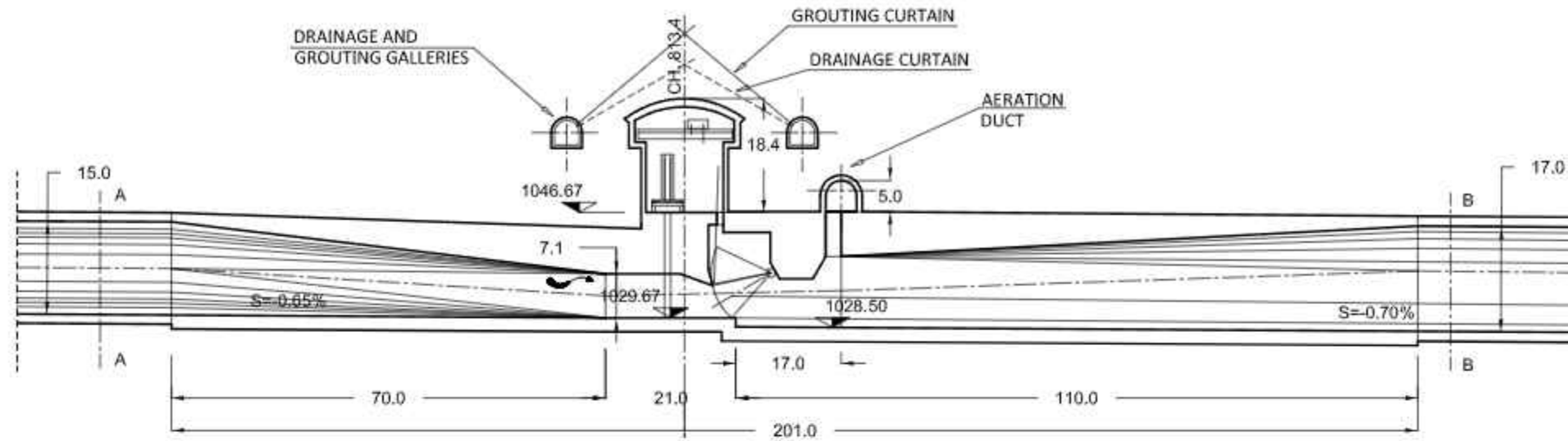


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

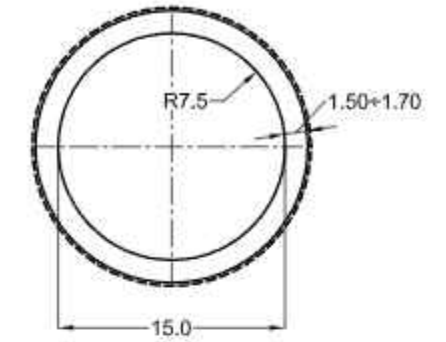
DAM FSL 1290 - 1255 - 1220 - DT3 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTIONS

| | | | |
|--------------------|----------------|-----------|------|
| | | | |
| Computer File .dwg | 40 121 | Scale | VAR. |
| Registration | 1730 | No. Sheet | 1 |
| Sheet Size | A3 | Level | |
| Drawing Reference | 4, 0, 1, 2, 1, | Revision | B |

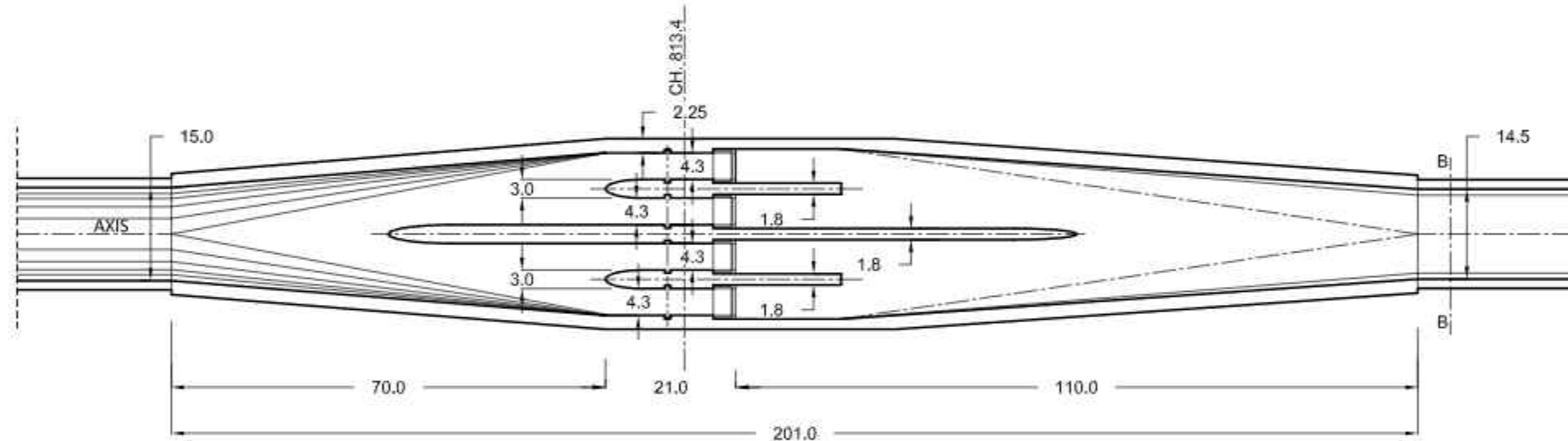
SECTOR AND EMERGENCY GATES CHAMBER - AXIS PROFILE
1:1.000



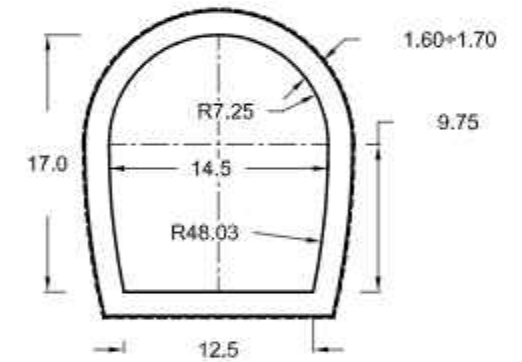
SECTION A-A
1:500



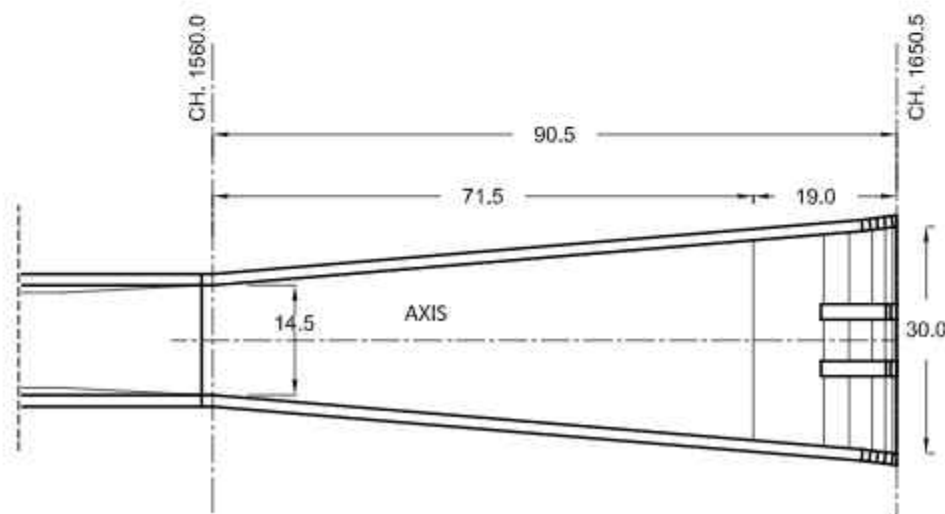
SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



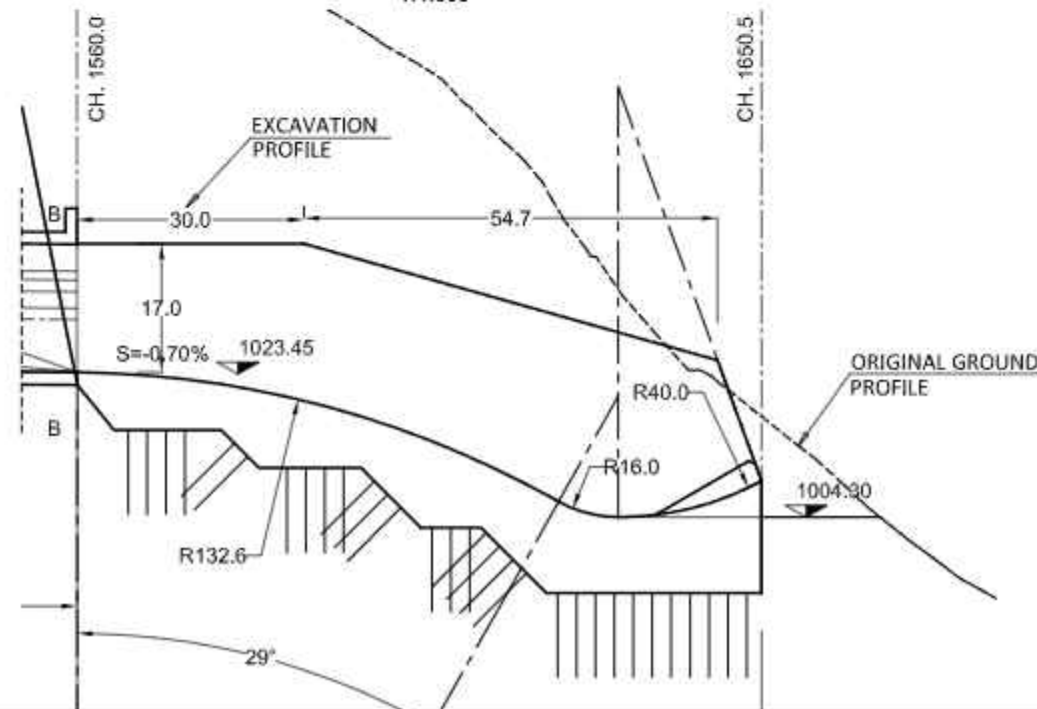
SECTION B-B
1:500



OUTLET - PLAN
1:1.000



OUTLET - PROFILE
1:1.000



| Rev. | Y | M | D | DESCRIPTION | STATUS | DRWN | CHEKED | APPROVED | VALIDATED |
|------|------|----|----|-----------------------|--------|------|---------|----------|-----------|
| B | 2013 | 12 | 15 | VENTILATION AND BALLS | | PYB | LDG-DT | LDG | |
| A | 2013 | 04 | 15 | PRST DESIGN | | PYB | LDG-PAB | LDG-PAB | |

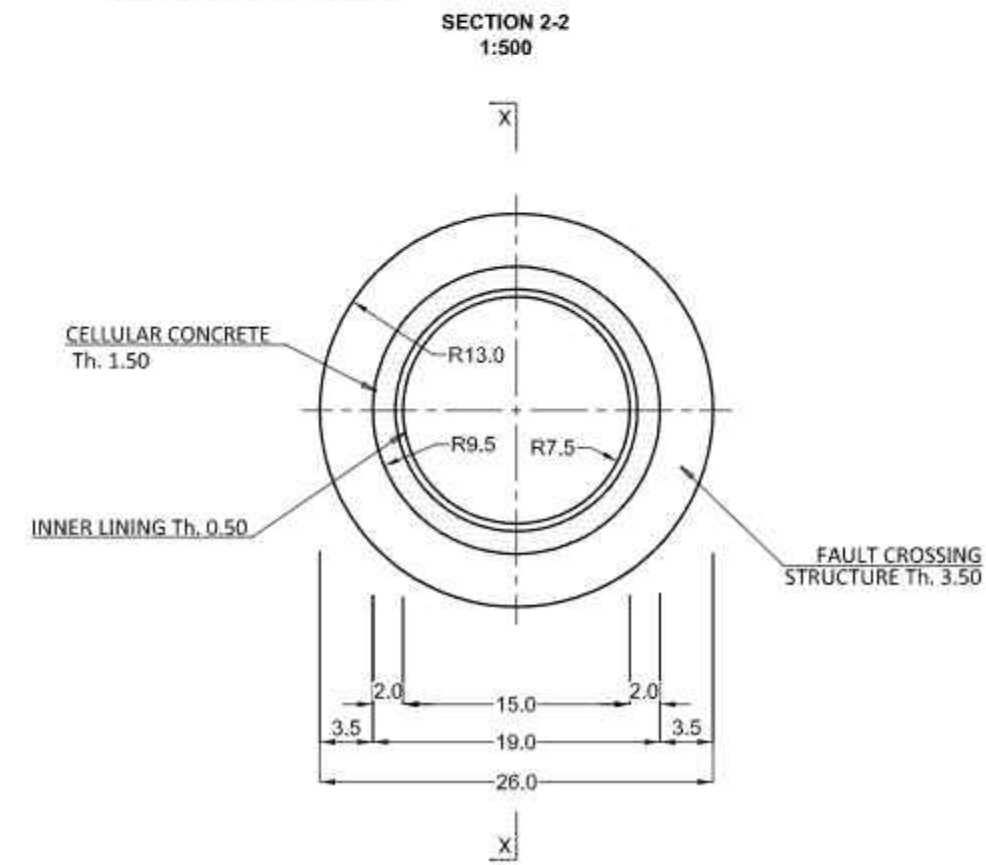
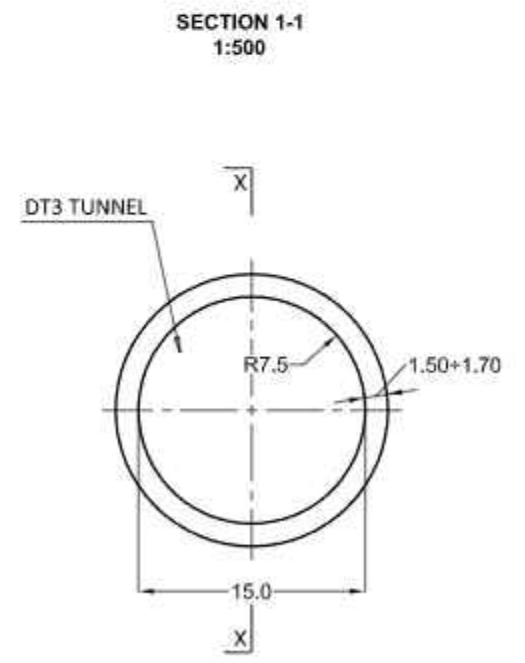
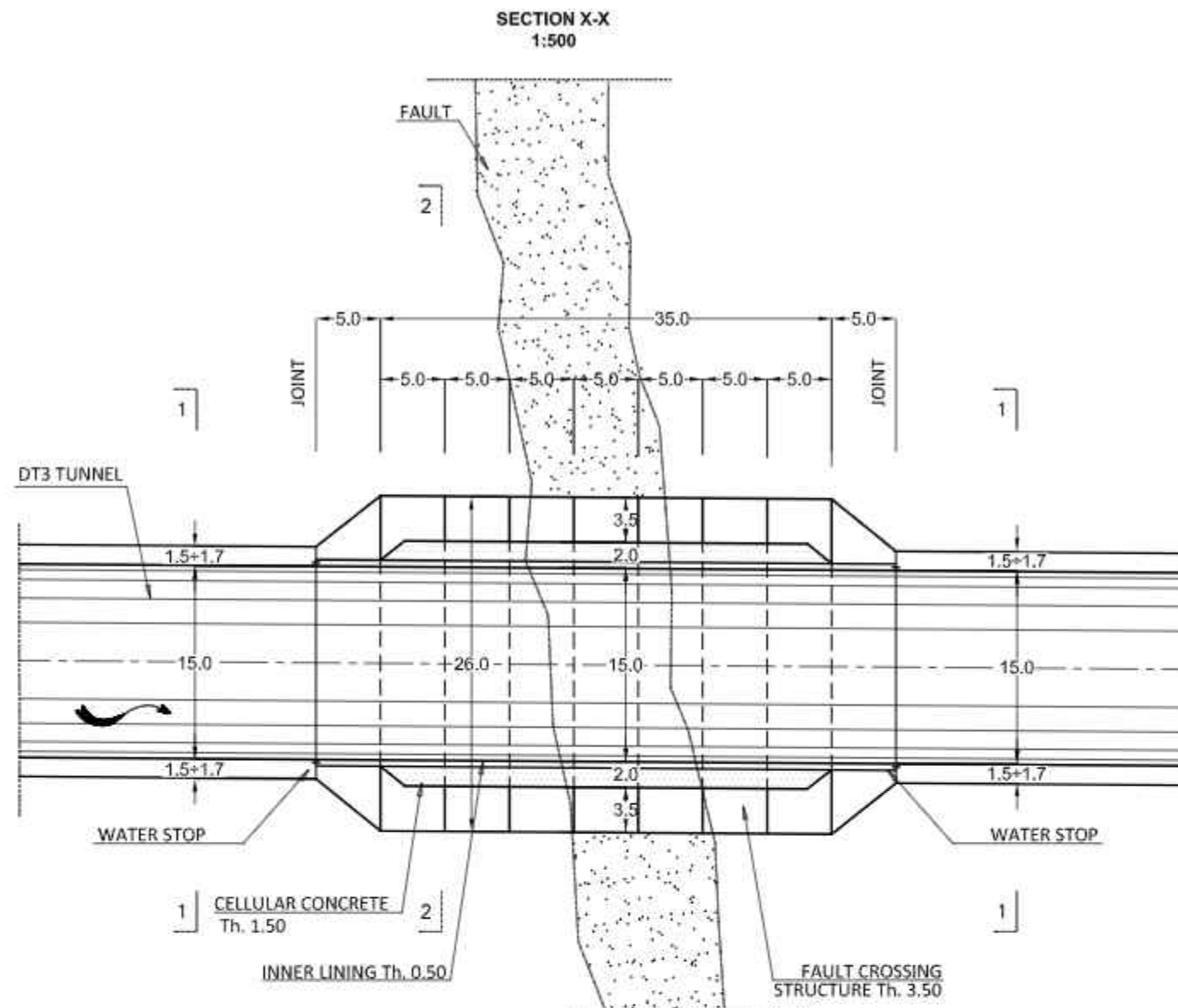


OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 - 1255 - 1220 - DT3 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | |
|--------------------|------------------------|---------|----------|
| | | | |
| Computer File .dwg | Scale | № Sheet | Size |
| 40 122 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | 4, 0, 1, 2, 2, 1 | | Position |
| | | | B |

This document is the property of Tractebel Engineering, any duplication or distribution to third parties is forbidden without its prior approval.



| Rev. | Y | M | D | DESCRIPTION | STATUS | DRWN | CHECKED | APPROVED | VALIDATED |
|------|------|----|----|-------------|--------|------|---------|----------|-----------|
| A | 2013 | 04 | 15 | PROJ DESIGN | | PKB | LED-PAB | LED-PAB | |

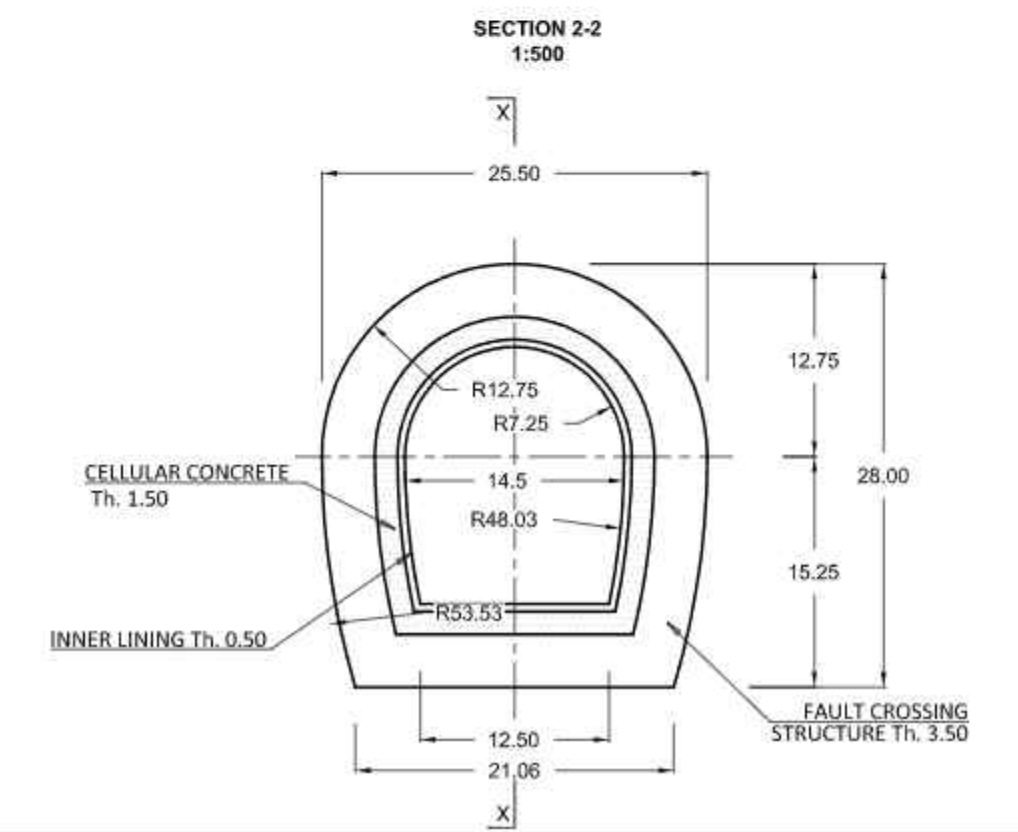
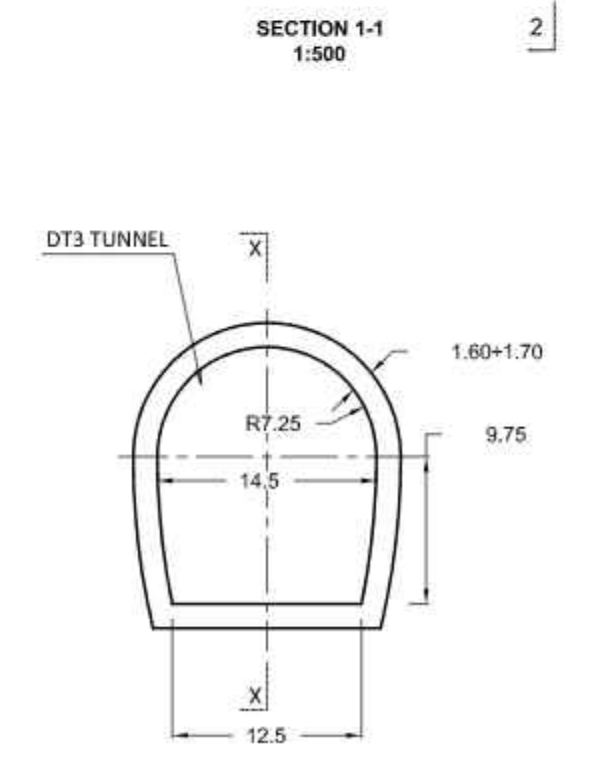
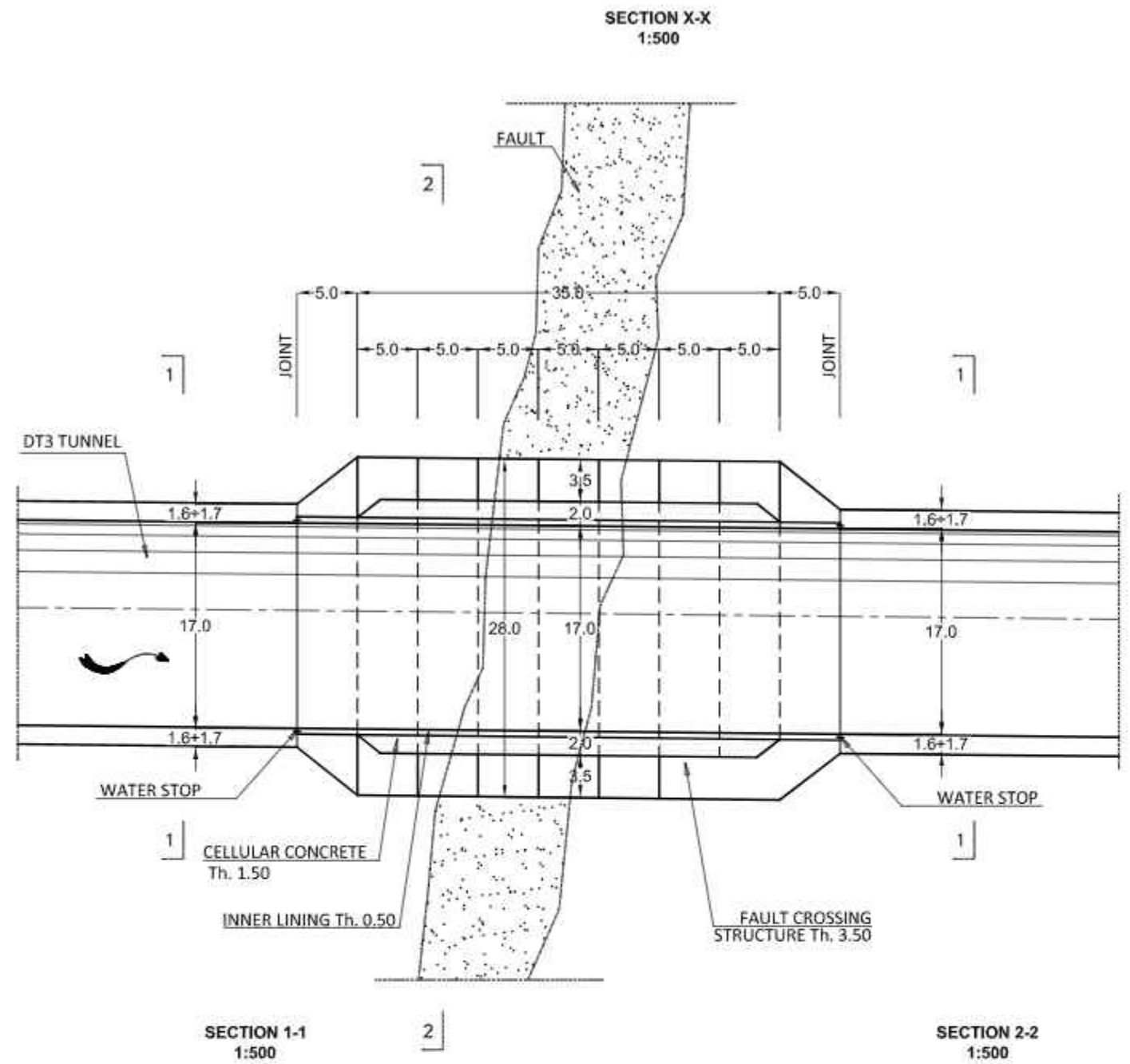


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 – 1255 – 1220 – DT3 TUNNEL
FAULT CROSSING STRUCTURE
PRESSURE STRETCH

| | |
|--|--|
| TRACTEBEL Engineering GDF SVEZ COYNE ET BELLIER <small>TRACTEBEL ENGINEERING B.V. LA Digue - 5, rue du 19 Mars 1952 92023 PARIS CEDEX 19 FRANCE</small> | External Reference Computer File .dwg Scale 16 Sheet Size |
| | Revision 1730 Project Substitution Issue Drawing Reference 4, 0, 1, 2, 3, A |

This document is the property of Tractebel Engineering, any duplication or transmission to third parties is forbidden without its prior approval.



| No. | Y | M | D | DESCRIPTION | STATUS | DRWN | CHEK | APPR | VALID |
|-----|------|----|----|-------------|--------|------|---------|---------|-------|
| A | 2013 | 04 | 15 | PROJ DESIGN | | PLB | LDJ-PAB | LDJ-PAB | |



OSHPC BARKI TOJIK

**TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II**

**DAM FSL 1290 – 1255 – 1220 – DT3 TUNNEL
FAULT CROSSING STRUCTURE
FREE FLOW STRETCH**

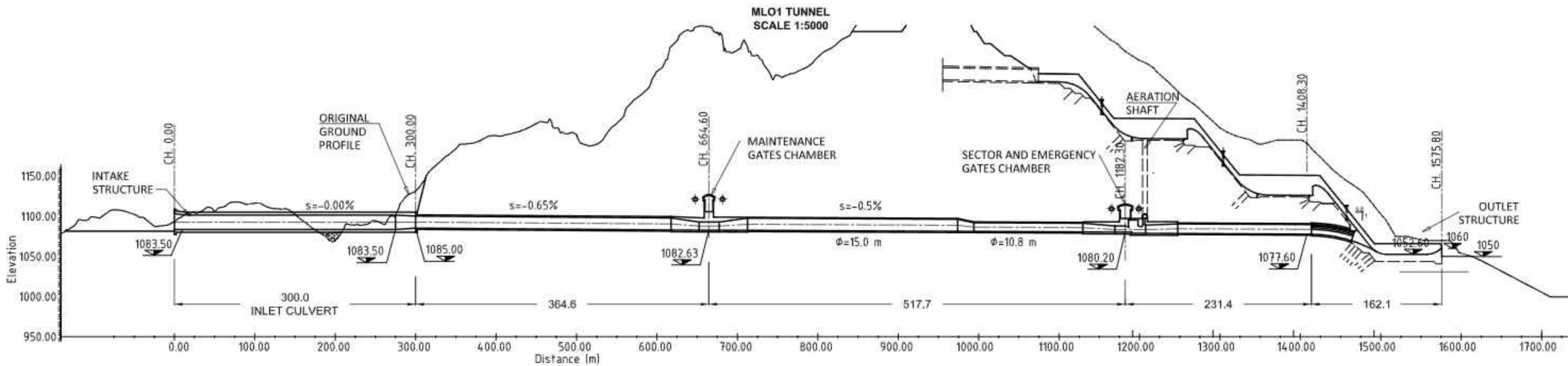
TRACTEBEL Engineering
GDF SVEZ

COYNE ET BELLIER
Technique de l'eau

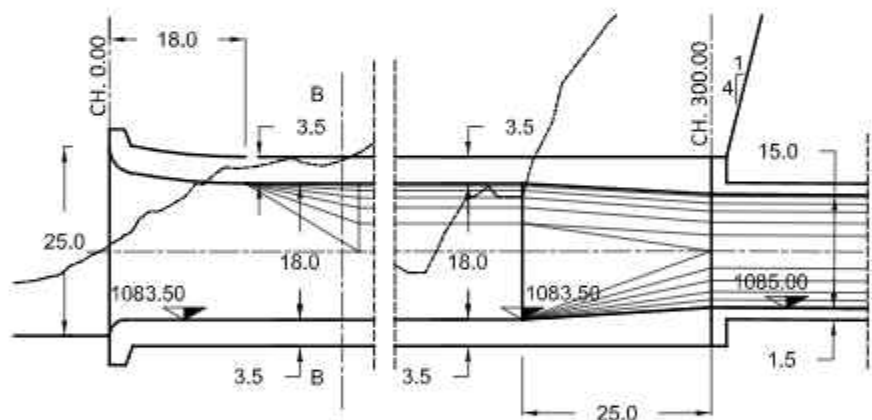
TRACTEBEL ENGINEERING B.V.
Laan Drecht 1, 3742 AG Zevenhuizen, The Netherlands
0800 201 241 (19:00-19:30)

| External Reference | |
|--------------------|-----------|
| Computer File .dwg | Scale |
| 1730 | 1:500 |
| Project Reference | No. Sheet |
| 4,0,1,2,4,1 | 1 |
| Project | Size |
| A | A3 |

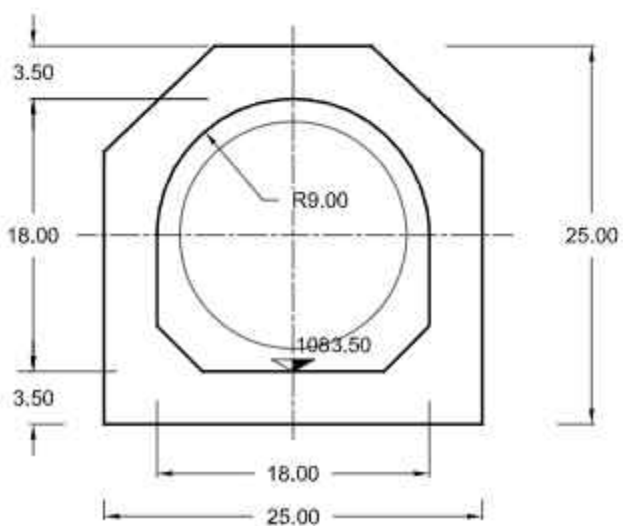
This document is the property of Tractebel Engineering, any duplication or reproduction to third parties is forbidden without its prior approval.



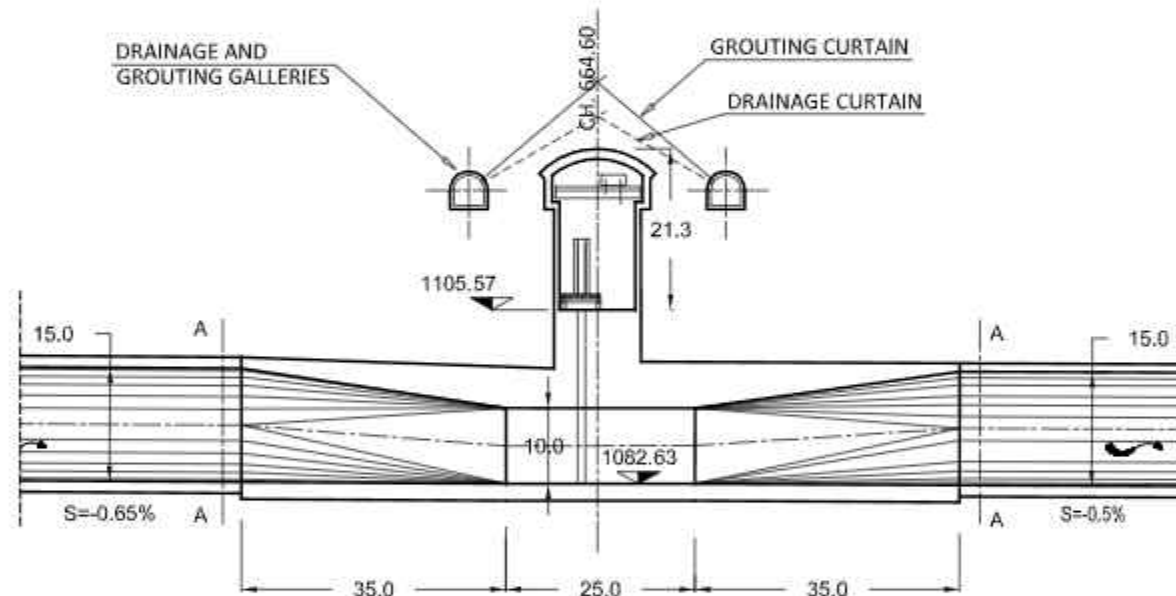
INTAKE-PROFILE
1:1000



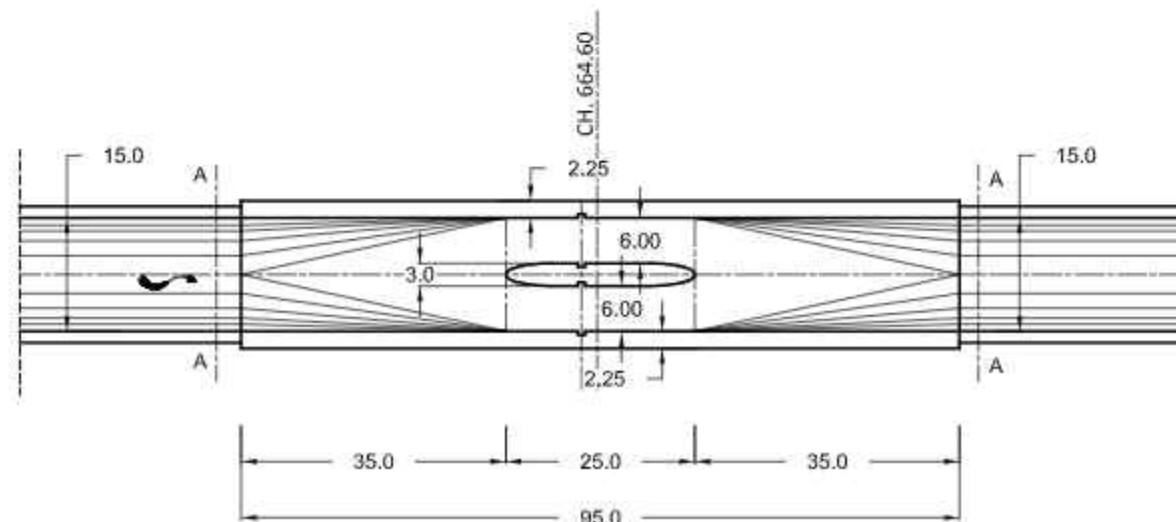
SECTION B-B
1:500



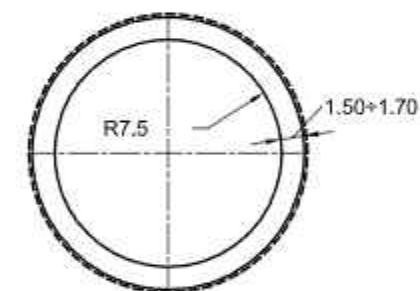
MAINTENANCE GATES CHAMBER - AXIS PROFILE
1:1000



MAINTENANCE GATES CHAMBER - PLAN
1:1000



SECTION A-A
1:500



| NO. | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED | REVISION |
|-----|------------|-------------|--------|----|---------|----------|----------|
| 1 | 2023.10.10 | ISSUANCE | DRW | | | | |

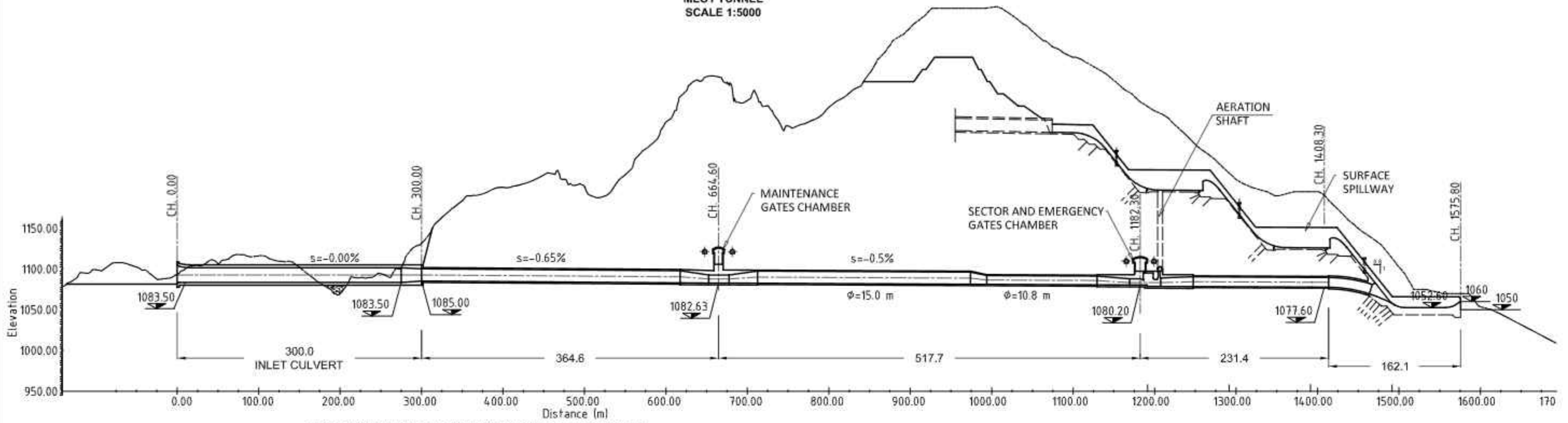


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

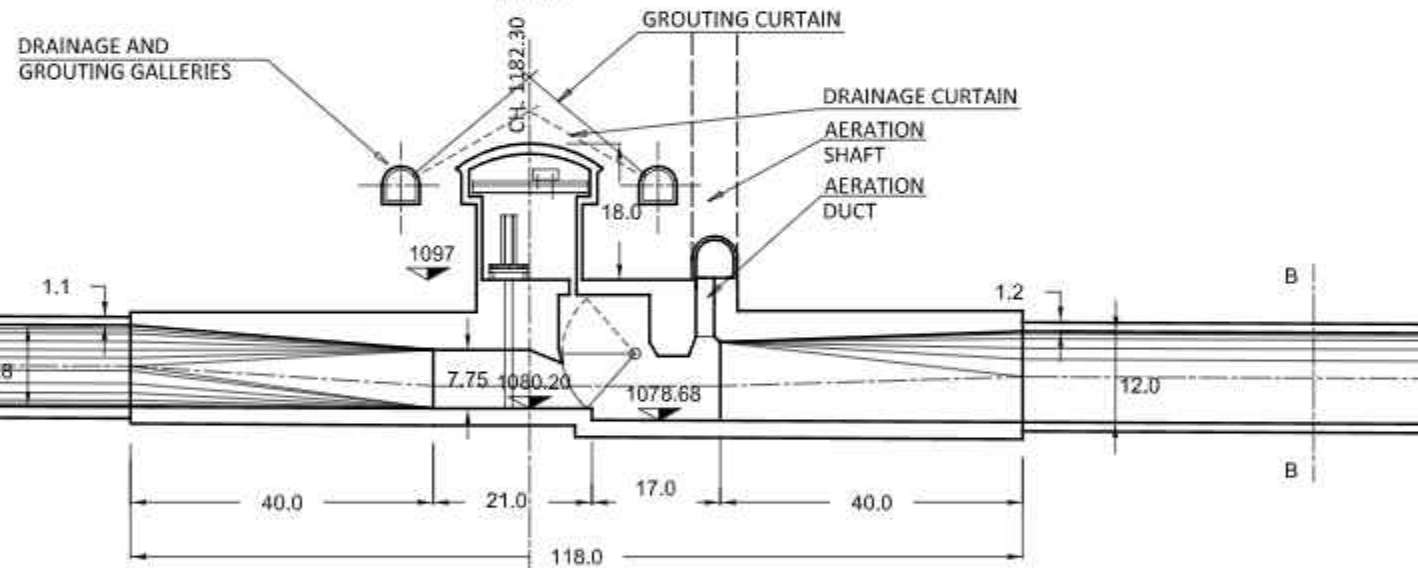
DAM FSL 1290 - 1255 - 1220 - MLO1 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTIONS

| | | | |
|---|--|-----------------------------------|-----------|
| TRACTEBEL Engineering GDF SUEZ | | Drawing No: | |
| COYNE ET BELLIER | | 40 134 | VAR. 1 A3 |
| PROJECT: TRANSCENTRALE S.A. LA Grange - 5, rue du 25 Mars 1962 98977 Nouméa Cedex - 19800 | | 1730 | |
| | | Drawing Project: 4, 0, 1, 3, 4, A | |

MLO1 TUNNEL
SCALE 1:5000

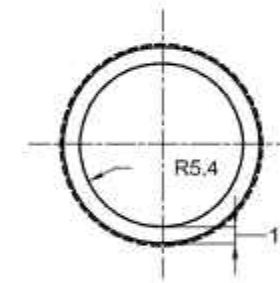


SECTOR AND EMERGENCY GATES CHAMBER - AXIS PROFILE
1:1.000

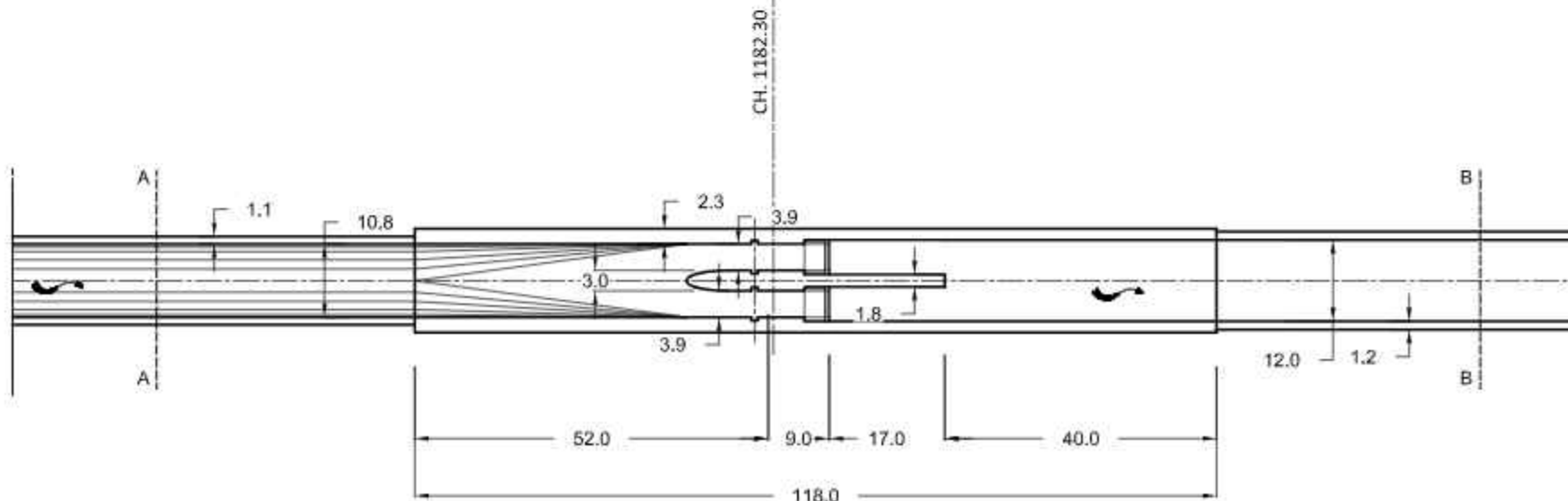
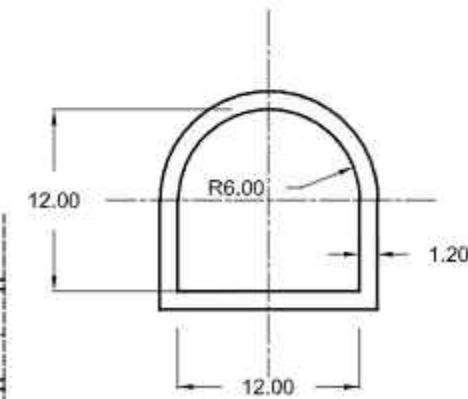


SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000

SECTION A-A
1:500



SECTION B-B
1:500



| NO. | DATE | DESCRIPTION | STATUS | DESIGN | CHECKED | APPROVED | DRAWN |
|-----|----------|-------------------|--------|--------|---------|----------|-------|
| 1 | 01/11/18 | PROJ. PREPARATION | | | | | |
| 2 | 11/18 | MODIFICATION | | | | | |

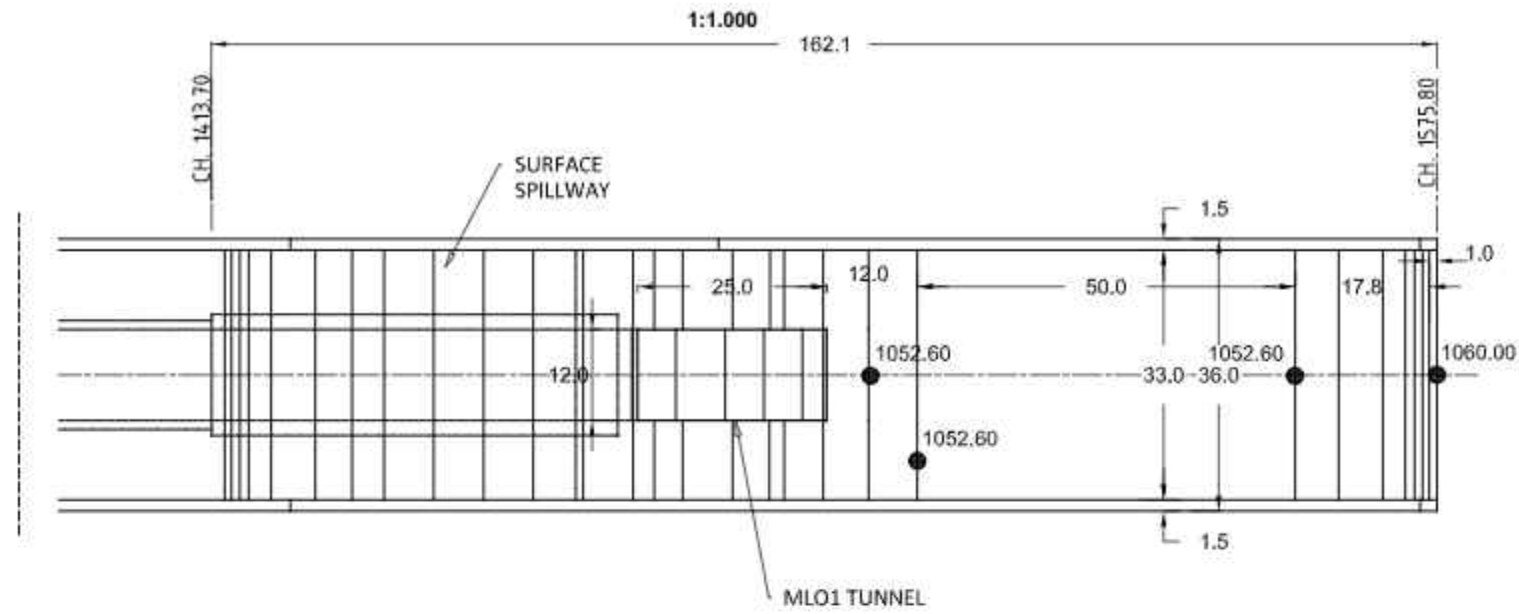


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

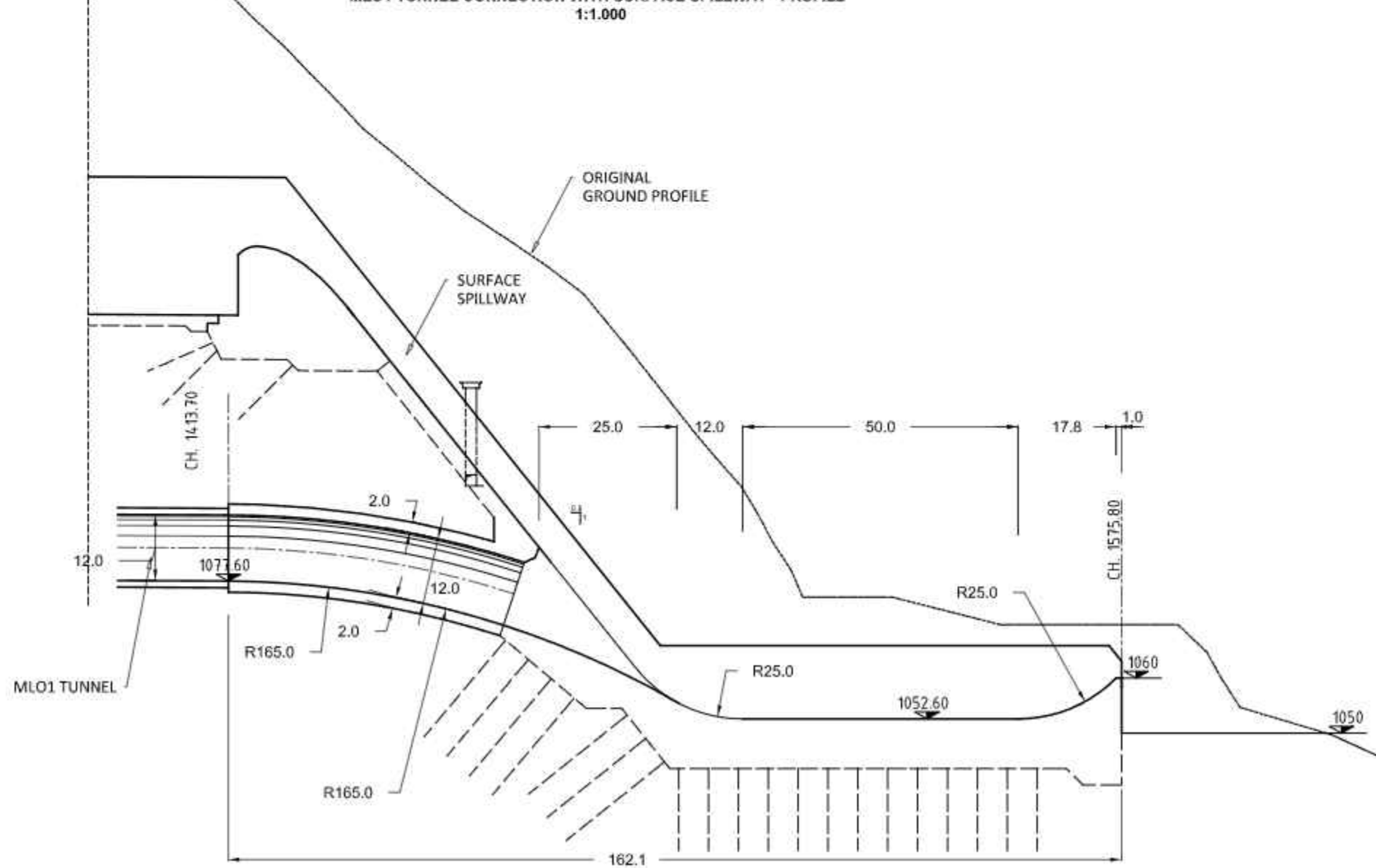
DAM FSL - 1290 - 1255 - 1220
MLO1 TUNNEL
PROFILE, GATE CHAMBER AND SECTIONS

| | | | |
|----------------------------|----------------------|----------------|------------------------------|
| | | | |
| Construction No. 40 135 | Date VAR. | No. Draw. 1 | Scale A3 |
| Location 1730 | Technical Sub-System | Year | Revision 4, 0, 1, 3, 5, A |

MLO1 TUNNEL CONNECTION WITH SURFACE SPILLWAY - PLAN



MLO1 TUNNEL CONNECTION WITH SURFACE SPILLWAY - PROFILE



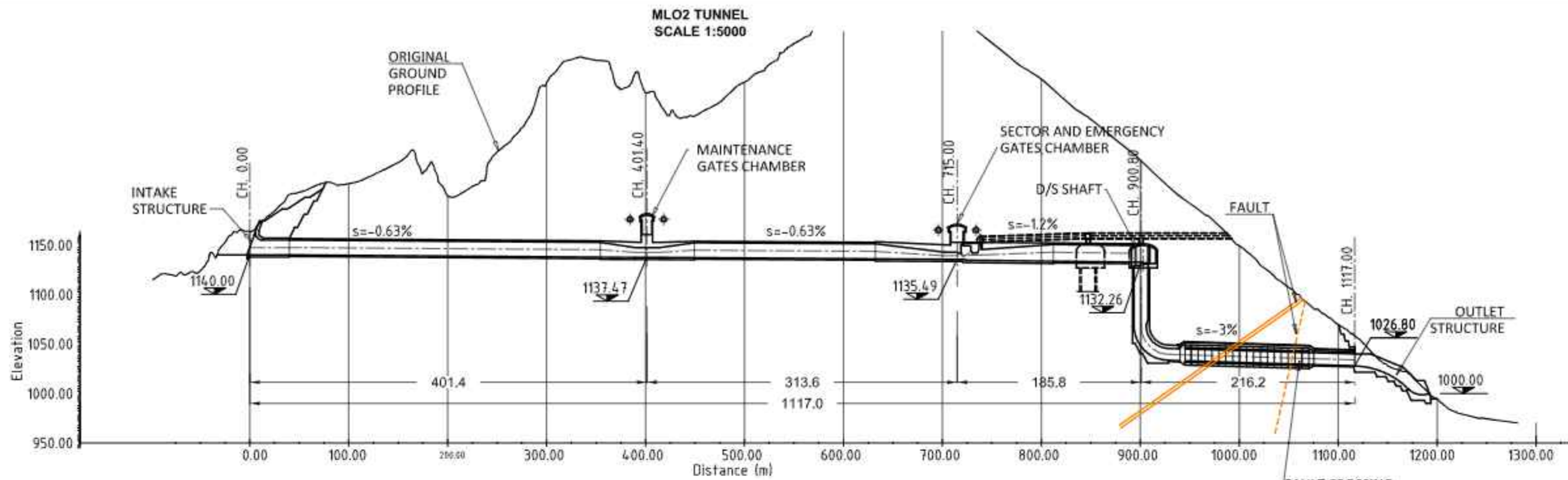
| NO. | DATE | DESCRIPTION | BY | CHECKED | APPROVED | STATUS |
|-----|------------|--------------|----|---------|----------|--------|
| 1 | 10/10/2023 | MODIFICATION | | | | ISSUED |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

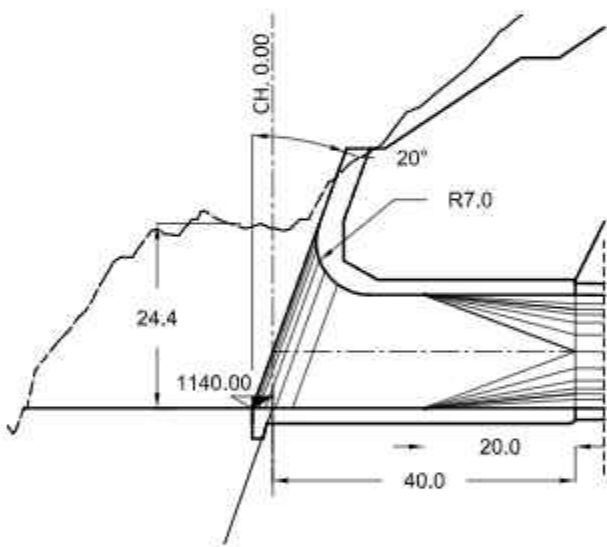
DAM FSL 1290 - 1255 - 1220
MLO1 TUNNEL
OUTLET - Plan and Profile

| | | | |
|-----------------------|----------------|-----------|--------|
| TRACTEBEL Engineering | | GDF SUEZ | |
| COYNE ET BELLIER | | GDF SUEZ | |
| Project No. | 40 136 | Rev. | VAR. 1 |
| Scale | 1730 | Sheet No. | 1 |
| Drawing No. | 4, 0, 1, 3, 6, | Scale | A |

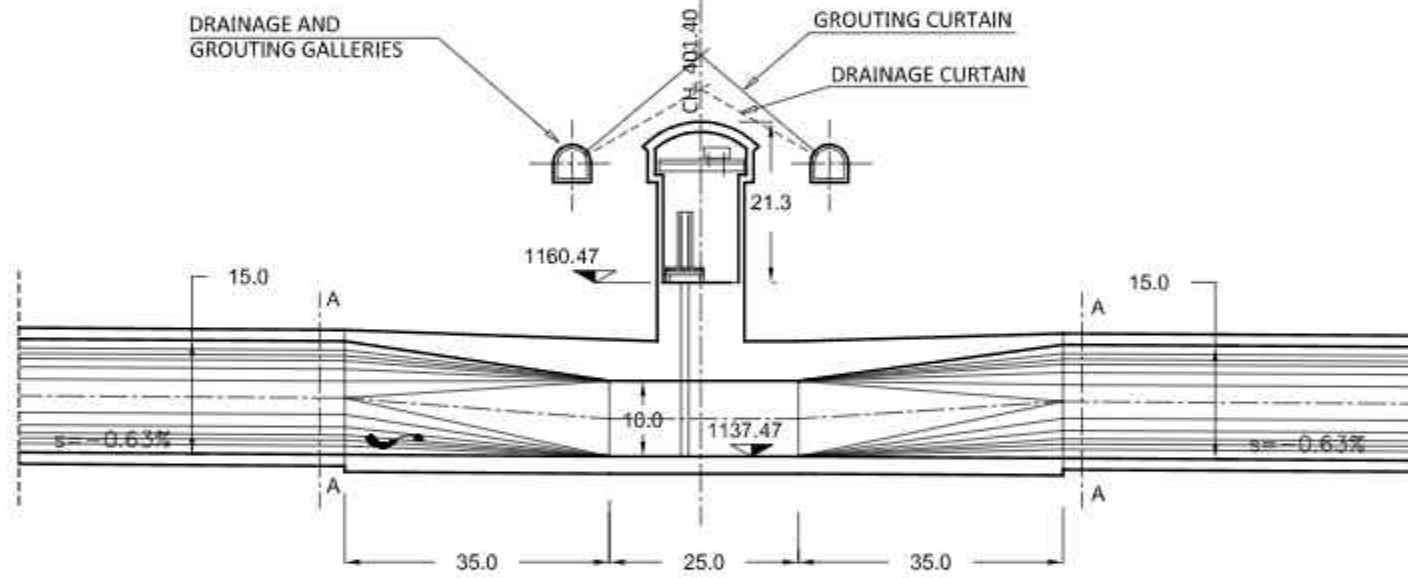


INTAKE - PROFILE
1:1.000

MAINTENANCE GATES CHAMBER - AXIS PROFILE
1:1.000

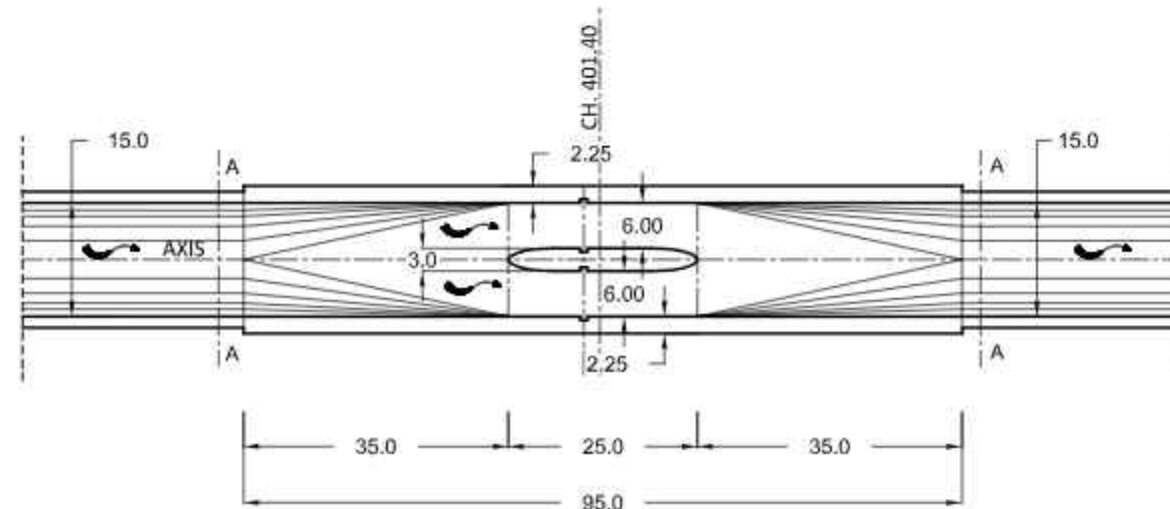
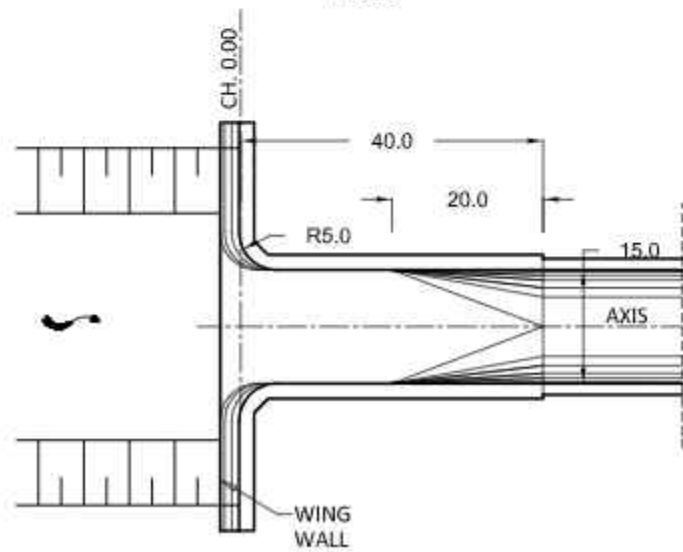
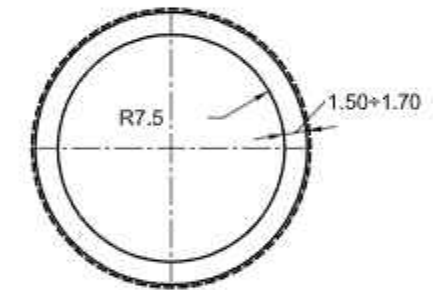


INLET - PLAN
1:1.000



MAINTENANCE GATES CHAMBER - PLAN
1:1.000

SECTION A-A
1:500



| | | | | | | | | | |
|------|------|----|----|------------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2015 | 12 | 15 | GENERAL REVISION | | PKB | LCO-DT | LCO | |
| A | 2015 | 04 | 15 | PROJ DESIGN | | PKB | LCO-PAB | LCO-PAB | |



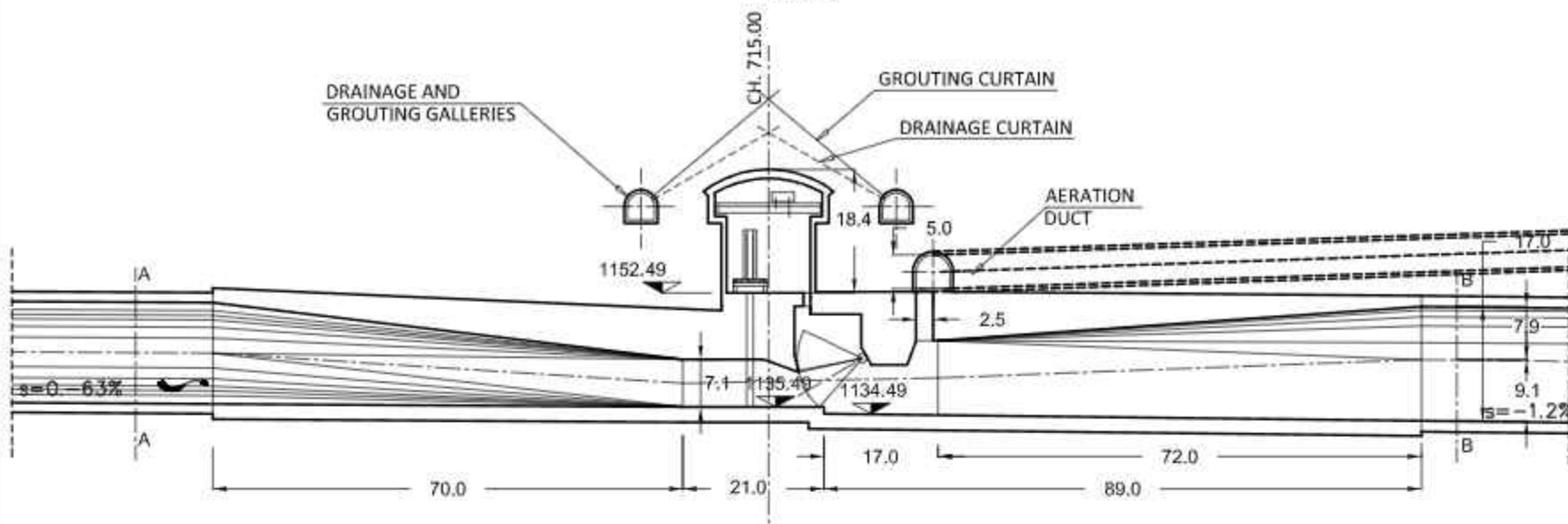
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 – MLO2 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTIONS

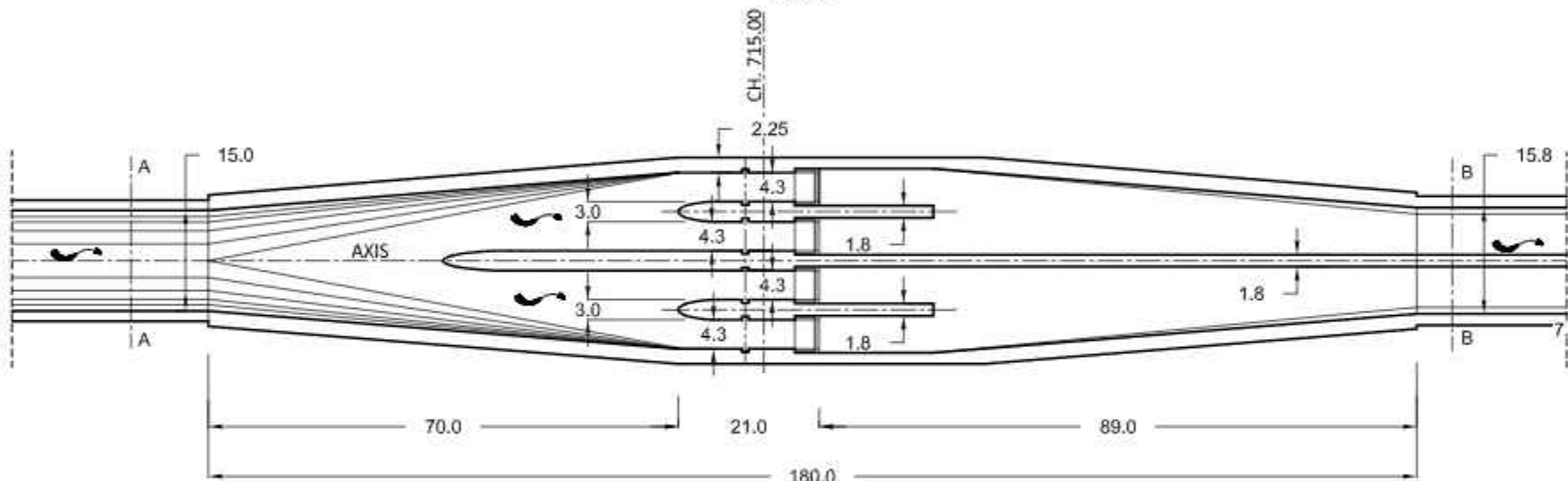
| | | | | | | |
|------------------------------------|--|--------------------|--------------------|----------|----------|------|
| TRACTEBEL Engineering GOF JV E2 | | Computer File .dwg | | Scale | 16 Sheet | Size |
| COYNE ET BELLIER | | 40 141 | VAR. | 1 | A3 | |
| Drawing Reference | | 1730 | Project Substation | | Level | |
| | | 4, 0, 1, 4, 1, | | Position | B | |

This document is the property of Tractebel Engineering, any duplication or reproduction in third parties is forbidden without its prior approval.

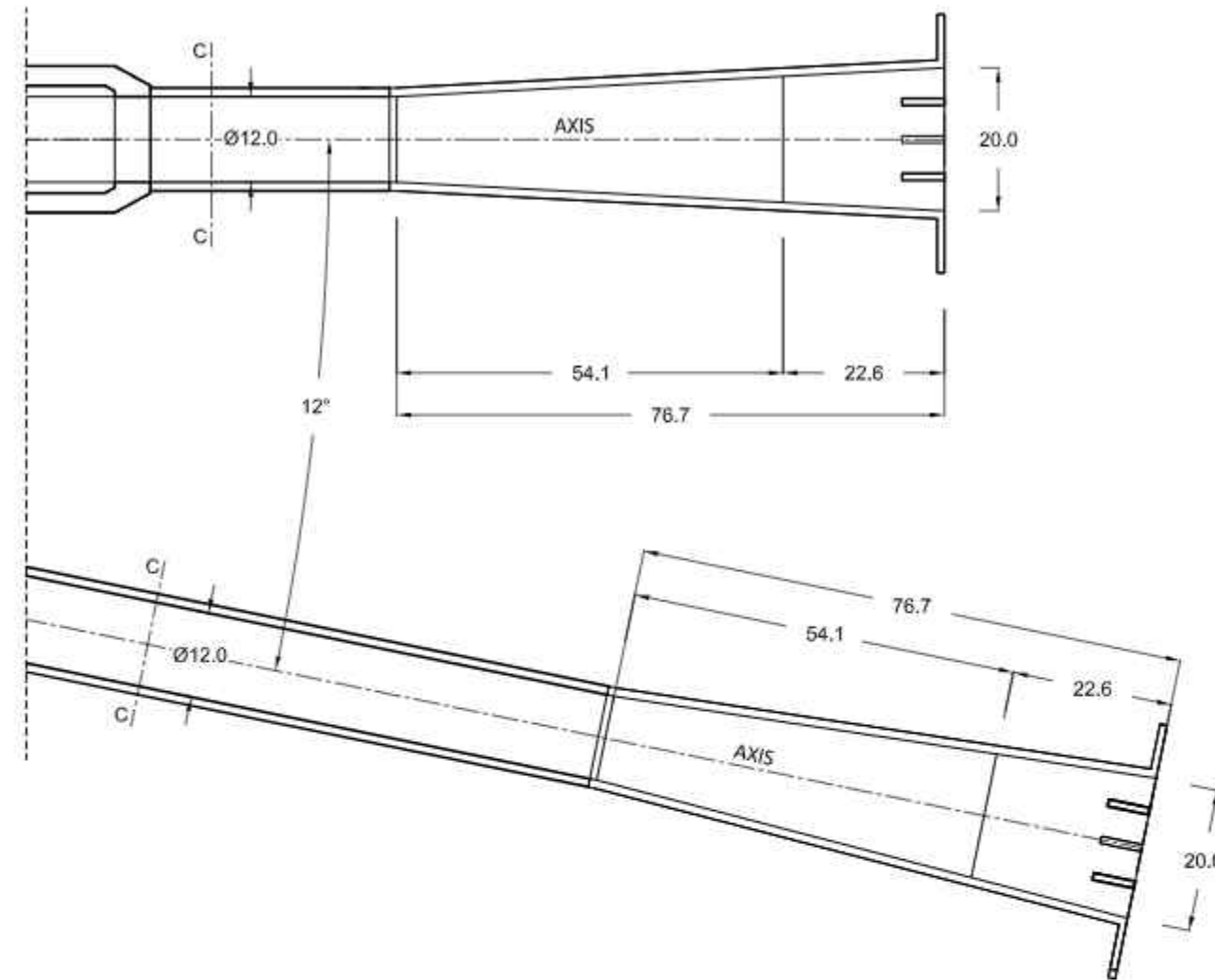
SECTOR AND EMERGENCY GATES CHAMBER - AXIS PROFILE
1:1.000



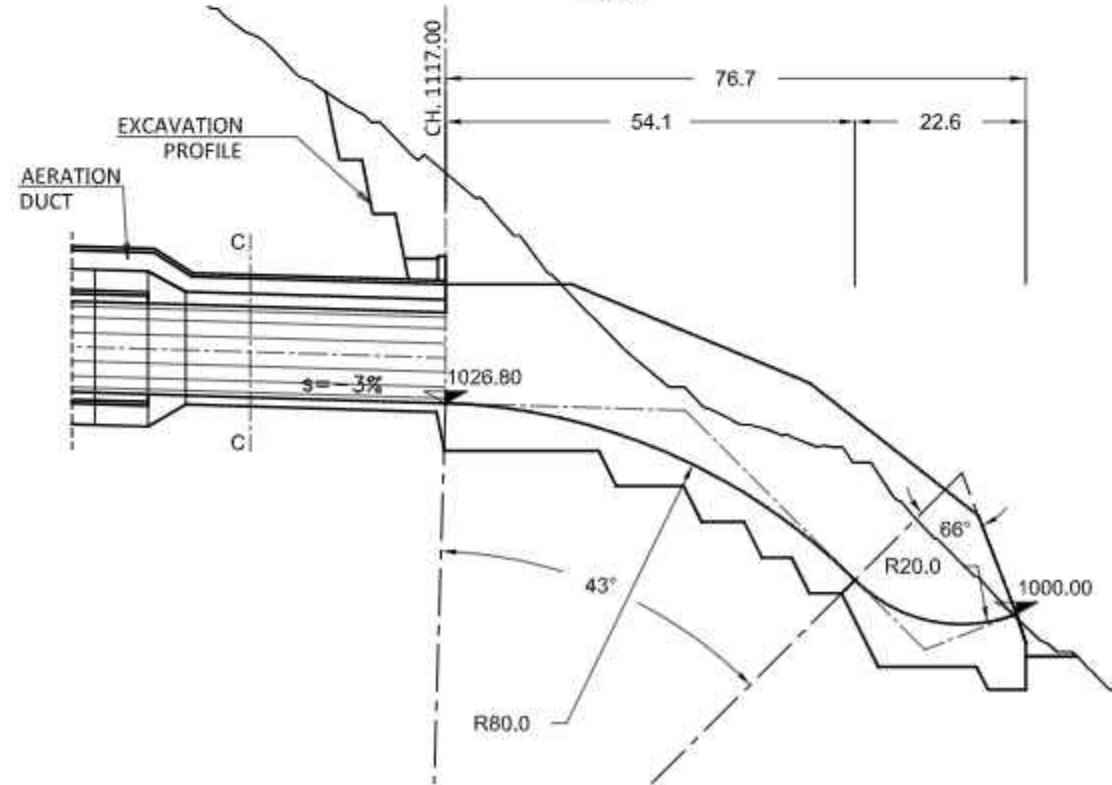
SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



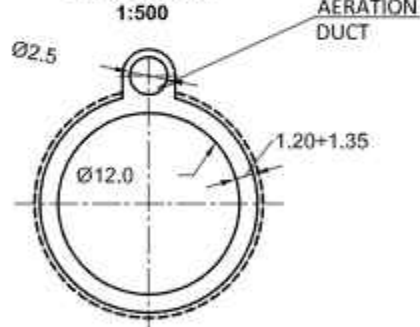
OUTLET - PLAN
1:1.000



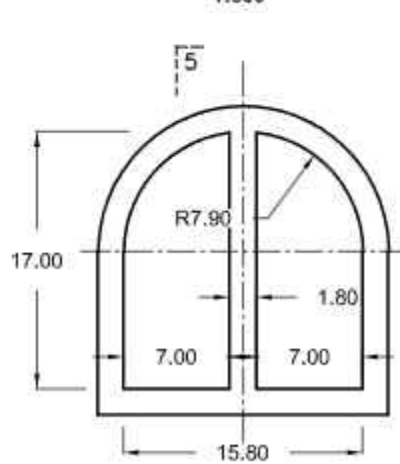
OUTLET - PROFILE
1:1.000



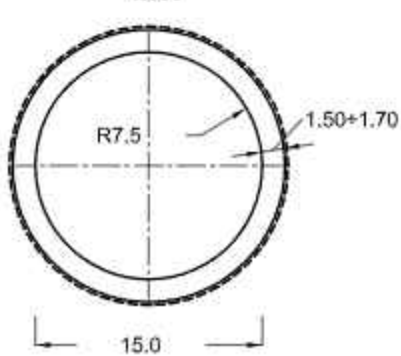
SECTION C-C
1:500



SECTION B-B
1:500



SECTION A-A
1:500



| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
|------|------|----|----|------------------------|--------|-------|---------|----------|-----------|
| B | 2015 | 12 | 15 | OUTLET AND VENTILATION | | FPB | LCO-DT | | LDI |
| A | 2015 | 04 | 15 | PRELIMINARY DESIGN | | FPB | LCO-PAB | | LDI-PAB |



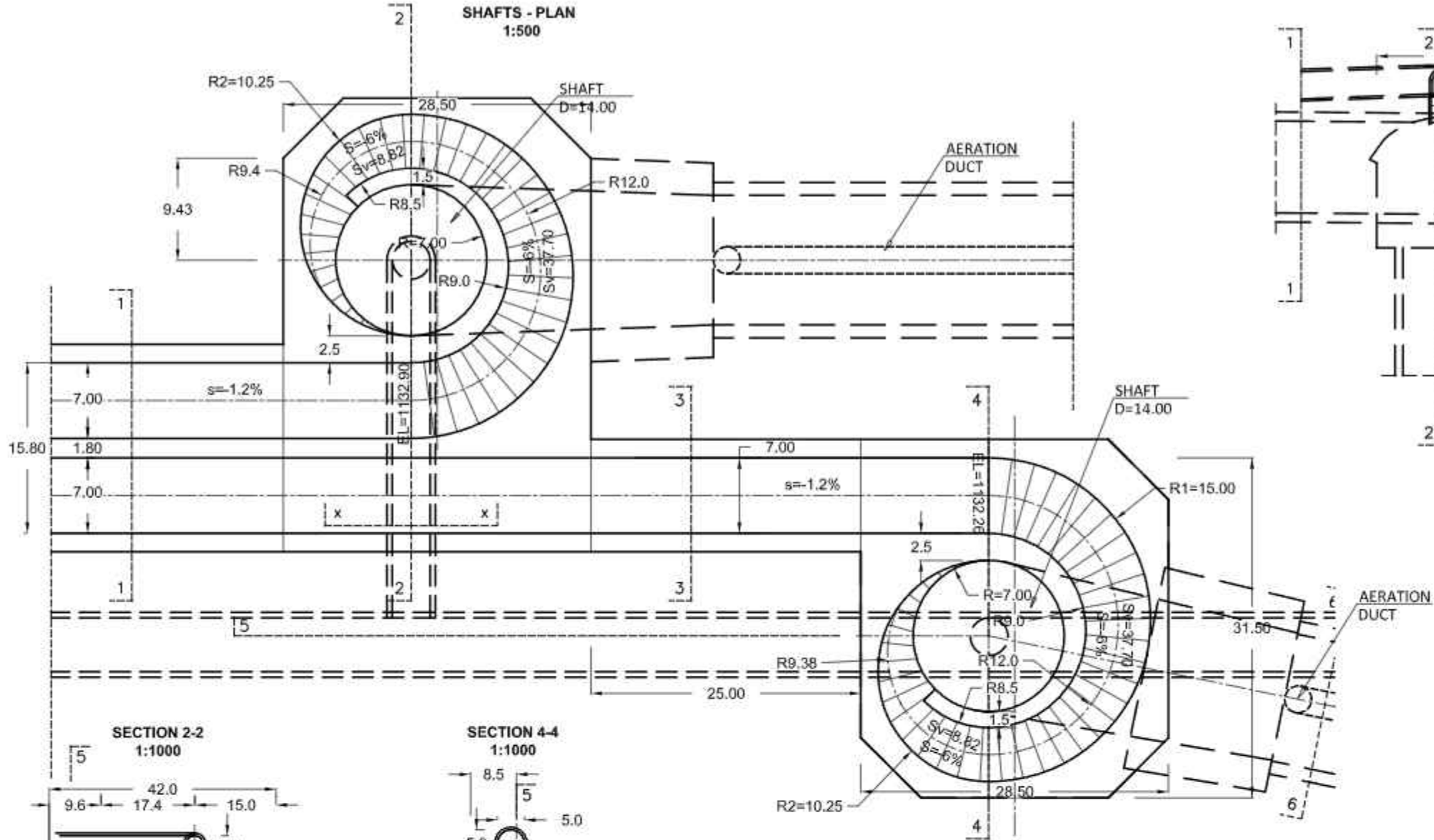
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 – MLO2 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

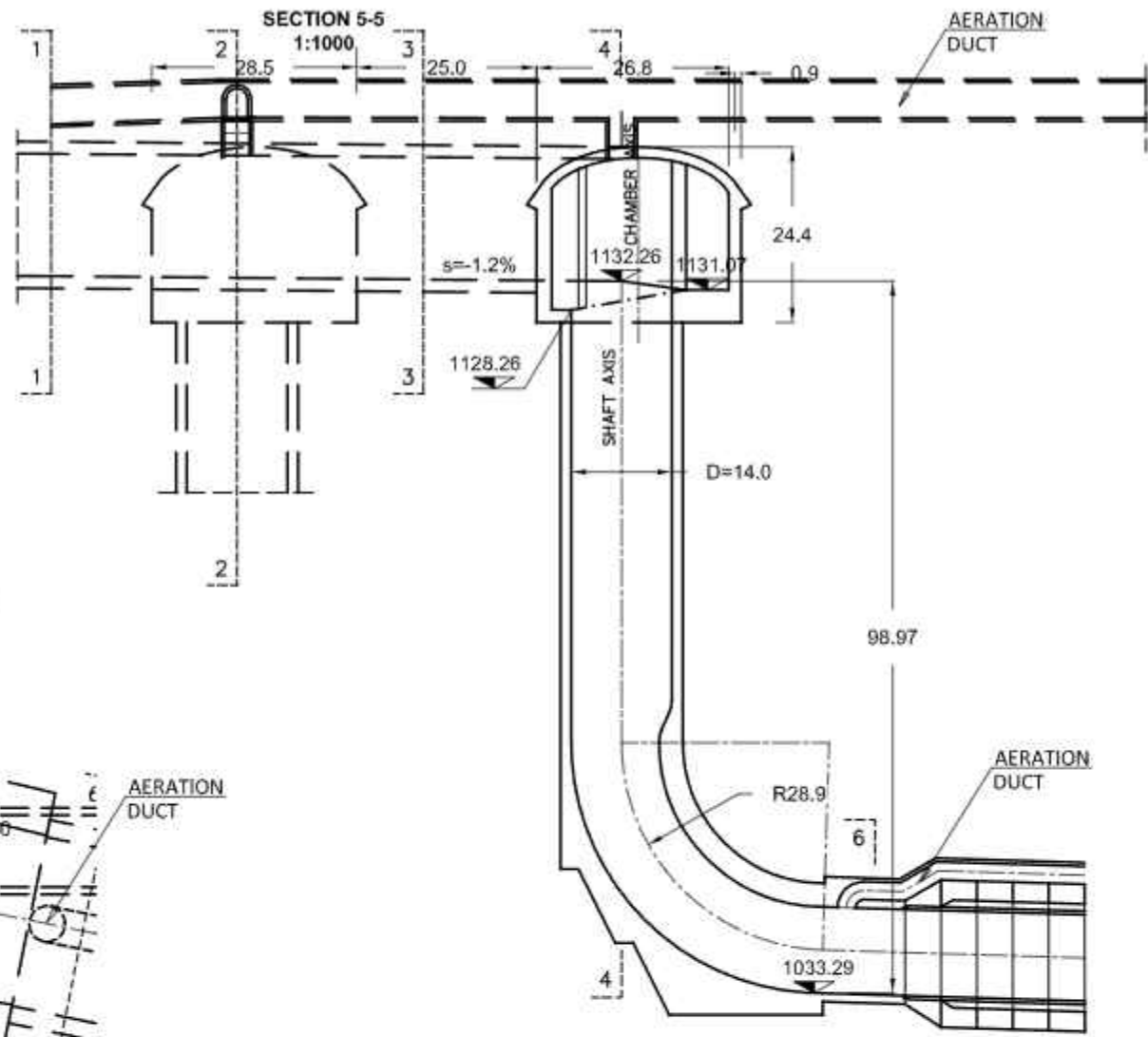
| | | | | | | | |
|-----------------------|--|-------------------|--|-----------|--|----------|--|
| TRACTEBEL Engineering | | Scale | | No. Sheet | | Size | |
| GOF JV2Z | | VAR. | | 1 | | A3 | |
| COYNE ET BELLIER | | Drawing Reference | | Project | | Revision | |
| 1730 | | 4,0,1,4,2,1 | | B | | | |

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.

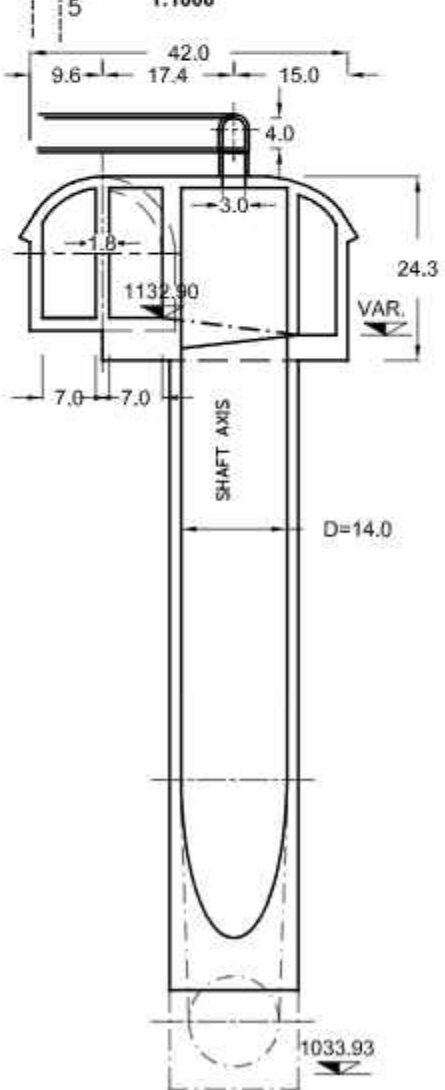
SHAFTS - PLAN
1:500



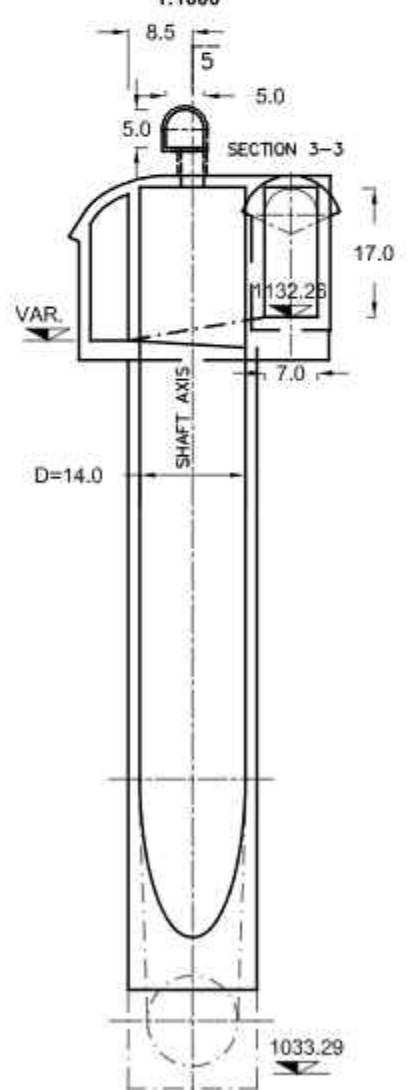
SECTION 5-5
1:1000



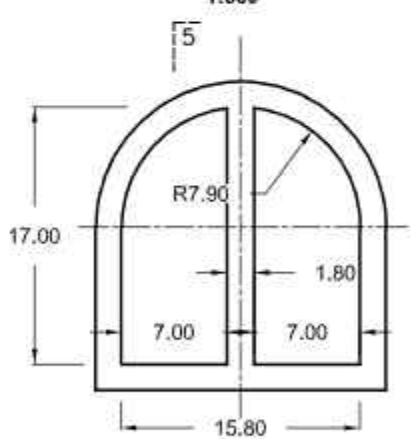
SECTION 2-2
1:1000



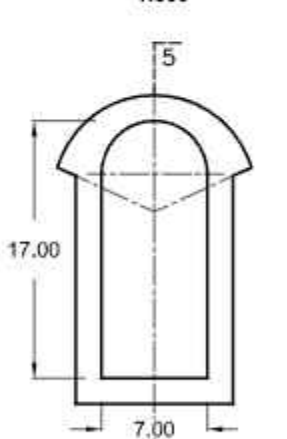
SECTION 4-4
1:1000



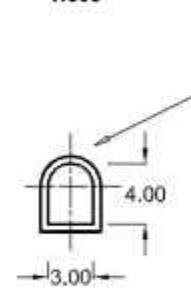
SECTION 1-1
1:500



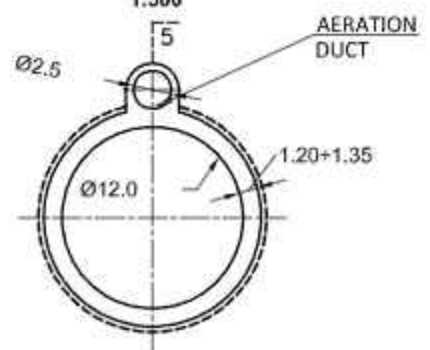
SECTION 3-3
1:500



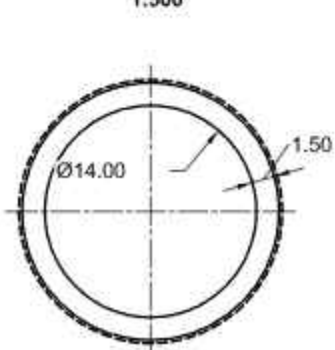
SECTION x-x
1:500



SECTION 6-6
1:500



SECTION TYPE SHAFT
1:500



| NO. | REVISION | DATE | BY | CHECKED | APPROVED | STATUS |
|-----|-------------------|------|----|---------|----------|--------|
| 1 | ISSUE FOR PERMITS | | | | | ISSUED |
| 2 | FOR CONSTRUCTION | | | | | ISSUED |
| 3 | MODIFICATION | | | | | ISSUED |




OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 - MLO2 TUNNEL
VORTEX CHAMBERS AND SHAFTS
PLAN AND SECTIONS

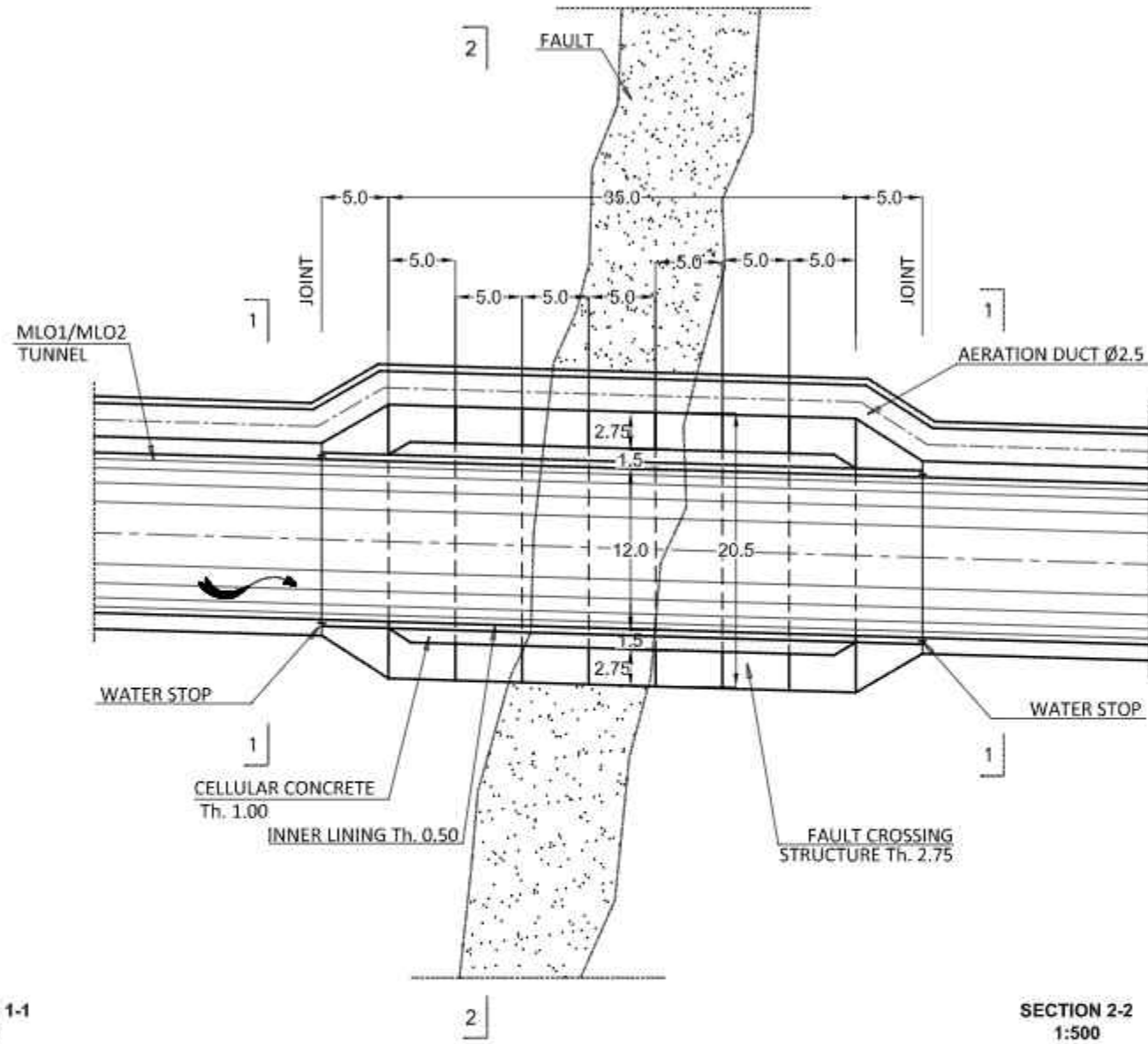
TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELLIER

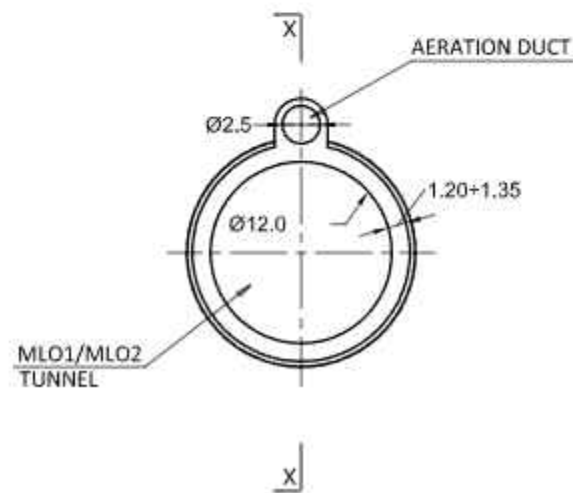
TRACTEBEL ENGINEERING S.A.
18, Rue de la Woluwe, 1200 Brussels, Belgium
0032 2707 8000

| | | | | | | | |
|-----------------|------------------|------------------------|------|-----------|---|-------|----|
| Document No. | 40 143 | Rev. | VAR. | No. Draw. | 1 | Scale | A3 |
| Quantity | 1730 | Technical Substitution | | Year | | | |
| Drawing Project | 4, 0, 1, 4, 3, B | | | | | | |

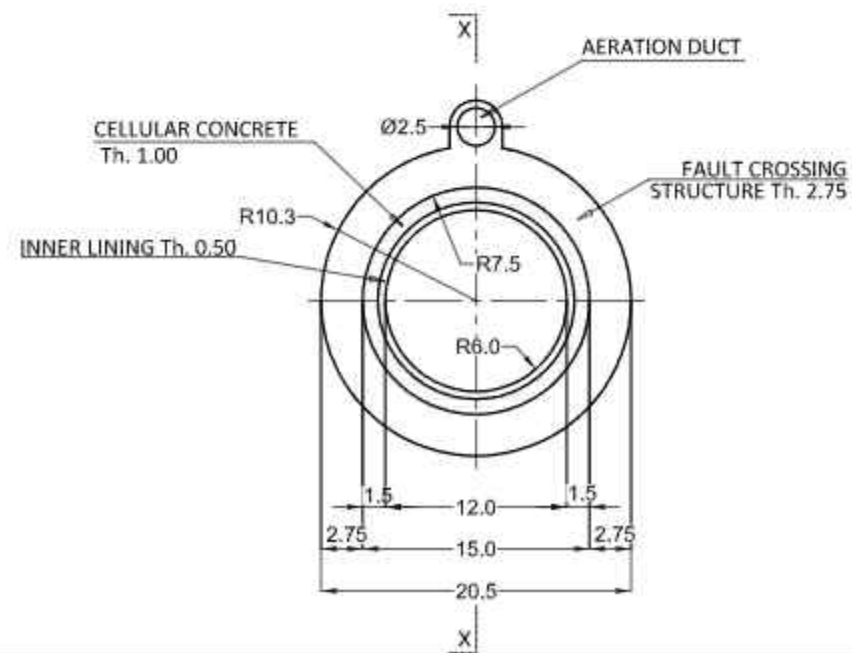
SECTION X-X
1:500



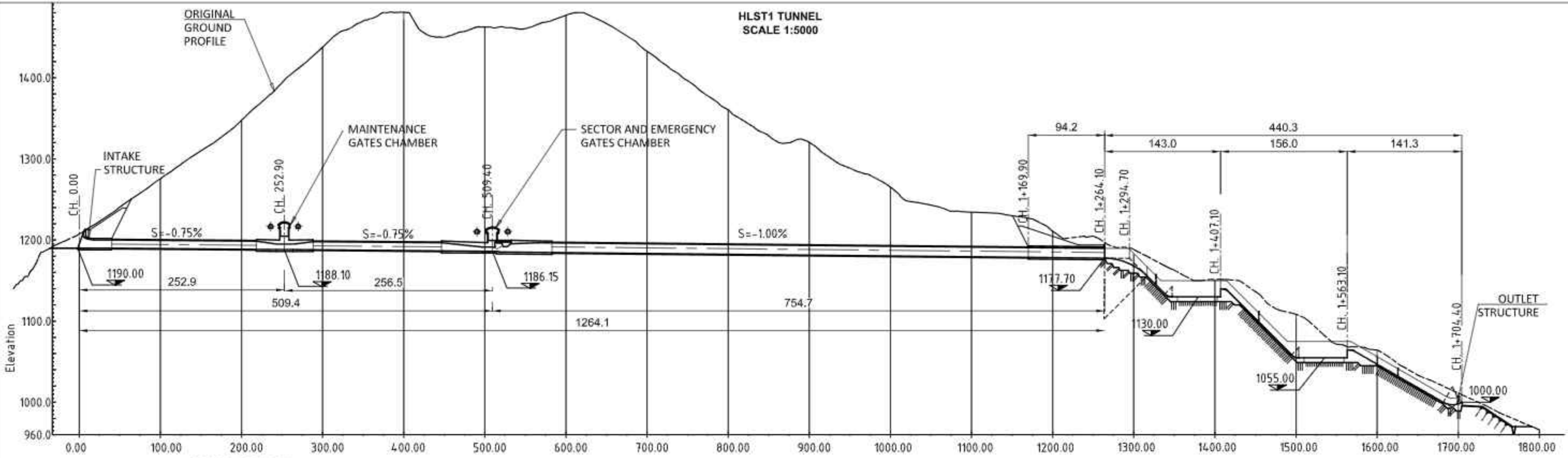
SECTION 1-1
1:500



SECTION 2-2
1:500

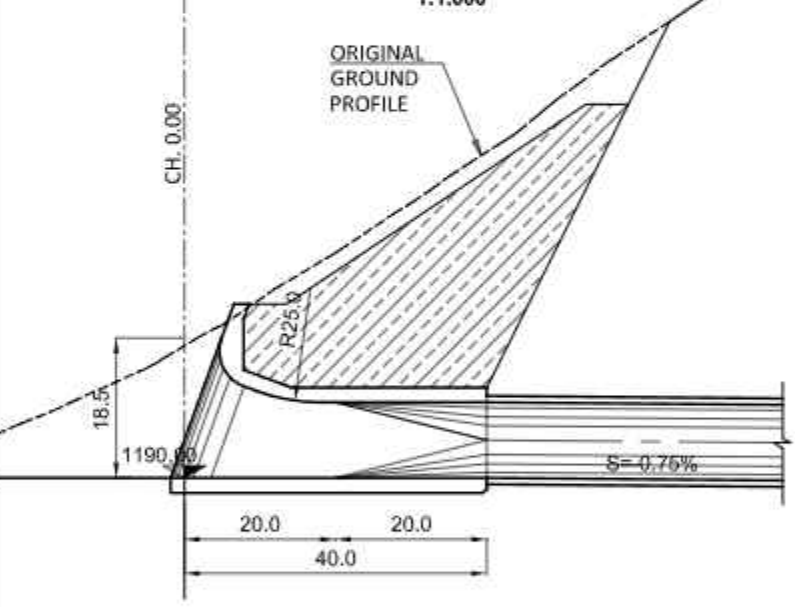


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|--|------------|--|--|--|--------------|--|--|--|-----|--|--|--|---|--|--|--|---------|--|--|--|-------|--|--|--|---------|--|--|--|----------|--|--|--|-----------|--|--|--|
| A | | | | 2013 04 15 | | | | FIRST DESIGN | | | | PVB | | | | LCO-PAB | | | | LCO-PAB | | | | | | | | | | | | | | | | | | | |
| Rev. | | | | Y | | | | M | | | | D | | | | MODIFICATIONS | | | | STATUS | | | | DRAWN | | | | CHECKED | | | | APPROVED | | | | VALIDATED | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | OSHPC BARKI TOJIK | | | | | | | | | | | | | | | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DAM FSL 1290 – MLO2 TUNNEL FAULT CROSSING STRUCTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TRACTEBEL Engineering GDF SVEZ | | | | | | | | | | | | | | | | COYNE ET BELLIER Technique | | | | | | | | | | | | | | | | | | | | | | | |
| TRACTEBEL ENGINEERING B.V. La Grange - 5, rue du 25 Mars 1952 92022 PARIS CEDEX 19 FRANCE | | | | | | | | | | | | | | | | TRACTEBEL ENGINEERING B.V. La Grange - 5, rue du 25 Mars 1952 92022 PARIS CEDEX 19 FRANCE | | | | | | | | | | | | | | | | | | | | | | | |
| External Reference | | | | | | | | | | | | | | | | Computer File .dwg | | | | | | | | | | | | | | | | | | | | | | | |
| Scale | | | | | | | | | | | | | | | | 1:500 | | | | | | | | | | | | | | | | | | | | | | | |
| Revision | | | | | | | | | | | | | | | | 1730 | | | | | | | | | | | | | | | | | | | | | | | |
| Drawing Reference | | | | | | | | | | | | | | | | 4,0,1,4,4, A | | | | | | | | | | | | | | | | | | | | | | | |

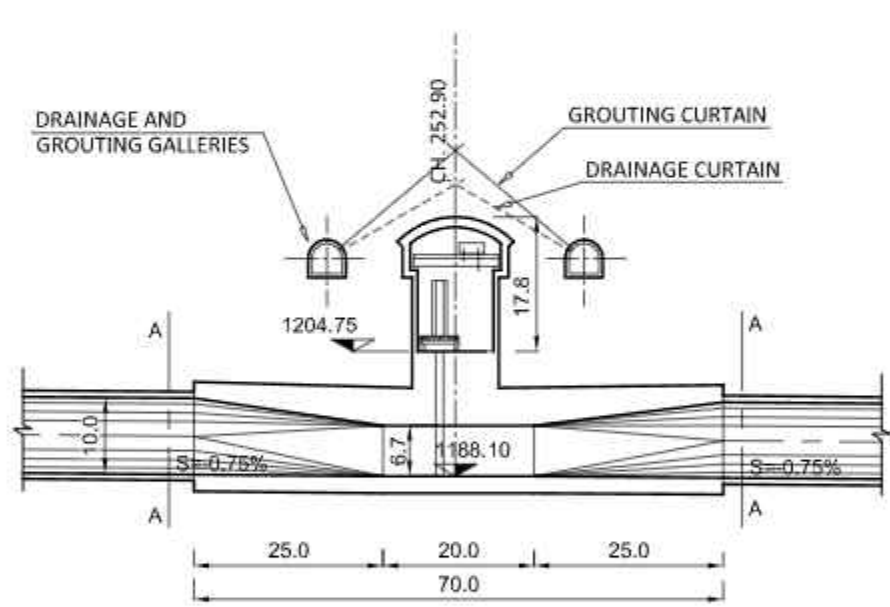


INTAKE - PROFILE
1:1.000

MAINTENANCE GATES CHAMBER - PROFILE 1:1.000

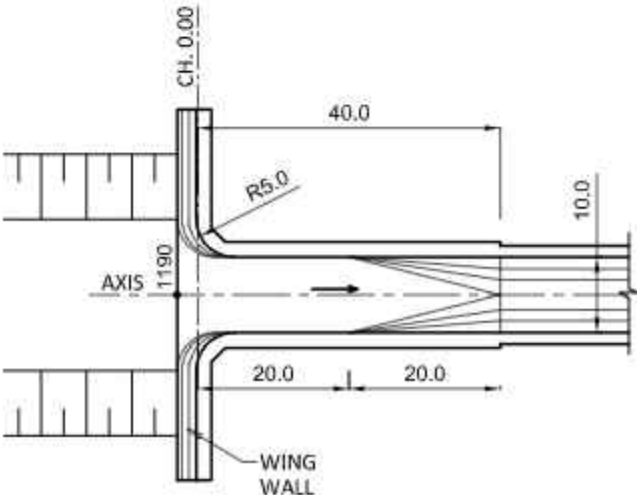
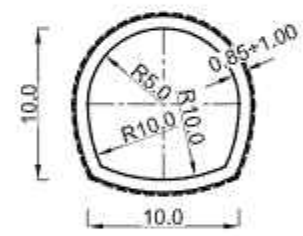


INTAKE - PLAN
1:1.000

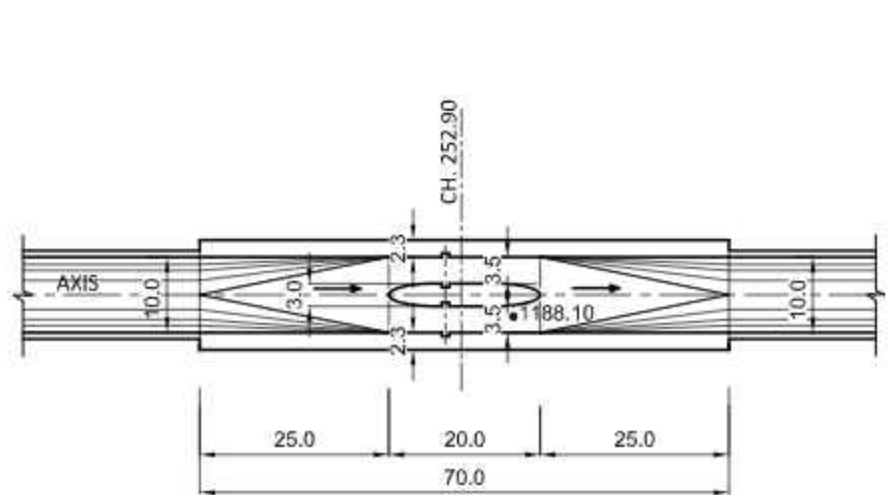


MAINTENANCE GATES CHAMBER - PLAN
1:1.000

SECTION A-A
1:500



WING WALL



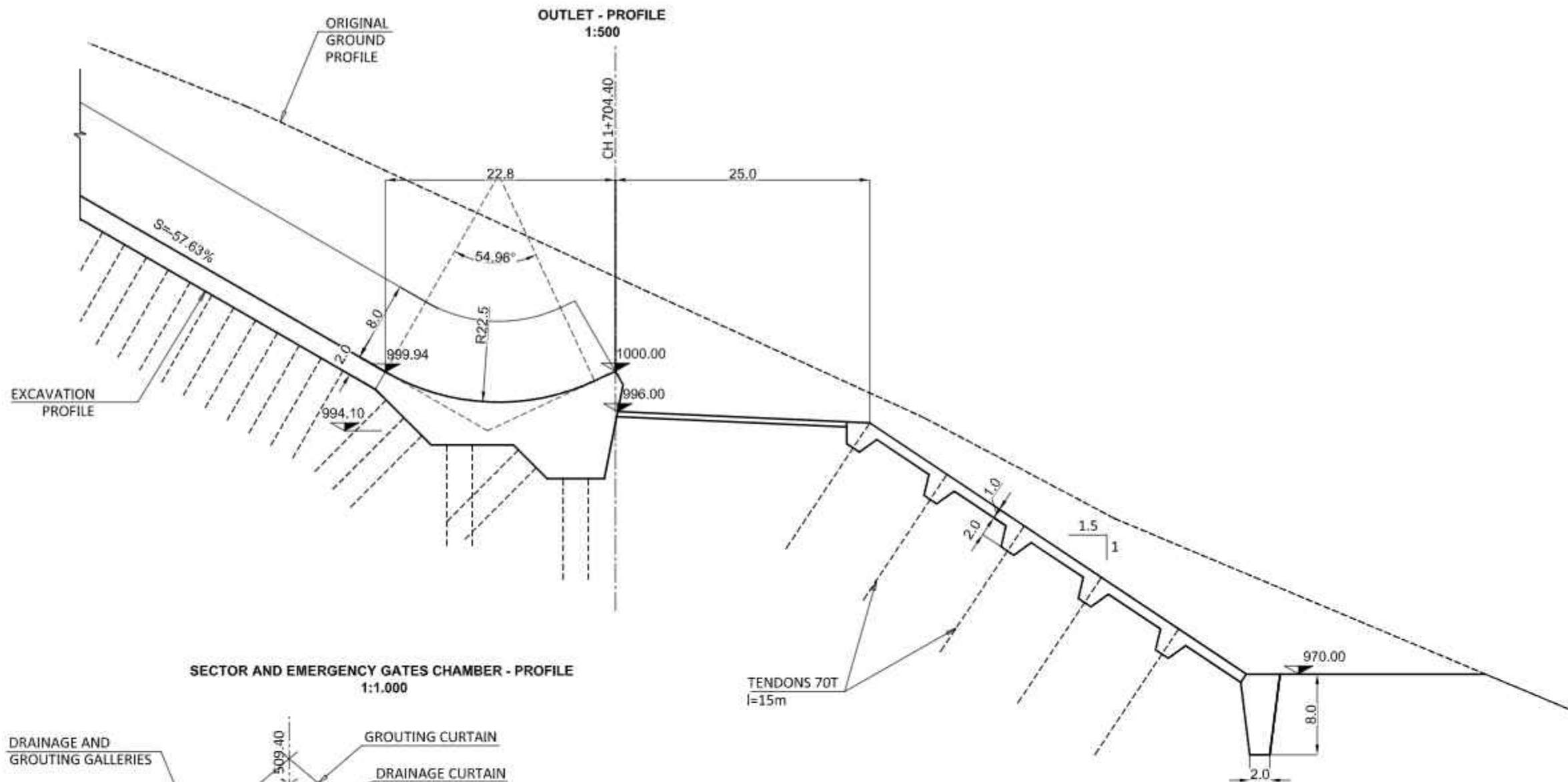
| | | | | | | | | | |
|-----|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2015 | 11 | 22 | PROJECTING | | PYB | DS/GER | LDJ | |
| A | 2015 | 04 | 15 | PROJ DESIGN | | PYB | LDJ-PAR | LDJ-PAR | |



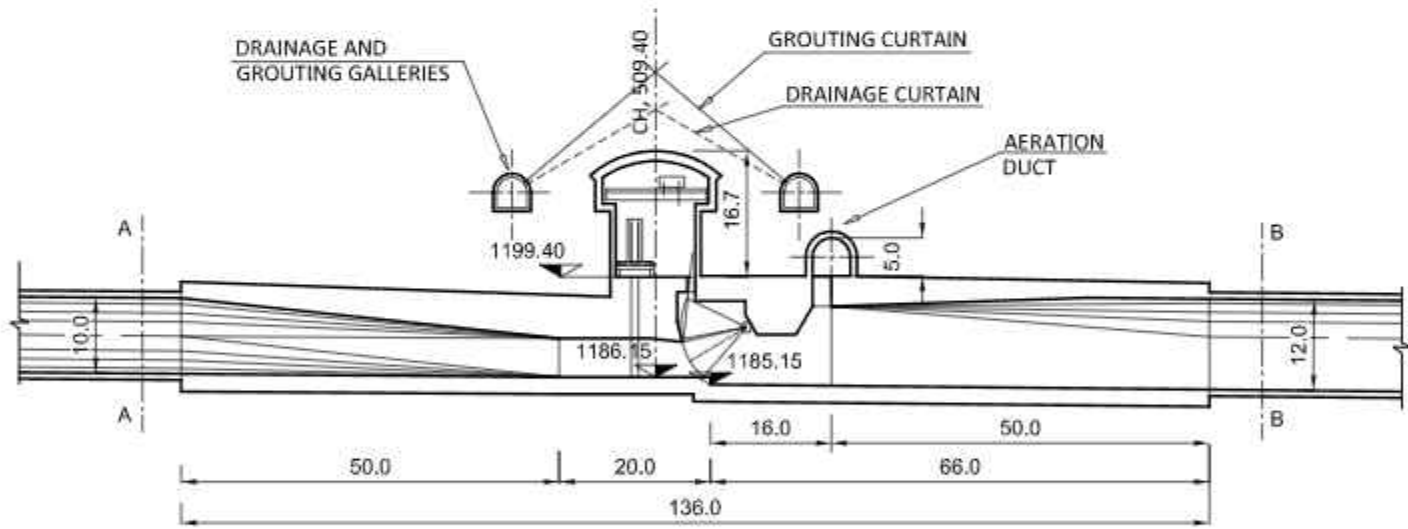
OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 - HLST1 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTION

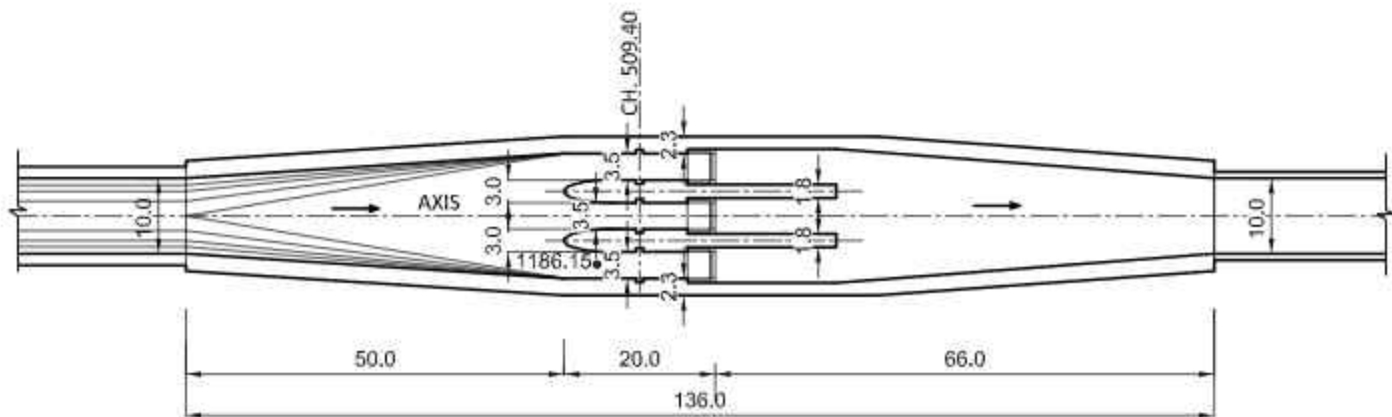
| | | | | | | | | | | | | | |
|-----------------------------------|--|--|--|--------------------|-----|------|---|-------|----|-------|---|------|----|
| TRACTEBEL Engineering GDF SVEZ | | | | Computer File .dwg | | | | Scale | 16 | Sheet | 1 | Size | A3 |
| COYNE ET BELLIER | | | | 40 | 151 | VAR. | 1 | 1730 | 1 | 1 | 1 | 1 | |
| Drawing Reference | | | | 4,0,1,5,1, | | | | B | | | | | |



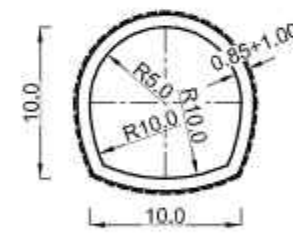
SECTOR AND EMERGENCY GATES CHAMBER - PROFILE
1:1.000



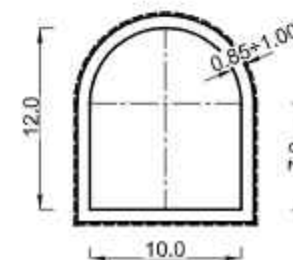
SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



SECTION A-A
1:500



SECTION B-B
1:500



| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
|------|------|----|----|----------------------------|--------|-------|---------|----------|-----------|
| B | 2013 | 11 | 22 | VENTILATION AND PROTECTION | | PYB | DS/GCB | LDI | |
| A | 2013 | 04 | 15 | PRELIMINARY DESIGN | | PYB | LDI-PAB | LDI-PAB | |
| | | | | MODIFICATIONS | | | | | |

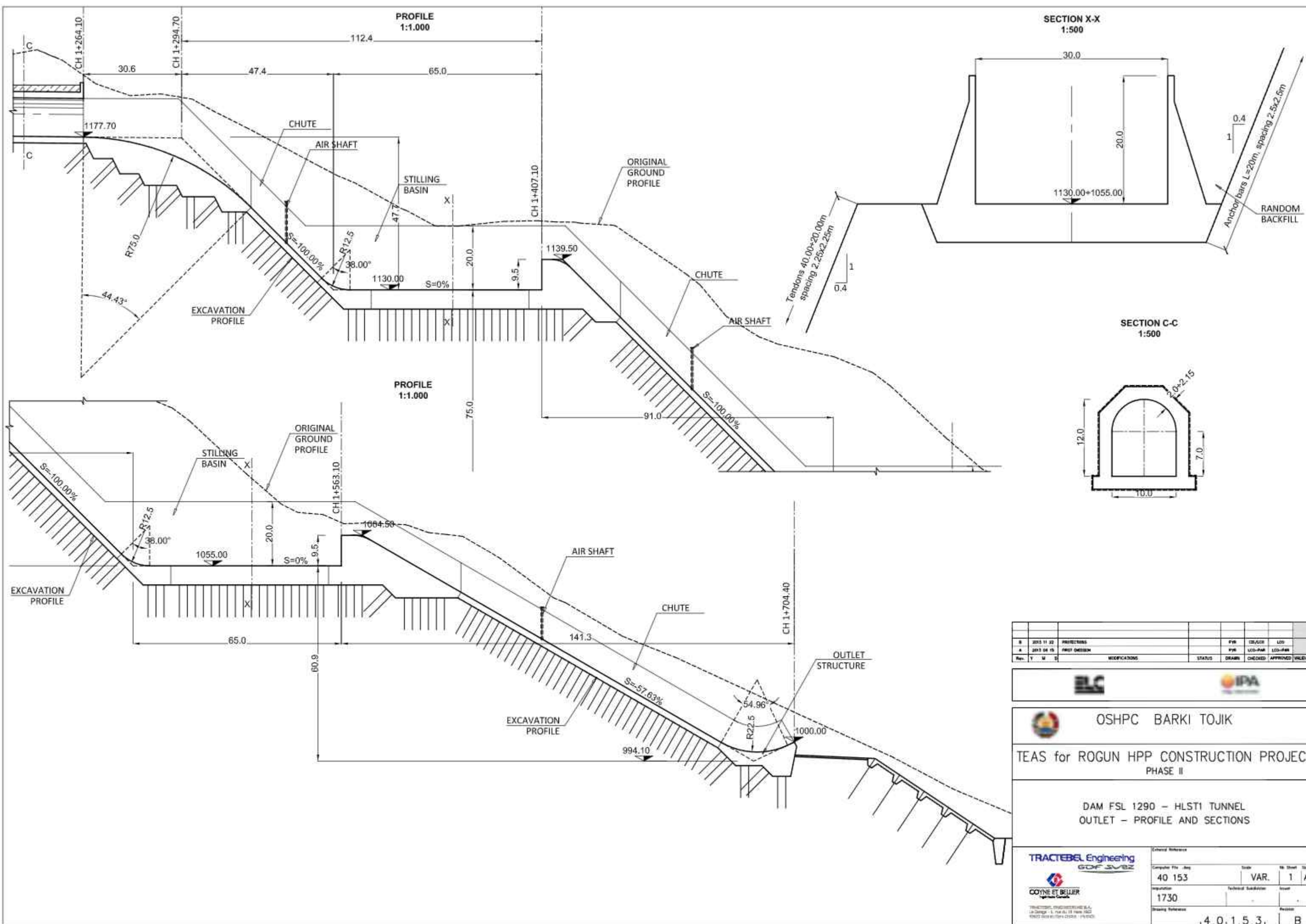


OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 - HLST1 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | |
|---|------------------------------|--------------------------------|----------------------|
| TRACTEBEL Engineering GOF JV SZ | External Reference | | |
| COYNE ET BELLIER | Computer File .dwg 40_152 | Scale VAR. | Sheet Size 1 A3 |
| | Registration 1730 | Technical Substitution | Level |
| | Drawing Reference | Revision 4, 0, 1, 5, 2, B | |

This document is the property of Tractebel Engineering, any duplication or reproduction to third parties is forbidden without its prior approval.



| | | | | | | | | | |
|-----|------------|-------------|-----|---------------|----------|-------|---------|----------|-----------|
| REV | DATE | DESCRIPTION | BY | CHECKED | APPROVED | | | | |
| B | 2013 11 22 | PROTECTORS | PKB | LDG/GR | LDG | | | | |
| A | 2013 04 15 | PROJ DESIGN | PKB | LDG-PAR | LDG-PAR | | | | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |

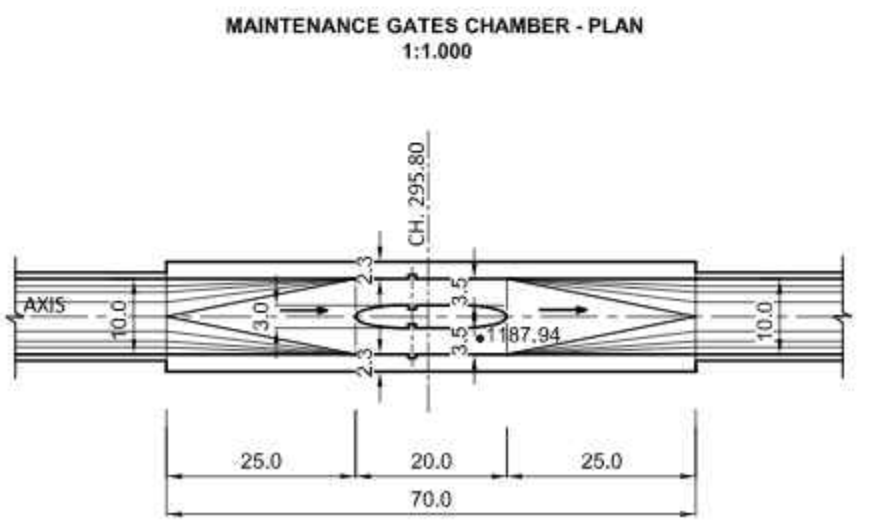
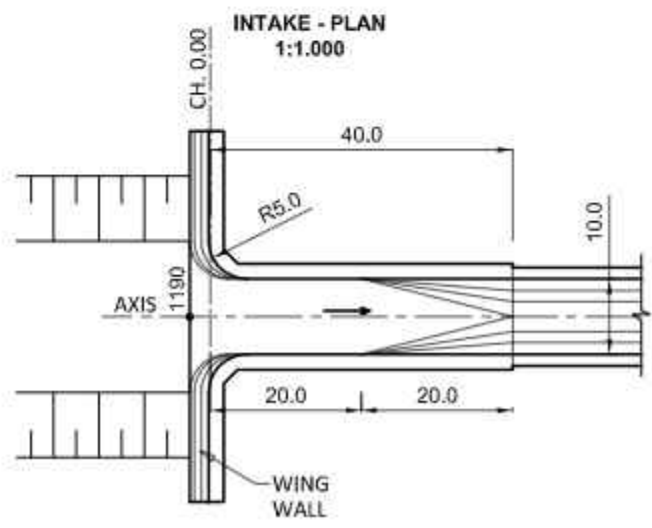
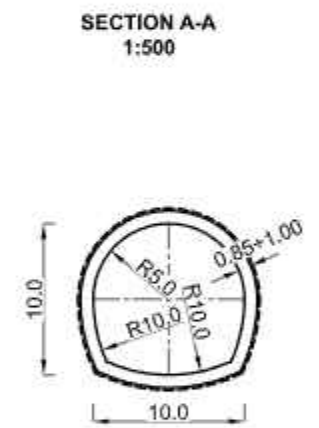
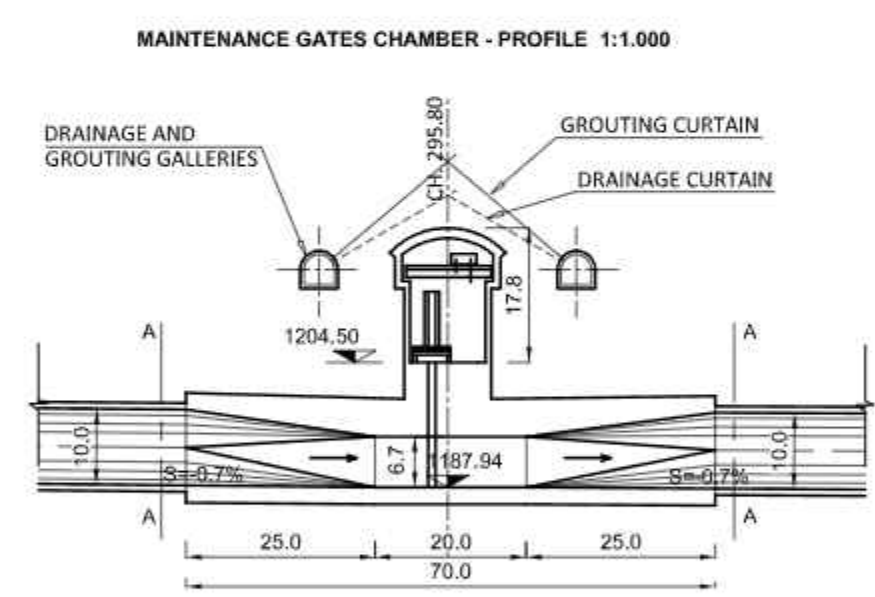
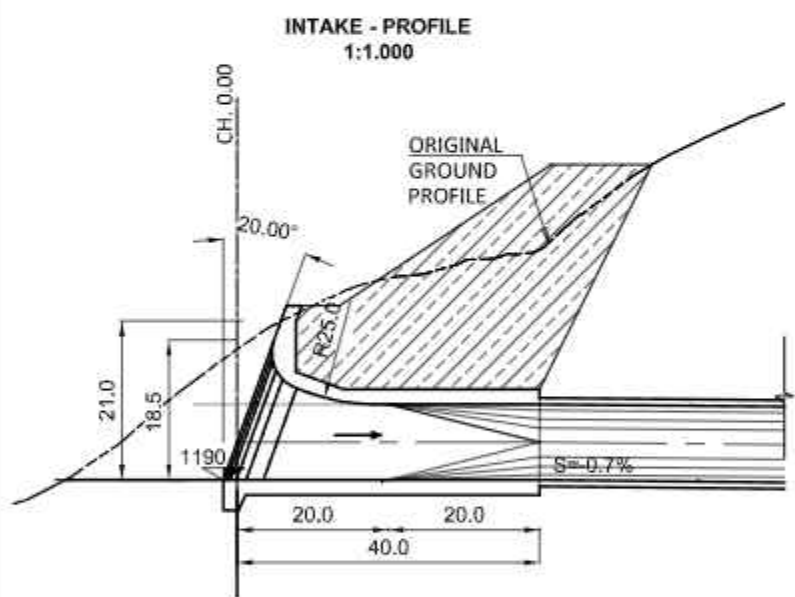
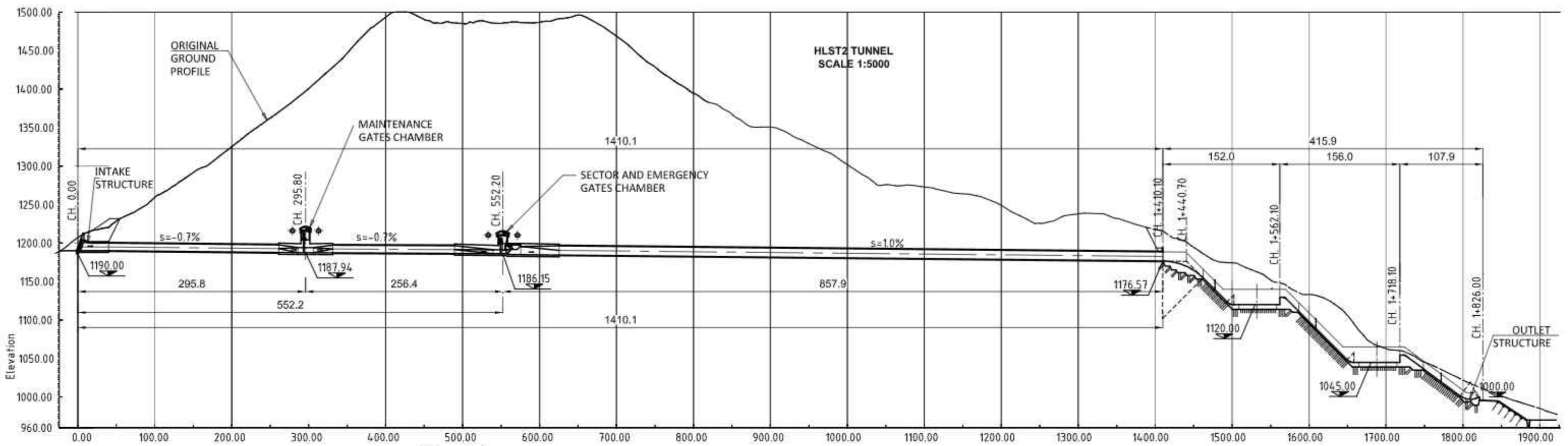


OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1290 - HLST1 TUNNEL
 OUTLET - PROFILE AND SECTIONS

| | | | |
|--------------------|------------------------|-----------|------|
| | | | |
| Computer File .dwg | Scale | No. Sheet | Size |
| 40 153 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | 4, 0, 1, 5, 3, | | Part |
| | | | B |

This document is the property of Tractebel Engineering, any duplication or reproduction in third parties is forbidden without its prior approval.



| | | | | | | | | | |
|------|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2015 | 11 | 22 | PROTECTORS | | PKB | DS/GER | | LDI |
| A | 2015 | 04 | 15 | PREL DESIGN | | PKB | LDI-PAB | | LDI-PAB |

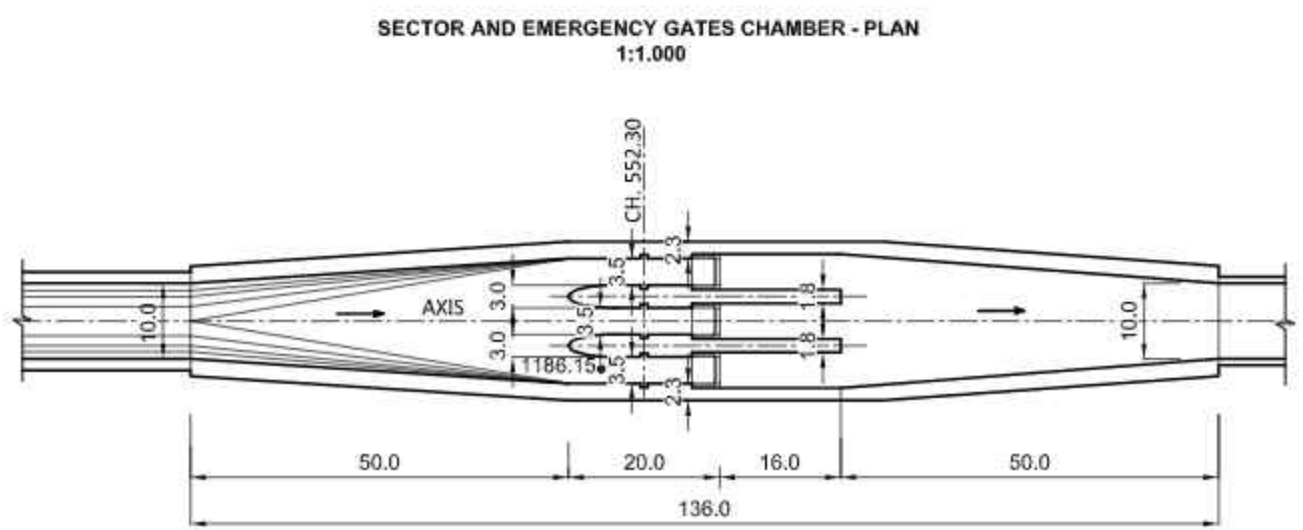
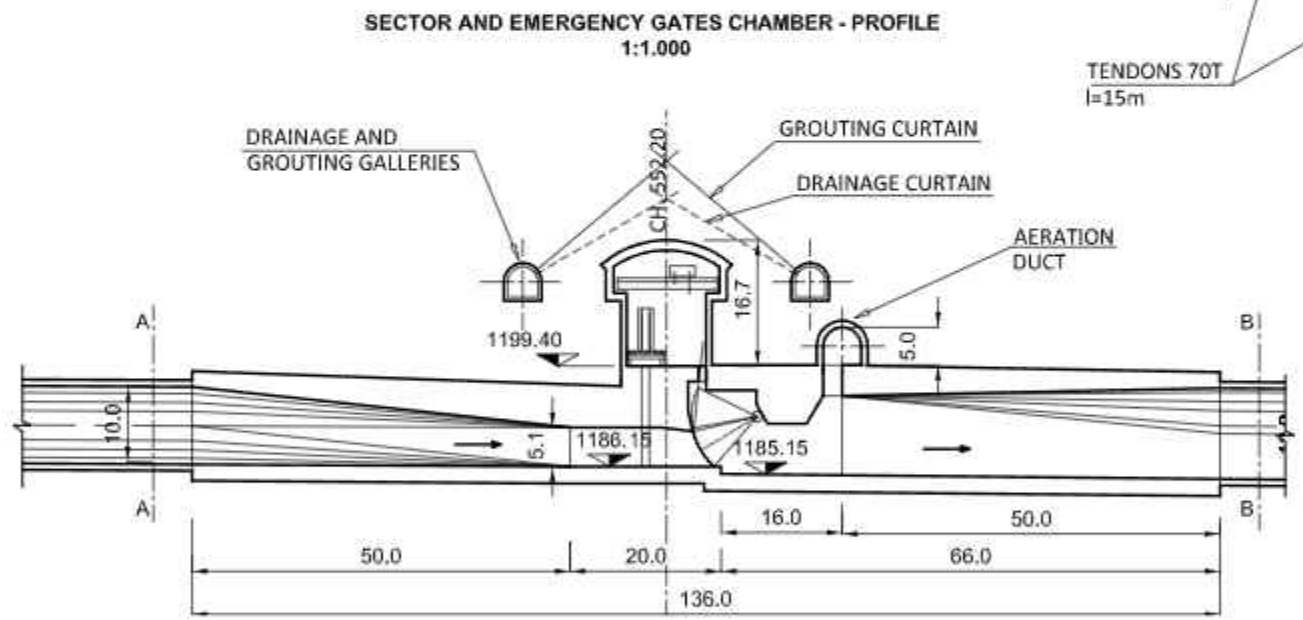
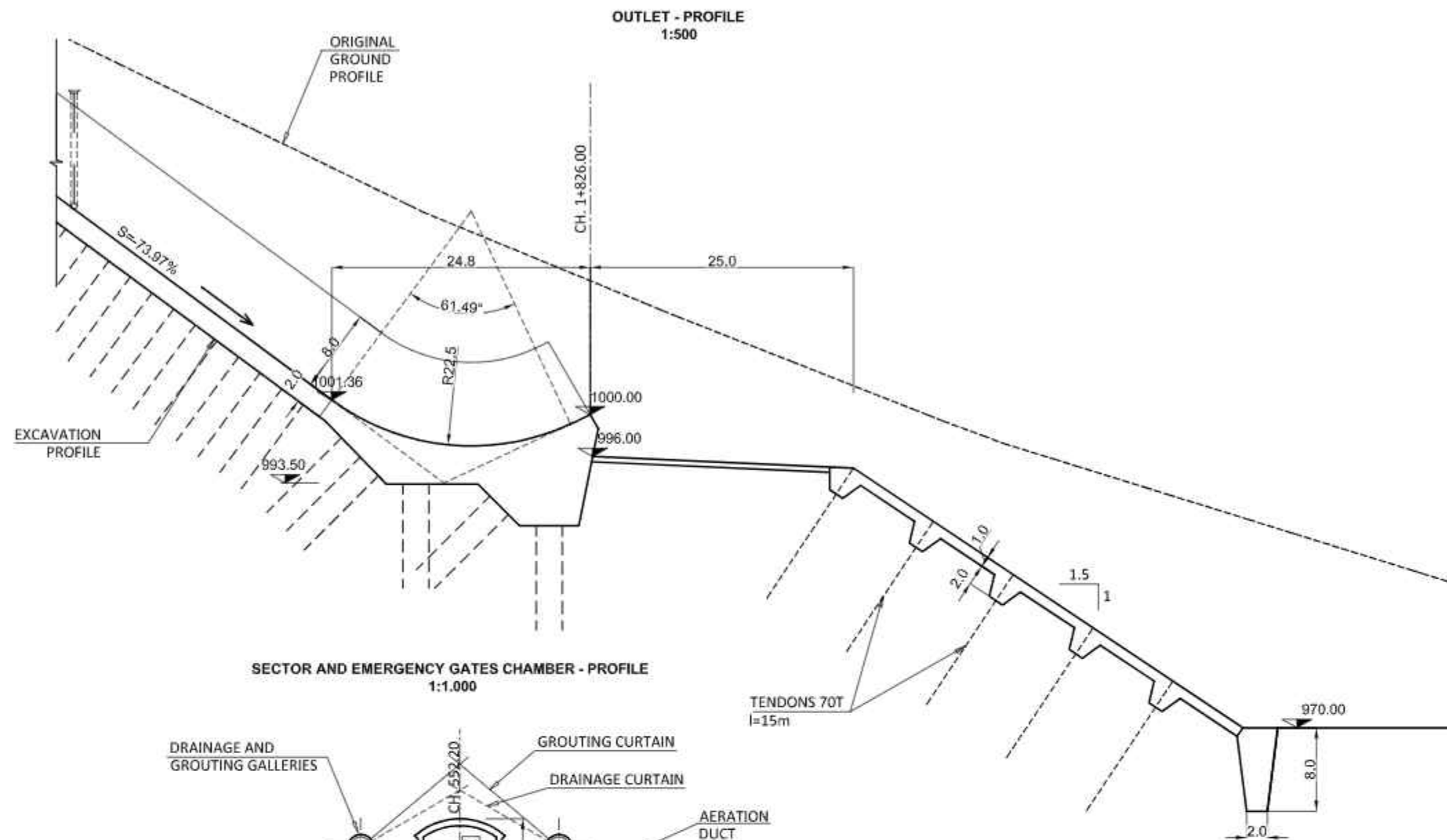


OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

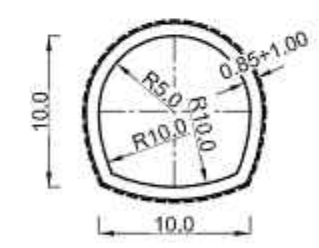
DAM FSL 1290 - HLST2 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTION

| | | | |
|--------------------|------------------------|----------|------|
| | | | |
| Computer File .dwg | Scale | 16 Sheet | Size |
| 40 154 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | Project | | |
| | 4, 0, 1, 5, 4, | | B |

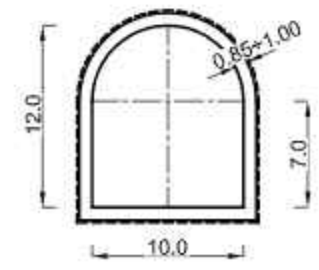
This document is the property of Tractebel Engineering, any duplication or reproduction to third parties is forbidden without its prior approval.



SECTION A-A
1:500



SECTION B-B
1:500



| | | | | | | | | | |
|------|------|----|----|----------------------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 11 | 22 | VENTILATION AND PROTECTION | | PYB | UDJ/GCB | UDJ | |
| A | 2013 | 04 | 15 | PRELIMINARY DESIGN | | PYB | UDJ-PAB | UDJ-PAB | |

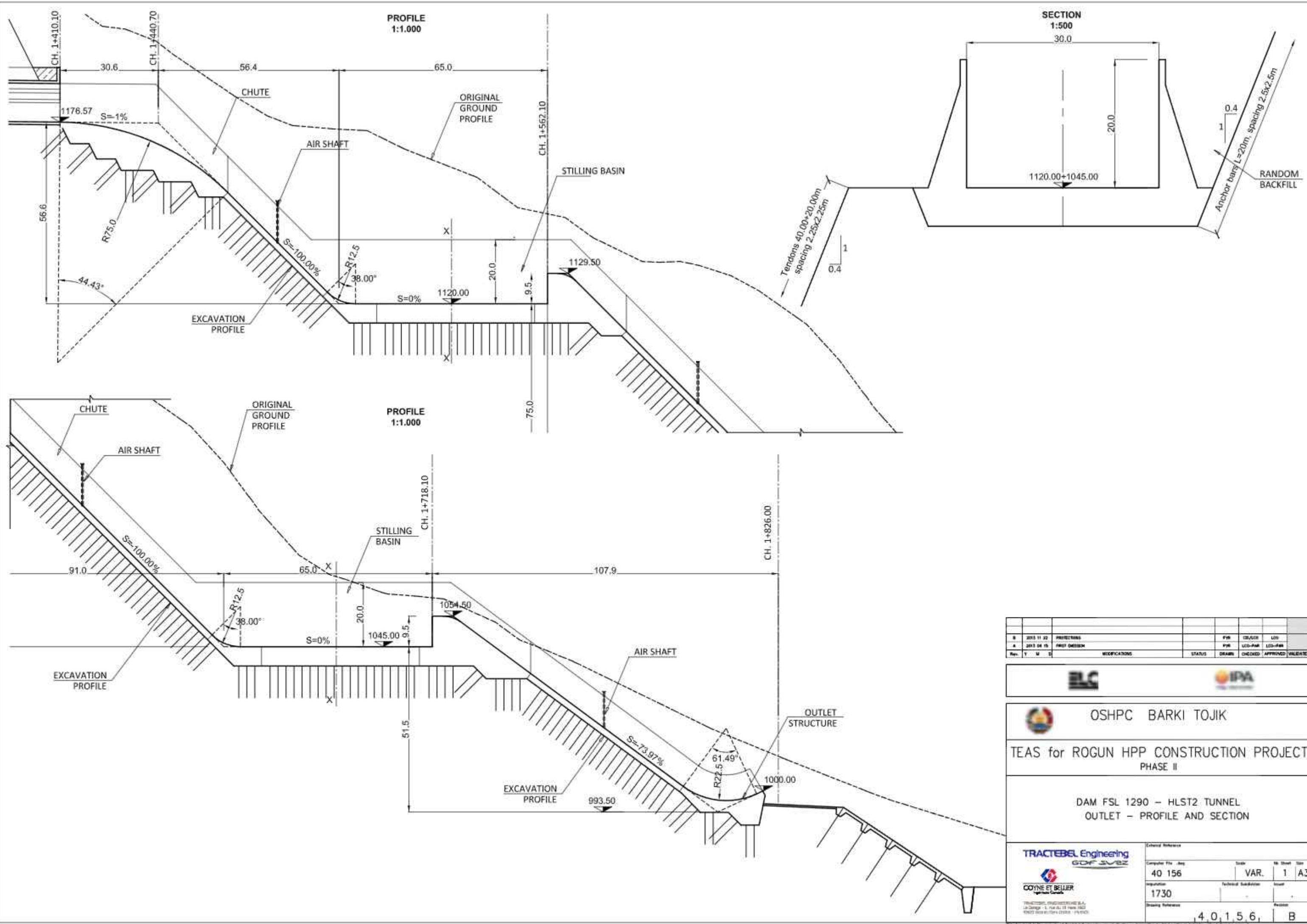


OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290 - HLST2 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | |
|--------------------|------------------------|----------|------|
| | | | |
| Computer File .dwg | Scale | 16 Sheet | Size |
| 40 155 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Issue | |
| 1730 | | | |
| Drawing Reference | Project | | |
| | 4,0,1,5,5, | | B |

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.



| | | | | | | | | | |
|-----|------------|-------------|-----|---------------|----------|-------|---------|----------|-----------|
| REV | DATE | DESCRIPTION | BY | CHECKED | APPROVED | | | | |
| B | 2015 11 22 | PROTECTORS | PKB | LDJ/GJR | LDJ | | | | |
| A | 2015 04 15 | PROJ DESIGN | PKB | LDJ-PAR | LDJ-PAR | | | | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |



OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1290 - HLST2 TUNNEL
 OUTLET - PROFILE AND SECTION

TRACTEBEL Engineering
 GOF JV&Z

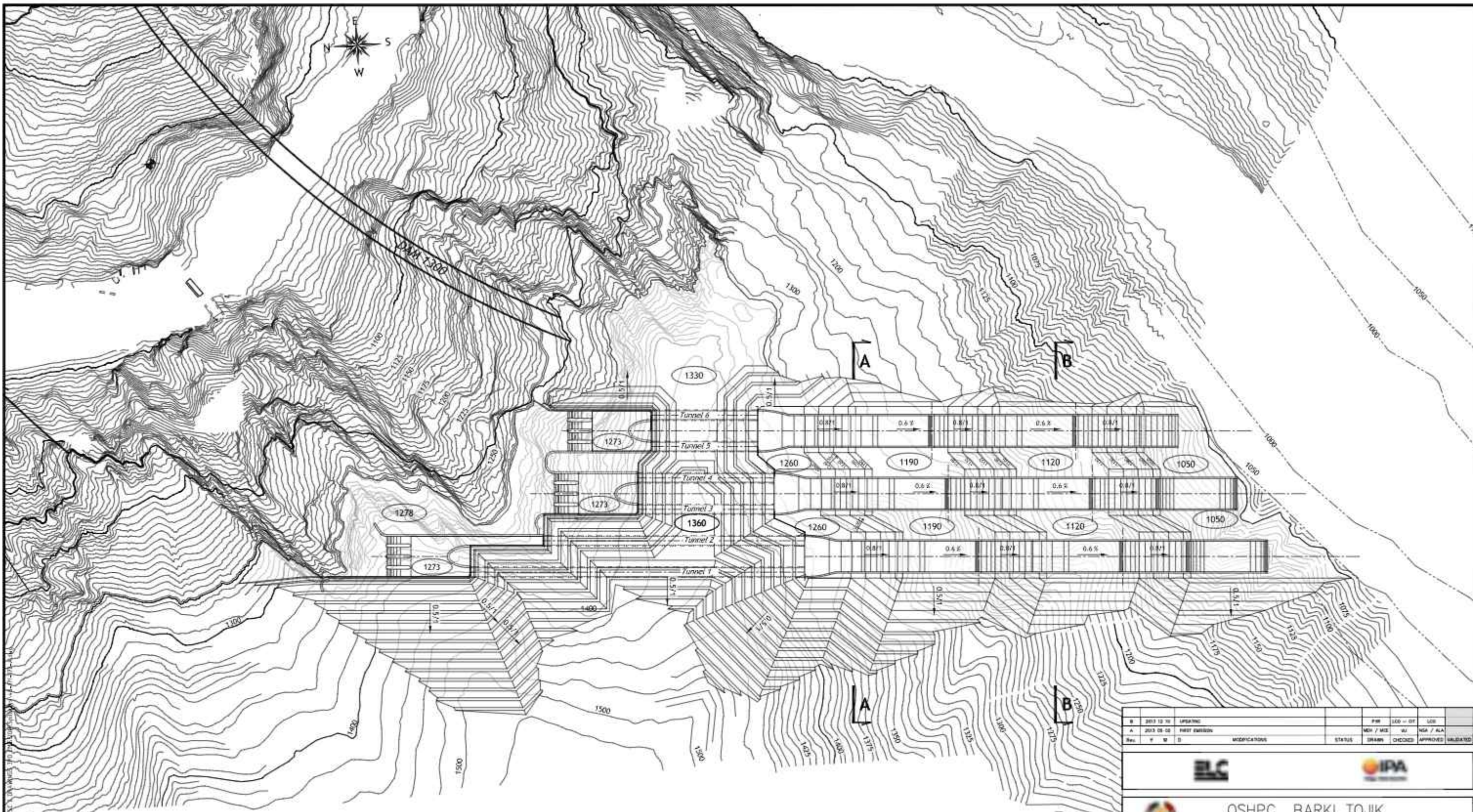
COYNE ET BELLIER
 Technicien

TRACTEBEL ENGINEERING B.V.
 LA Grange - 5, rue du 15 Mars 1952
 91033 BRUNY LES BAINS CEDEX - FRANCE

| | | | |
|--------------------|------------------------|-----------|------|
| Computer File .dwg | Scale | No. Sheet | Size |
| 40_156 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | | Position | |
| | | | |

4,0,1,5,6, B

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.



Работы выполнены в соответствии с проектом, утвержденным в установленном порядке. Проект выполнен в соответствии с техническими требованиями и условиями контракта.

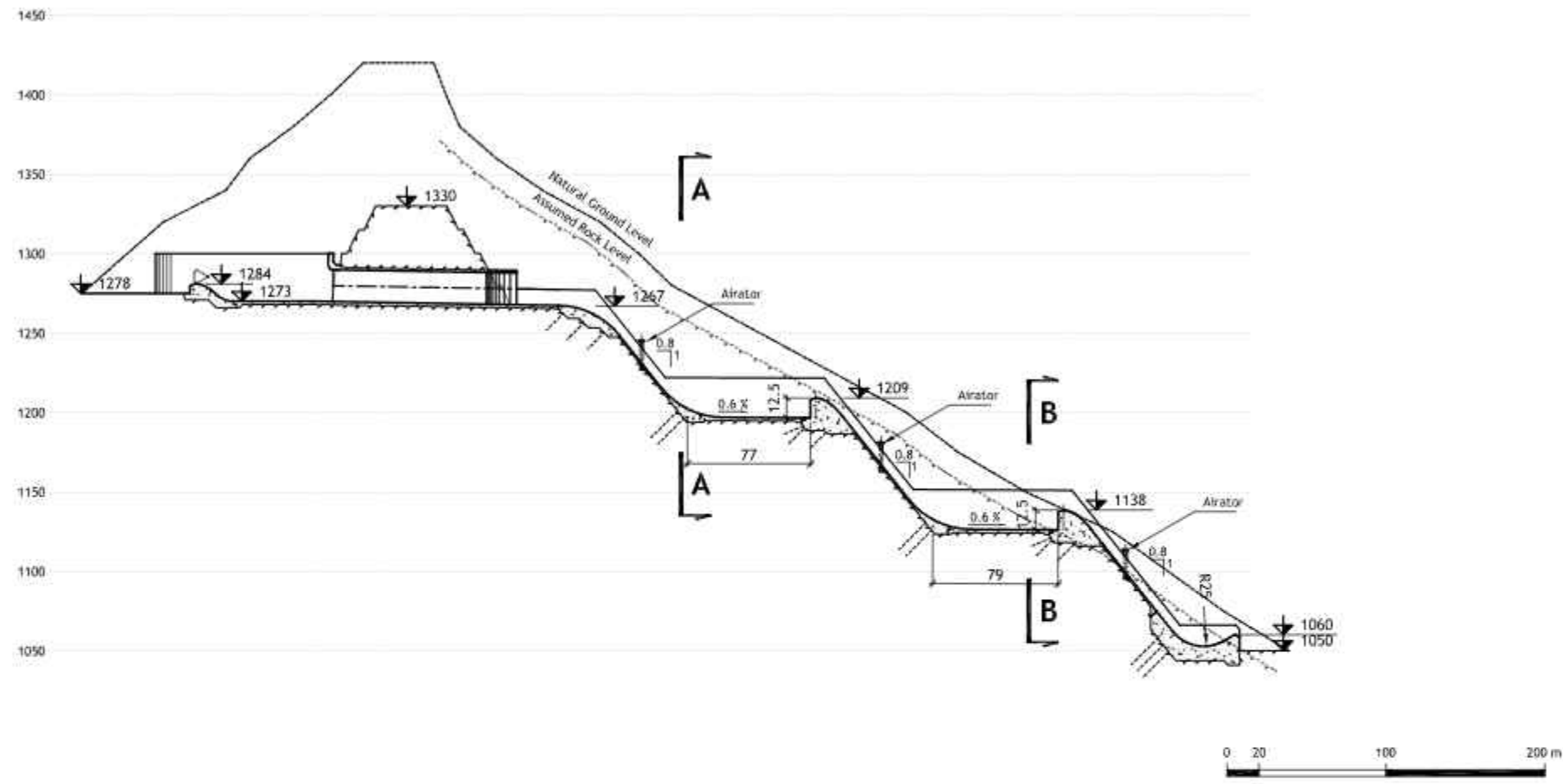


| | | | | | | | |
|---|------------|---------------|---|-----------|----------|-----------|---|
| И | 2013-10-10 | ИП/ИЗМ/ИЗ | | ПИИ | СДБ - ОТ | СДБ | |
| А | 2013-09-10 | ПРЕЛ. ЭТАПИОН | | МЕТ / МЕТ | МЕТ | МЕТ / МЕТ | |
| И | В | В | В | В | В | В | В |
| И | И | И | И | И | И | И | И |
| И | И | И | И | И | И | И | И |
| И | И | И | И | И | И | И | И |
| И | И | И | И | И | И | И | И |

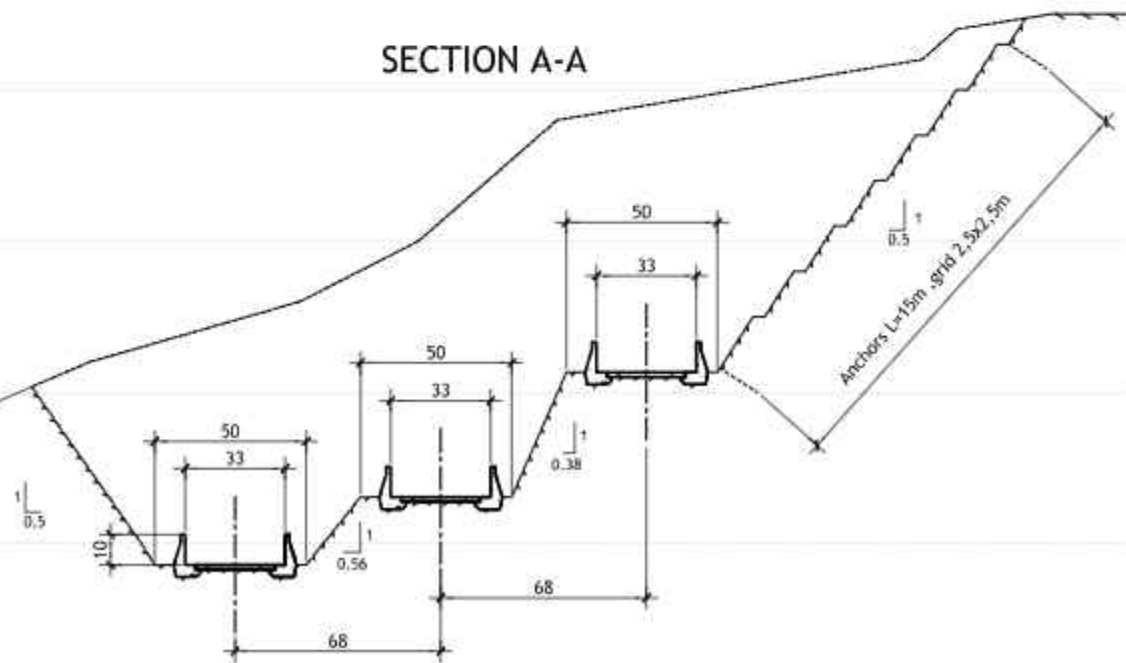
| | | | |
|---|------------------------------|----------------|----------|
| | | | |
| OSHPC BARKI TOJIK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | |
| DAM ALTERNATIVE FSL=1290 m.a.s.l. SURFACE SPILLWAY FINAL STAGE PLAN VIEW | | | |
| | | | |
| Computer File: 40-171-172-A | Scale: 1/2000 | NO. Sheet: 1/5 | Size: A1 |
| Input: P 002 378 | Technical Substitution: FORM | HYDRO | |
| Drawing Reference: 4.0.1.7.1 | | B | |

All rights reserved by Tractebel Engineering. Any reproduction or transmission in any form without the written permission of Tractebel Engineering is prohibited.

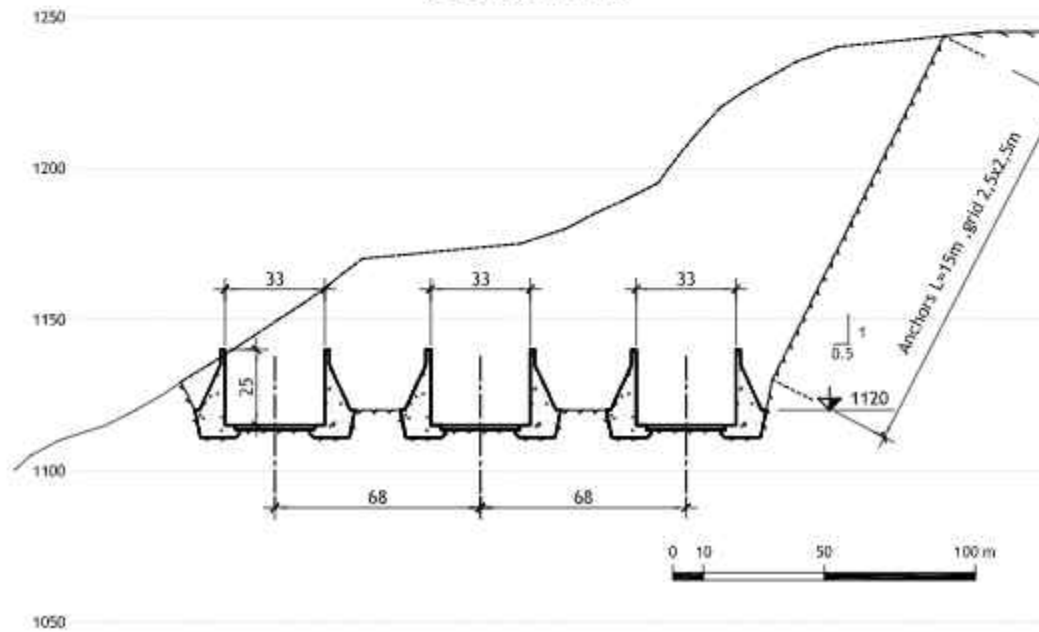
LONGITUDINAL PROFILES ALONG TUNNEL 5 & 6 AXIS



SECTION A-A

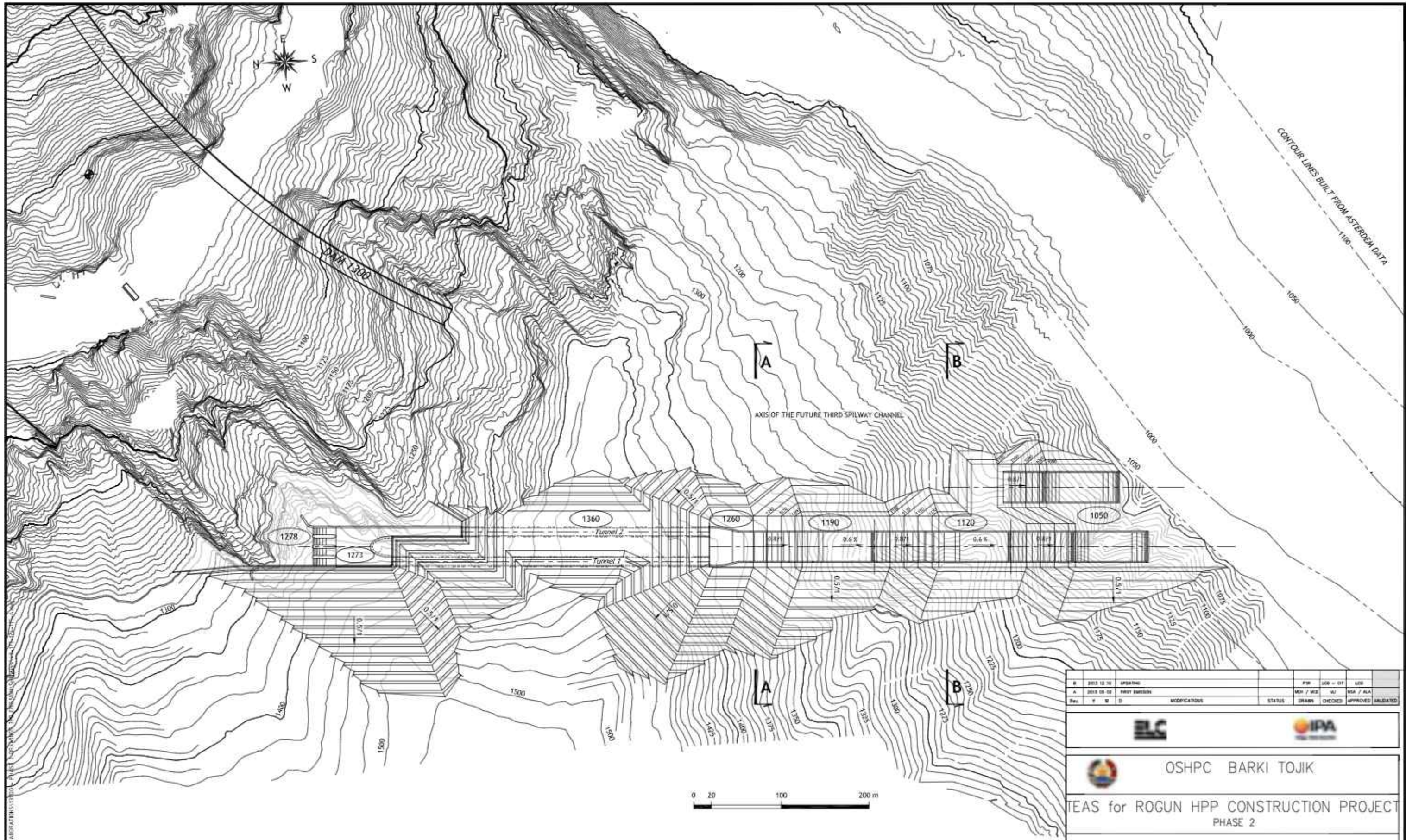


SECTION B-B



| | | | | | | | | | |
|---|----------------------|--|--------|-------------------------|--------------|---------------------------|--|-------------------|--|
| PROJECT INFORMATION | | DATE | | SCALE | | SHEET NO. | | TOTAL SHEETS | |
| NO. | DESCRIPTION | DATE | SCALE | SHEET NO. | TOTAL SHEETS | | | | |
| 1 | LONGITUDINAL PROFILE | 10/10/2019 | 1/2000 | 2/5 | A1 | | | | |
|  | | | | | | | | | |
| OSHPC BARKI TOJIK | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | | | | | | | |
| DAM ALTERNATIVE FSL=1290 m.a.s.l. SURFACE SPILLWAY FINAL STAGE LONGITUDINAL PROFILE ALONG TUNNEL 5 & 6 AXIS & SECTIONS | | | | | | | | | |
|  | | CONTRACT NO. 40-171-172-A P.002.378 | | SCALE 1/2000 FORM | | SHEET NO. 2/5 HYDRO | | TOTAL SHEETS 5 | |
| 4 0 1 7 2 A | | | | | | | | | |

C:\Users\Boris\Documents\ROGUN\PHASE 2\DESIGN\SPILLWAY\LONGITUDINAL\LONGITUDINAL.dwg
 10/10/2019 10:10:10 - ELABORATION
 Boris Rigoir
 10/10/2019 10:10:10 - ELABORATION
 Boris Rigoir



| | | | | | | | |
|-----|------------|---------------|---|---------------|---------|----------|----------------------------|
| B | 2013 12 10 | ISSUING | | | FOR | LOG - 01 | USE |
| A | 2015 05 12 | FIRST EDITION | | | MR / MS | W | MR / MR |
| Rev | Y | W | D | MODIFICATIONS | STATUS | DRAWN | CHECKED APPROVED VALIDATED |



OSHPC BARKI TOJK

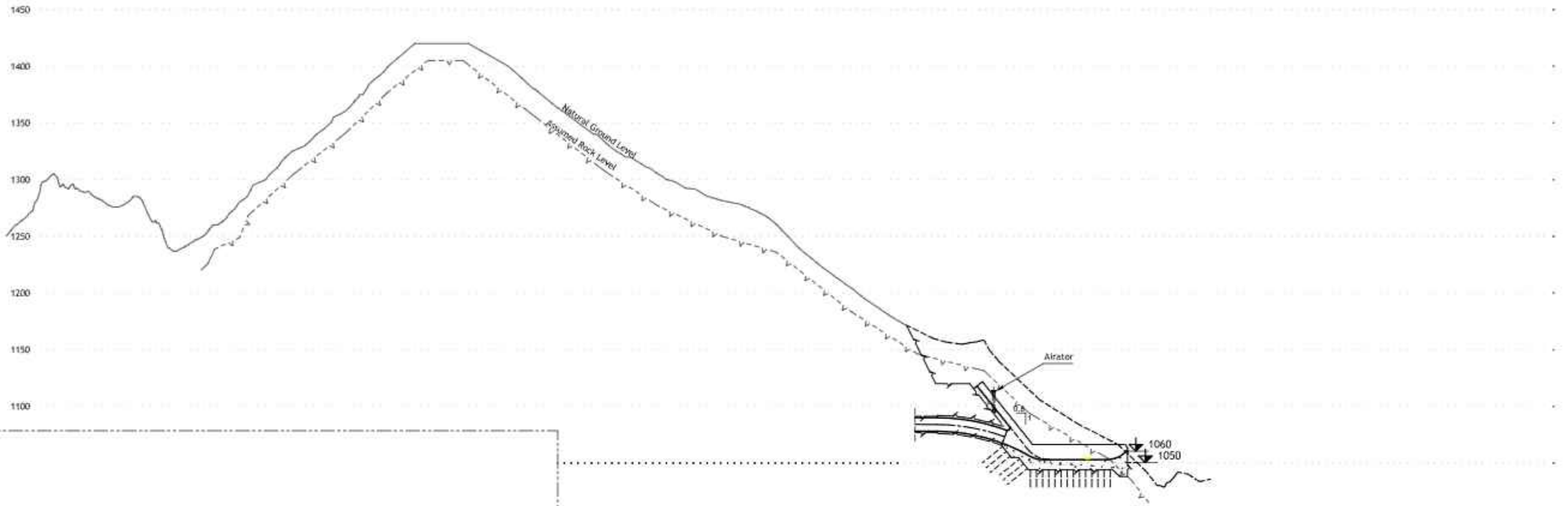
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1290 m.a.s.l.
SURFACE SPILLWAY
FIRST STAGE
PLAN VIEW

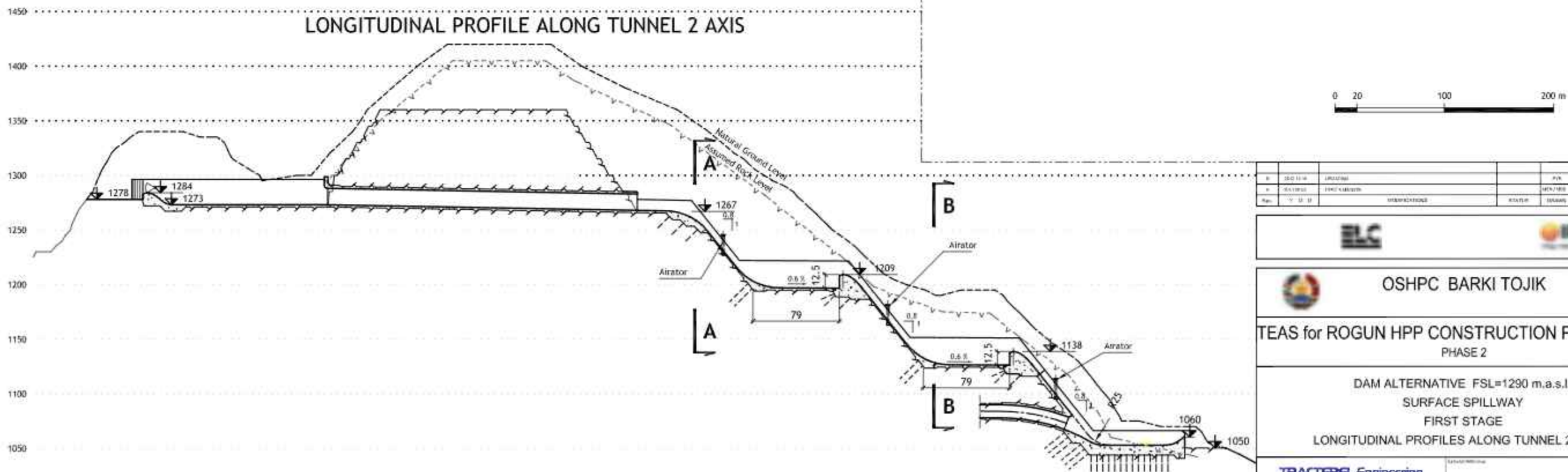
| | | |
|------|---------------------------------|------------------------------|
| | External Reference | |
| | Computer File: 40-173-174-175-A | Scale: 1/2000 |
| | Number: P 002 378 | Technical Substitution: FORM |
| | Drawing Reference: 4.01.7.3 | Sheet: B |

Работата е изготвена в сътрудничество с "Л. АБОРАТЕР" АД, ул. "Св. Кирил" № 1, 1000 София, България.

LONGITUDINAL PROFILES ALONG TUNNEL 3 & 4 AXIS



LONGITUDINAL PROFILE ALONG TUNNEL 2 AXIS



| | | | | | |
|---|-----------|--------|---|-----------|--------|
| № | 200/14/14 | 1/2000 | № | 100/17/17 | 1/2000 |
| № | 100/17/17 | 1/2000 | № | 100/17/17 | 1/2000 |
| № | 100/17/17 | 1/2000 | № | 100/17/17 | 1/2000 |



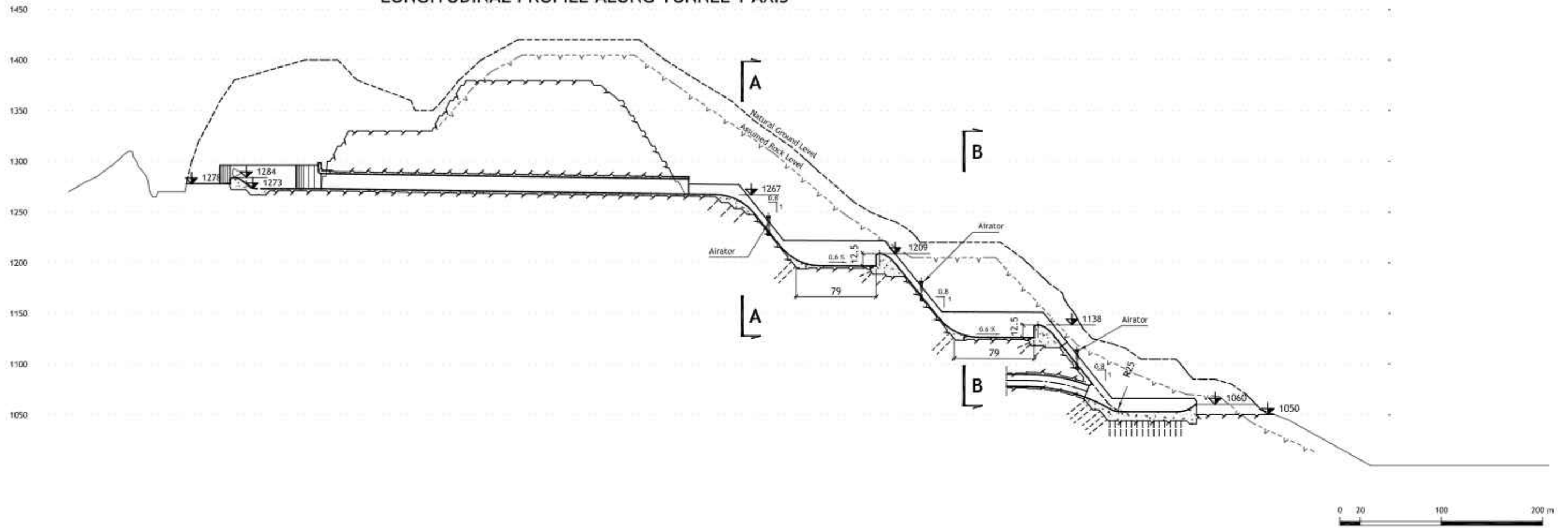
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1290 m.a.s.l.
SURFACE SPILLWAY
FIRST STAGE
LONGITUDINAL PROFILES ALONG TUNNEL 2, 3 & 4

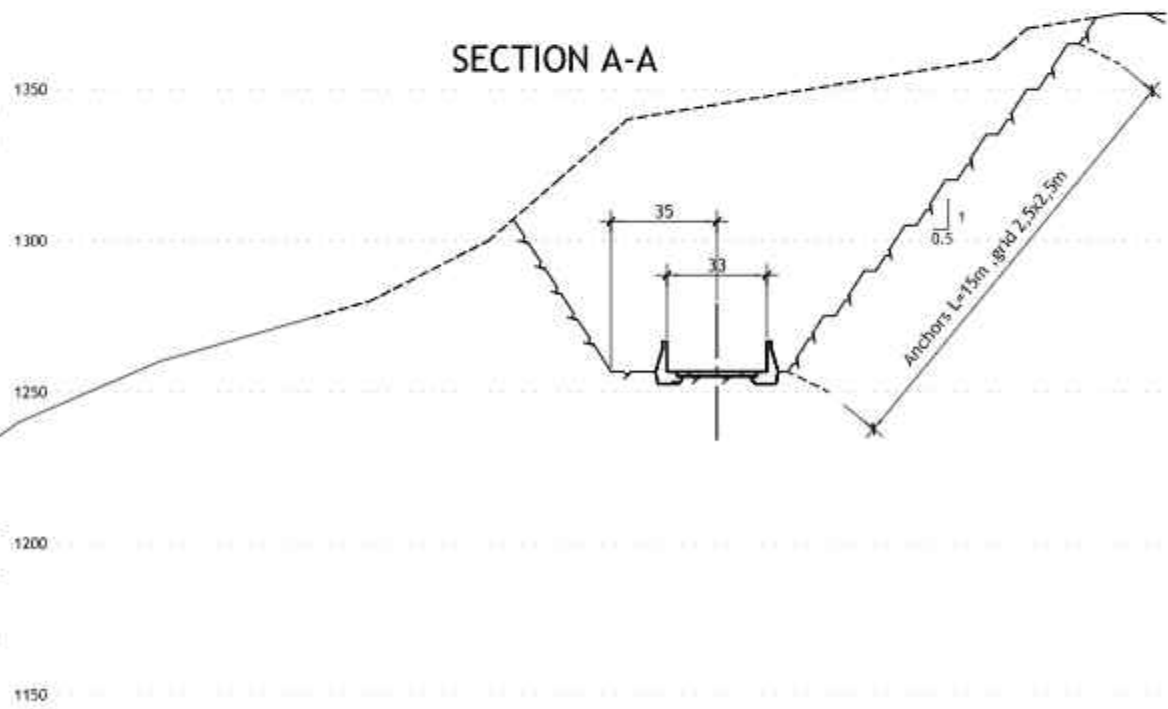
| | | | |
|-----------------------|------------------|-------------------|--------|
| TRACTEBEL Engineering | | GDF SUEZ | |
| COYNE ET BELLER | | Hydro Consultants | |
| Project No: | 40-173-174-175-A | Scale: | 1/2000 |
| Revision: | P 002 378 | Form: | FORM |
| Category: | 4, 0, 1, 7, 4 | Hydro: | HYDRO |
| | | Sheet: | B |

C:\Users\user\Desktop\ROGUN\173-174-175-A\173-174-175-A-04.dwg

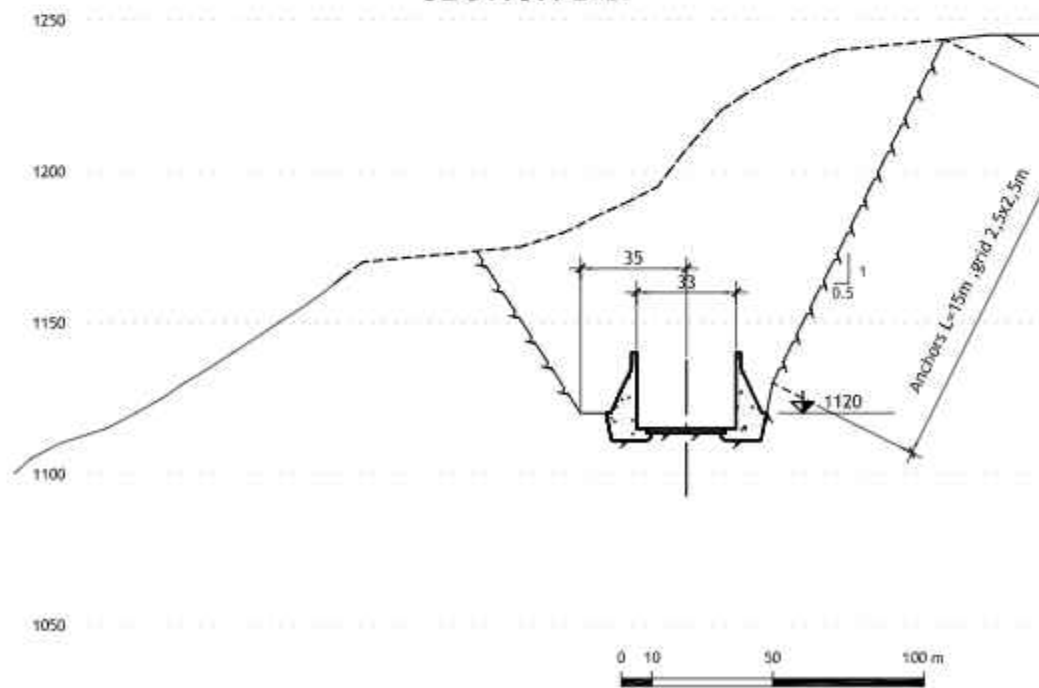
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS



SECTION A-A

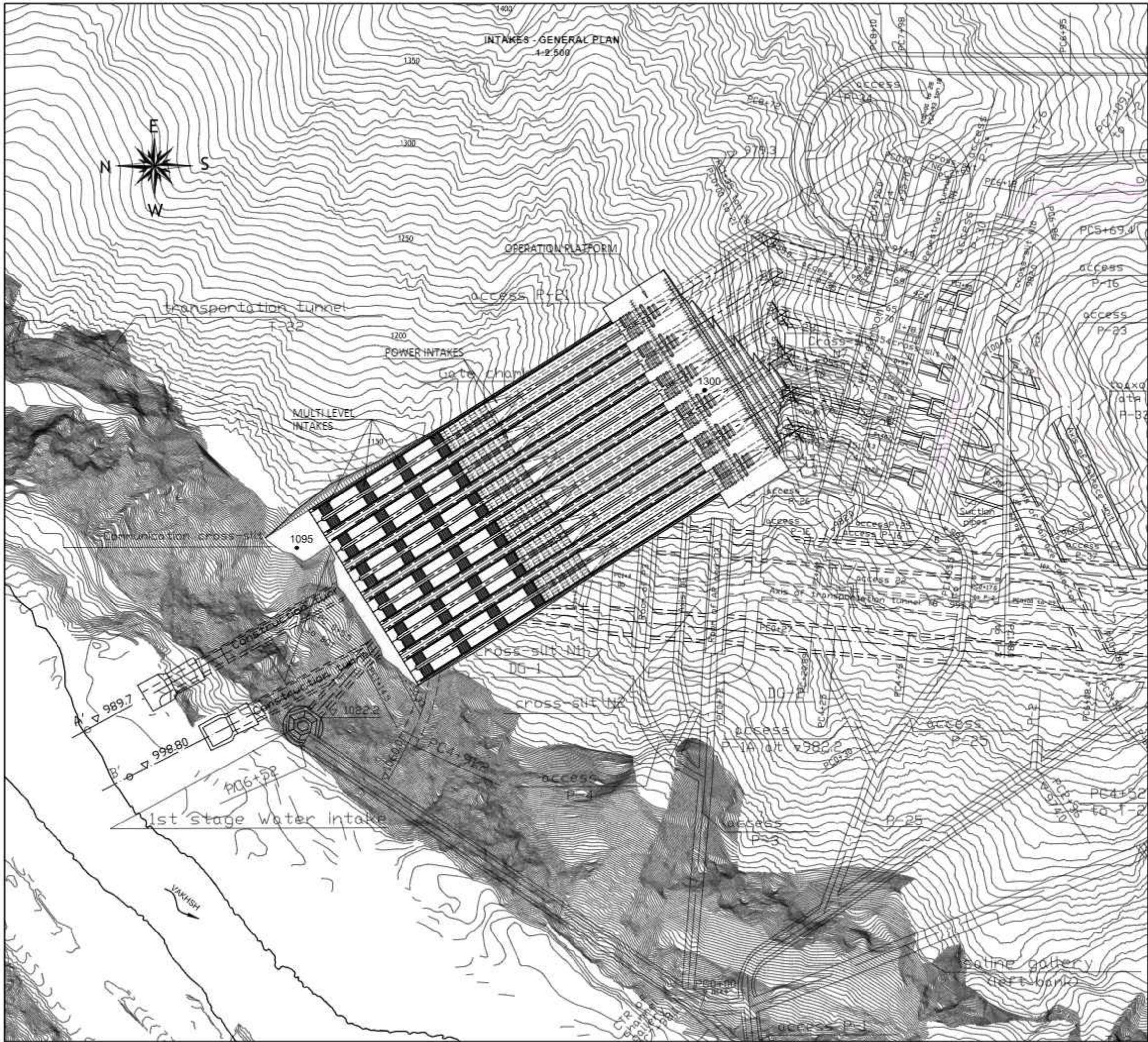


SECTION B-B



| | | | |
|---|--|---|--|
| | | | |
| OSHPC BARKI TOJIK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | |
| DAM ALTERNATIVE FSL=1290 m.a.s.l. SURFACE SPILLWAY FIRST STAGE LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS & SECTIONS | | | |
| | | | |
| Project No: 40-173-174-175-A Scale: 1/2000 Drawing No: P 002 378 Title: FORM Date: 4.01.2017 | | Revision: 5/5 Scale: A1 Discipline: HYDRO | |

\usr\p01\product\Accessories\173\175\174\175-A\PHASE 2\DRAWINGS\SPILLWAY\LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS.dwg



| | | | | | |
|-----|------------|-------------------------|----------|---------|----------|
| NO. | DATE | DESCRIPTION | BY | CHECKED | APPROVED |
| 1 | 10/01/2010 | ISSUED FOR CONSTRUCTION | Y. M. D. | | |



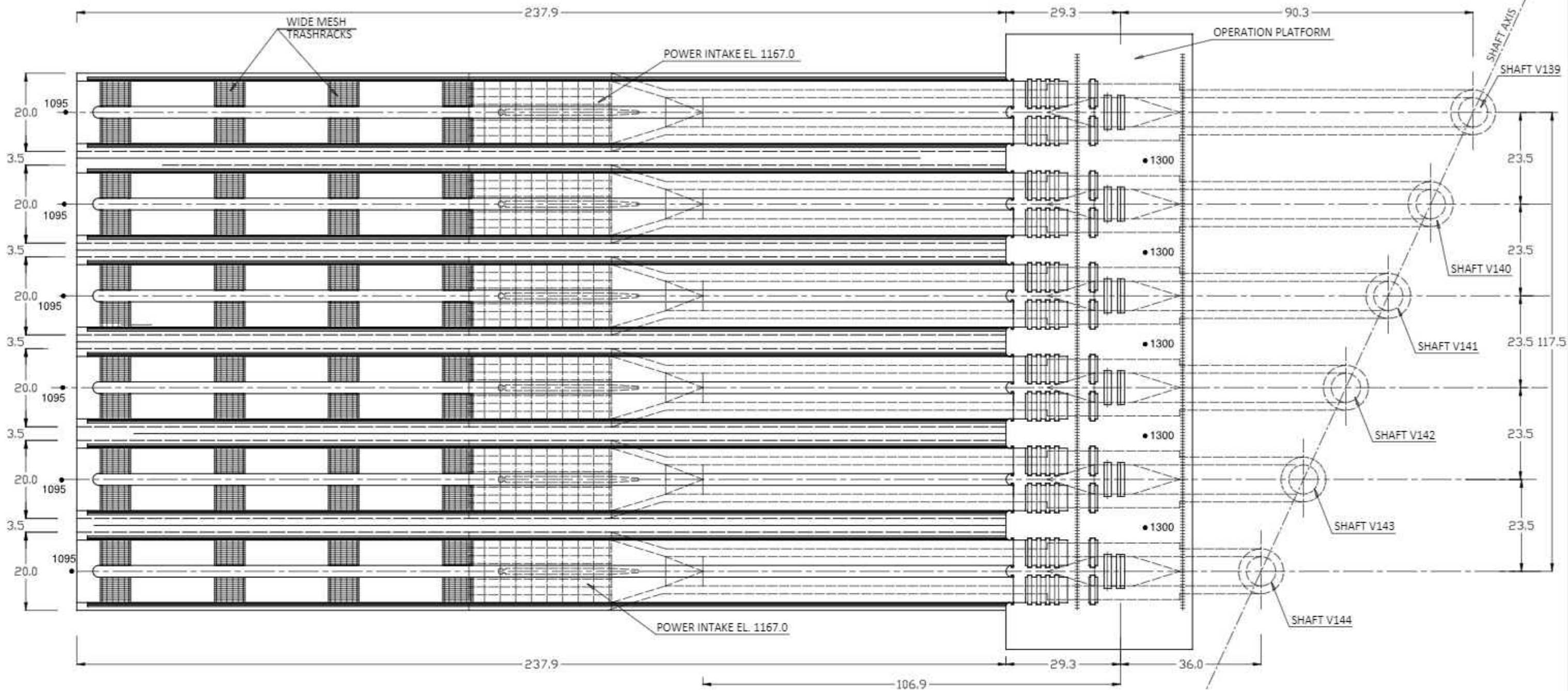
OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1290
 MULTI LEVEL INTAKES
 GENERAL PLAN

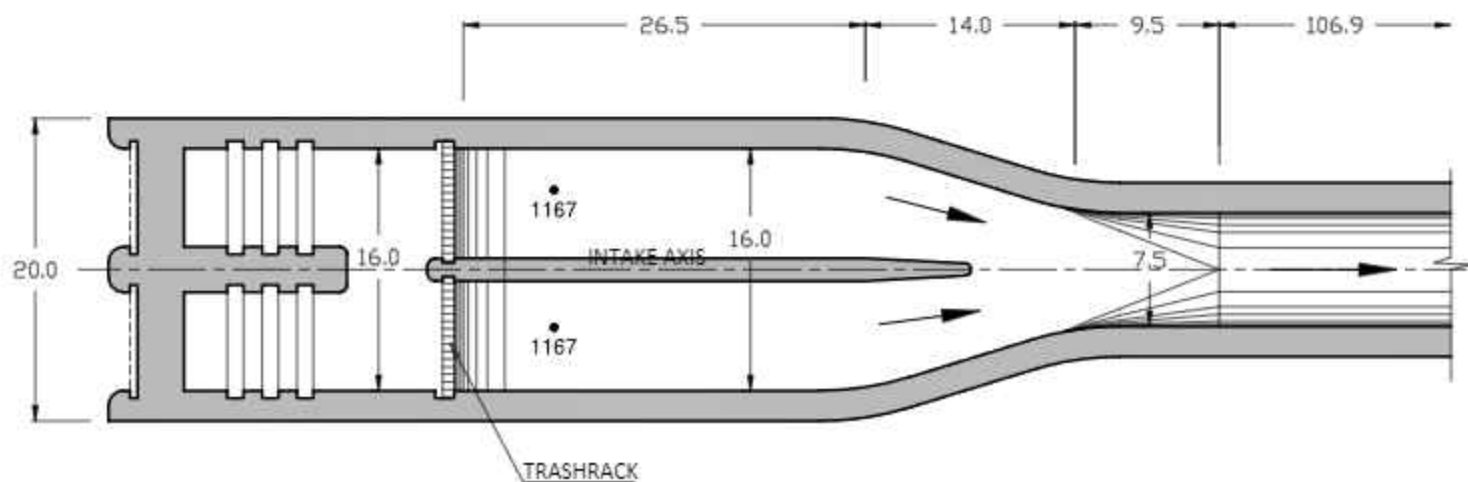
TRACTEBEL Engineering
COYNE ET BELLET

| | | | |
|-------------------|----------------|-----------|----|
| Project No. | Scale | Sheet No. | of |
| 40181 | 1:2,500 | 1 | A3 |
| Revision | | | |
| 1730 | | | |
| Drawing Reference | 4, 0, 1, 8, 1, | | A |

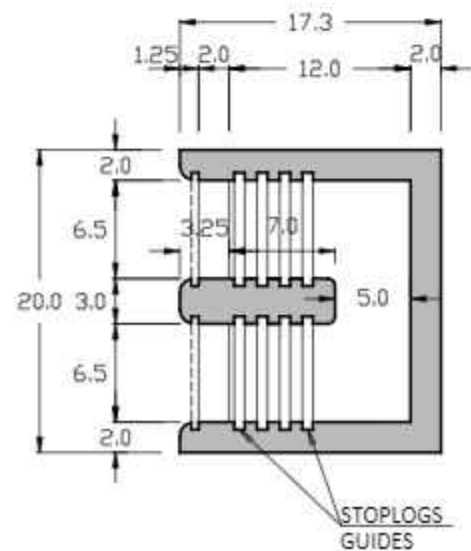
INTAKES - PLAN VIEW
1:1.000



HORIZONTAL SECTION Y-Y
1:500



SECTION X-X
1:500



| NO. | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED | REVISION |
|-----|---------|-------------|--------|----|---------|----------|----------|
| 1 | 1.10.20 | ISSUANCE | ISSUED | | | | |

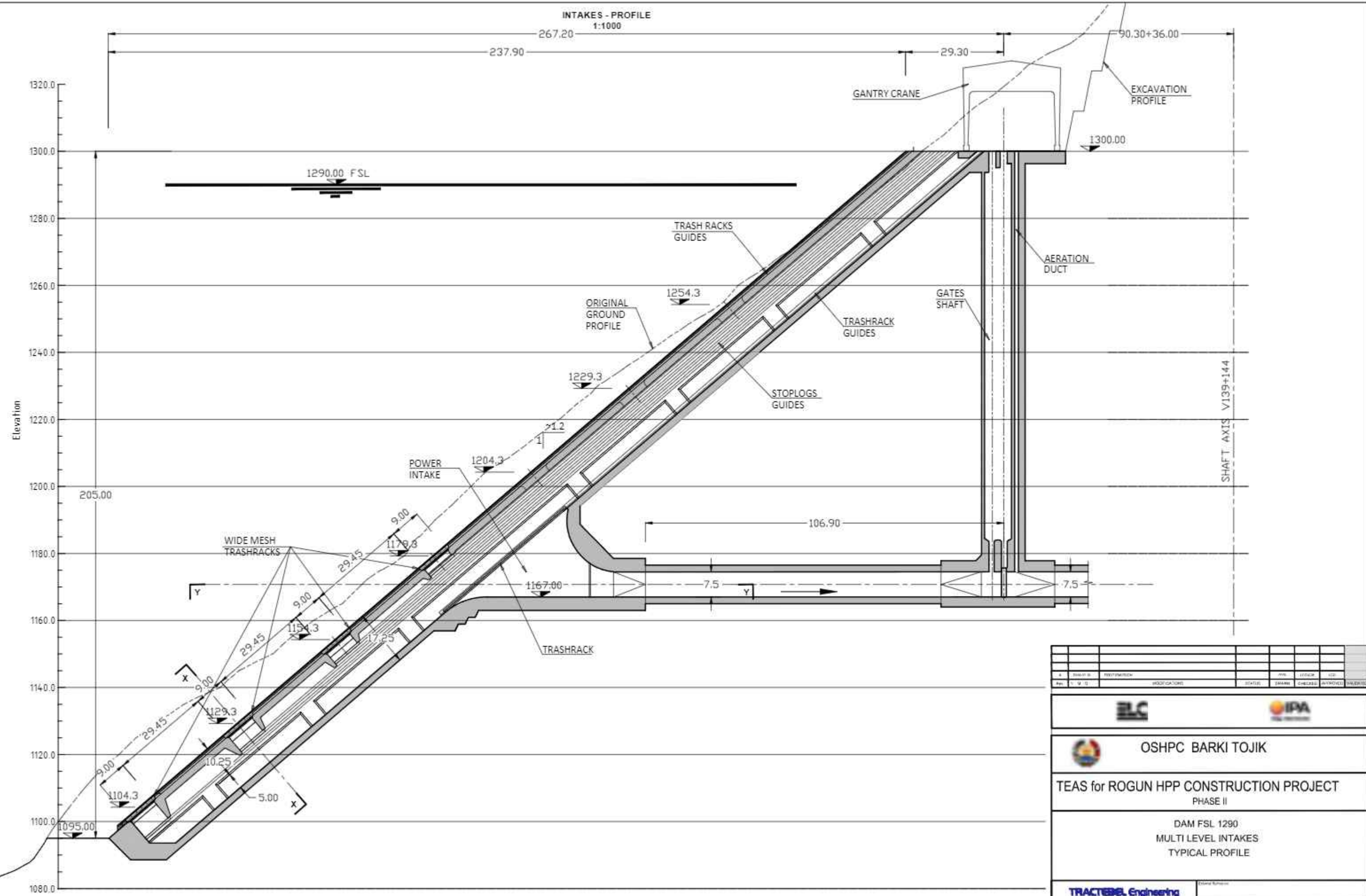
OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1290
MULTI LEVEL INTAKES
PLAN VIEW AND SECTIONS

| | | | | |
|--------------|-------|-------|-------|-------|
| Drawing No. | 40182 | VAR. | 1 | A3 |
| Scale | 1:400 | 1:800 | 1:200 | 1:100 |
| Project No. | 1730 | | | |
| Sheet No. | 4 | 0 | 1 | 8 |
| Total Sheets | 2 | | | |

INTAKES - PROFILE
1:1000



| NO. | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED | REVISION |
|-----|------|-------------|--------|----|---------|----------|----------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |




OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE II

DAM FSL 1290

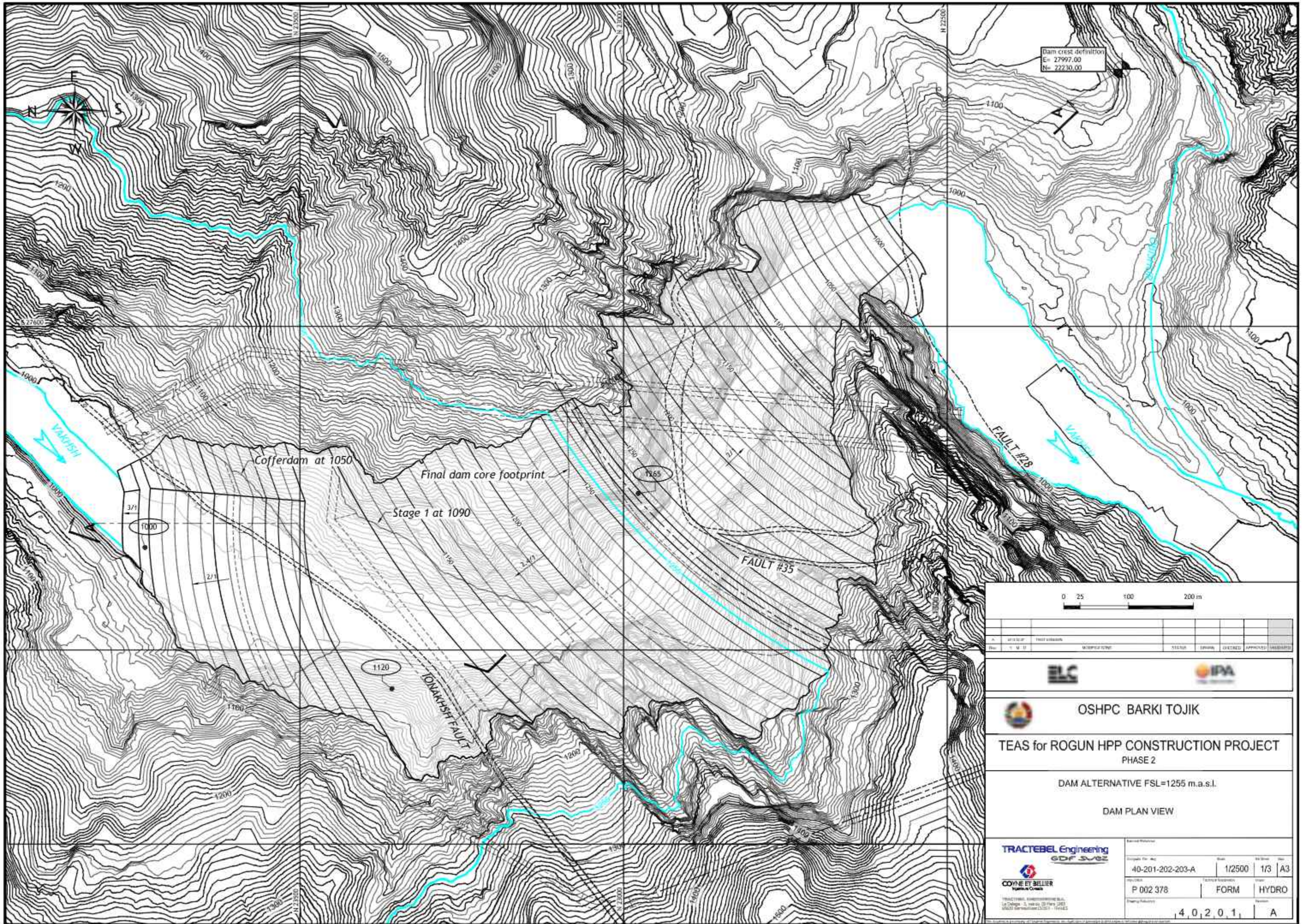
MULTI LEVEL INTAKES

TYPICAL PROFILE




| | | | | | | | |
|-------------|-------|-------------|--------|--------------|---|------------------|----|
| Drawing No. | 40183 | Scale | 1:1000 | Sheet No. | 1 | Sheet Size | A3 |
| Revision | 1730 | Project No. | | Project Name | | Project Location | |

4, 0, 1, 8, 3, A



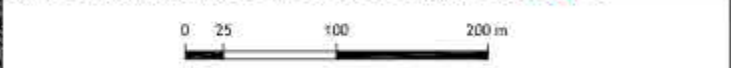
Dam crest definition
E= 27997.00
N= 22230.00

Cofferdam at 1050

Final dam core footprint

Stage 1 at 1090

FAULT #35



| | | | | | | |
|-----|------|-------------|----|---------|----------|--------|
| NO. | DATE | DESCRIPTION | BY | CHECKED | APPROVED | STATUS |
| | | | | | | |



OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1255 m.a.s.l.

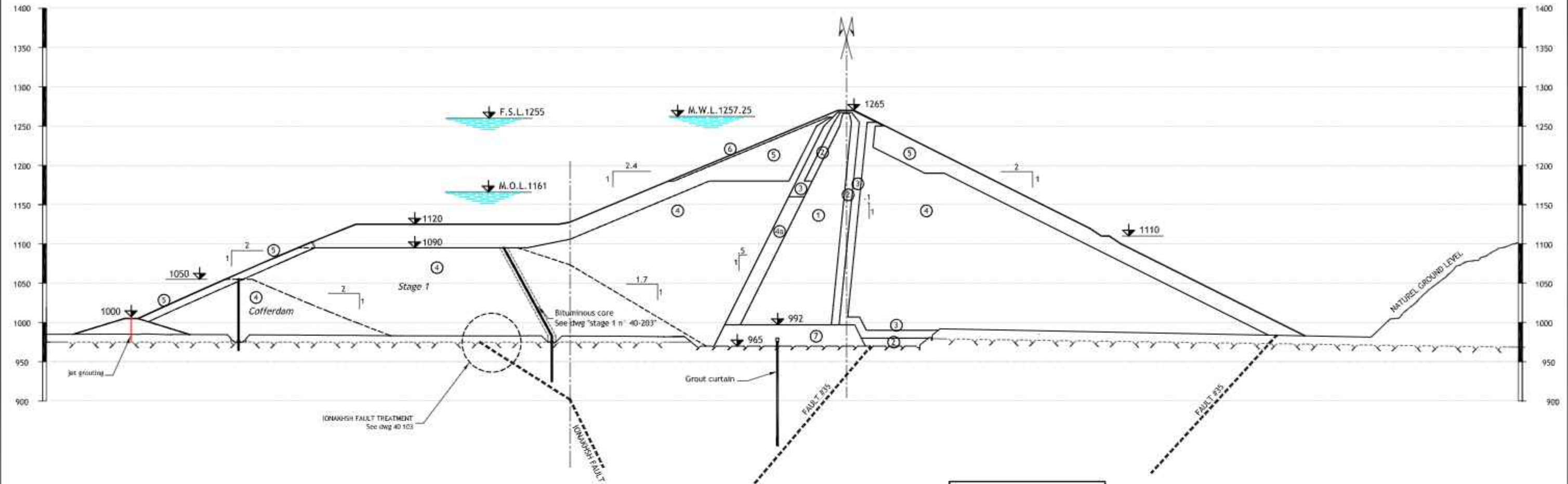
DAM PLAN VIEW

TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELLIER

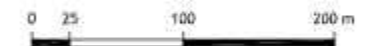
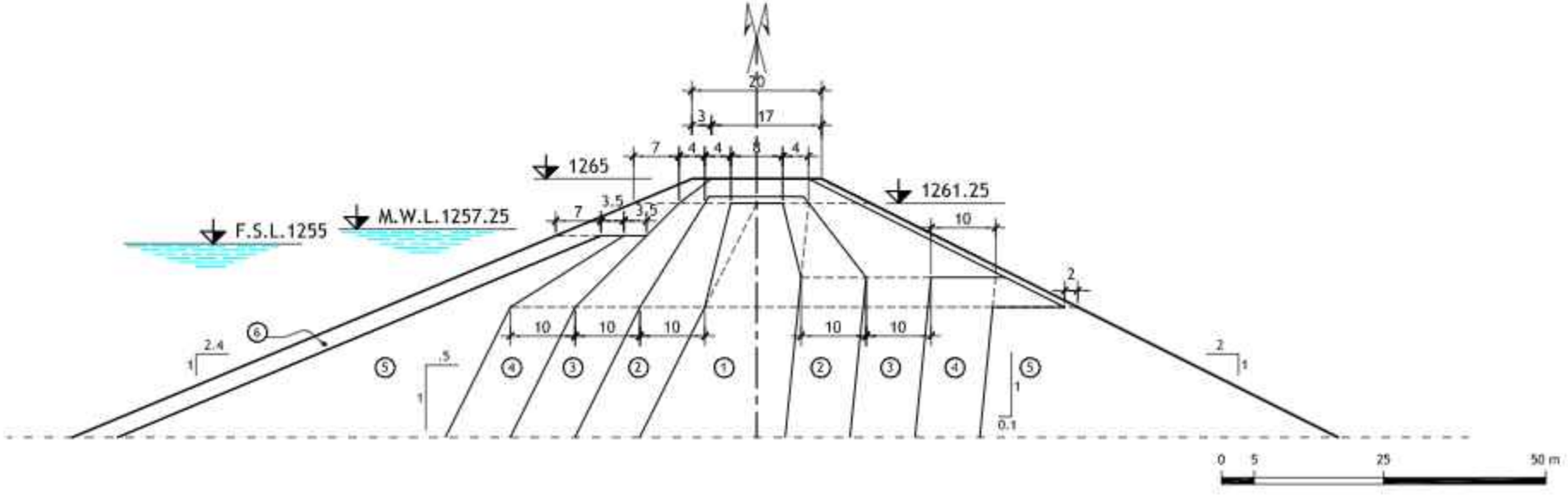
| | | | | | | | |
|--------------|------------------|-------------------------|--------|------------|-------|------|----|
| Project No | 40-201-202-203-A | Scale | 1/2500 | Sheet | 1/3 | Size | A3 |
| Revision | P 002 378 | Technical Specification | FORM | Discipline | HYDRO | | |
| Project Name | 4,0,2,0,1 | | | | A | | |

SECTION A-A



| LEGEND | |
|--------|----------------------------|
| ① | CORE |
| ② | FINE FILTER |
| ③ | COARSE FILTER |
| ④ | ALLUVIUM SHELL |
| ⑤ | ALLUVIUM SCREENED (<200mm) |
| ⑥ | ROCKFILL SHELL |
| ⑦ | RIP RAP |
| ⑧ | CONCRETE FOUNDATION |

CREST DETAILS



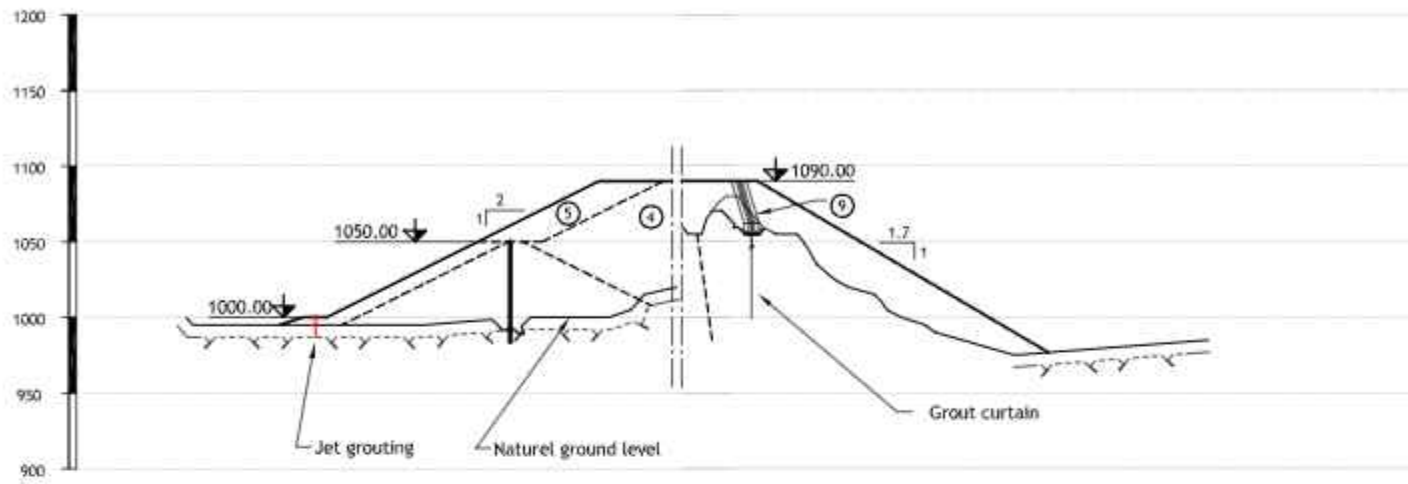
| | | | | | | | |
|------|---|-------|-------------|--------|--------|----------|------------|
| | | | | | | | |
| Rev. | 1 | M. 11 | W. 0012/07W | STATUS | ISSUED | APPROVED | DRAWN/CHKD |

OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE 2
 DAM ALTERNATIVE FSL=1255 m.a.s.l.
SECTION A-A
CREST DETAILS

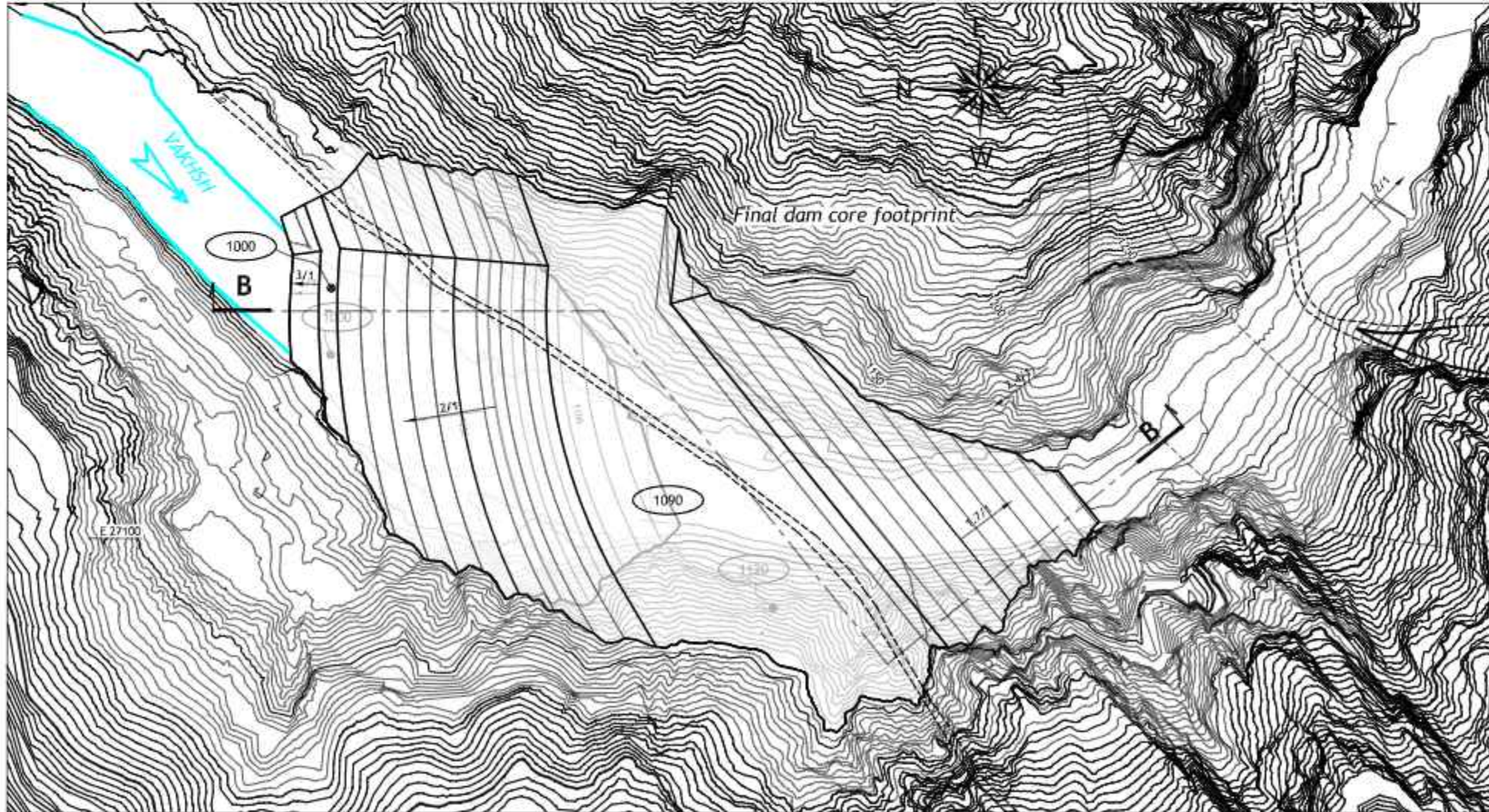
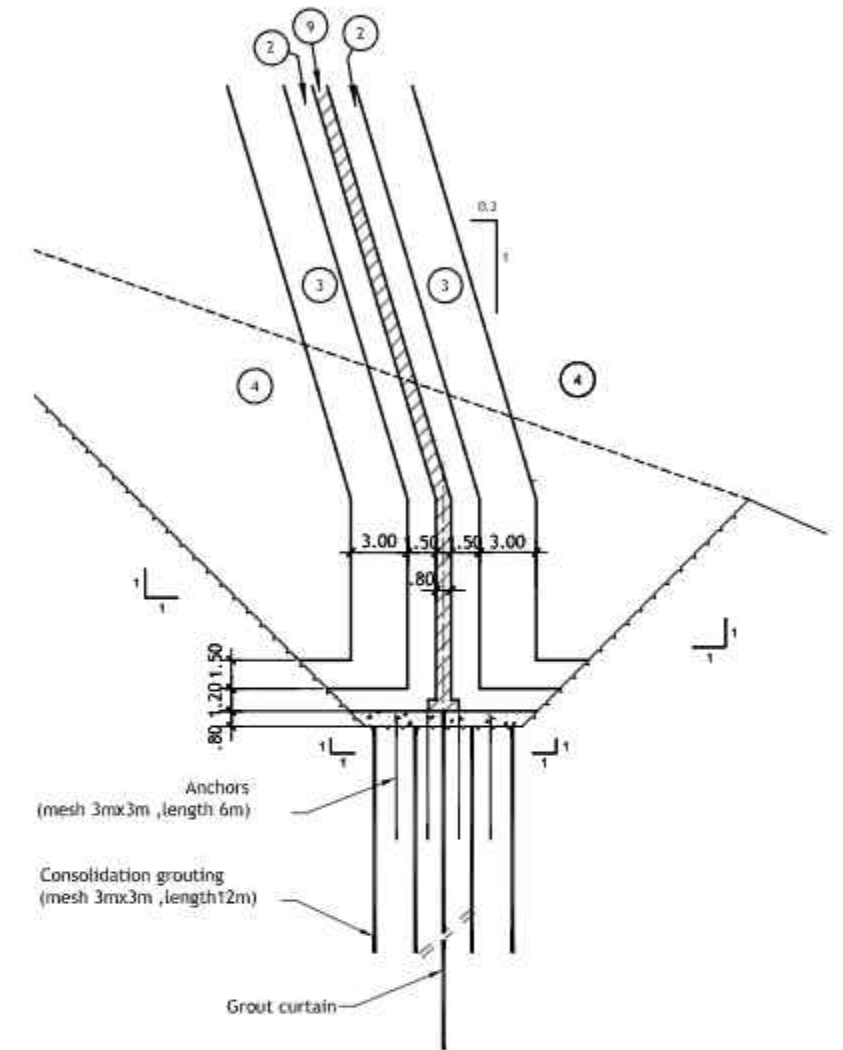
| | |
|--|--|
| | |
| | |

| | | | | | | | |
|-----------------|------------------|----------|--------|-----------|-------|------|----|
| Design File No. | 40-201-202-203-A | Scale | 1/2500 | Sheet No. | 2/3 | Size | A3 |
| Project No. | P 002 378 | Industry | FORM | Hydro | Hydro | | |
| Project No. | 4 0 2 0 2 | | | | A | | |

SECTION B-B



DETAIL BITUMINOUS CORE



| Rev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|----------|----------|---|---|---|---|---|---|---|----|
| A | 01/10/20 | 10/10/20 | | | | | | | | |
| Rev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE 2

DAM ALTERNATIVE FSL=1255 m.a.s.l.

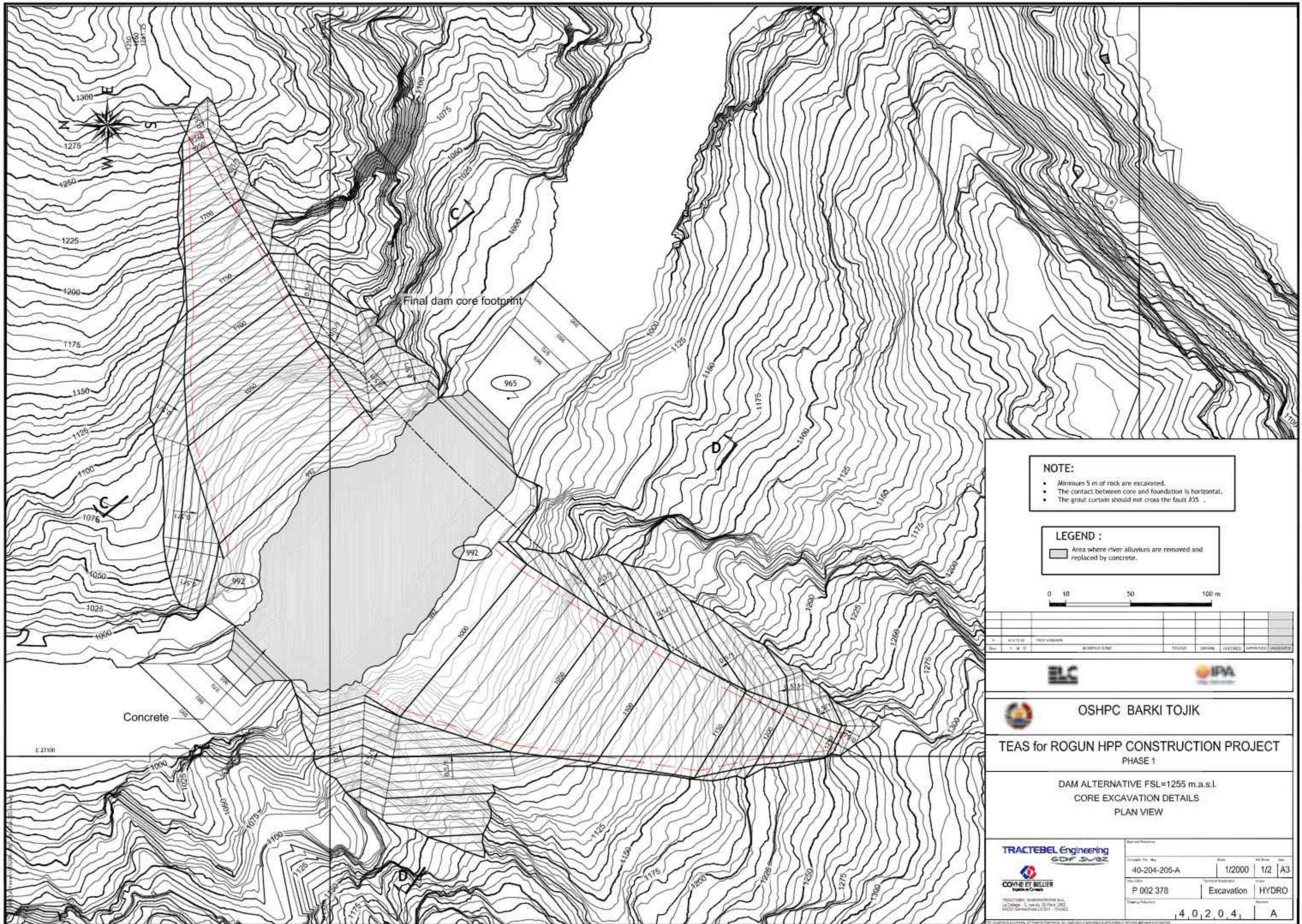
STAGE1 at 1090

PLAN VIEW

SECTIONS

TRACTEBEL Engineering
GDF SUEZ

| | | | | | | | |
|---------------|------------------|-------------------|---------|---------------|-------|-------------|----|
| Project No: | 40-201-202-203-A | Scale: | 1/25000 | Sheet No: | 2/3 | Sheet Size: | A3 |
| Project Name: | P 002 378 | Project Location: | FORM | Project Type: | HYDRO | | |
| | | 4 0 2 0 3 | | | | | |

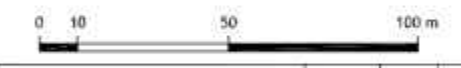


NOTE:

- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the fault #35.

LEGEND :

- Area where river alluvium are removed and replaced by concrete.



| | | | | | | | | | |
|------|----------|---------------|--|--|--|--|--|--|--|
| Rev. | 01/12/14 | First release | | | | | | | |
| Rev. | 01/01/15 | WORKED DRAW | | | | | | | |



OSHPC BARKI TOJK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

DAM ALTERNATIVE FSL=1255 m.a.s.l.
CORE EXCAVATION DETAILS
PLAN VIEW

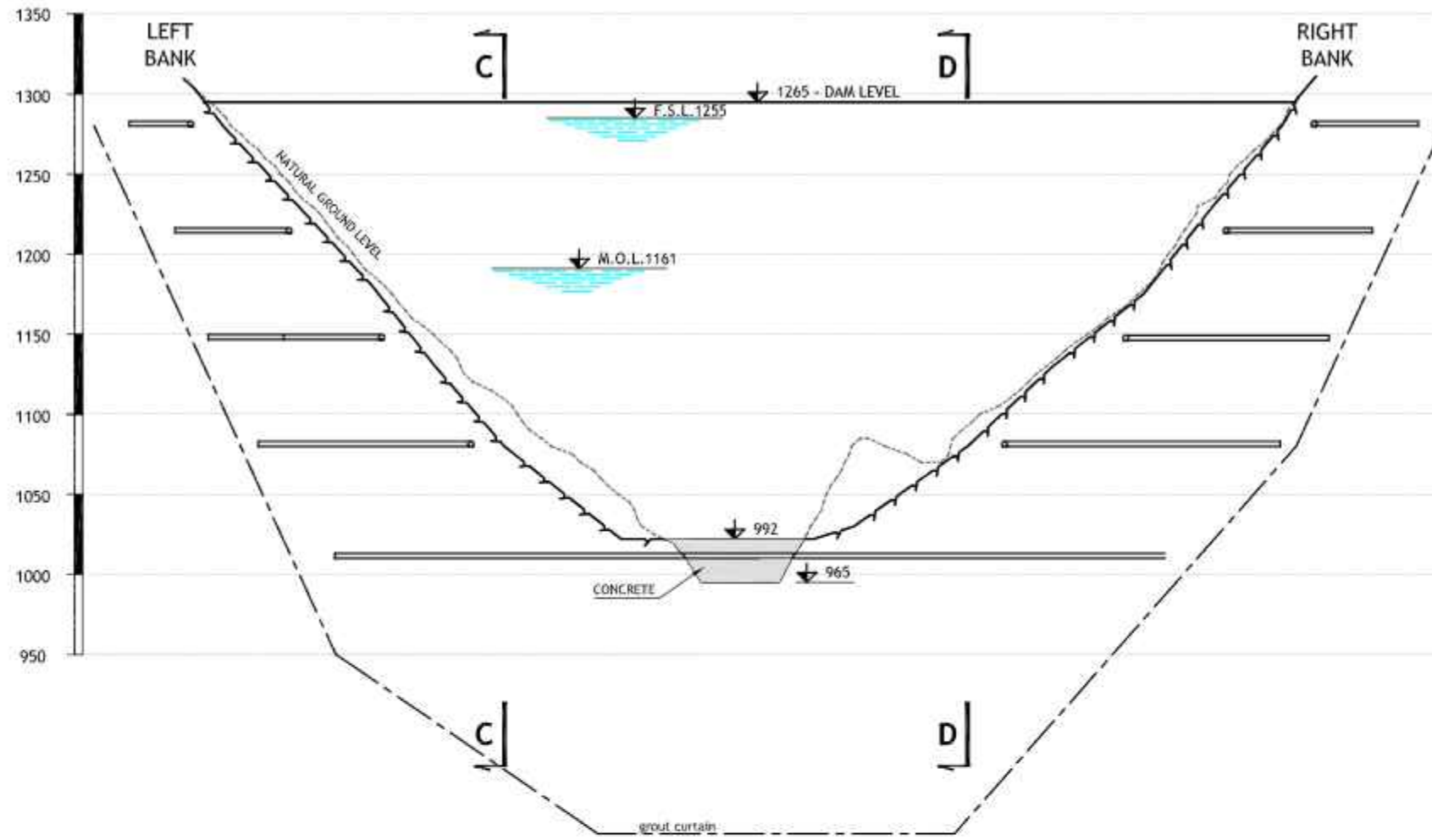
TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELIER
Ingénierie Conseil

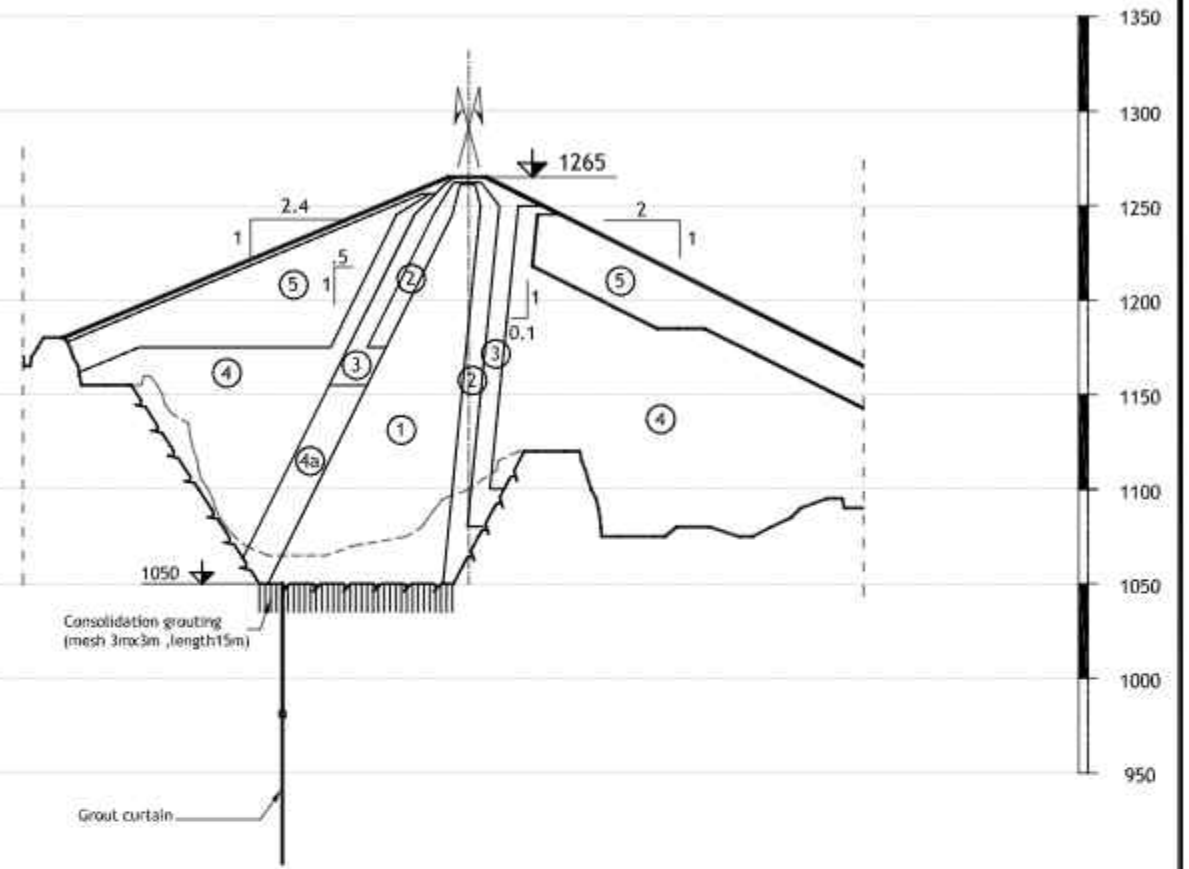
TRACTEBEL, INGENIERIE ET BUREAU D'ETUDES
La Chaux-de-Fonds, Suisse SA, 1000
INGENIERIE CONSULTING (2007) - 151425

| | | | | | | | |
|--------------|--------------|-----------------------|------------|-------------|-------|---------------|----|
| Project No: | 40-204-205-A | Scale: | 1/2000 | Sheet No.: | 1/2 | Total Sheets: | A3 |
| Revision: | P 002 378 | Technical Supervisor: | Excavation | Discipline: | HYDRO | | |
| Drawing No.: | | | 40,204 | | A | | |

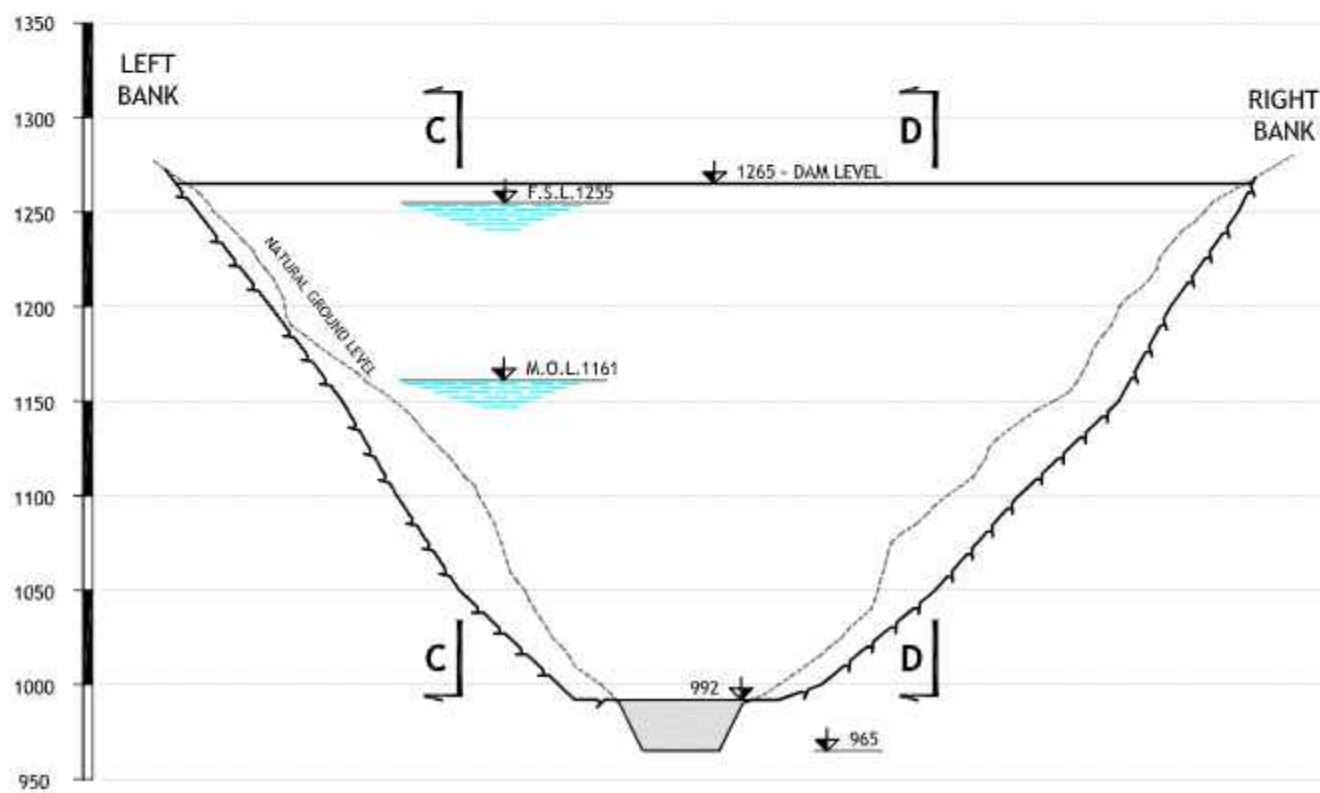
DEVELOPED ELEVATION UPSTREAM



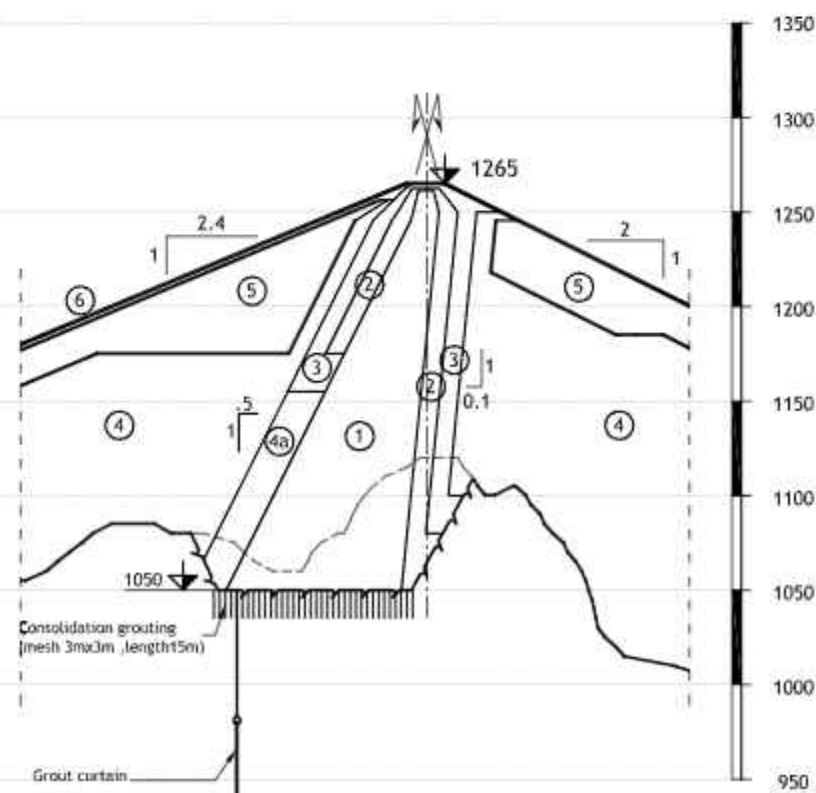
SECTION D-D



DEVELOPED ELEVATION DOWNSTREAM

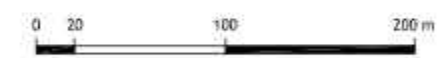


SECTION C-C



NOTE:

- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the fault F35.



| | | | | | | | | | | | |
|---|---|-----|---|------|---|----|---|-----|---|-----|---|
| A | | REV | | DATE | | BY | | CHK | | APP | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

OSHPC BARKI TOJIK

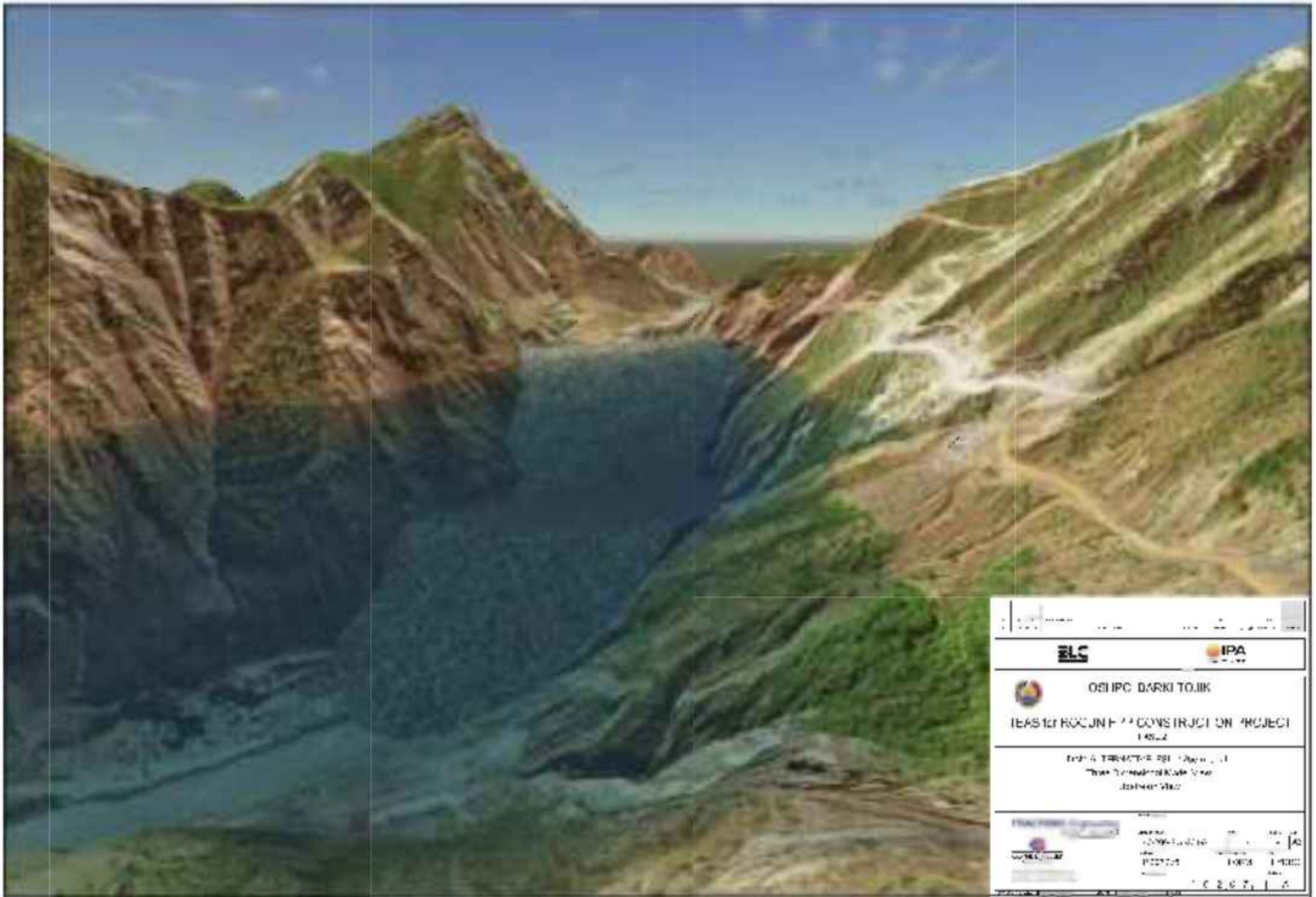
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

DAM ALTERNATIVE FSL=1255 m.a.s.l.
CORE EXCAVATION DETAILS
ELEVATIONS UPSTREAM & DOWNSTREAM

| | | | | | | | |
|--|--|------------------|--|-------------------|--|----------------------------|--|
| TRACTEBEL Engineering GDF SUEZ | | Scale: 1/40000 | | Sheet: 2/2 | | Size: A3 | |
| Project No: 40-204-205-A | | Task: Excavation | | Discipline: HYDRO | | Revision: 4, 0, 2, 0, 5, A | |



| | |
|---|--|
|   | |
|  CON-PC WORKBOOK | |
| TEXAS RIVER WOODLAND HPP CONSTRUCTION PROJECT Sheet 1 | |
| Date of Revision: 10/20/2010 Project: 10000000000000000000 | |
|  Tetra Tech Engineering 10000000000000000000 | Project No.: 10000000000000000000 Revision: 10000000000000000000 Date: 10/20/2010 Author: 10000000000000000000 Checker: 10000000000000000000 Approver: 10000000000000000000 |



| | |
|---|--|
|   | |
|  OSI IPC BARKI TOBIK | |
| REASONS FOR JOINT CONSTRUCTION PROJECT 1.001.2 | |
| Date of Termination: 2011/06/01 Date of Completion: 2011/06/01 Job No: 1001.2 | |
|  PT. BANGSA BANGSA | Project No: 1001.2 Date: 2011/06/01 Scale: 1:1000 Sheet: 1 of 1 |



Navigation icons: Home, Back, Forward, Refresh, Print, Close

 **OSI IPC BARKI TOJIK**

EAS for RCC IN HP CONSTRUCTION PROJECT
1.65.2

FOR ALTERNATIVE PBL 100m AJL
Tashkent, 2024

 **RCC**

| | |
|-------------|---------|
| Project No. | 1.65.2 |
| Scale | 1:1000 |
| Author | OSI IPC |
| Check | OSI IPC |
| Year | 2024 |

Scale: 1:1000

Author: OSI IPC

Check: OSI IPC

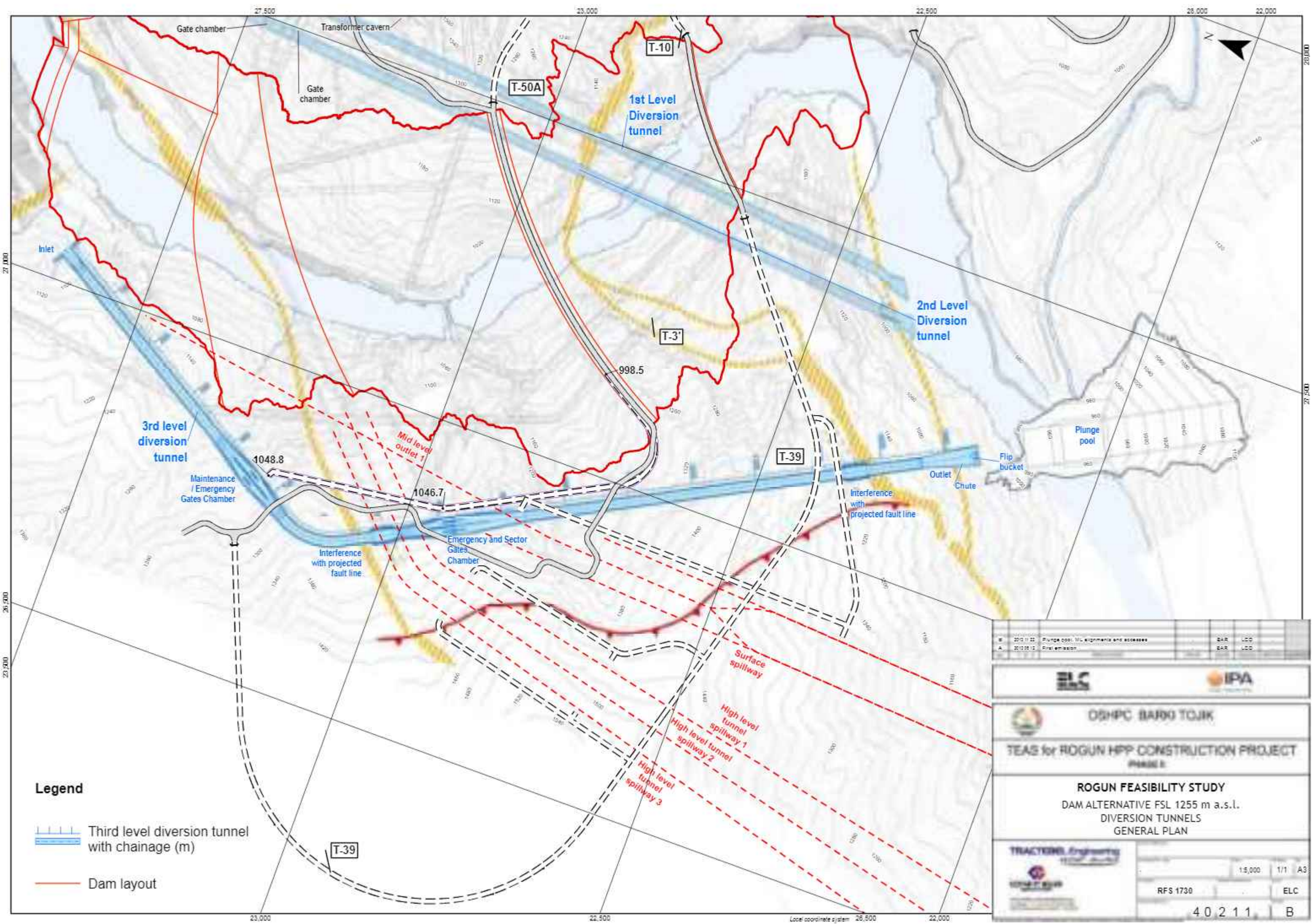
Year: 2024

Scale: 1:1000

Author: OSI IPC

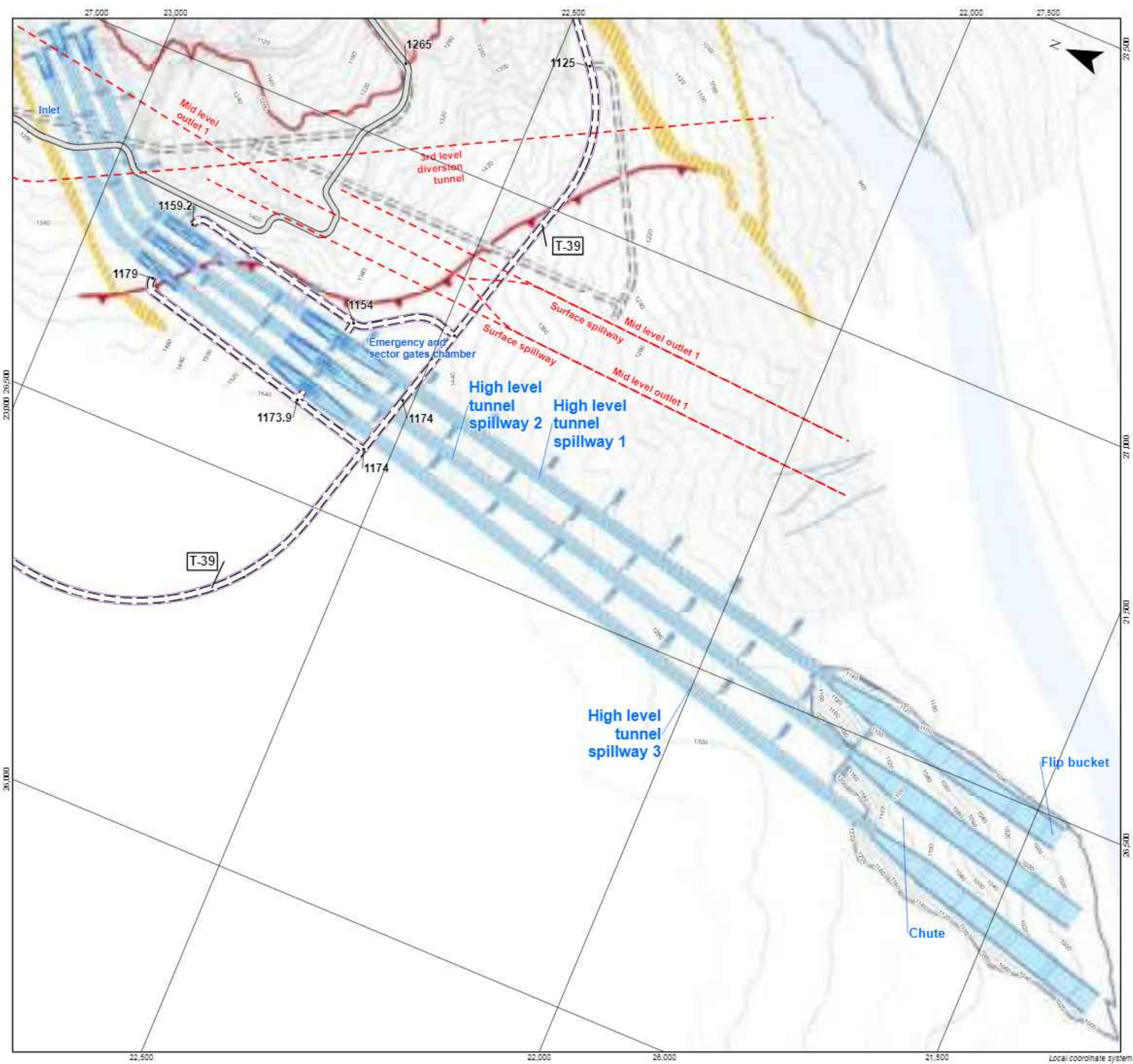
Check: OSI IPC

Year: 2024





- Legend**
- Third level diversion tunnel with chainage (m)
 - Dam layout

| | |
|--|---|
| 2012.11.22 Plunge pool, MC alignments and accesses 2012.08.15 First emission | BAR LCC BAR LCC |
| | |
| OSHPC BARDU TOJK | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. DIVERSION TUNNELS GENERAL PLAN | |
| | 1:5,000 1/1 A3 RFS 1730 ELC 40211 B |

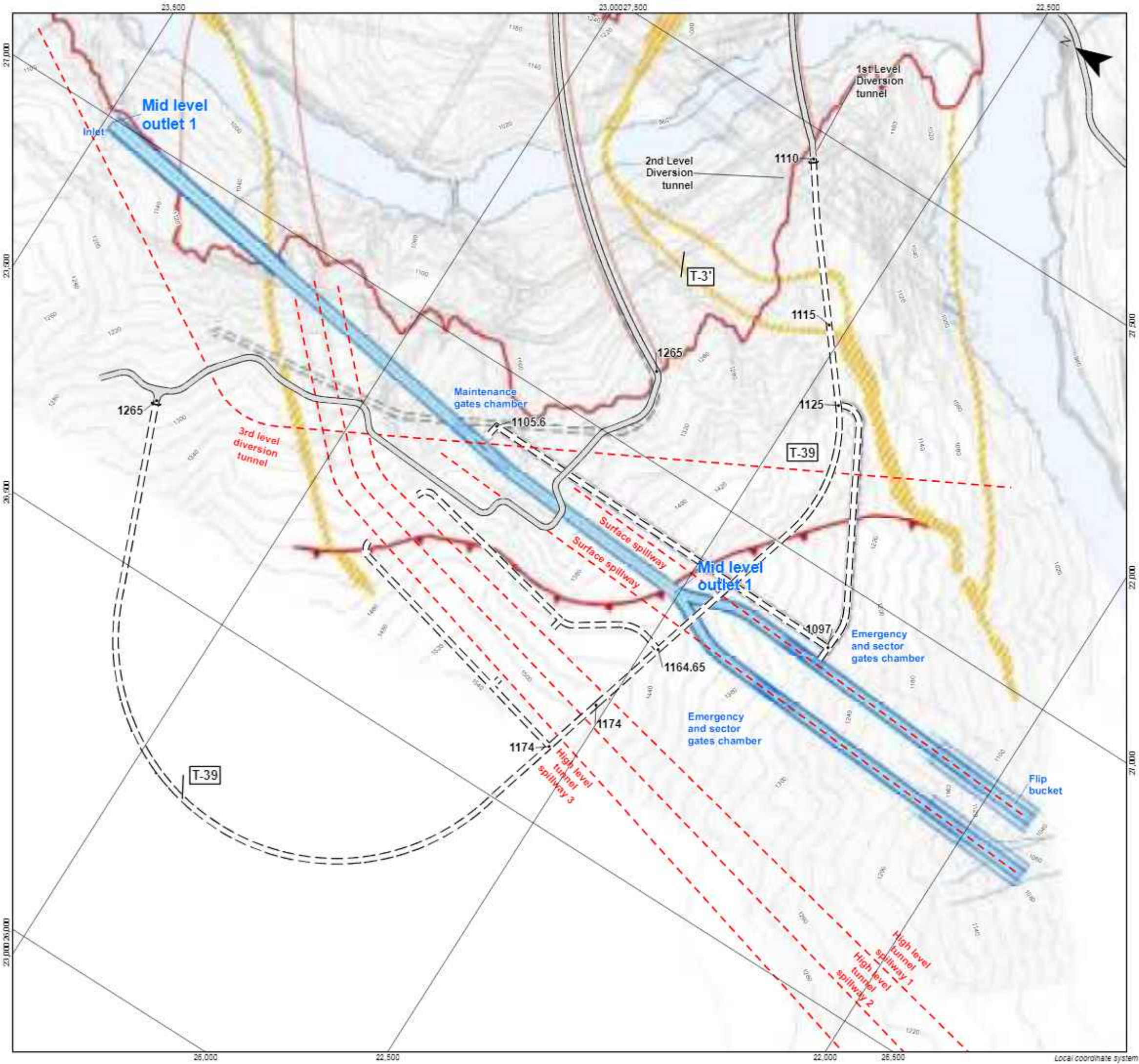


Legend



-  High level tunnel spillway with chainage (m)
-  Dam layout

| | | |
|---|--|--------------------|
| B 2012.10.10 Second Issue A 2012.08.10 First Issue | | BAR LCD BAR LCD |
|   | | |
|  OSHPC BARDU TOJK | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. HIGH LEVEL TUNNEL SPILLWAYS GENERAL PLAN | | |
|  | | 1:5,000 1/1 A3 |
| RFS 1730 | | ELC |
| 4 0 2 1 3 | | B |

Local coordinate system

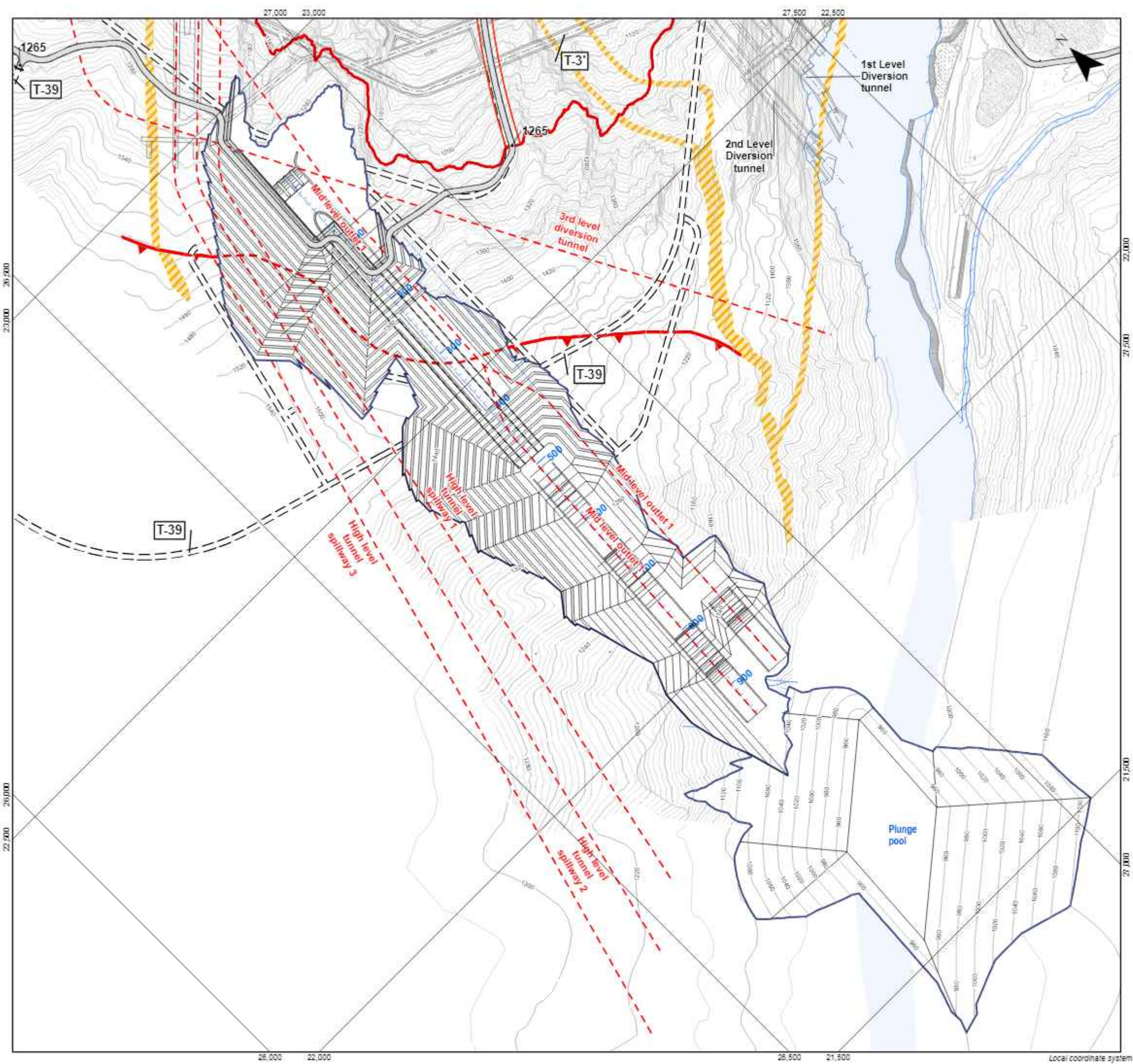


Legend

-  Mid level outlet
-  Dam layout

| | | | | | | | |
|---|---|---------|--------|----------|-----|-----------|--|
|   | | | | | | | |
|  OSHPC BARDU TOJK | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | | | | | | | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. MID LEVEL OUTLET GENERAL PLAN | | | | | | | |
|  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">1:5,000</td> <td style="width: 50%;">1/1 A3</td> </tr> <tr> <td>RFS 1730</td> <td>ELC</td> </tr> <tr> <td colspan="2" style="text-align: center;">40214 A</td> </tr> </table> | 1:5,000 | 1/1 A3 | RFS 1730 | ELC | 40214 A | |
| 1:5,000 | 1/1 A3 | | | | | | |
| RFS 1730 | ELC | | | | | | |
| 40214 A | | | | | | | |

Local coordinate system

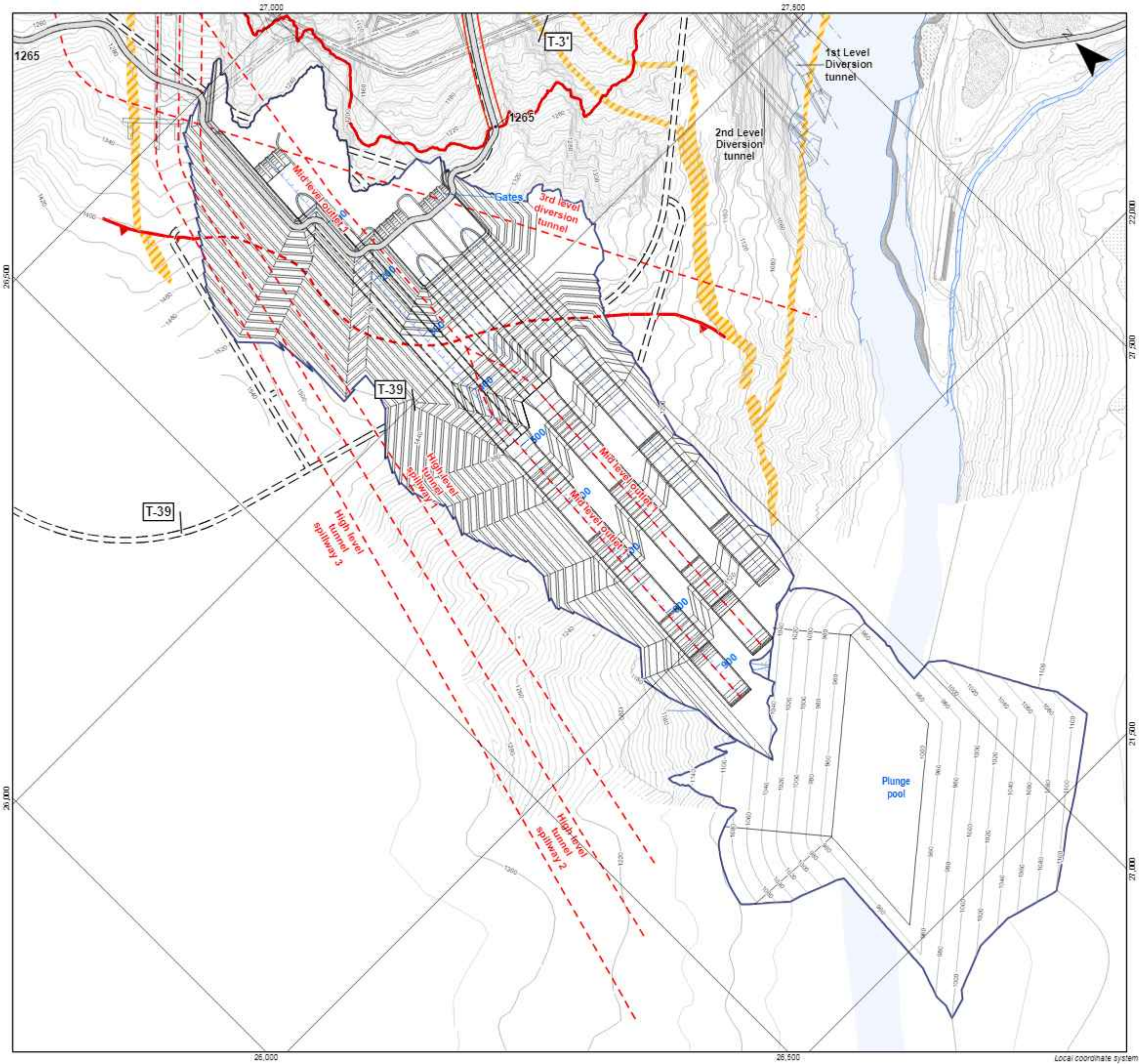


Legend

- Surface spillway with chainage (m)
- Dam layout

| | | |
|---|-----|--------------------|
| © 2013.12.12 Second issue | BAR | LCC |
| A 2013.06.12 First issue | BAR | LCC |
| | | |
| ODHPC BARDU TOJK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. SURFACE SPILLWAY - FIRST STAGE GENERAL PLAN | | |
| | | 1:5,000 1/1 A3 |
| RFS 1730 | | ELC |
| 40217 B | | |

Local coordinate system



Legend

- Surface spillway with chainage (m)
- Dam layout

| | | | | |
|---|------------|--------------|-----|-----|
| A | 2012.12.12 | Second issue | BAR | LCC |
| A | 2012.06.12 | First issue | BAR | LCC |




ODHPC BARDU TOJK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

ROGUN FEASIBILITY STUDY
 DAM ALTERNATIVE FSL 1255 m a.s.l.
 SURFACE SPILLWAY - FINAL STAGE
 GENERAL PLAN

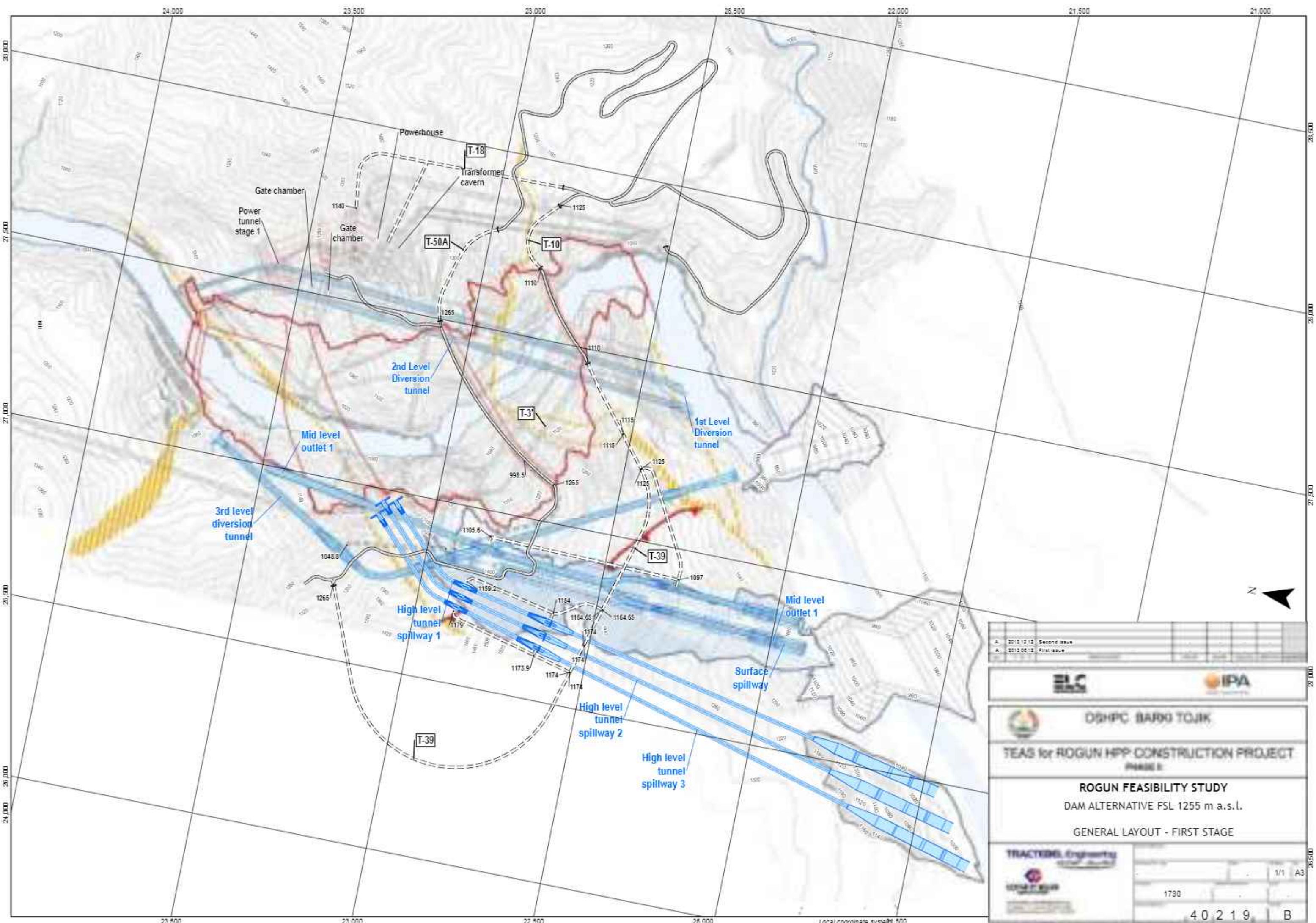


1:5,000 | 1/1 | A3

RFS 1730 | ELC

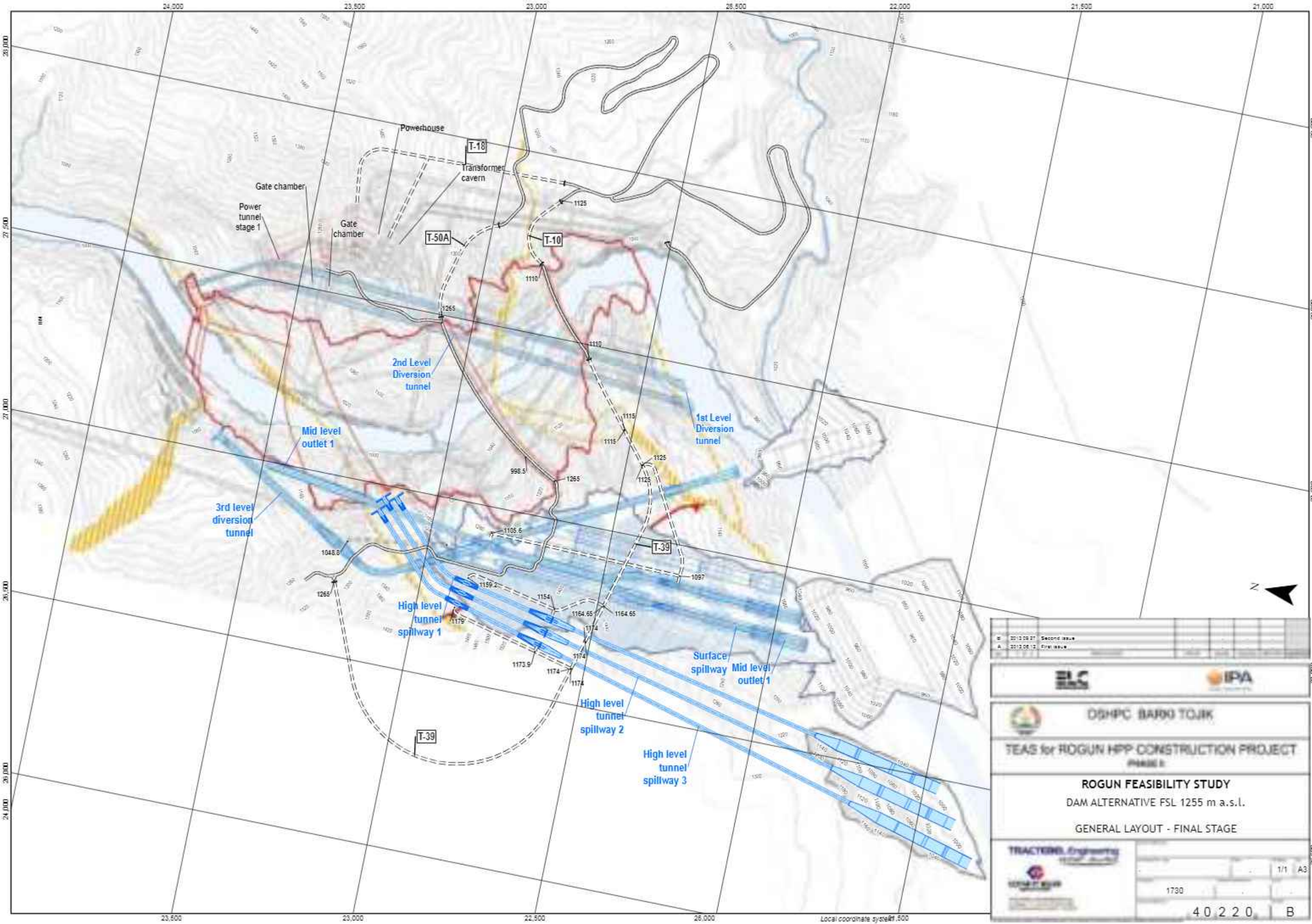
40218 | B

Local coordinate system



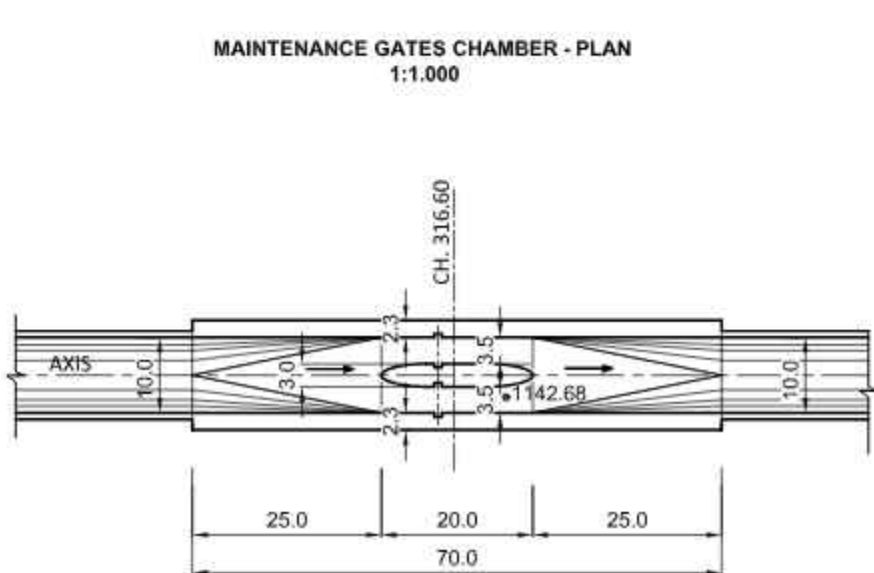
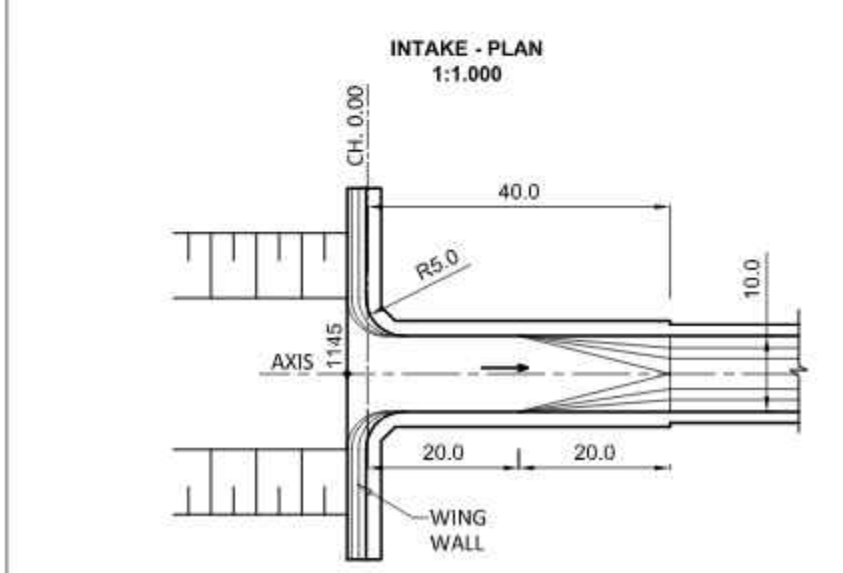
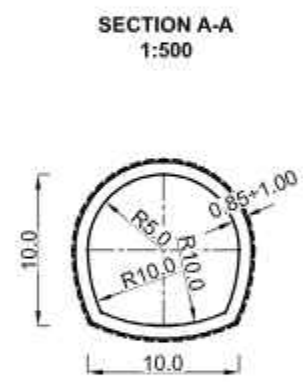
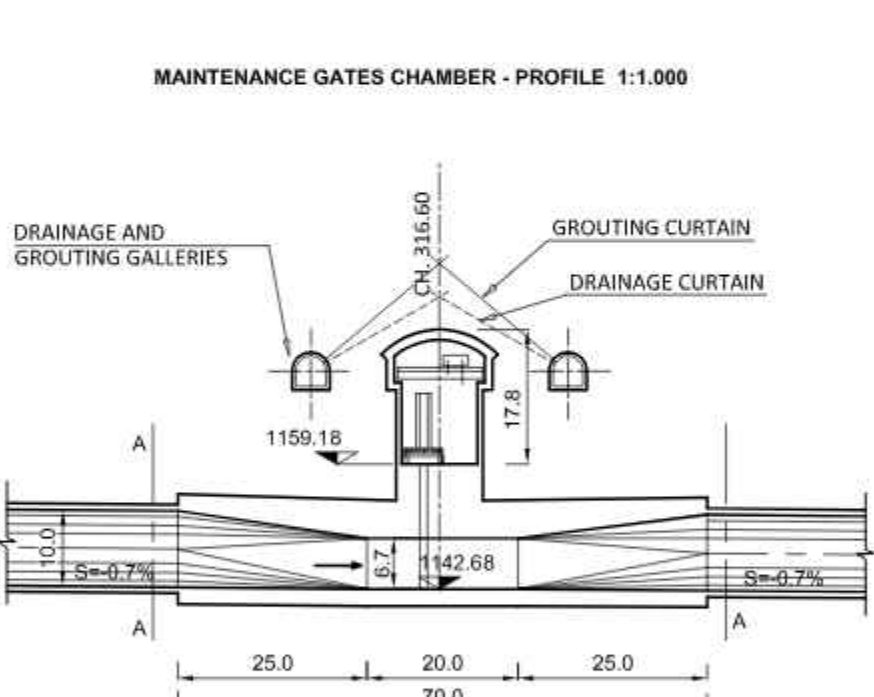
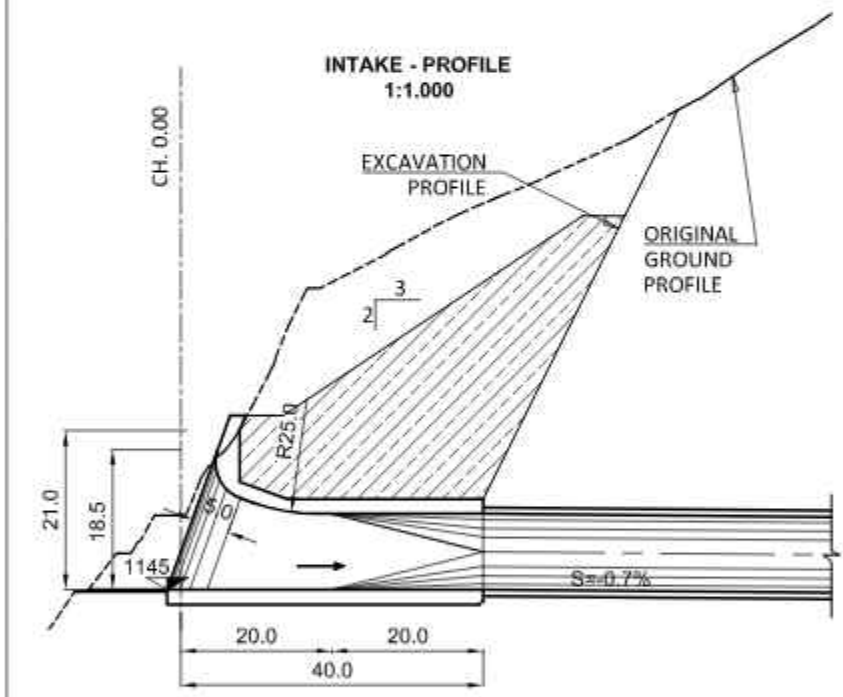
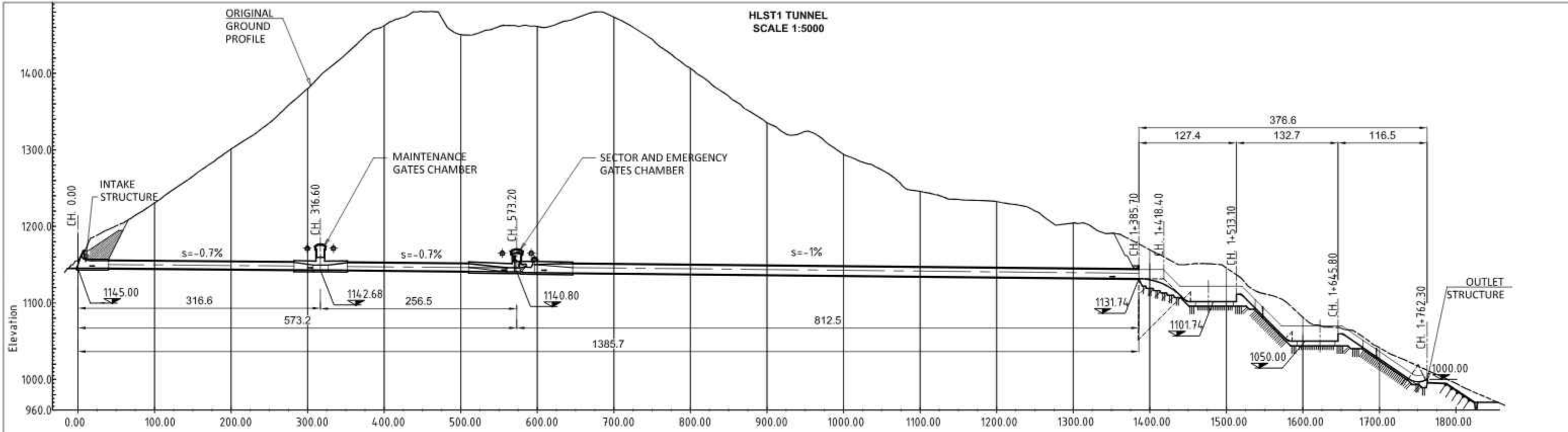
| | |
|---|---------------------------|
| A 2012.12.13 Second issue A 2012.06.12 First issue | |
| | |
| | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. GENERAL LAYOUT - FIRST STAGE | |
| | 1/1 A3 1730 40219 B |

Local coordinate system of 500



| | |
|---|-------------|
| © 2012 09 27 Second issue A 2012 06 12 First issue | |
| | |
| | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1255 m a.s.l. GENERAL LAYOUT - FINAL STAGE | |
| | 1/1 A3 |
| 1730 | 4 0 2 2 0 B |

Local coordinate system of 500



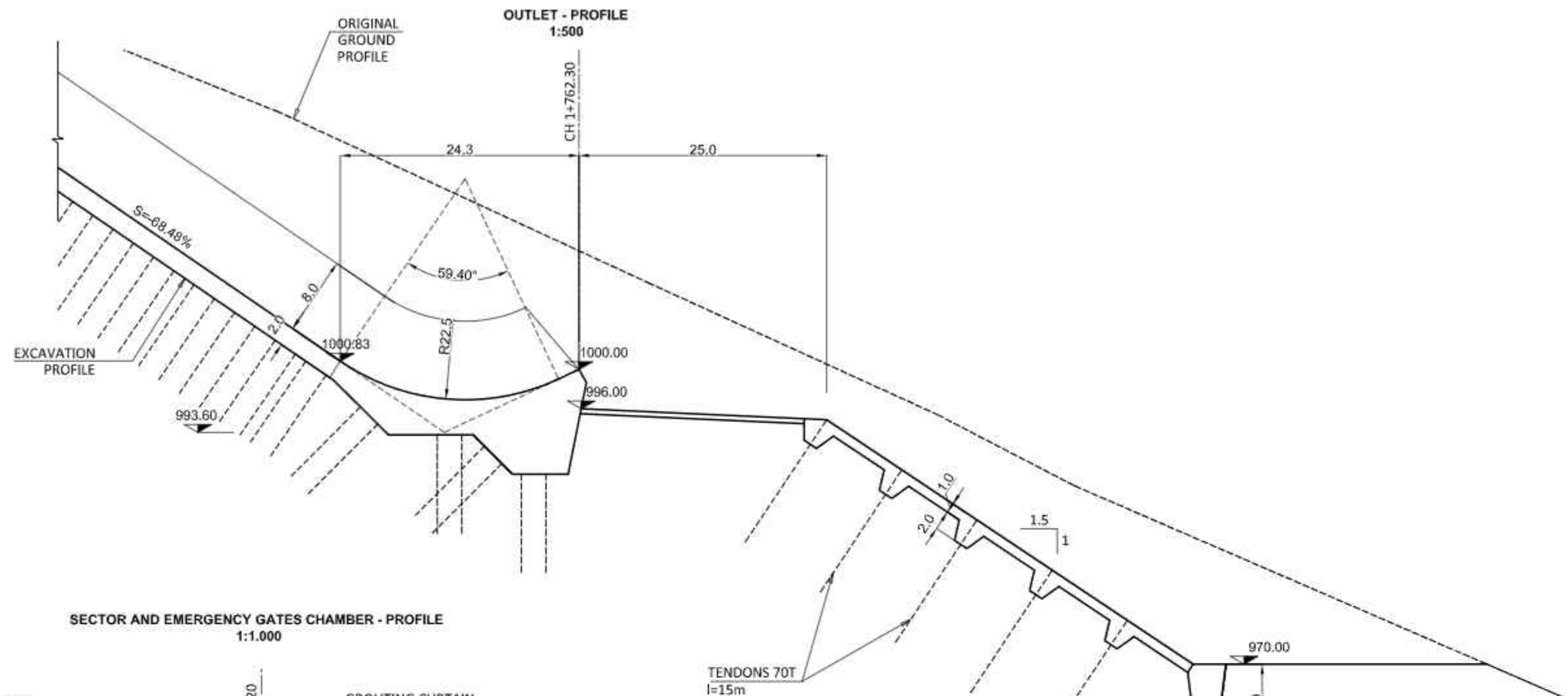
| | | | | | | | | | |
|------|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | PROTECTORS | | PYB | LDG/GR | LDG | |
| A | 2013 | 04 | 15 | PREL DESIGN | | PYB | LDG-PAR | LDG-PAR | |

OSHPC BARKI TOJK

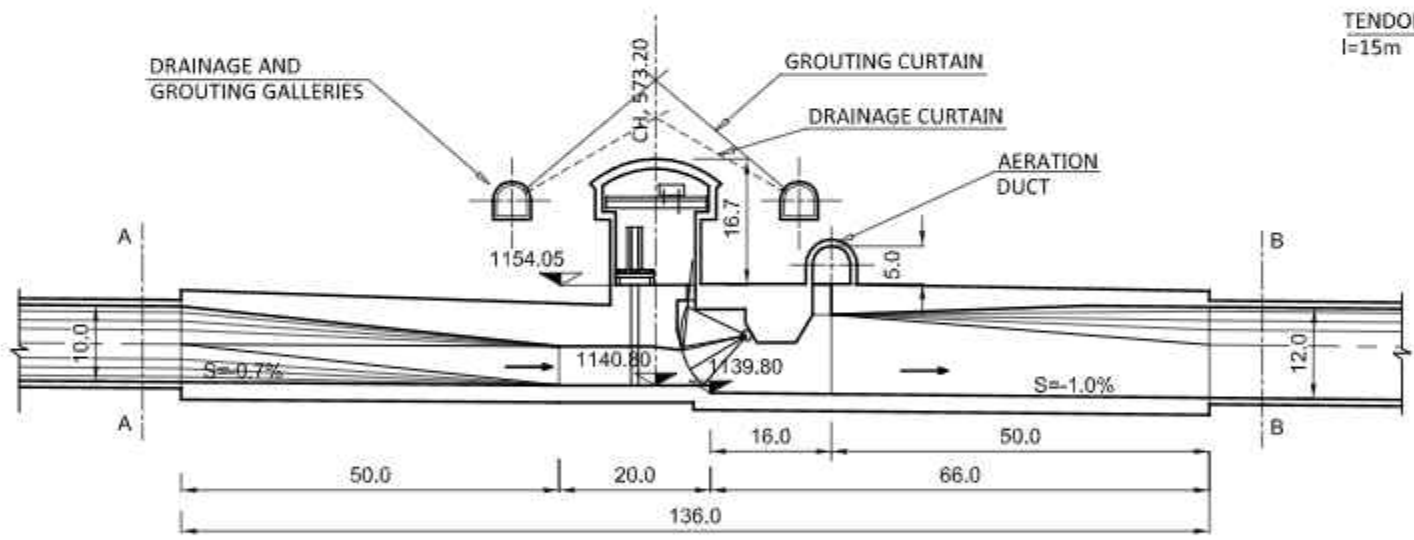
**TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II**

**DAM FSL 1255 - HLST1 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTION**

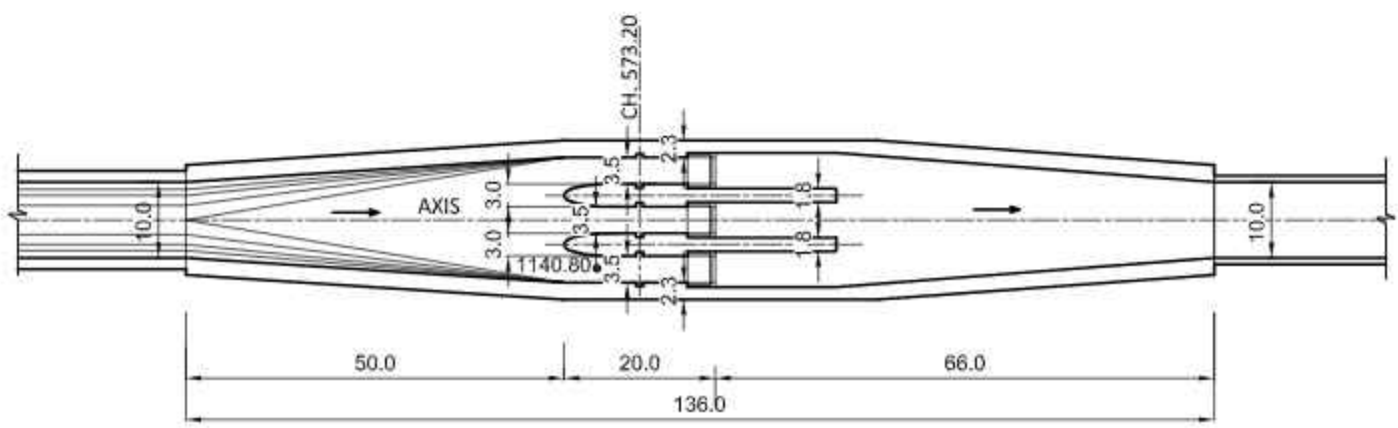
| | | | |
|--------------------|------------------------|-------------|------|
| Computer File .dwg | Scale | № Sheet | Size |
| 40_251 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | | Project | |
| | | 4_0_2_5_1_1 | B |



SECTOR AND EMERGENCY GATES CHAMBER - PROFILE
1:1.000

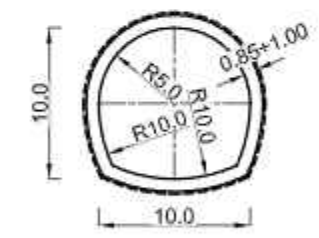


SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000

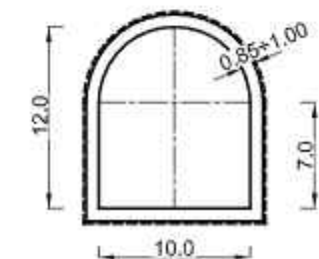


TENDONS 70T
l=15m

SECTION A-A
1:500



SECTION B-B
1:500



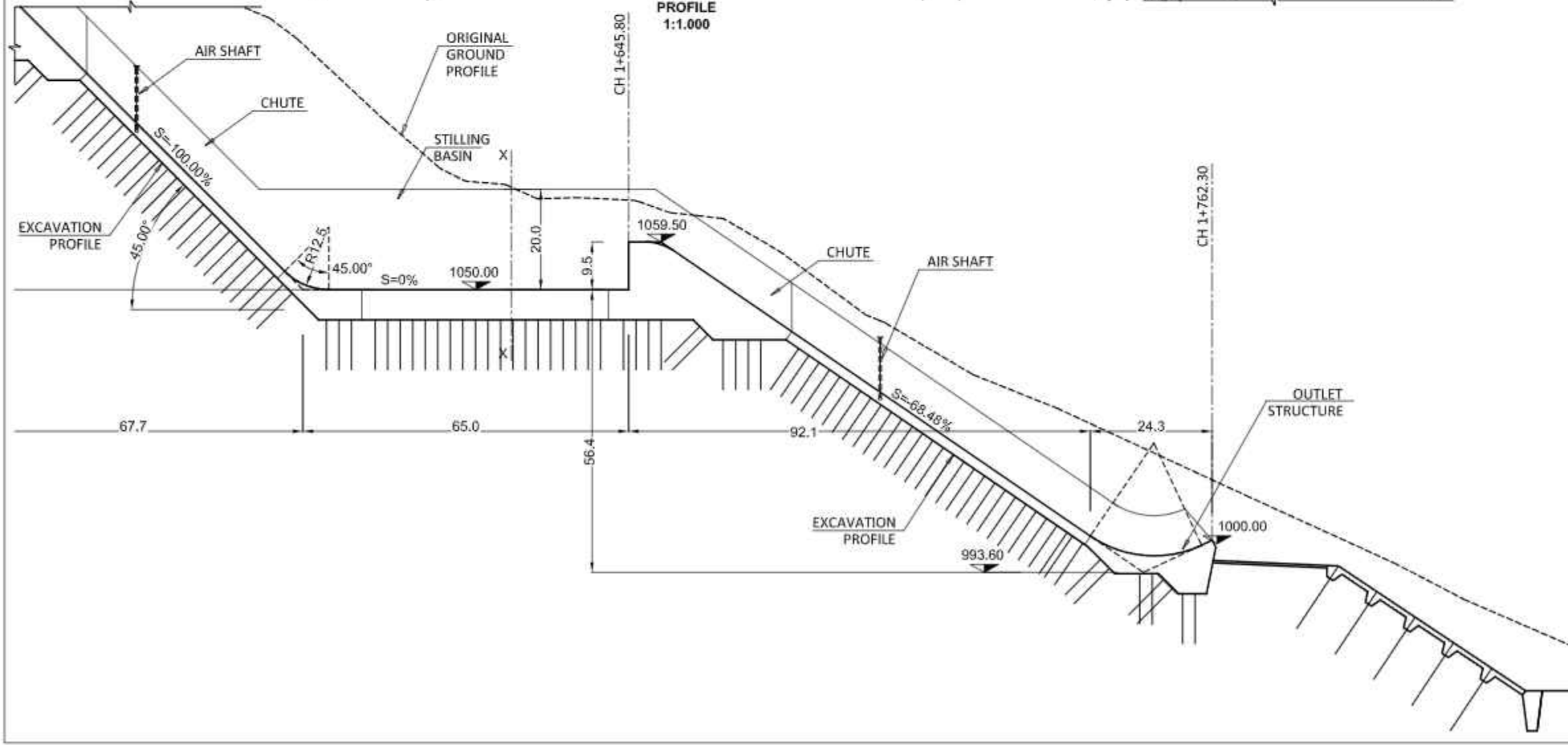
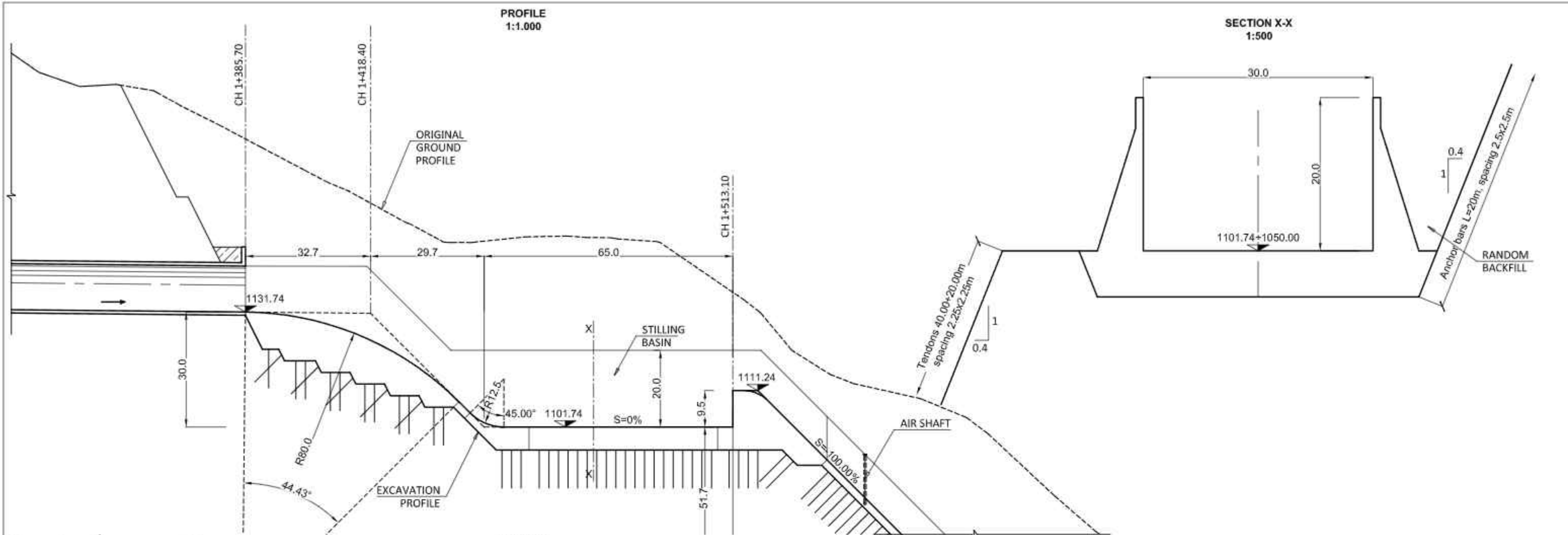
| NO. | DESCRIPTION | DATE | BY | CHECKED | APPROVED |
|-----|------------------------------|------|----|---------|----------|
| 1 | ISSUE FOR PRELIMINARY DESIGN | | | | |
| 2 | ISSUE FOR PRELIMINARY DESIGN | | | | |
| 3 | MODIFICATION | | | | |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1255 - HLST1 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | | | | |
|---|--|---------------|--|------------|---|----|
| TRACTEBEL Engineering GDF SVEZ | | Date | | VAR. | 1 | A3 |
| COYNE ET BELLIER | | Drawing No. | | 40 252 | | |
| PROJECT: TRACTEBEL S.A. 18, Rue de la République 1000 BRUXELLES BELGIUM | | Drawing Title | | 1730 | | |
| | | Scale | | 4,0,2,5,2, | B | |



| | | | | | | | | | |
|-----|------------|--------------|-----|---------------|----------|-------|---------|----------|-----------|
| REV | DATE | DESCRIPTION | BY | CHECKED | APPROVED | | | | |
| B | 2013 12 02 | PROTECTORS | PKB | LDG/GR | LDG | | | | |
| A | 2013 04 15 | FINAL DESIGN | PKB | LDG-PAB | LDG-PAB | | | | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |

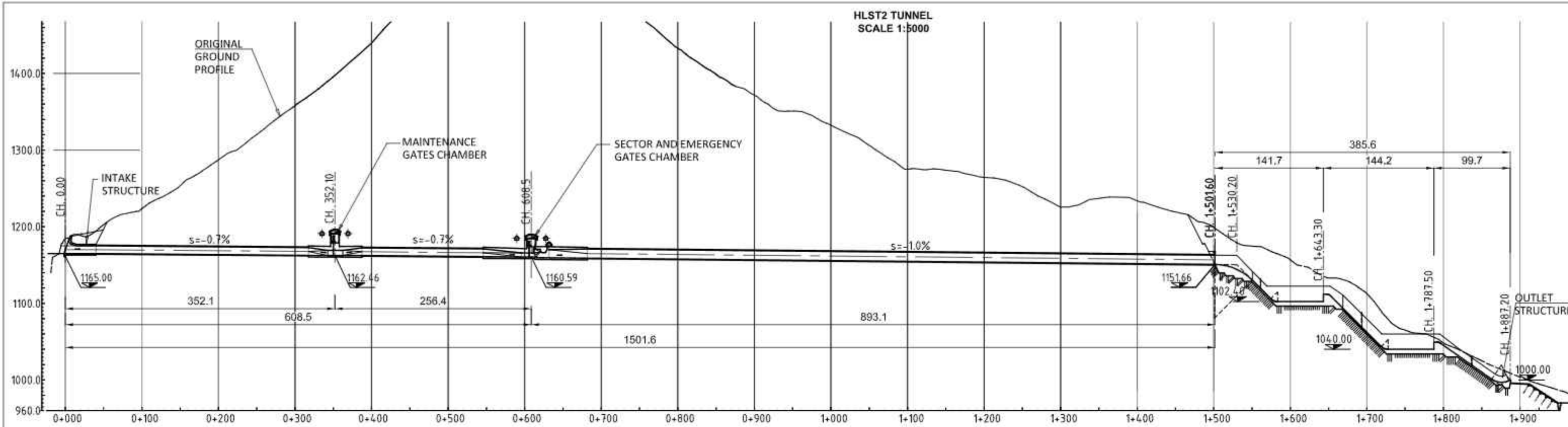


OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1255 - HLST1 TUNNEL
 OUTLET - PROFILE AND SECTIONS

| | | | | | | | |
|-----------------------|--|------------------------|--|-----------|--|------|--|
| TRACTEBEL Engineering | | Scale | | No. Sheet | | Size | |
| 40 253 | | VAR. | | 1 | | A3 | |
| 1730 | | Technical Substitution | | Level | | | |
| Drawing Reference | | 4,0,2,5,3, | | Revision | | B | |

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.

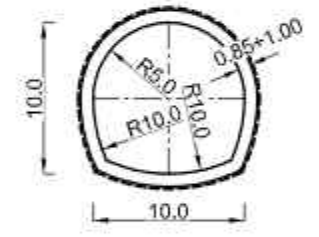
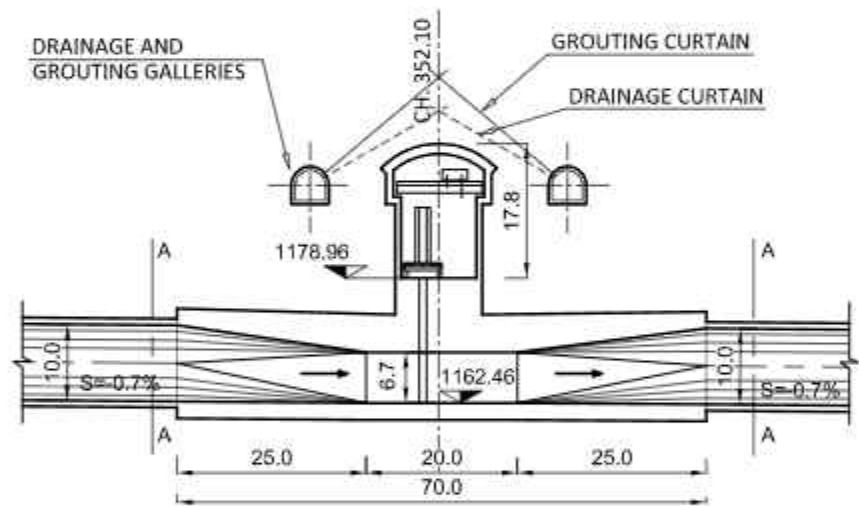
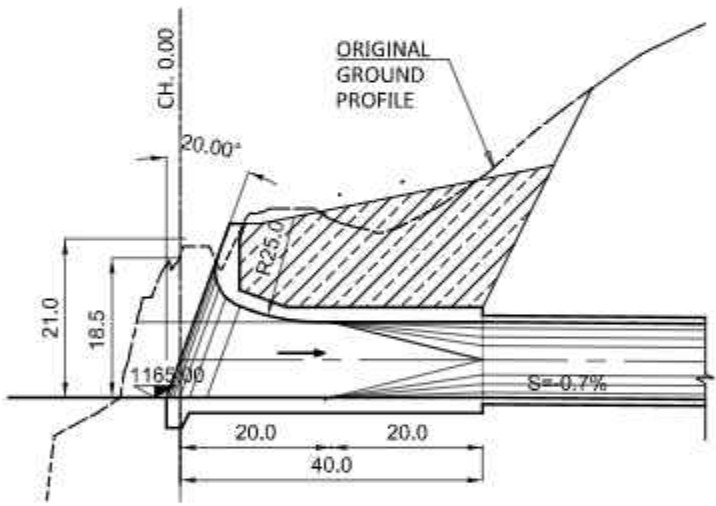


HLST2 TUNNEL
SCALE 1:5000

INTAKE - PROFILE
1:1.000

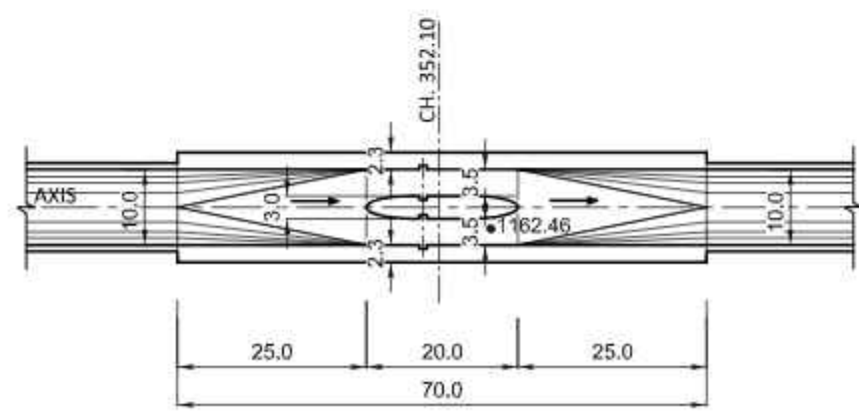
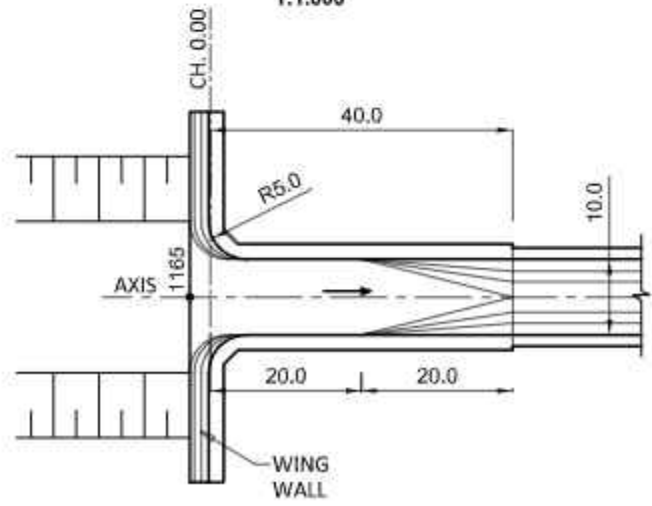
MAINTENANCE GATES CHAMBER - PROFILE 1:1.000

SECTION A-A
1:500



INTAKE - PLAN
1:1.000

MAINTENANCE GATES CHAMBER - PLAN
1:1.000



| | | | | | | | | | |
|------|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | PROTECTORS | | PYB | DS/GER | LD | |
| A | 2013 | 04 | 15 | PROJ DESIGN | | PYB | LDI-PAR | LDI-PAR | |



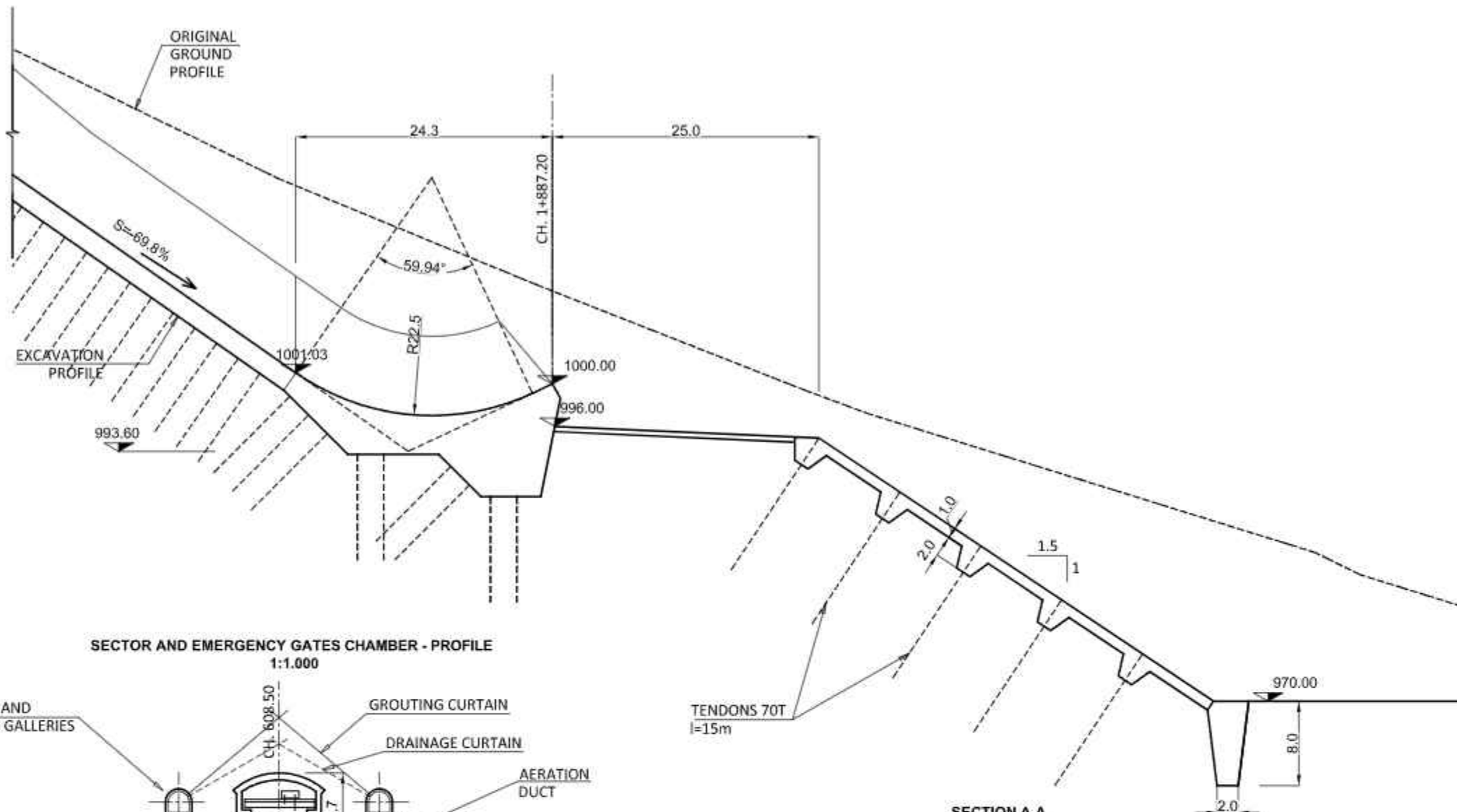
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FLS 1255 - HLST2 TUNNEL
PROFILE, INTAKE, GATES CHAMBER AND SECTION

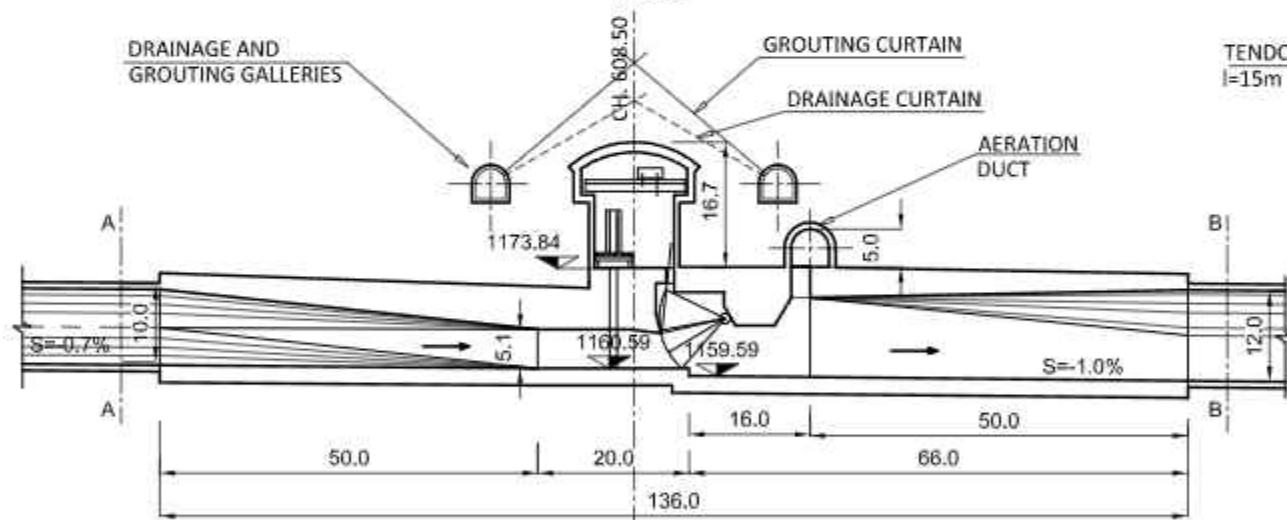
| | | | | | | | |
|-----------------------------------|--|------------------------|---------|--------------------|--|--|--|
| TRACTEBEL Engineering GDF SUEZ | | | | External Reference | | | |
| Computer File .dwg | | Scale | № Sheet | Size | | | |
| 40 254 | | VAR. | 1 | A3 | | | |
| Impression | | Technical Substitution | Level | | | | |
| 1730 | | | | | | | |
| Drawing Reference | | | | Revision | | | |
| 4, 0, 2, 5, 4, | | | | B | | | |

This document is the property of Tractebel Engineering, any duplication or reproduction in third parties is forbidden without its prior approval.

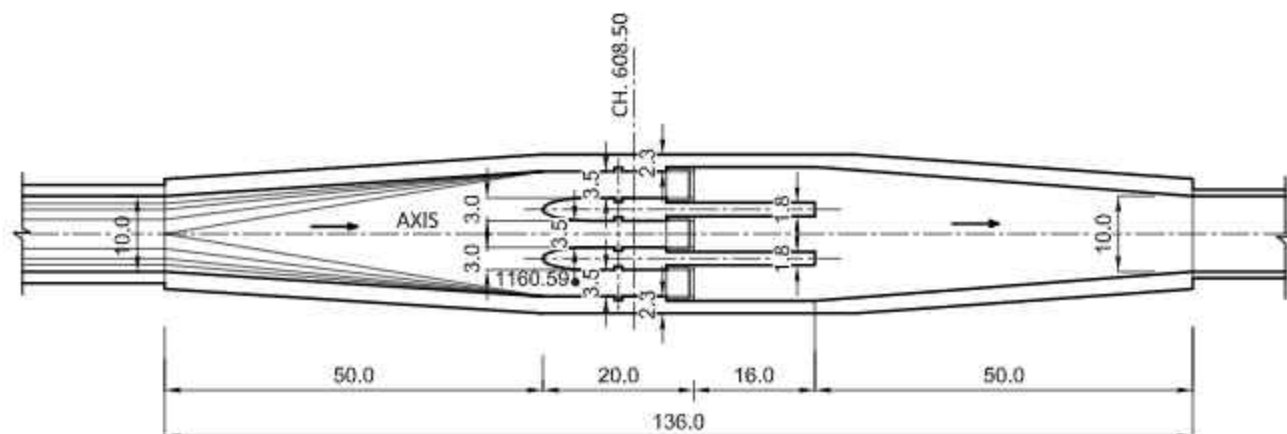
OUTLET - PROFILE
1:500



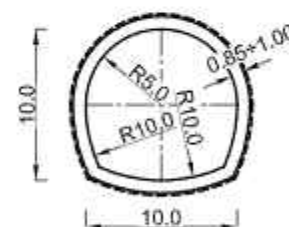
SECTOR AND EMERGENCY GATES CHAMBER - PROFILE
1:1.000



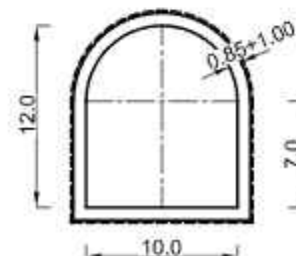
SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



SECTION A-A
1:500



SECTION B-B
1:500



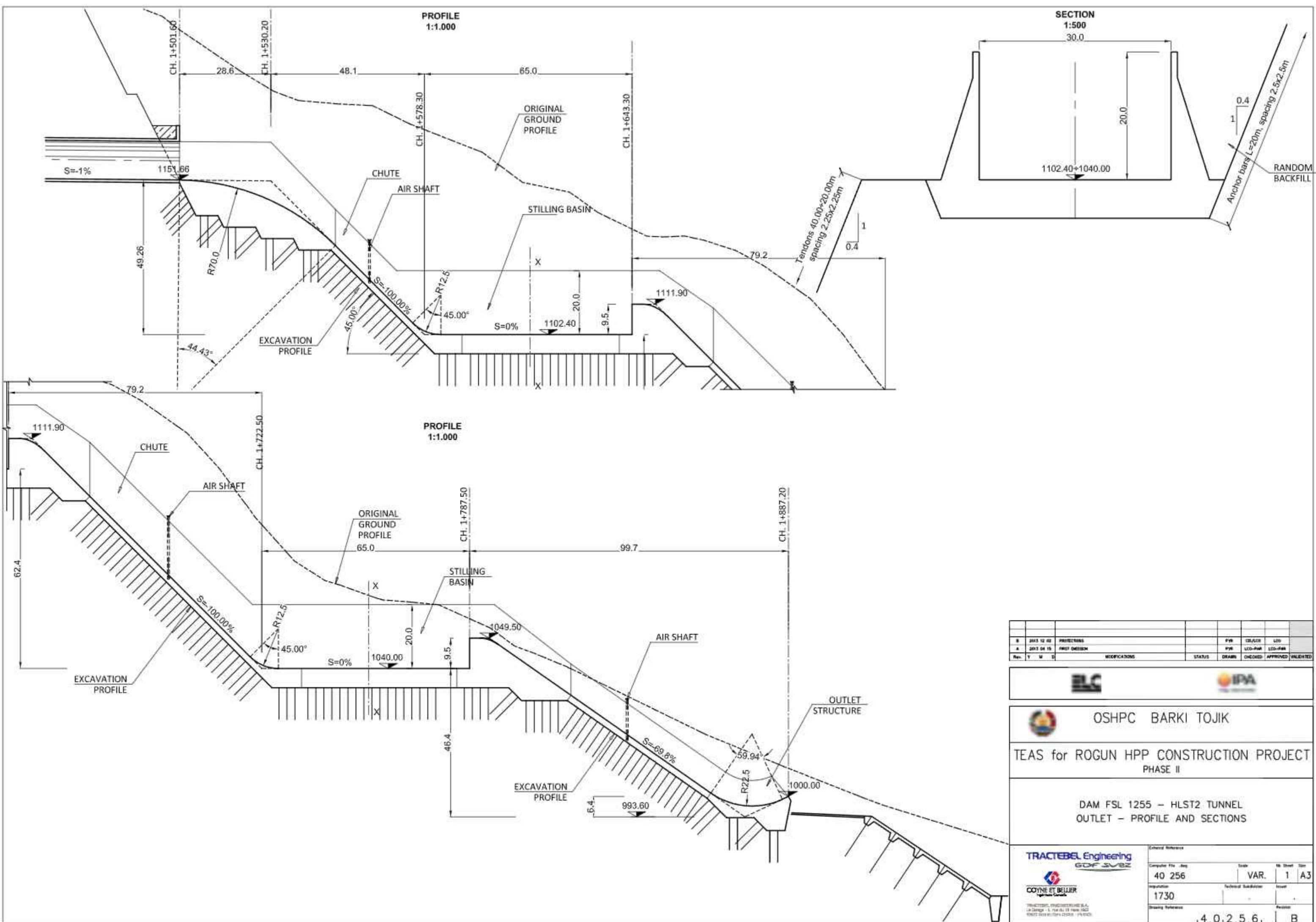
| | | | | | | | | | |
|------|------|----|----|----------------------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | VENTILATION AND PROTECTION | | PYB | DS/GER | LDI | |
| A | 2013 | 04 | 15 | PROJ DESIGN | | PYB | LDI-PAR | LDI-PAR | |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1255 - HLST2 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | |
|--------------------|------------|--------------|------|
| | | | |
| Computer File .dwg | 40 255 | Scale | VAR. |
| Registration | 1730 | Sheet Number | 1 |
| Drawing Reference | 4,0,2,5,5, | Sheet Size | A3 |



| | | | | | | | | | |
|-----|------------|--------------|-----|---------------|----------|-------|---------|----------|-----------|
| REV | DATE | DESCRIPTION | BY | CHECKED | APPROVED | | | | |
| B | 2013 12 02 | PROTECTORS | PKB | LDG/GR | LDG | | | | |
| A | 2013 04 15 | FINAL DESIGN | PKB | LDG-PAB | LDG-PAB | | | | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |



OSHPC BARKI TOJK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1255 - HLST2 TUNNEL
 OUTLET - PROFILE AND SECTIONS

TRACTEBEL Engineering
 GOF JVBZ

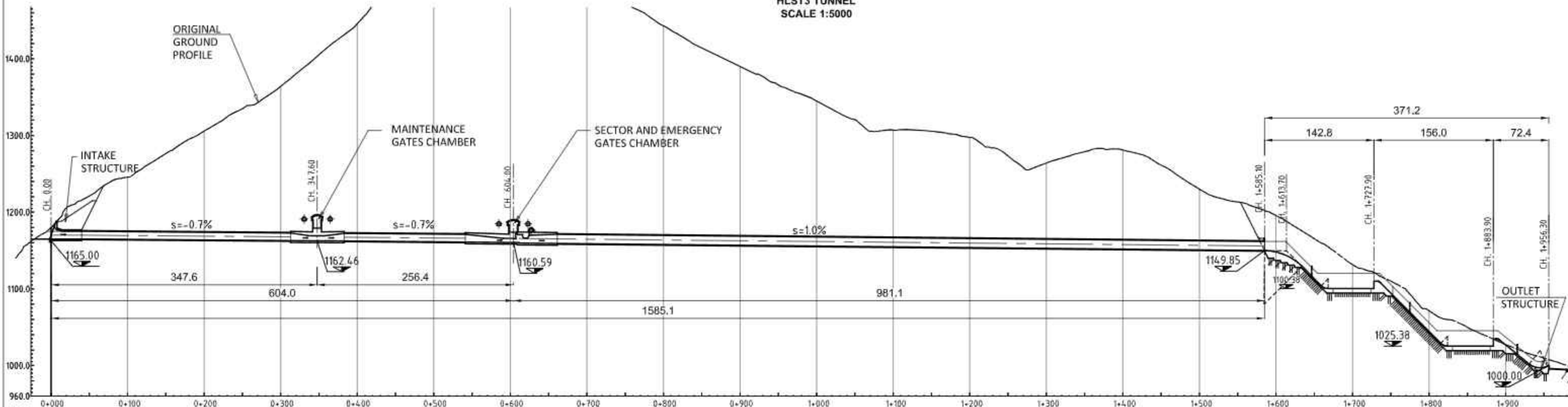
COYNE ET BELLIER
 TRACTEBEL ENGINEERING B.V.
 LA Grange - 5, rue du 19 Mars 1952
 91033 BRUNY (FRANCE)

| | | | | |
|--------------------|------------------------|-------|-------|------|
| Computer File .dwg | Scale | NO | Sheet | Size |
| 40_256 | VAR. | 1 | A3 | |
| Impression | Technical Substitution | Level | | |
| 1730 | | | | |
| Drawing Reference | | | | |
| | | | | |

4,0,2,5,6, B

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.

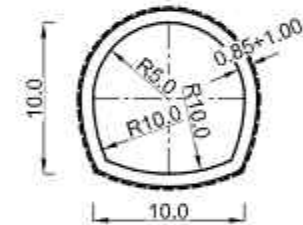
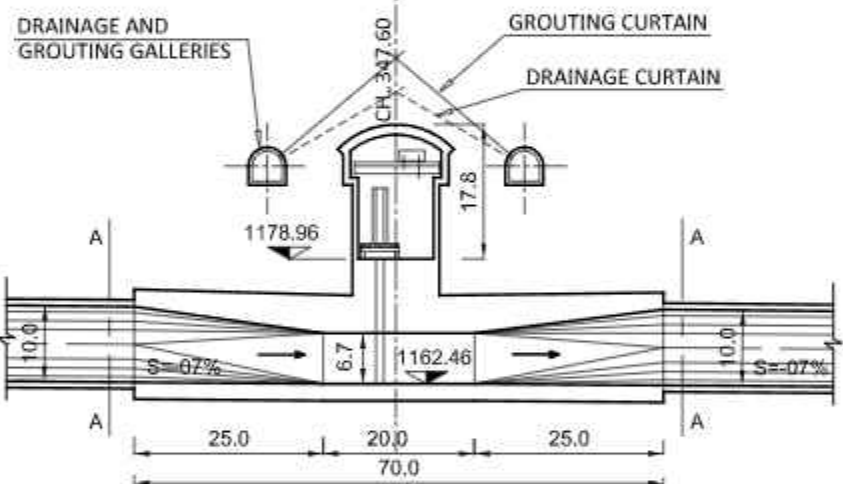
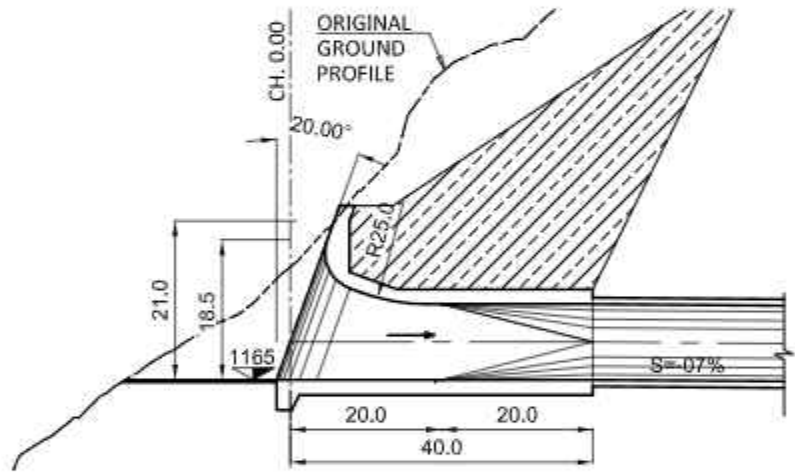
HLST3 TUNNEL
SCALE 1:5000



INTAKE - PROFILE
1:1.000

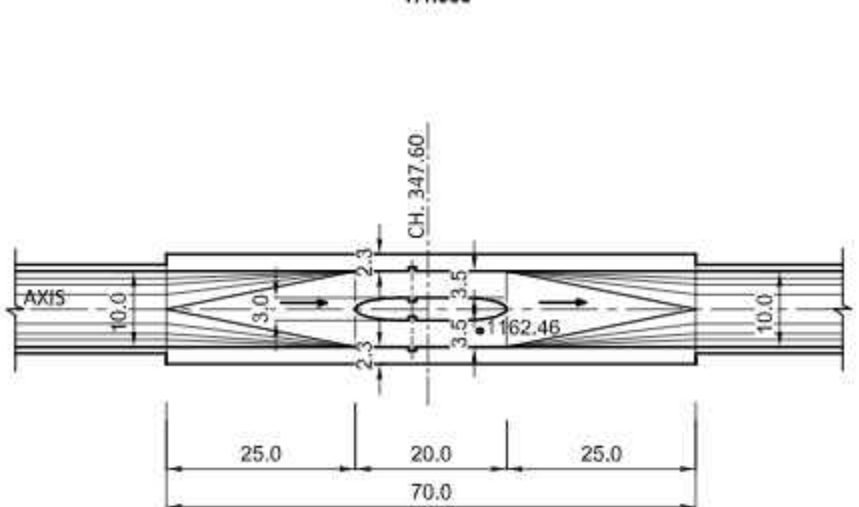
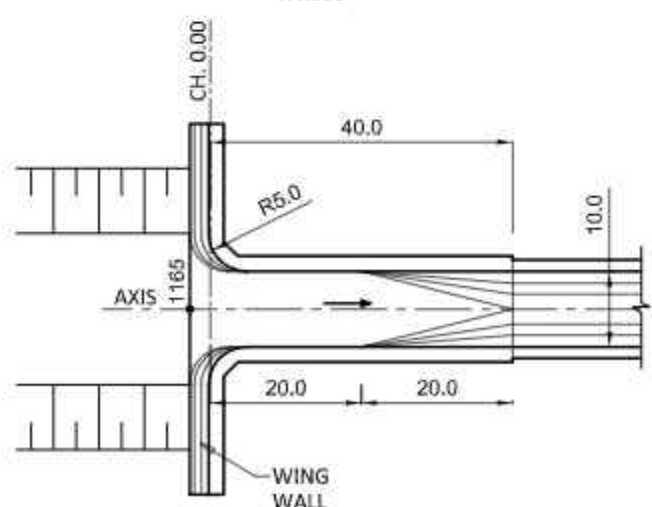
MAINTENANCE GATES CHAMBER - PROFILE
1:1.000

SECTION A-A
1:500



INTAKE - PLAN
1:1.000

MAINTENANCE GATES CHAMBER - PLAN
1:1.000



| | | | | | | | | | |
|------|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | PROTECTORS | | PYB | UDJ/GJR | UDJ | |
| A | 2013 | 04 | 15 | PREL DESIGN | | PYB | UDJ-PAR | UDJ-PAR | |



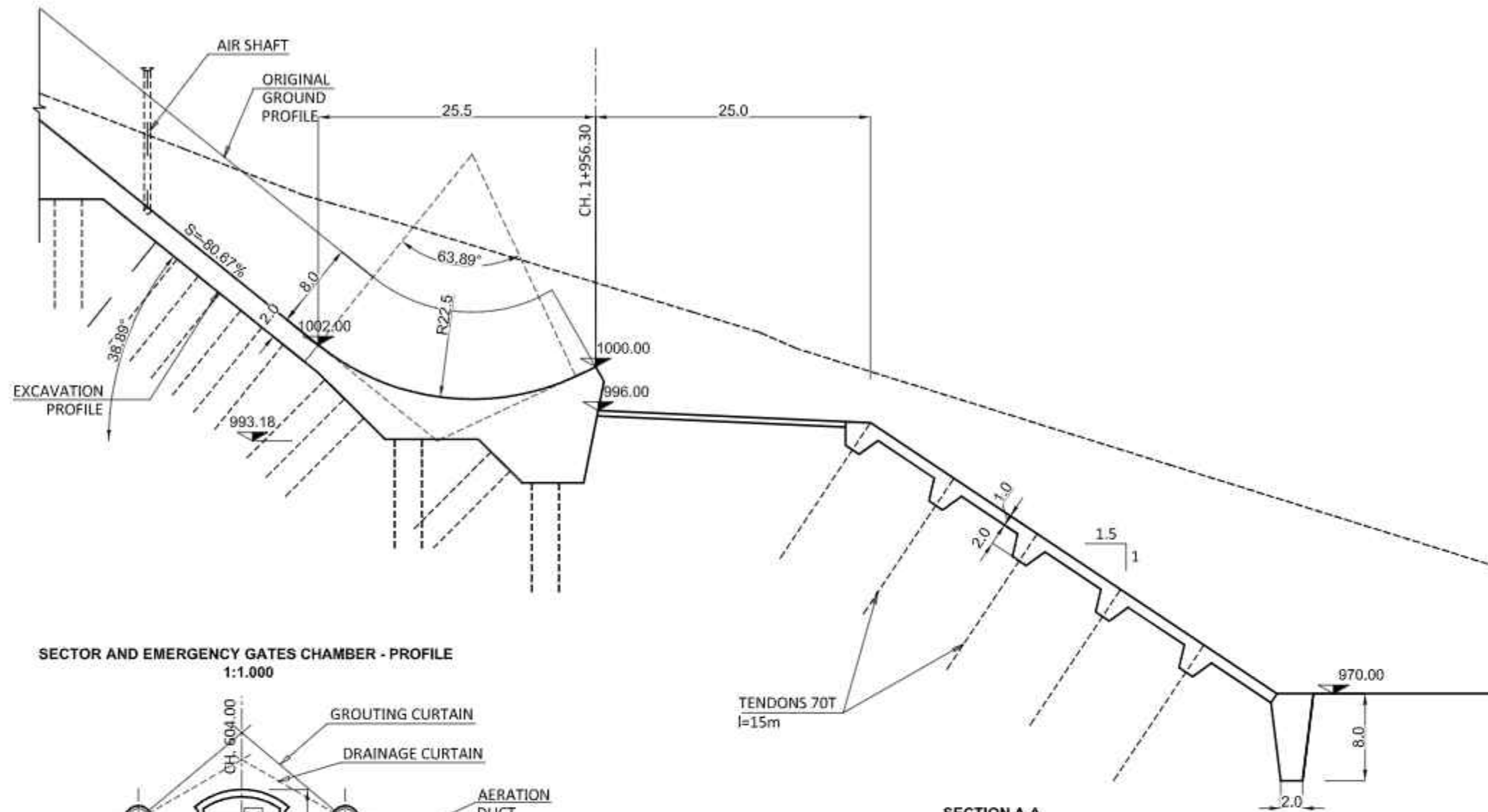
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1255 - HLST3 TUNNEL
PROFILE, GATES CHAMBER AND SECTION

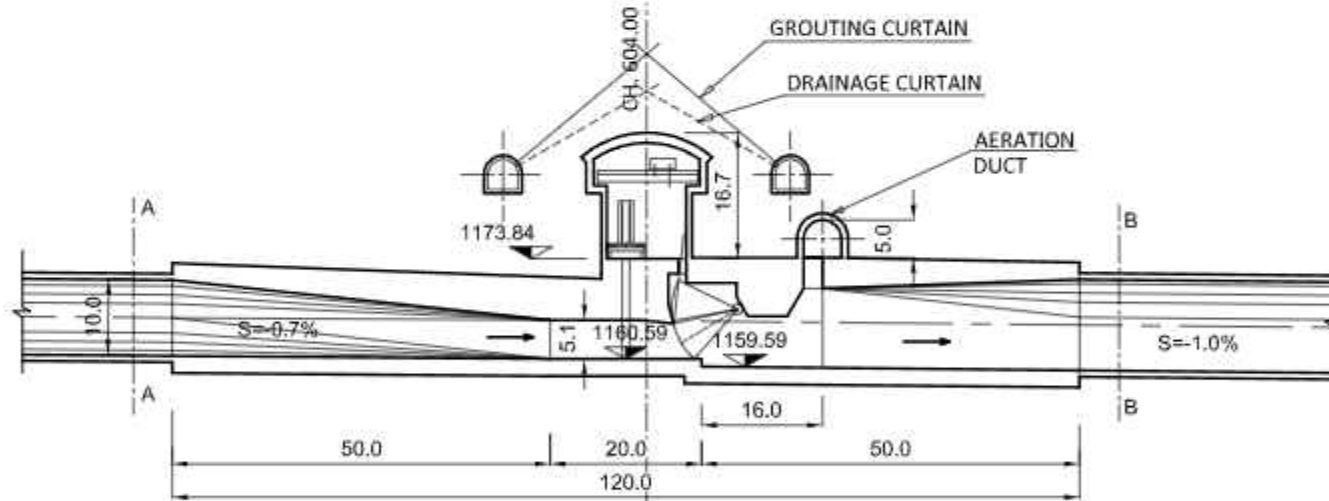
| | | | | |
|-------------------|--------------------|------------------------|-----------|------|
| | External Reference | | | |
| | Computer File .dwg | Scale | No. Sheet | Size |
| | 40_257 | VAR. | 1 | A3 |
| | Impression | Technical Substitution | Level | |
| 1730 | | | | |
| Drawing Reference | | Revision | | |
| 4_0_2_5_7_1 | | B | | |

This document is the property of Tractebel Engineering, any duplication or transcription to third parties is forbidden without its prior approval.

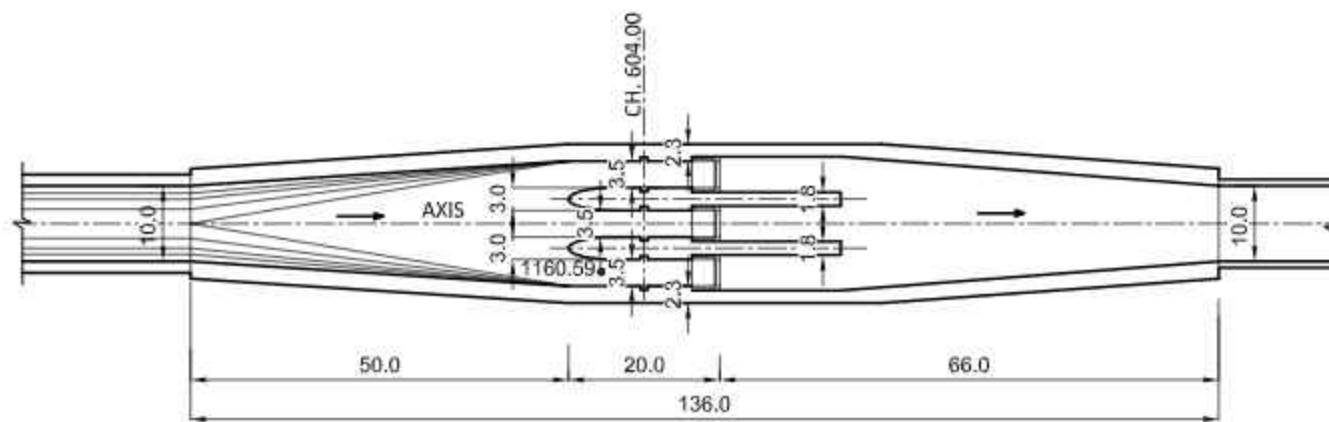
OUTLET - PROFILE
1:500



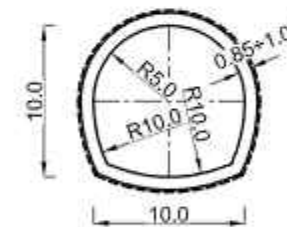
SECTOR AND EMERGENCY GATES CHAMBER - PROFILE
1:1.000



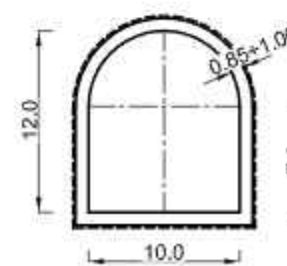
SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



SECTION A-A
1:500



SECTION B-B
1:500



| Rev. | Y | M | D | DESCRIPTION | STATUS | DRWN | CHEK | APPRV | VALIDATED |
|------|------|----|----|----------------------------|--------|------|---------|---------|-----------|
| B | 2013 | 12 | 02 | VENTILATION AND PROTECTION | | PYB | DSJ/GSR | LDJ | |
| A | 2013 | 04 | 15 | PROJ DESIGN | | PYB | LDJ-PAB | LDJ-PAB | |
| | | | | MODIFICATIONS | | | | | |

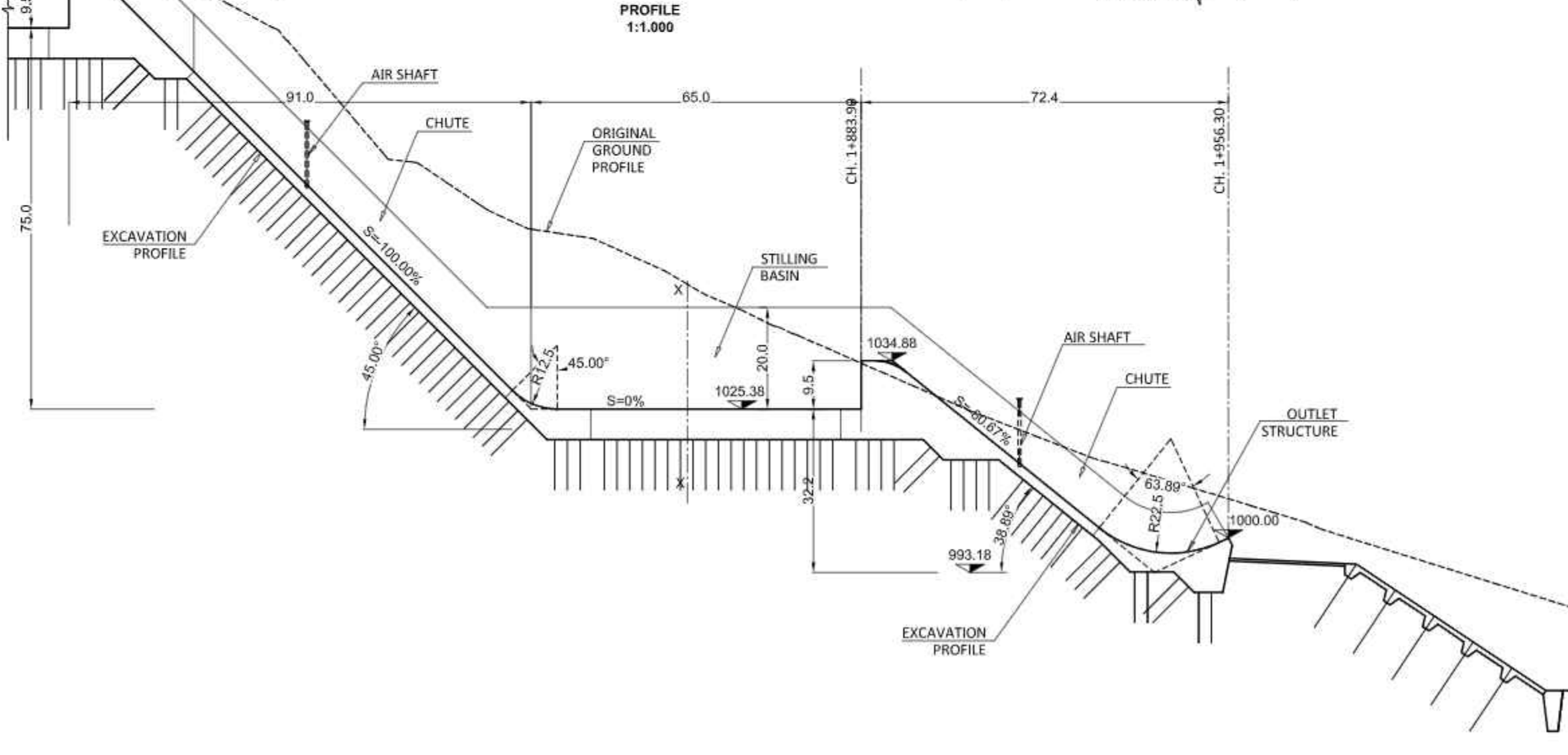
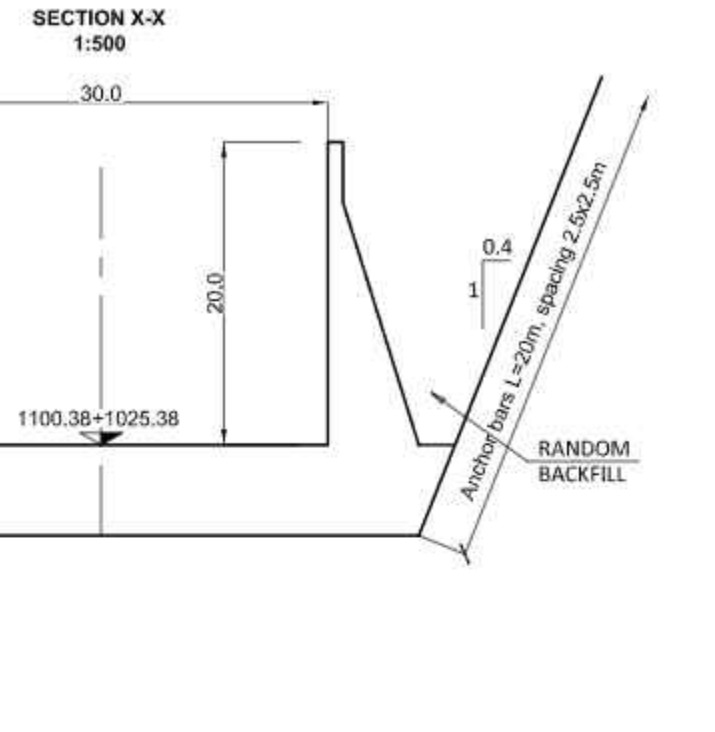
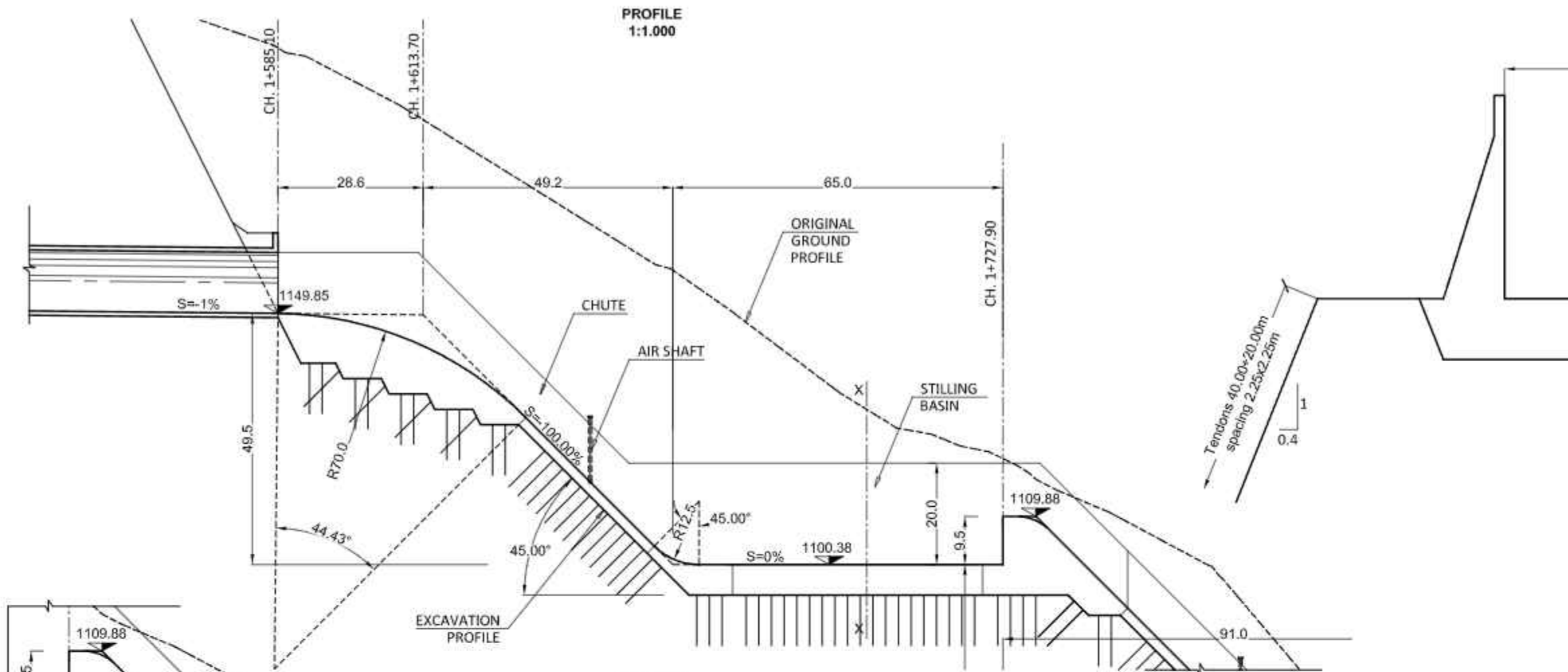


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1255 - HLST3 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| Computer File | Scale | NO | Sheet | Size |
|-------------------------------------|-------|----|-------|------|
| 40_258 | VAR. | 1 | A3 | |
| 1730 | | | | |
| Drawing Reference: 4, 0, 2, 5, 8, B | | | | |

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.



| | | | | | | | | | |
|-----|------------|-------------|-----|---------------|----------|-------|---------|----------|-----------|
| REV | DATE | DESCRIPTION | BY | CHECKED | APPROVED | | | | |
| B | 2013 12 02 | PROTECTION | PFM | LDG/GR | LDG | | | | |
| A | 2013 04 15 | PROF DESIGN | PFM | LDG-PAR | LDG-PAR | | | | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |

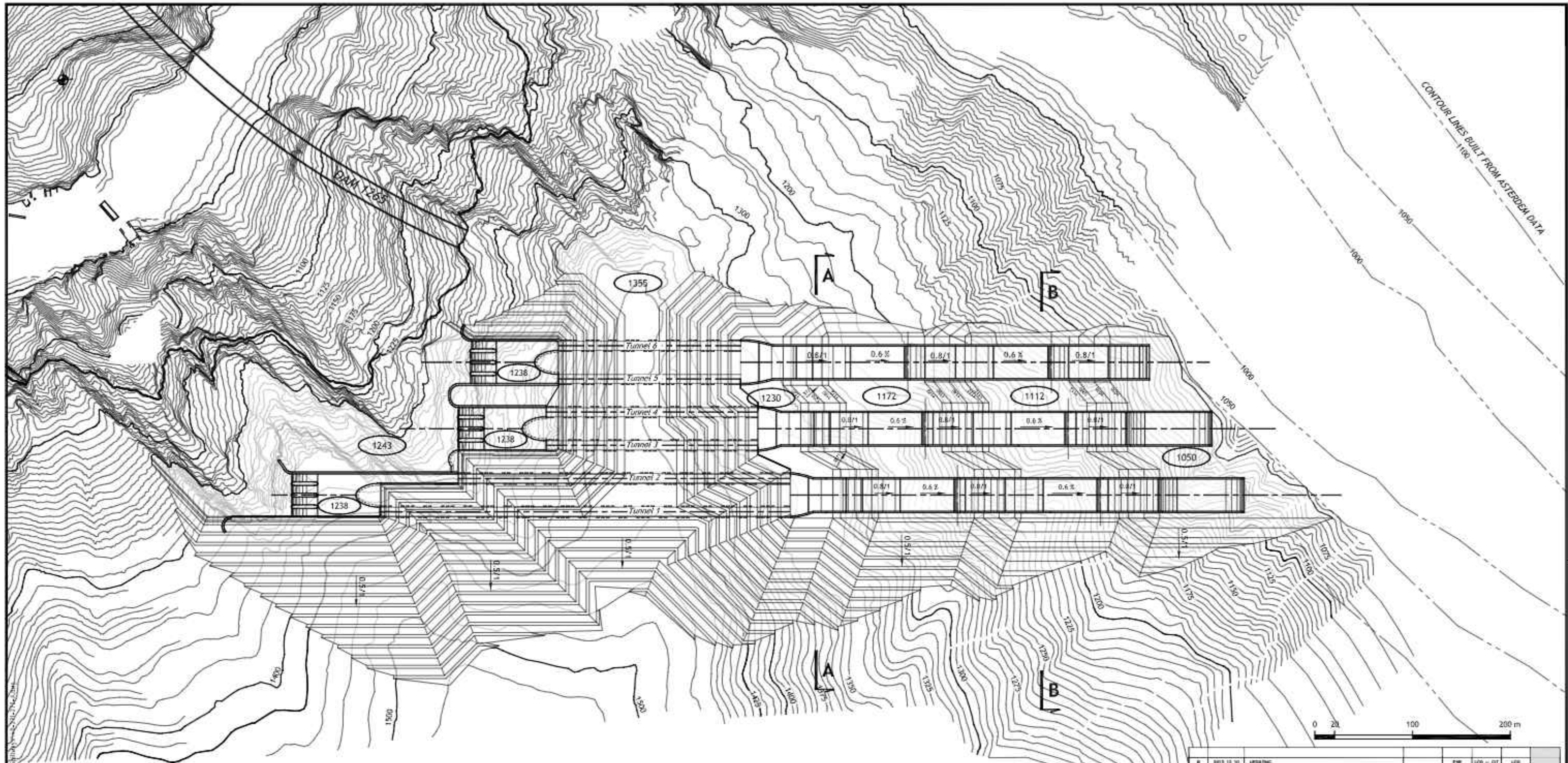


OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1255 - HLST3 TUNNEL
 OUTLET - PROFILE AND SECTIONS

| | | | |
|--------------------|------------------------|-----------|------|
| | | | |
| | | | |
| Computer File .dwg | Scale | No. Sheet | Size |
| 40_259 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | Revision | | |
| | 4, 0, 2, 5, 9, | B | |


This document is the property of Tractebel Engineering, any duplication or distribution to third parties is forbidden without its prior approval.



P:\Armenia\1781\1781_S.Engel_Frambly_Shop\13 - D.ABOPASTERSVITED - PHASE 2 DRAWINGS 3D\ENGLISH\1301\1301_27.dwg

| | | | | | | | | | |
|-----|---|------------|--------------|---------------|--------|-------|---------|----------|-----------|
| Rev | 0 | 2013 12 10 | IPAC/INC | | | | | | |
| Rev | A | 2015 05 12 | FINAL DESIGN | | | | | | |
| Rev | Y | W | D | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |



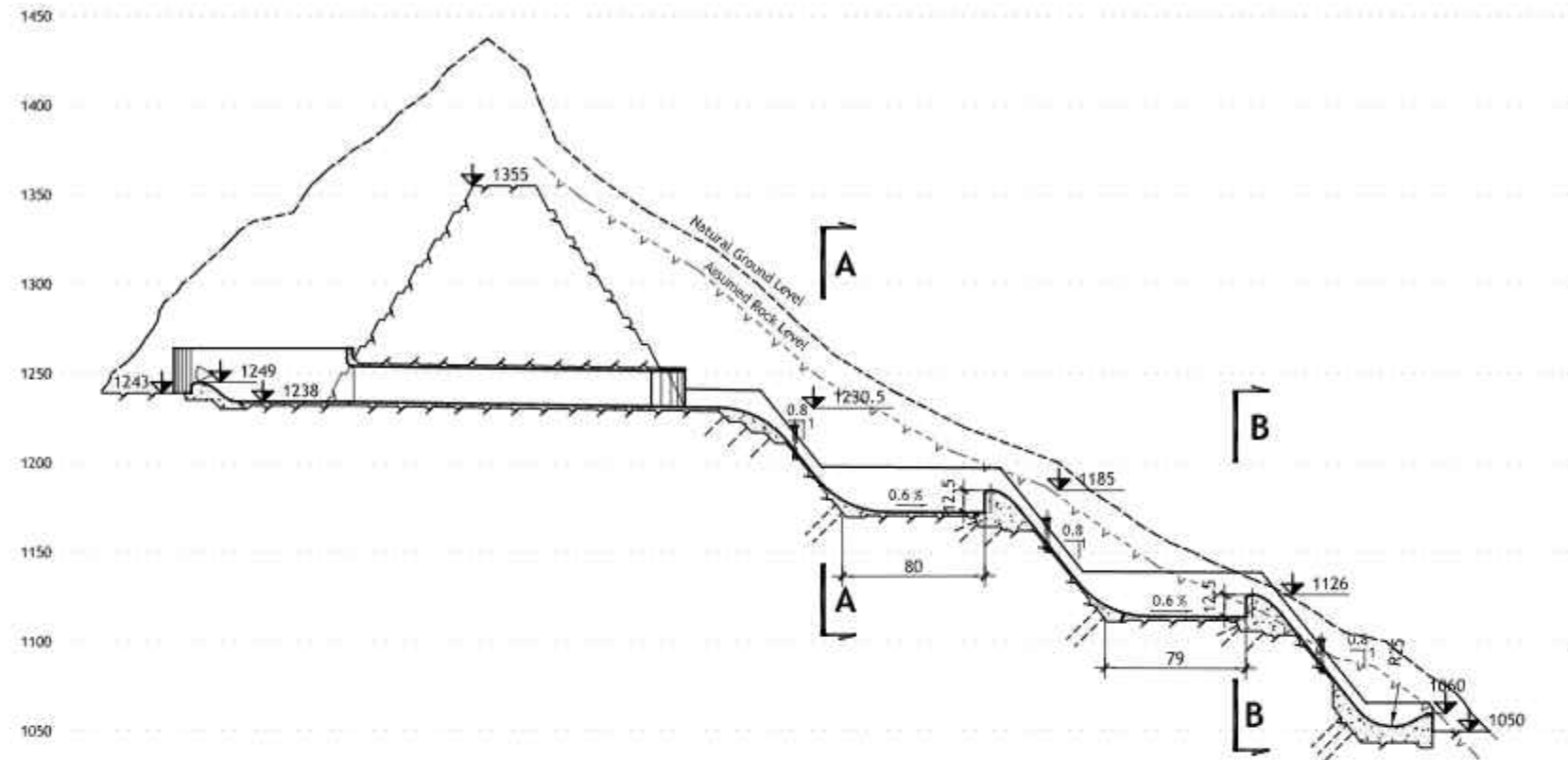

OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1255 m.a.s.l.
 SURFACE SPILLWAY
 FINAL STAGE
 PLAN VIEW

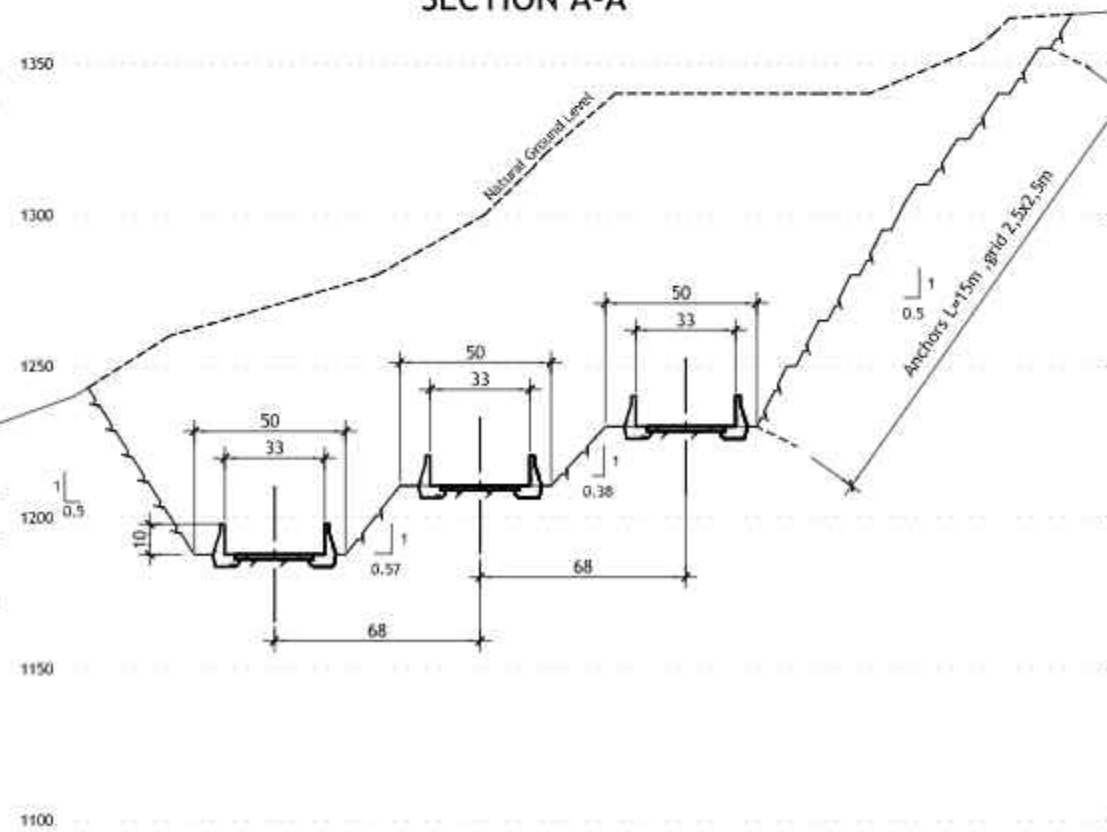
| | | | |
|--|---------------------|------------------------------|------------------|
|   | External Reference | | |
| | Computer File: .dwg | Scale | No. Sheet / Size |
| | 40-271-272-A | 1/2000 | 1/5 A1 |
| | Project: P 002 378 | Technical Substitution: FORM | Issue: HYDRO |
| Drawing Reference | 4.0.2.7.1 | | B |

As approved by the project of Tractebel Engineering, any modification or reproduction to these plans is forbidden without the prior approval.

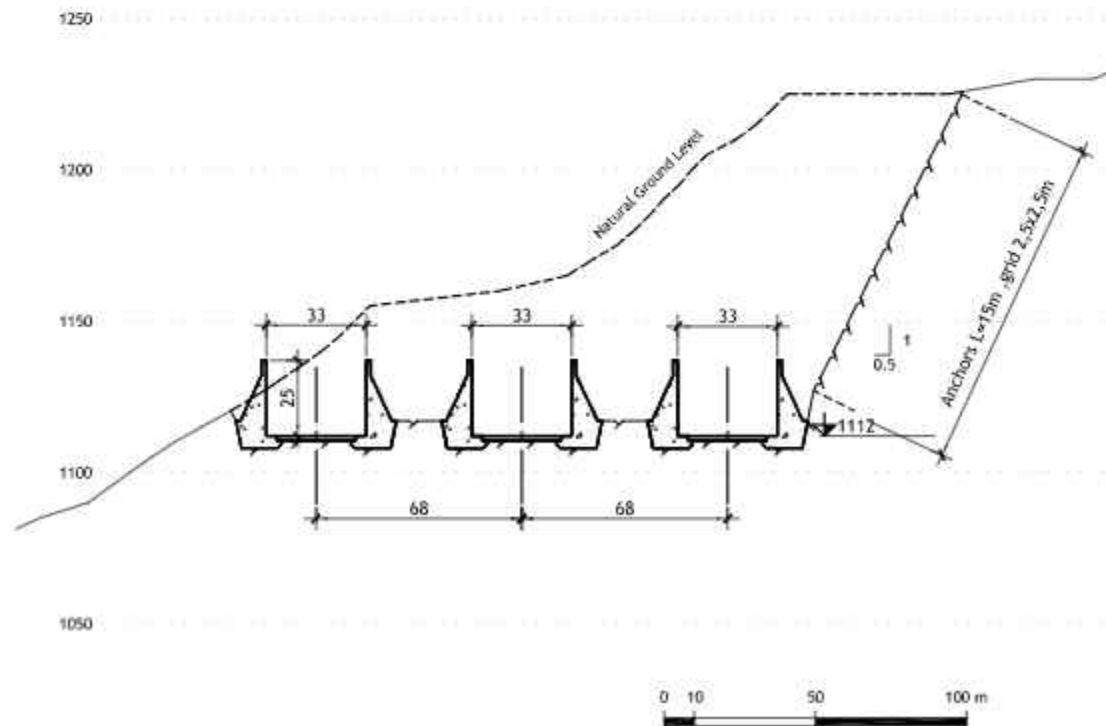
LONGITUDINAL PROFILES ALONG TUNNEL 5 & 6 AXIS



SECTION A-A

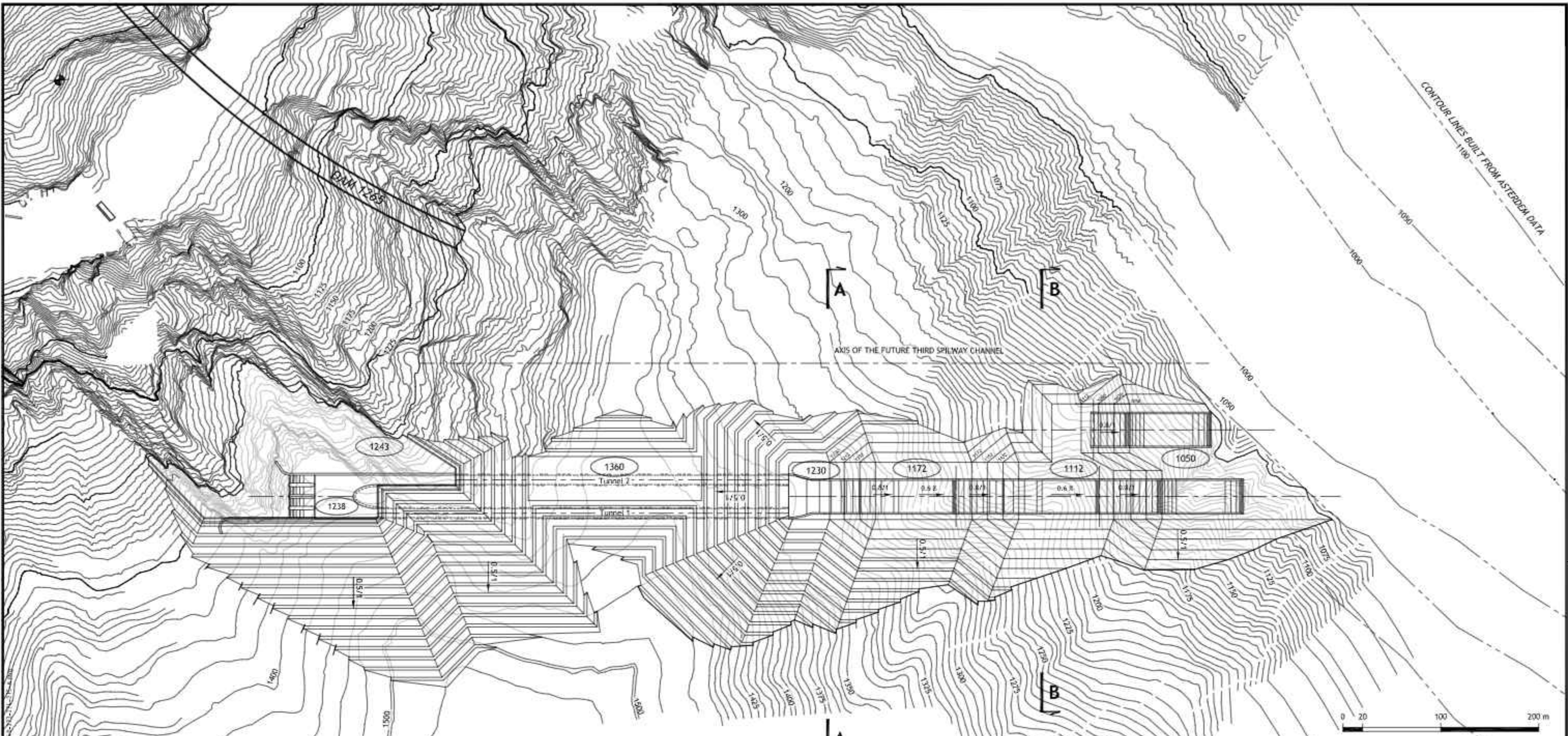


SECTION B-B



| | |
|---|---|
| | |
| OSHPC BARKI TOJIK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | |
| DAM ALTERNATIVE FSL=1255 m.a.s.l. SURFACE SPILLWAY FINAL STAGE LONGITUDINAL PROFILE ALONG TUNNEL 5 & 6 AXIS & SECTIONS | |
| TRACTEBEL ENGINEERING S.R.L. Via D'Adda, 5 - 10126, TORINO, ITALY 01123 - 01123 - 01123 - 01123 | Scale: 1/2000 Drawing No: 40-271-272-A Project No: P.002.378 Date: 4.02.2024 Revision: A1 |

C:\Users\user\Documents\1723_HPP_Rogun_Feasibility_Study_V2 - CAD\Figures\17100 - PHASE 2 DAMS\3D CHS\3D CHS\17100_272_272-A.dwg



| | | | | | | | | | | |
|-----|------------|---------------|---------------|--|--------|-------|---------|----------|-----------|--|
| R | 2013-10-10 | UPDATING | | | | | | | | |
| A | 2013-08-10 | FIRST EDITION | | | | | | | | |
| Rev | | | MODIFICATIONS | | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED | |






OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1255 m.a.s.l.
SURFACE SPILLWAY
FIRST STAGE
PLAN VIEW

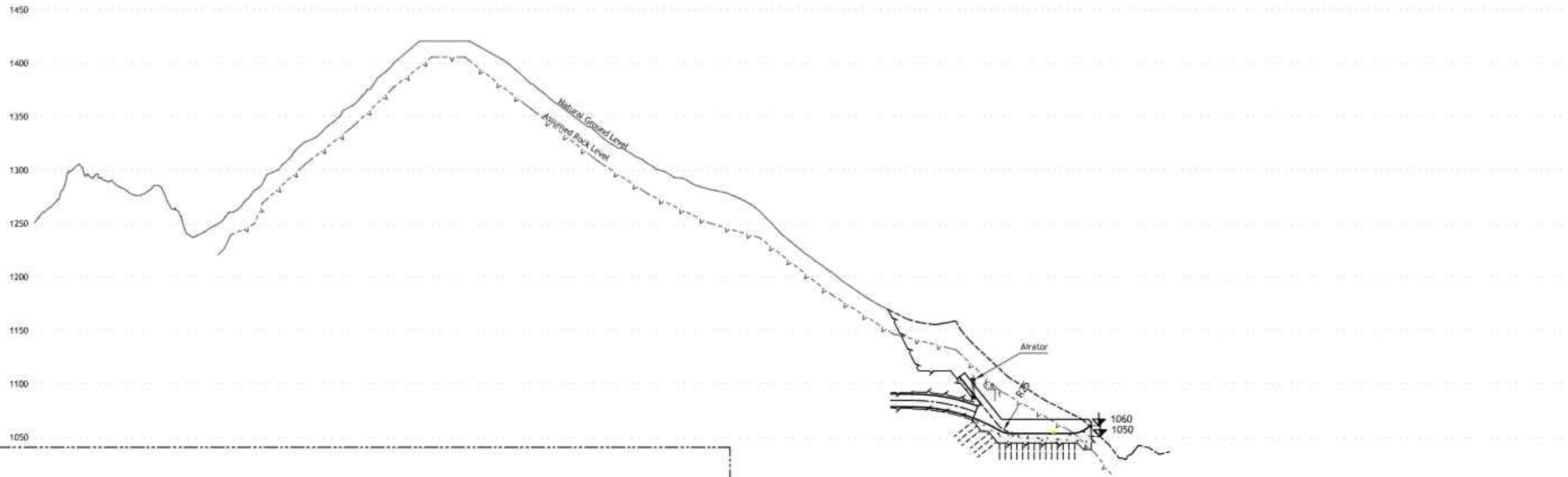


TRACTEBEL Engineering
GDF SUEZ

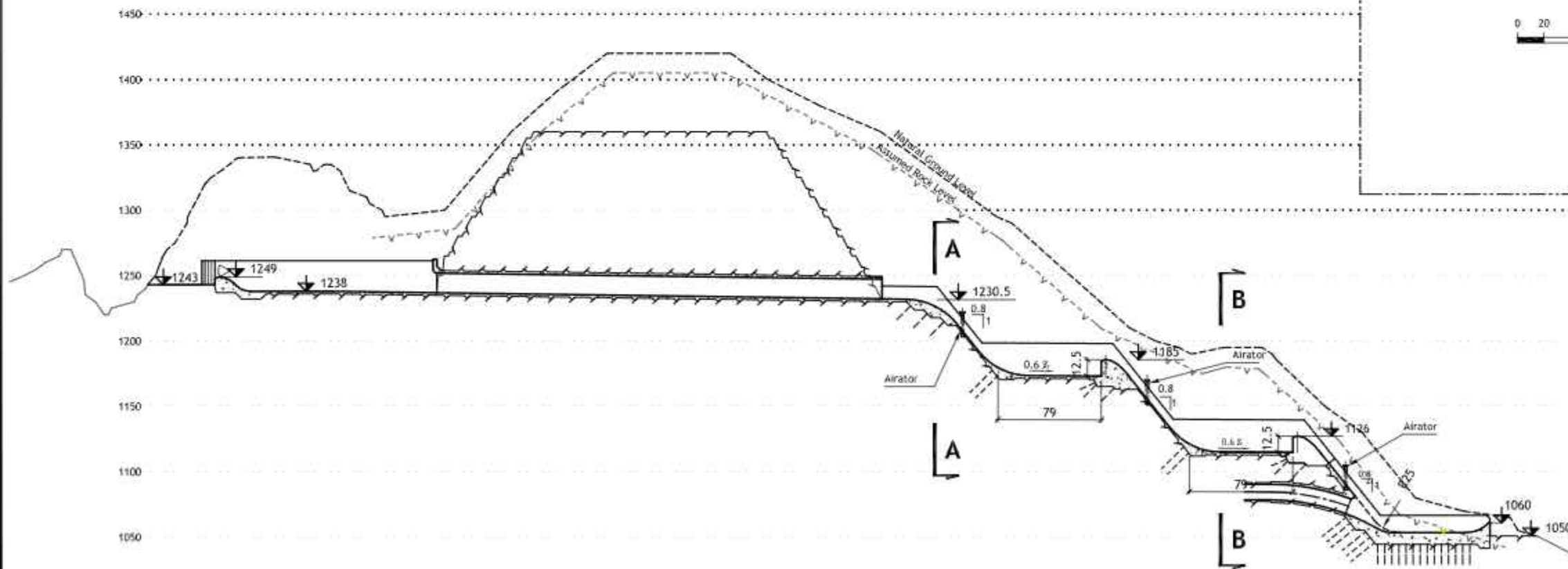
| | | | |
|--|-------------------------------------|-----------------------|-----------------|
| Computer File: 40-273-274-275-A | Scale: 1/2000 | No. Sheet: 3/5 | Size: A1 |
| Project: P 002 378 | Technical Substitution: FORM | Issue: HYDRO | |
| Drawing Reference: 4.0.2.7.3 | | Revision: B | |

As approved by the project of Tractebel Engineering, any modification or addition to these plans is forbidden without the prior approval of Tractebel Engineering.

LONGITUDINAL PROFILES ALONG TUNNEL 3 & 4 AXIS



LONGITUDINAL PROFILE ALONG TUNNEL 2 AXIS



| | | | | | | | |
|---|---------|--------|--|------|--------|--------|--|
| 1 | 2012.10 | 1/2000 | | Y.P. | 1/2000 | 1/2000 | |
| 2 | 2012.10 | 1/2000 | | Y.P. | 1/2000 | 1/2000 | |
| 3 | 2012.10 | 1/2000 | | Y.P. | 1/2000 | 1/2000 | |

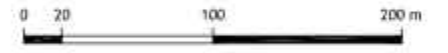
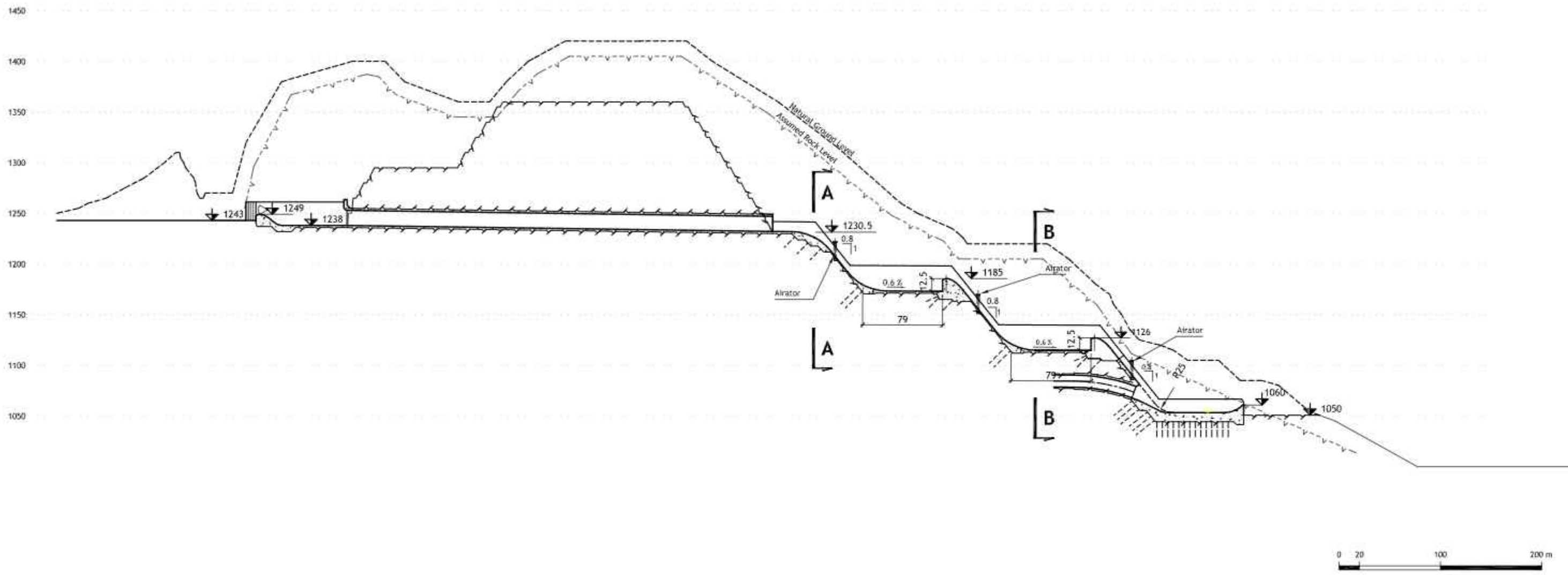


OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

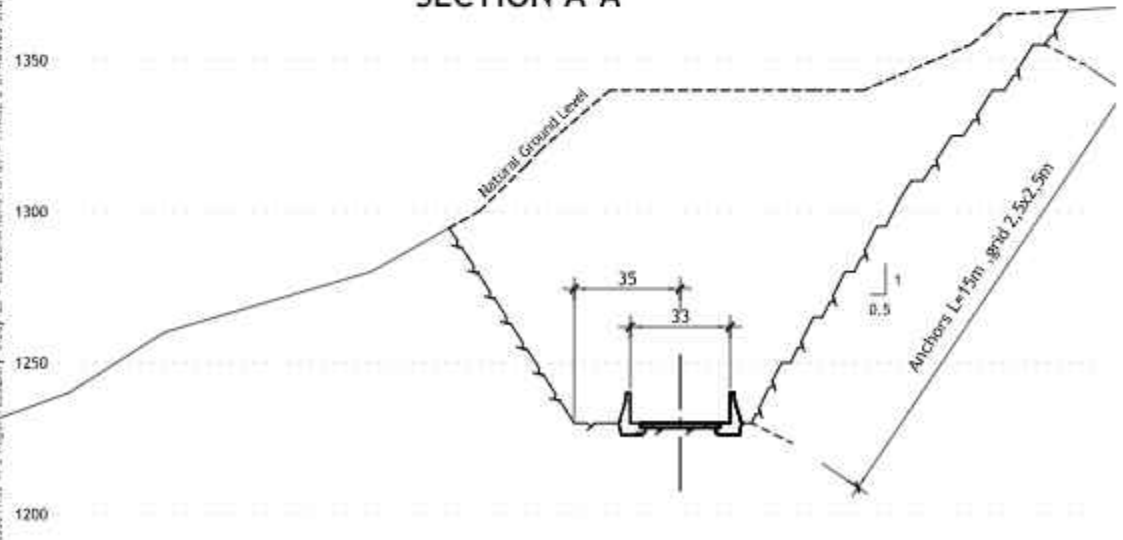
DAM ALTERNATIVE FSL=1255 m.a.s.l.
SURFACE SPILLWAY
FIRST STAGE
LONGITUDINAL PROFILES ALONG TUNNEL 2,3 & 4

| | | | | | | | |
|---|--|------------------------|--|-------------|--|-------------------|--|
| TRACTEBEL Engineering s.p.a. s.r.l. | | Scale: 1/2000 | | Sheet: 4/5 | | Date: A1 | |
| COYNE ET BELLER Hydrogen Council | | Project: P 002 378 | | Form: FORM | | Discipline: HYDRO | |
| Project: 40-273-274-275-A | | Drawing: 4, 0, 2, 7, 4 | | Revision: B | | | |

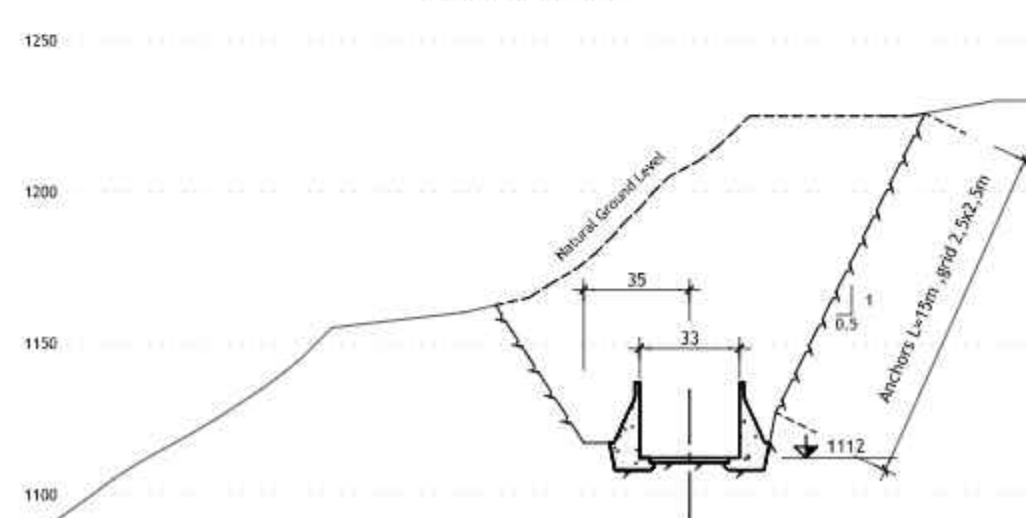
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS



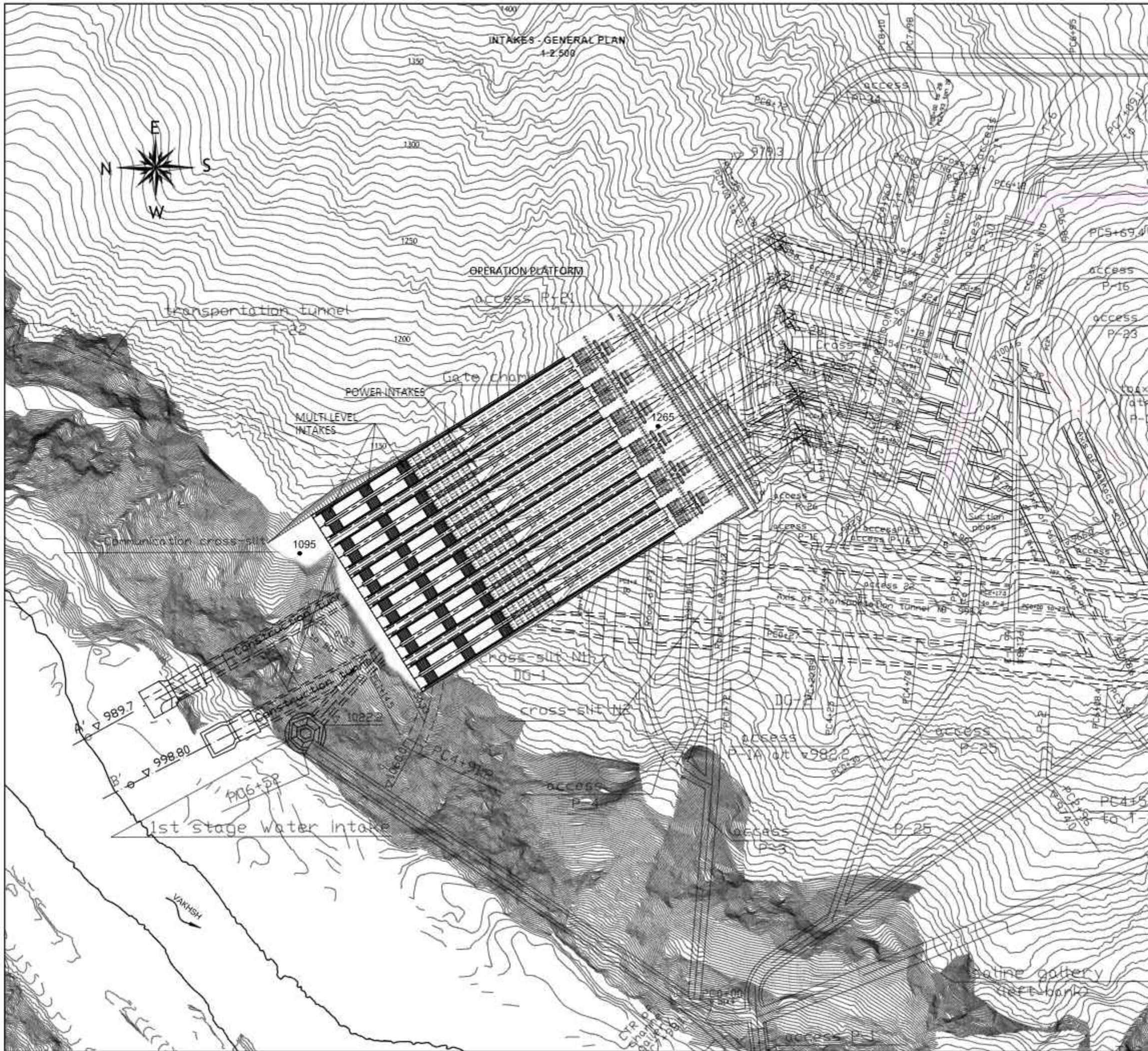
SECTION A-A



SECTION B-B



| | | | |
|--|---|----------------------------------|------------------------|
| | | | |
| OSHPC BARKI TOJIK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| PHASE 2 | | | |
| DAM ALTERNATIVE FSL=1255 m.a.s.l. | | | |
| SURFACE SPILLWAY | | | |
| FIRST STAGE | | | |
| LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS & SECTIONS | | | |
| | | | |
| <small>TRACTEBEL Engineering S.A. 1000 Avenue de la Gare 1050 Brussels - Belgium</small> | <small>COYNE ET BELLER 1000 Avenue de la Gare 1050 Brussels - Belgium</small> | | |
| <small>Project No: 40-273-274-275-A</small> | <small>Scale: 1/2000</small> | <small>Sheet: 5/5</small> | <small>Rev: A1</small> |
| <small>Project: P 002 378</small> | <small>Form: FORM</small> | <small>Discipline: HYDRO</small> | |
| <small>Project No: 40 273 275</small> | | <small>Sheet: B</small> | |



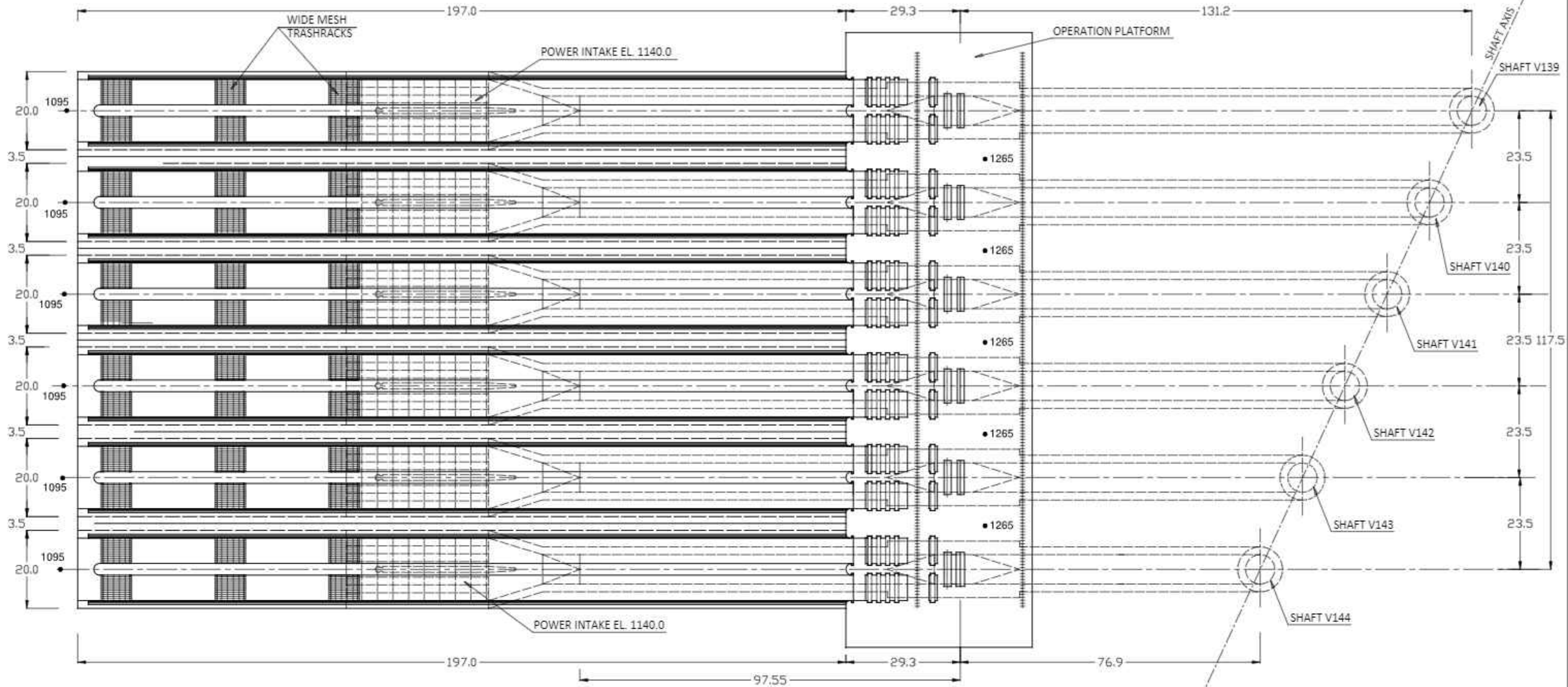
| | | | | | |
|-----|------------|-------------------------|-----|---------|------------|
| REV | DATE | DESCRIPTION | BY | CHECKED | DATE |
| 1 | 10/10/2018 | ISSUED FOR CONSTRUCTION | YVS | YVS | 10/10/2018 |



OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

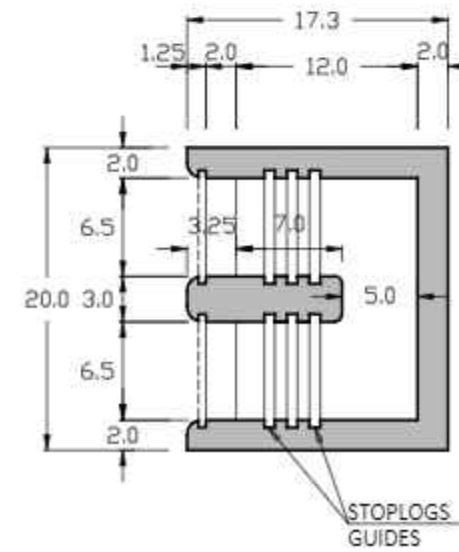
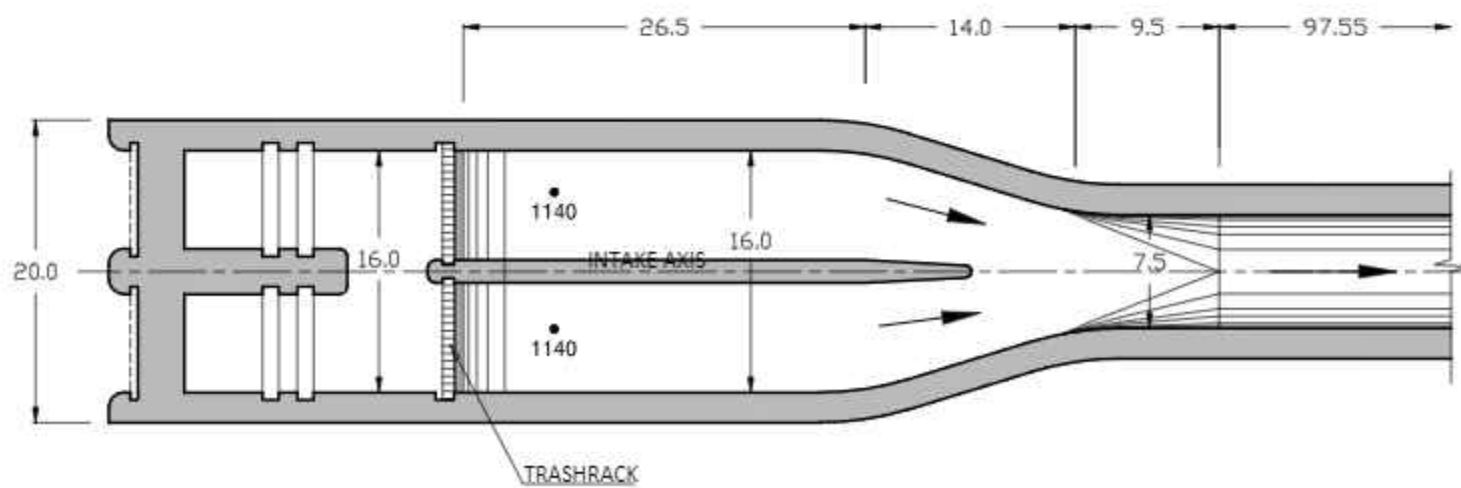
DAM FSL 1255
 MULTI LEVEL INTAKES
 GENERAL PLAN

| | | | | | | | | |
|-------------------|-------------|----------------|--------|--------|------------|---|-------|----|
| | Project No. | 40281 | Scale | 1:2500 | No. Sheets | 1 | Sheet | A3 |
| | Revision | 1730 | Author | | Checked | | Drawn | |
| Drawing Reference | | 4, 0, 2, 8, 1, | | A | | | | |



HORIZONTAL SECTION Y-Y
1:500

SECTION X-X
1:500



| NO. | DATE | BY | CHKD. | STATUS | DRWN. | CHECKED | APPROVED | CALCULATED |
|-----|------|----|-------|--------|-------|---------|----------|------------|
| 1 | | | | | | | | |

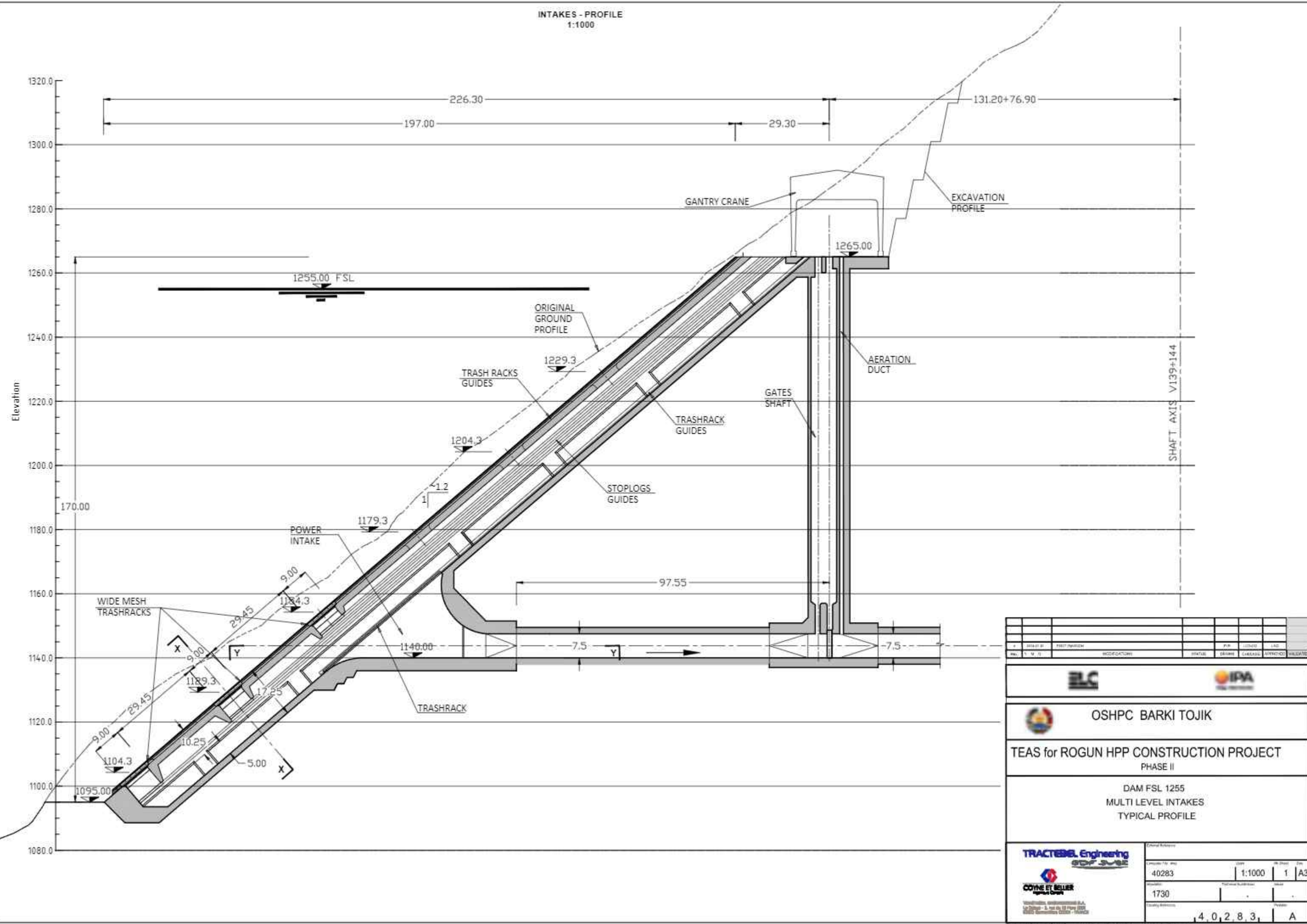
ELC **IPA**

OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1255
MULTI LEVEL INTAKES
PLAN VIEW AND SECTIONS

| | | | |
|---|------|--------------|------------------|
| TRACTEBEL Engineering GDF SUEZ | | Scale: 1:500 | |
| COMET BELIER | | Scale: 1:500 | |
| 40282 | VAR. | 1 | A3 |
| 1730 | | | |
| Drawing Reference: | | | |
| | | | 4, 0, 2, 8, 2, A |

INTAKES - PROFILE
1:1000



| NO. | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED | SCALE |
|-----|------------|------------------------|--------|----------|---------|----------|--------|
| 1 | 10/10/2023 | ISSUE FOR CONSTRUCTION | ISSUED | Y. M. T. | | | 1:1000 |




OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE II

DAM FSL 1255

MULTI LEVEL INTAKES

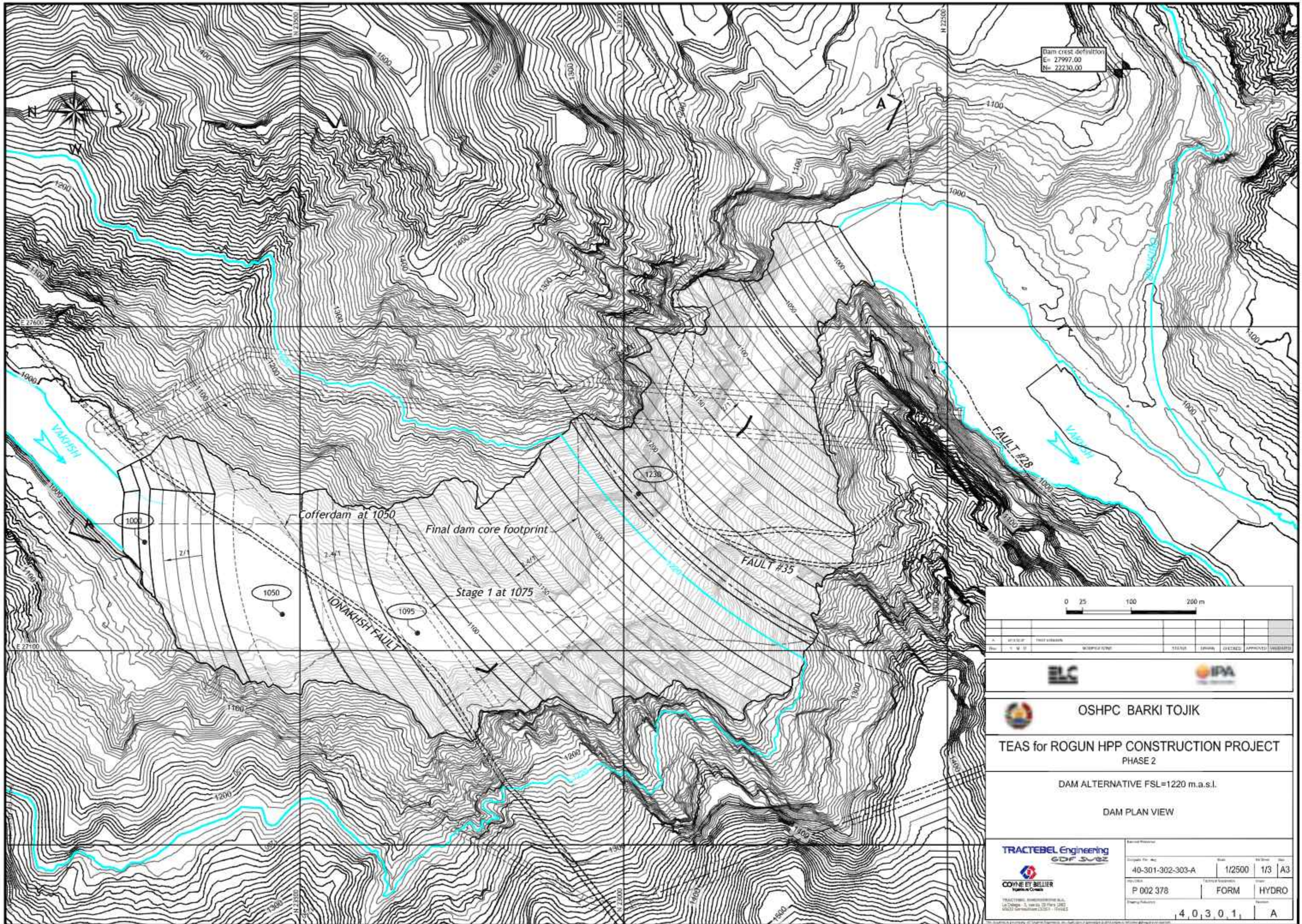
TYPICAL PROFILE

TRACTEBEL Engineering

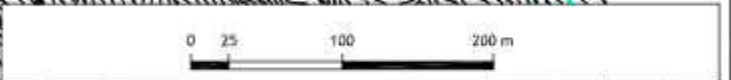
COYNE ET BELIER

Techniques Ingénieries S.A.
100 Rue de la République
92000 Nanterre Cedex - FRANCE

| | | | | | | | |
|-------------|----------------|---------|--------|-----------|---|------------|----|
| Project No. | 40283 | Scale | 1:1000 | Sheet No. | 1 | Sheet Size | A3 |
| Revision | 1730 | Author | | Checker | | Designer | |
| Quantity | 4, 0, 2, 8, 3, | Project | | | | | A |



Dam crest definition
 E= 27997.00
 N= 22230.00



| | | | | |
|--------|-----------------|---------|----------|-------|
| Author | Project Manager | Checked | Approved | Drawn |
| | | | | |



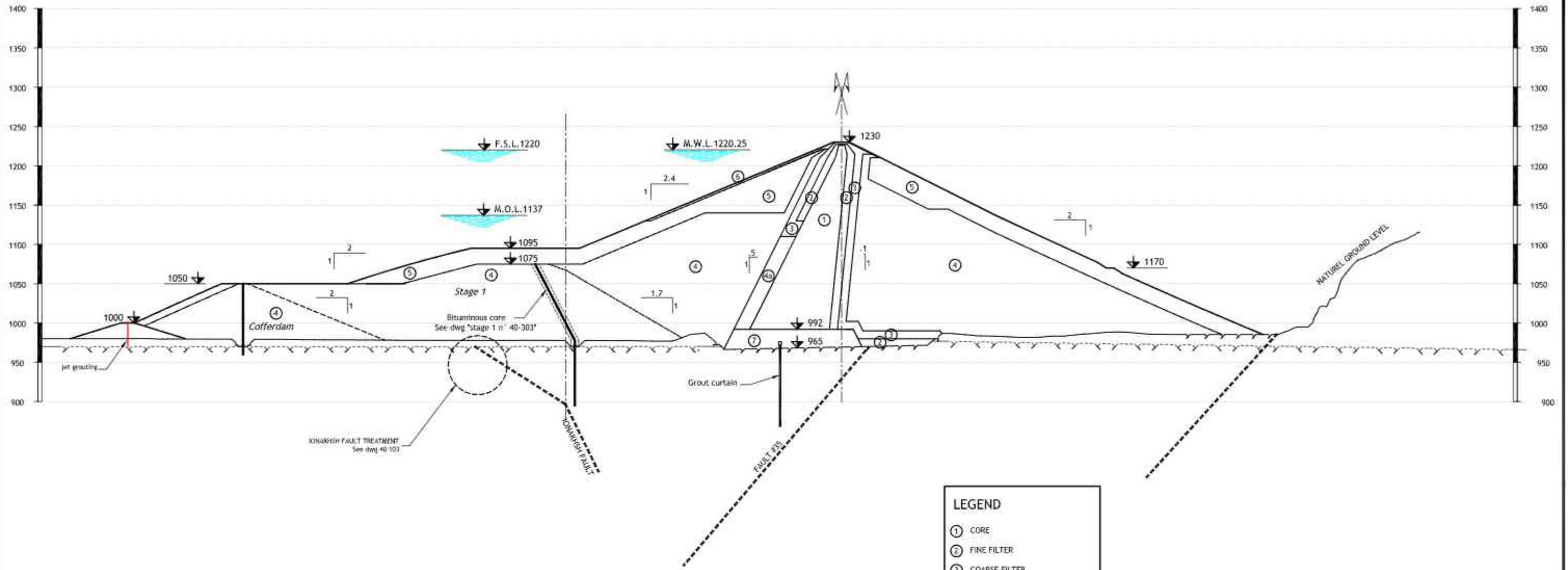
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
 DAM PLAN VIEW

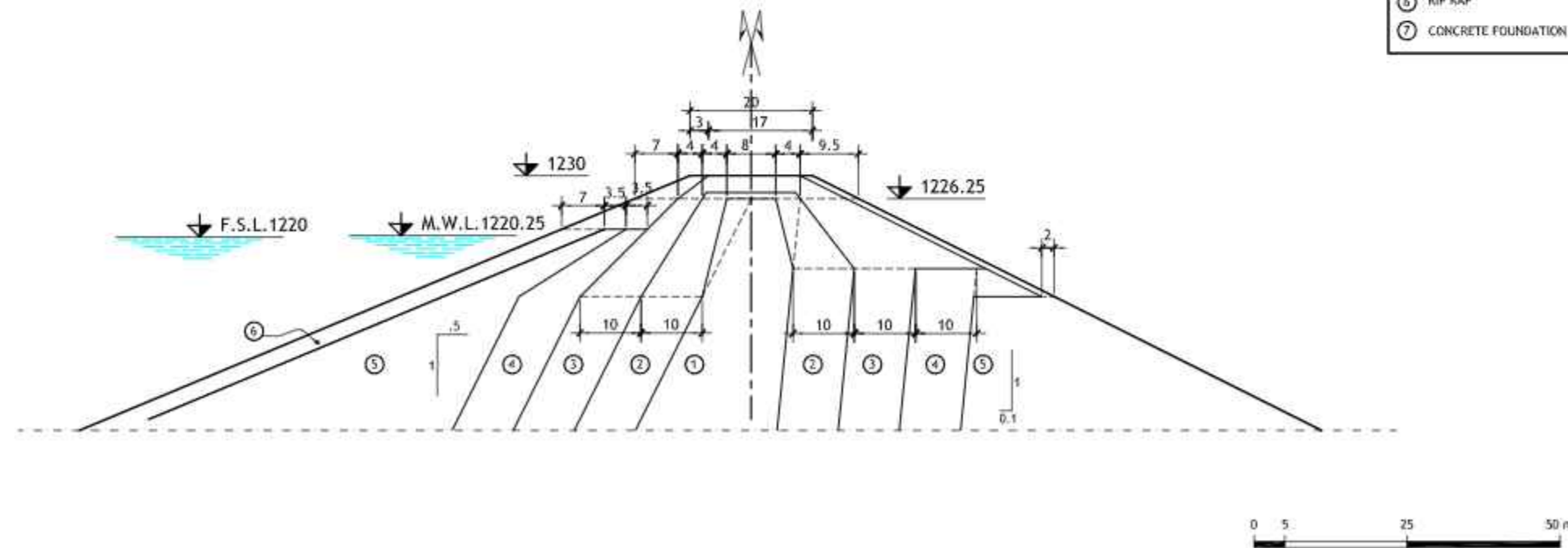
TRACTEBEL Engineering
GDF SUEZ
COYNE ET BELLIER
 Ingénierie Conseil

| | | | | | | | |
|---------------|------------------|--------------------------|--------|-------------|-------|-------|----|
| Project No: | 40-301-302-303-A | Scale: | 1/2500 | Sheet: | 1/3 | Size: | A3 |
| Revision: | P 002 378 | Technical Specification: | FORM | Discipline: | HYDRO | | |
| Project Name: | 4,0,3,0,1 | | | | A | | |

SECTION A-A



CREST DETAILS



| LEGEND | |
|--------|----------------------------|
| ① | CORE |
| ② | FINE FILTER |
| ③ | COARSE FILTER |
| ④ | ALLUVIUM SHELL |
| ④a | ALLUVIUM SCREENED (-200mm) |
| ⑤ | ROCKFILL SHELL |
| ⑥ | RIP RAP |
| ⑦ | CONCRETE FOUNDATION |



| | | | | | | | | | |
|------|---|----------|---|------|---|----------|---|------|---|
| A | | REVISED | | | | | | | |
| Rev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| DATE | | APPROVED | | DATE | | APPROVED | | DATE | |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
SECTION A-A
CREST DETAILS

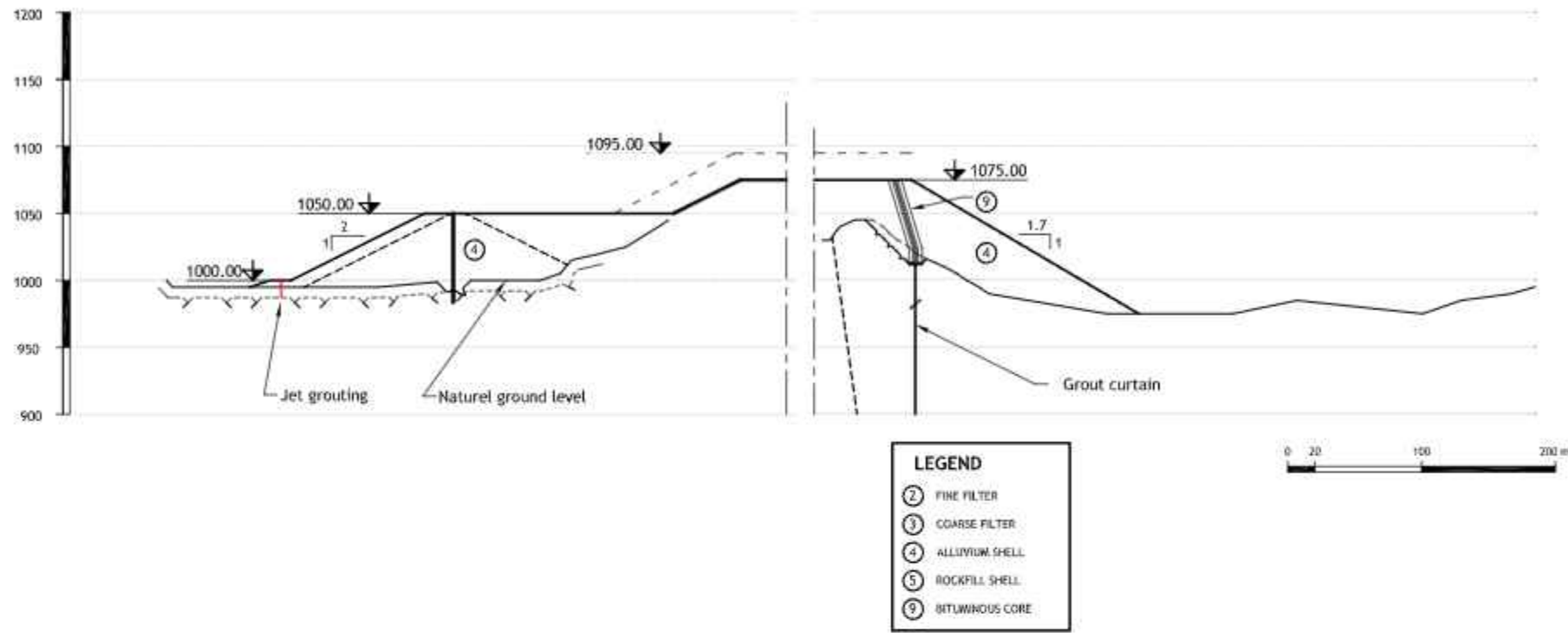
TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELLIER
 Ingénierie Conseil

| | | | |
|-----------------------------|--------------|---------------------------|---------|
| Design No. 40-301-302-303-A | Scale 1/2500 | Sheet 2/3 | Size A3 |
| Project No. P 002 378 | Form HYDRO | Revision 4, 0, 3, 0, 2, A | |

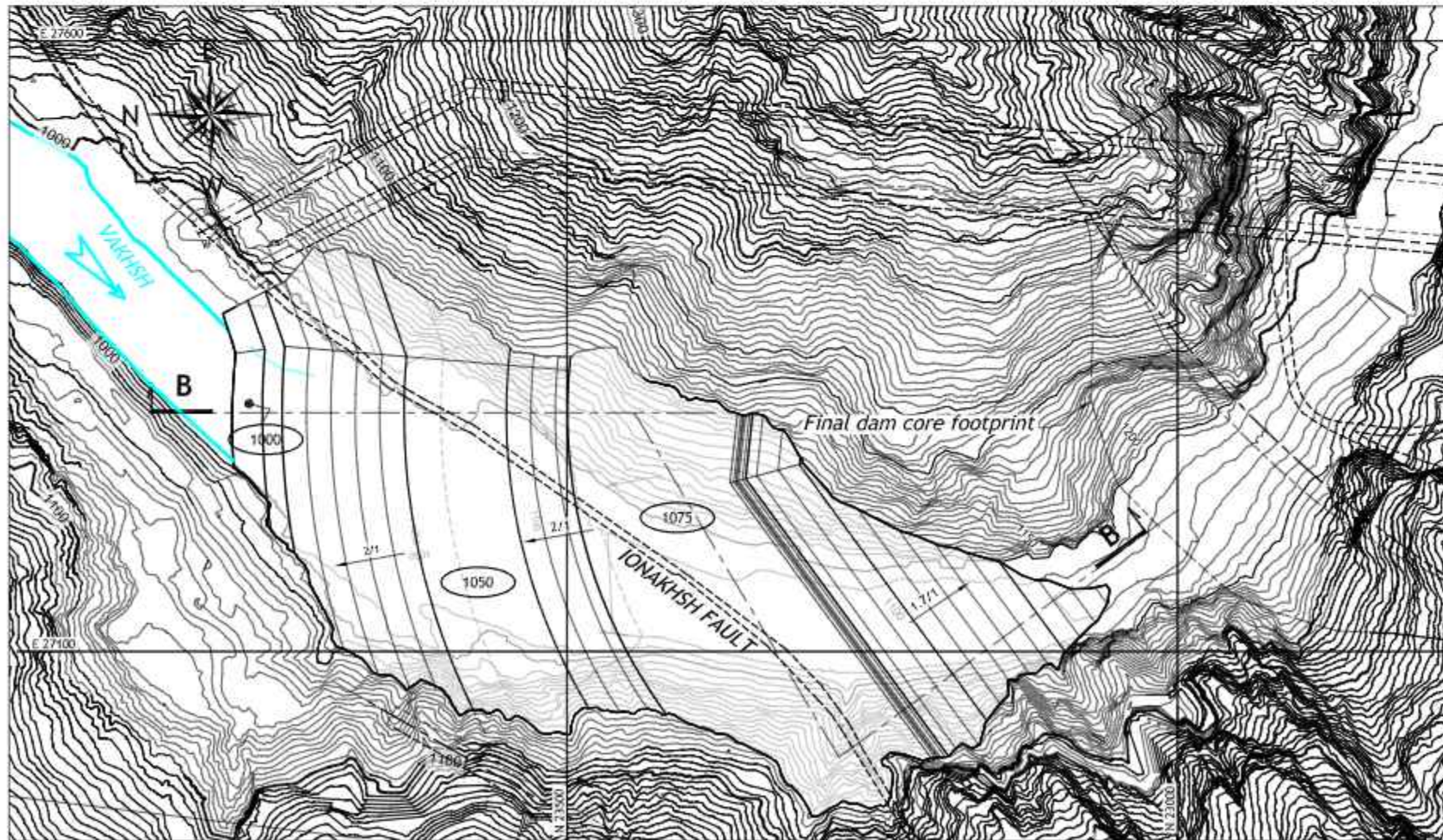
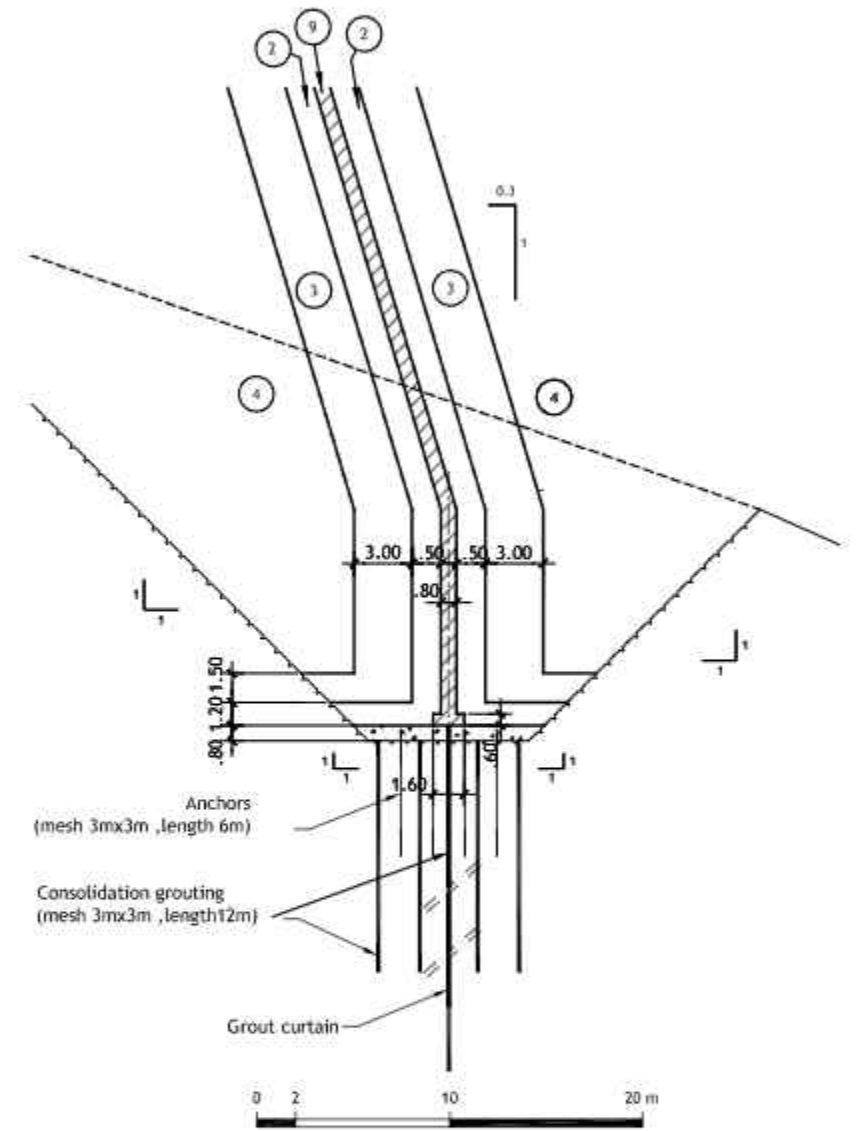
E:\OHC\AFFAIRES\OSHP\BARKI\40-301-302-303-A.dwg

SECTION B-B



| LEGEND | |
|--------|-----------------|
| ② | FINE FILTER |
| ③ | COARSE FILTER |
| ④ | ALLUVIUM SHELL |
| ⑤ | ROCKFILL SHELL |
| ⑨ | BITUMINOUS CORE |

DETAIL BITUMINOUS CORE



| REVISIONS | | STATUS | | DRAWN | | APPROVED | |
|-----------|------------|--------------|----|--------|-----|----------|--|
| 1 | 2023.11.10 | DESIGN | OK | 1/2500 | 3/3 | A3 | |
| 2 | 2023.11.10 | MODIFICATION | OK | | | | |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.

STAGE1 at 1075

PLAN VIEW

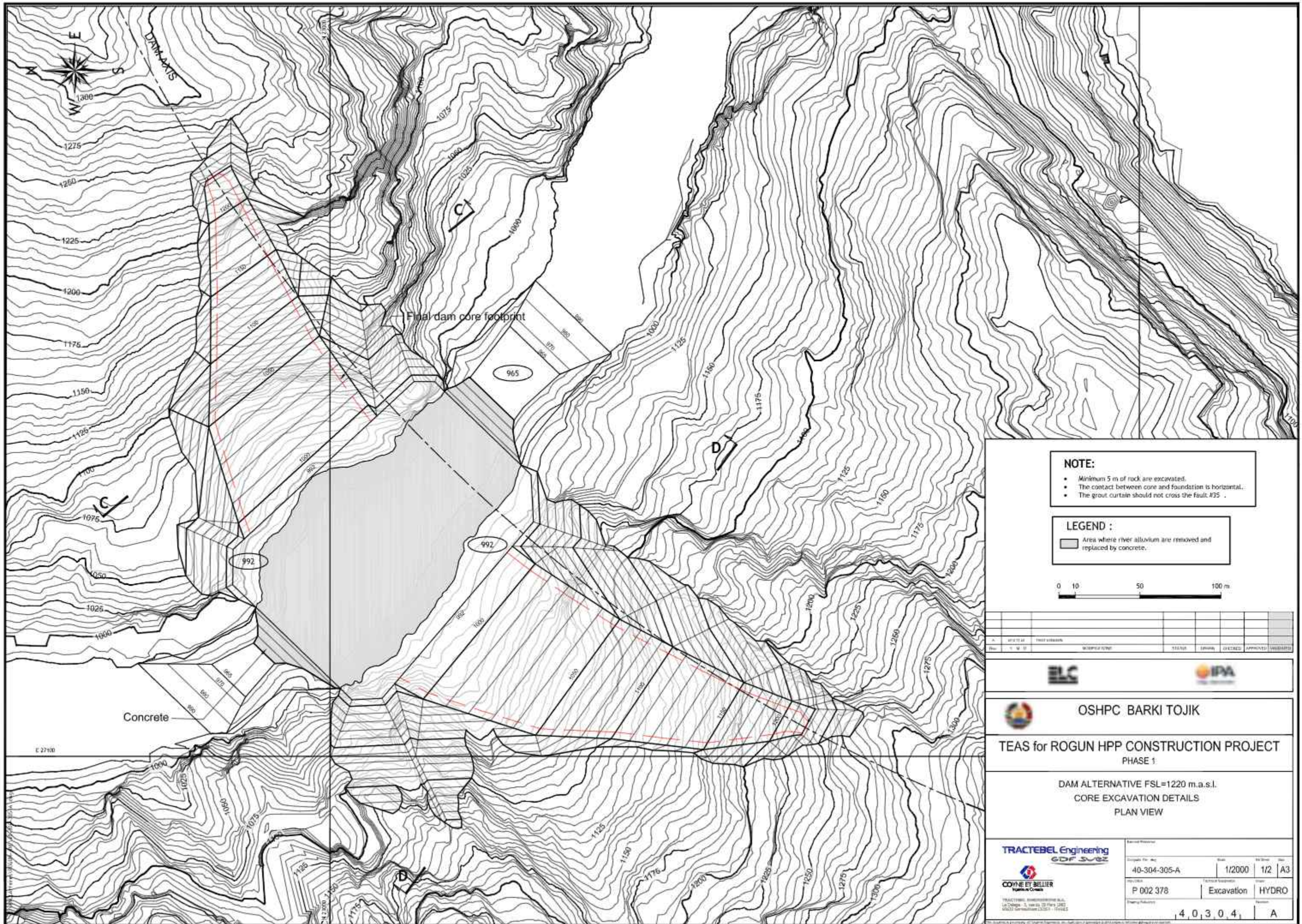
SECTIONS

TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELIER
Hydro-Experts

TRACTEBEL, ENGINEERING B.V.
La Digue - 1748 EA - St. Pierre 2002
10000 Rotterdam (The Netherlands) - 191000

| | | | | | | | |
|-------------|------------------|--------|--------|-------------|------------------|------|----|
| Project No: | 40-301-302-303-A | Scale: | 1/2500 | No. Sheets: | 3/3 | Rev: | A3 |
| Revision: | P 002 378 | Form: | FORM | Hydro: | HYDRO | | |
| Section: | | | | Sheet: | 4, 0, 3, 0, 3, A | | |

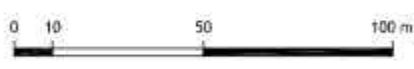


NOTE:

- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the Fault #35 .

LEGEND :

- Area where river alluvium are removed and replaced by concrete.



| | | | | | | | | | |
|------|----------|-----------------|--|--|--|--|--|--|--|
| Rev. | 01/12/16 | Final release | | | | | | | |
| Rev. | 01/04/17 | Working drawing | | | | | | | |



OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

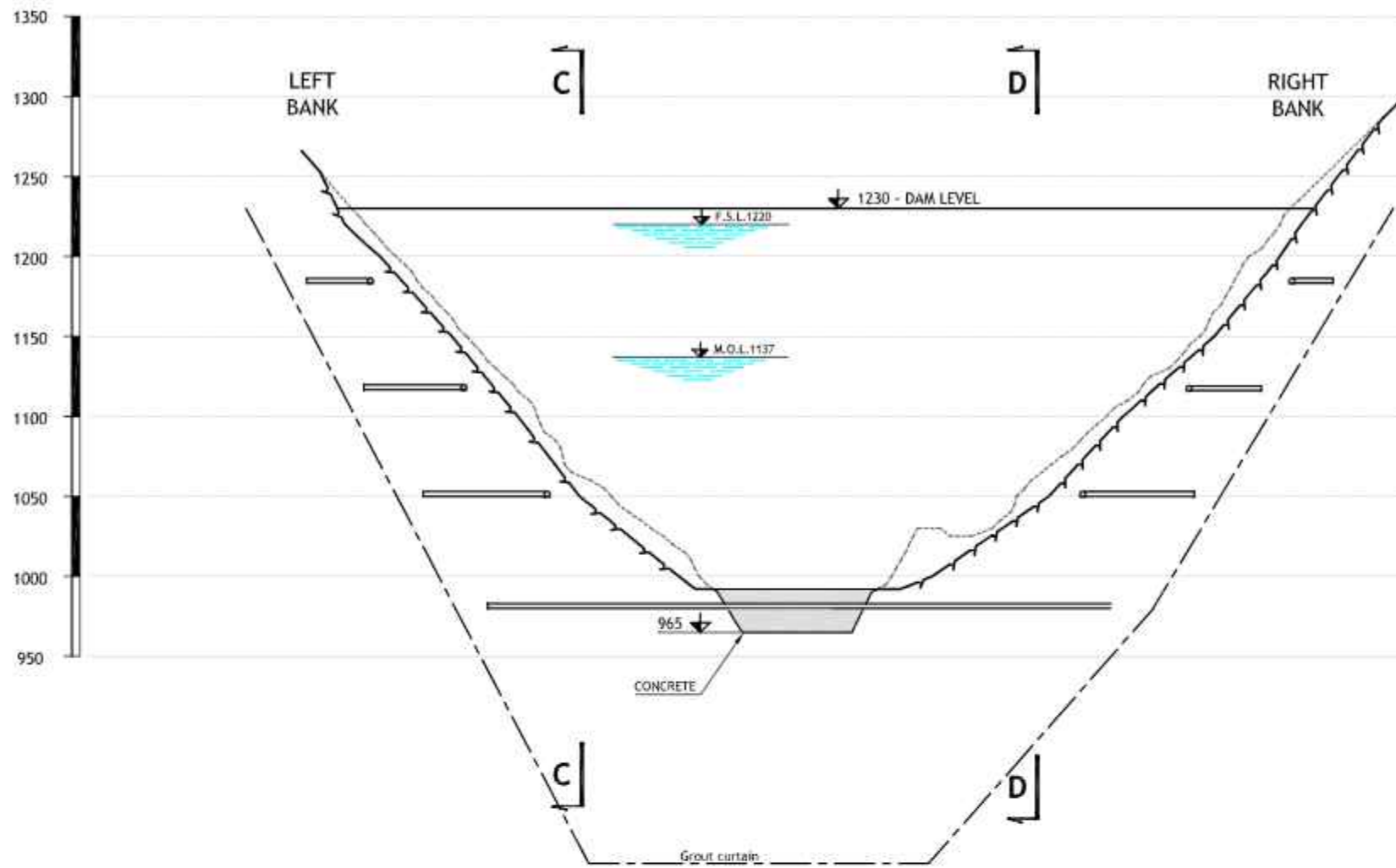
DAM ALTERNATIVE FSL=1220 m.a.s.l.
CORE EXCAVATION DETAILS
PLAN VIEW

TRACTEBEL Engineering
GDF SUEZ

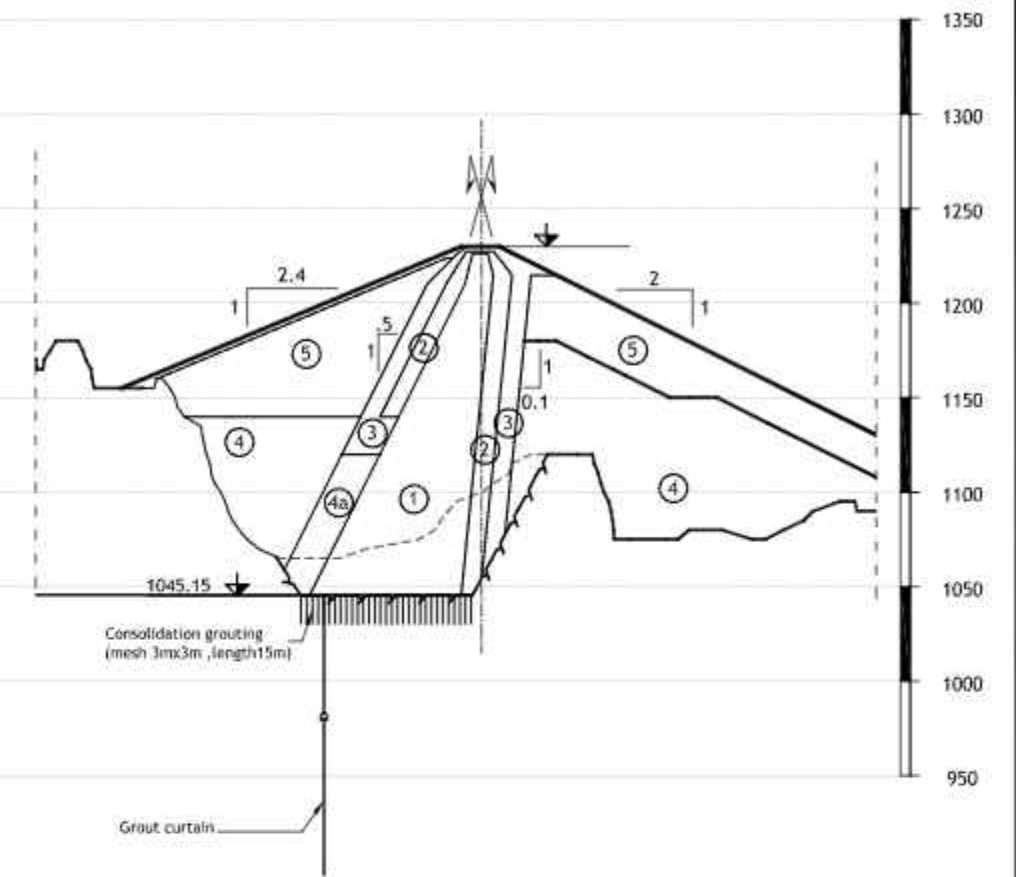
COYNE ET BELLIER
Ingénierie Conseil

| | | | | | | | |
|--------------------|--------------|-----------------------|----------------|-------------|-------|---------------|----|
| Project No: | 40-304-305-A | Scale: | 1/2000 | Sheet No.: | 1/2 | Total Sheets: | A3 |
| Revision: | P 002 378 | Technical Supervisor: | Excavation | Discipline: | HYDRO | | |
| Drawing Reference: | | | 4, 0, 3, 0, 4, | | A | | |

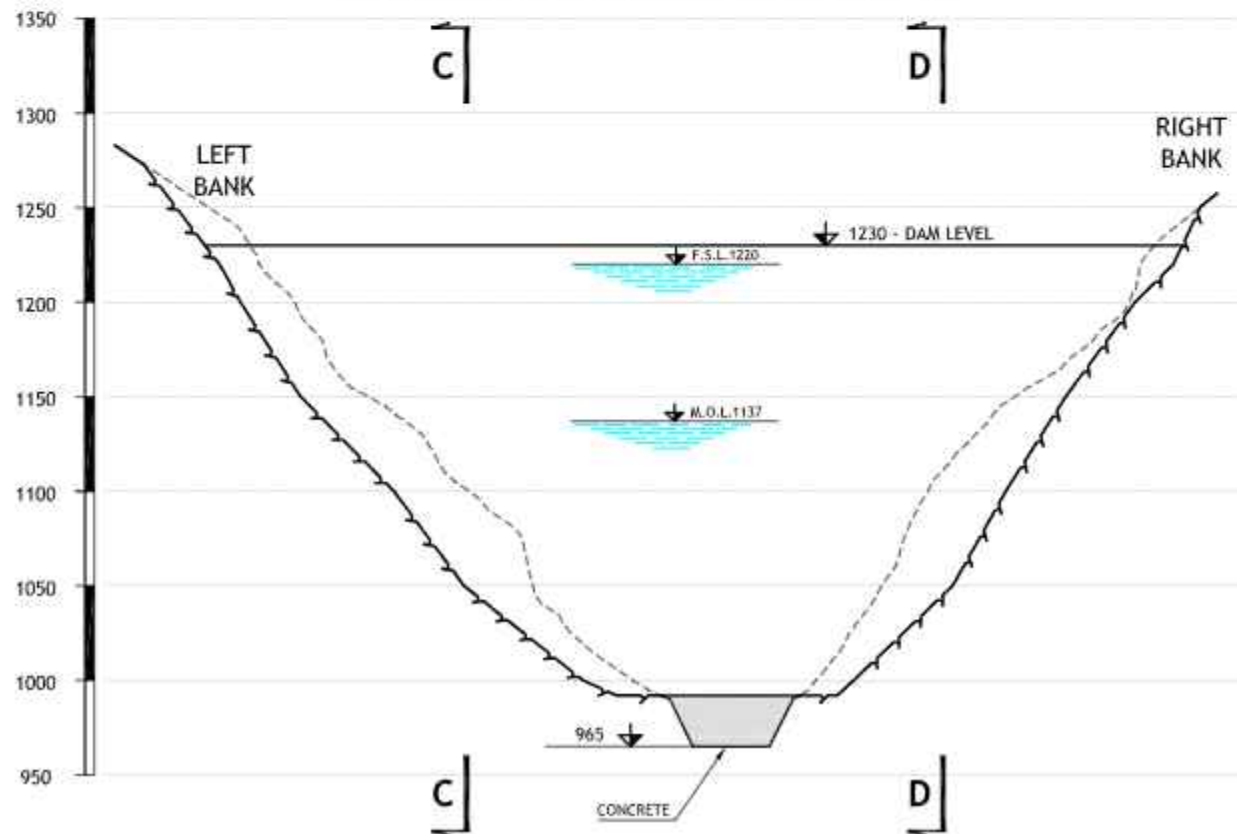
DEVELOPED ELEVATION UPSTREAM



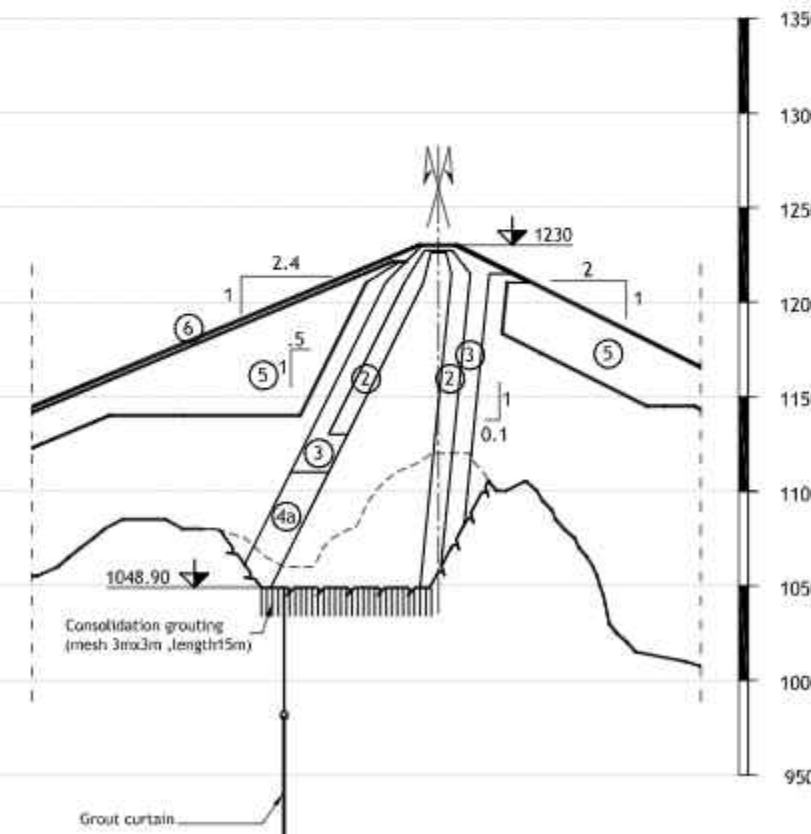
SECTION D-D



DEVELOPED ELEVATION DOWNSTREAM

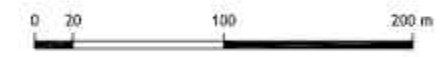


SECTION C-C



NOTE:

- Minimum 5 m of rock are excavated.
- The contact between core and foundation is horizontal.
- The grout curtain should not cross the fault #35.



| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 1

DAM ALTERNATIVE FSL=1220 m.a.s.l.
CORE EXCAVATION DETAILS
ELEVATIONS UPSTREAM & DOWNSTREAM

| | | | | |
|---|-------------------------|------------------------|----------------|----------|
| TRACTEBEL Engineering GDF SUEZ | Design No: 40-304-305-A | Scale: 1/4000 | Sheet: 2/2 | Size: A3 |
| COYNE ET BELLIER Ingénierie Conseil | Project No: P 002 378 | Discipline: Excavation | Subject: HYDRO | |
| | | | | |
| | | | | |



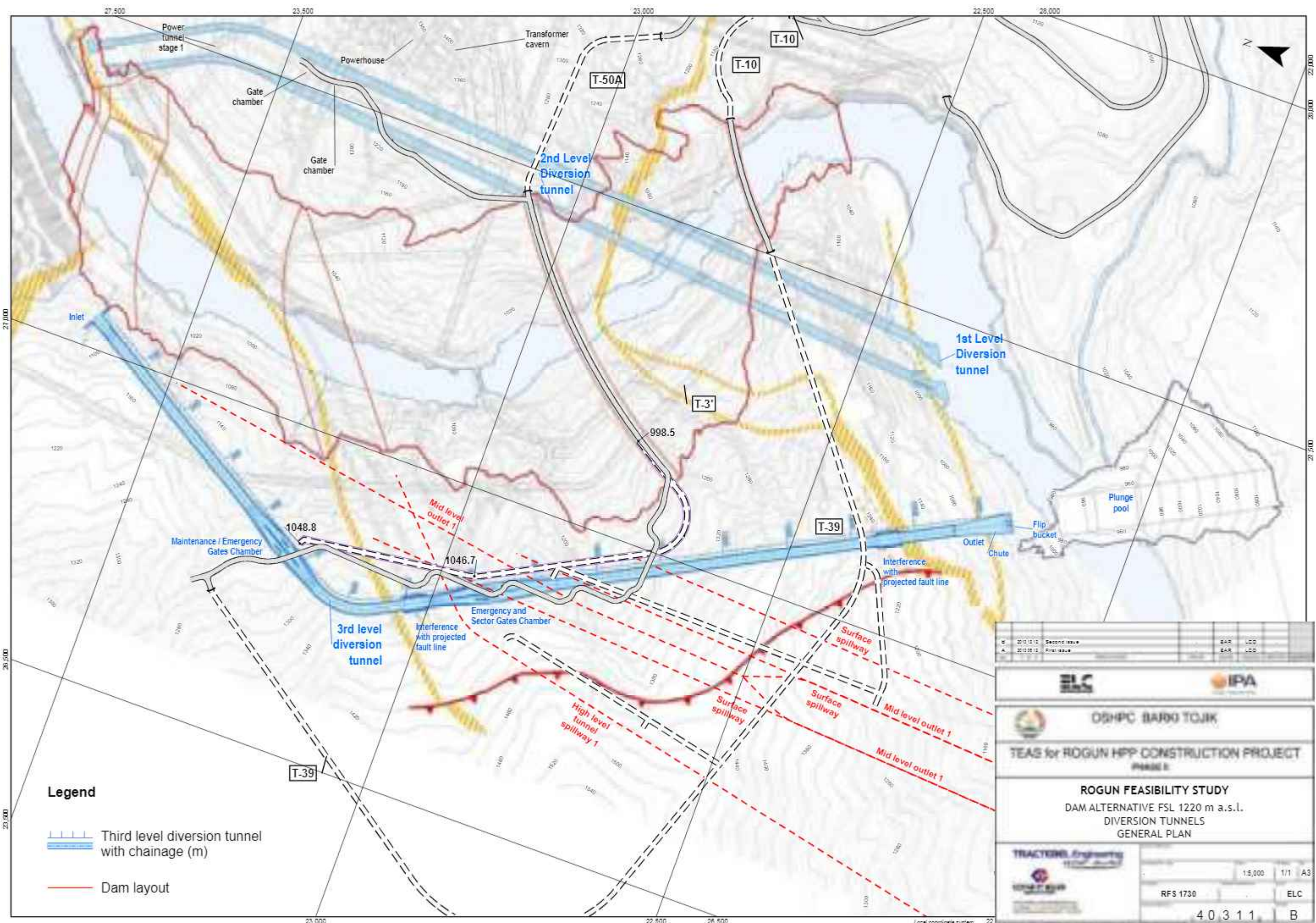
| | |
|---|---|
| [Project Name] | |
|  |  |
| (GWP) WATER | |
| TRAIL to ROCKY MOUNTAIN CONSTRUCTION PROJECT | |
| PHASE 1 | |
| [Project Description] | |
| [Project Location] | |
| [Project Dates] | |
| [Project Status] | |
| [Project Contact] | |





| | | |
|---|--------------------------|--------------------|
| Project Name | Project No. | Sheet No. |
| ELC | UPA | |
|  | OSMP - BIRSA TALK | |
| PLANS FOR RAILWAY INFRA CONSTRUCTION PROJECT | | |
| RAILWAY INFRASTRUCTURE DEVELOPMENT | | |
| Construction of Road | | |
| Sheet No. 1/1 | | |
| Scale | 1:100 | 1/200 |
| Drawn by | Checked by | Approved by |
| | | |

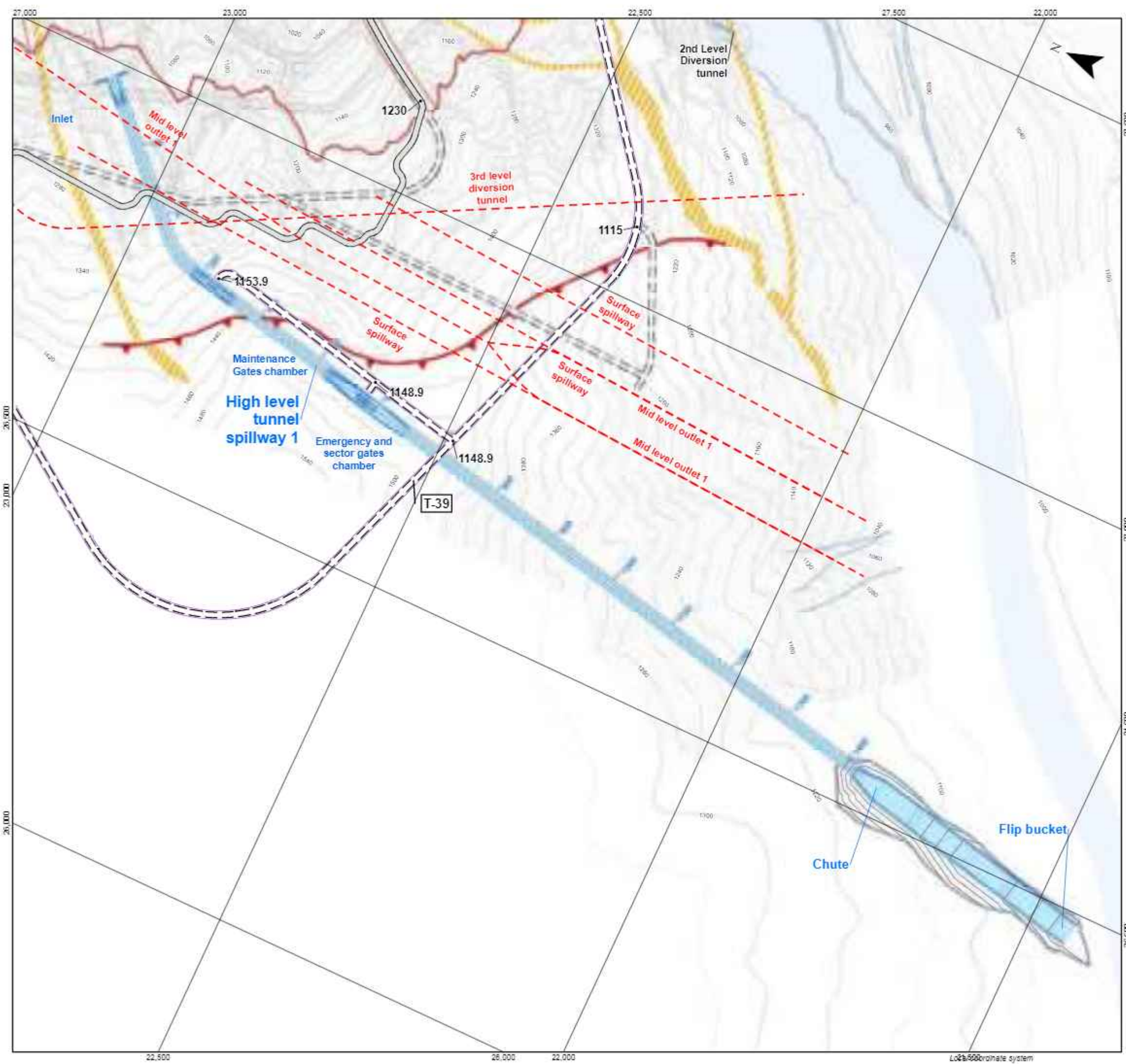


| | | | | | | | | | | | | | | |
|---|----------------|--|-------------|----------------|-------|-----|-----------|-----|-------|-------|----------|-----|----------|-------|
|  | |  | | | | | | | | | | | | |
|  (ISHPC) HARKI TOLIK | | | | | | | | | | | | | | |
| TEAS for ROJIK HPP CONSTRUCTION PROJECT 1997/2 | | | | | | | | | | | | | | |
| Task 4. TECHNICAL SET 1:200 n. 1/1 Task 3. Mechanical Works 1/1 n. 1 CONTINUATION | | | | | | | | | | | | | | |
|  | | <table border="1"><tr><td>Project No.</td><td>40-006-2740334</td><td>Scale</td><td>1/1</td></tr><tr><td>Sheet No.</td><td>1/1</td><td>Phase</td><td>PLN 4</td></tr><tr><td>Task No.</td><td>1/1</td><td>Task No.</td><td>PLN 3</td></tr></table> | Project No. | 40-006-2740334 | Scale | 1/1 | Sheet No. | 1/1 | Phase | PLN 4 | Task No. | 1/1 | Task No. | PLN 3 |
| Project No. | 40-006-2740334 | Scale | 1/1 | | | | | | | | | | | |
| Sheet No. | 1/1 | Phase | PLN 4 | | | | | | | | | | | |
| Task No. | 1/1 | Task No. | PLN 3 | | | | | | | | | | | |
| A B C D E | | A | | | | | | | | | | | | |





- Legend**
-  Third level diversion tunnel with chainage (m)
 -  Dam layout

| | | |
|---|--|--------------------|
| 2012.12 Second Issue 2012.12 First Issue | | BAR LCC BAR LCC |
|   | | |
|  OSHPC BARDU TOJK | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1220 m a.s.l. DIVERSION TUNNELS GENERAL PLAN | | |
|  | | 1:5,000 1/1 A3 |
| RFS 1730 | | ELC |
| 4 0 3 1 1 | | B |

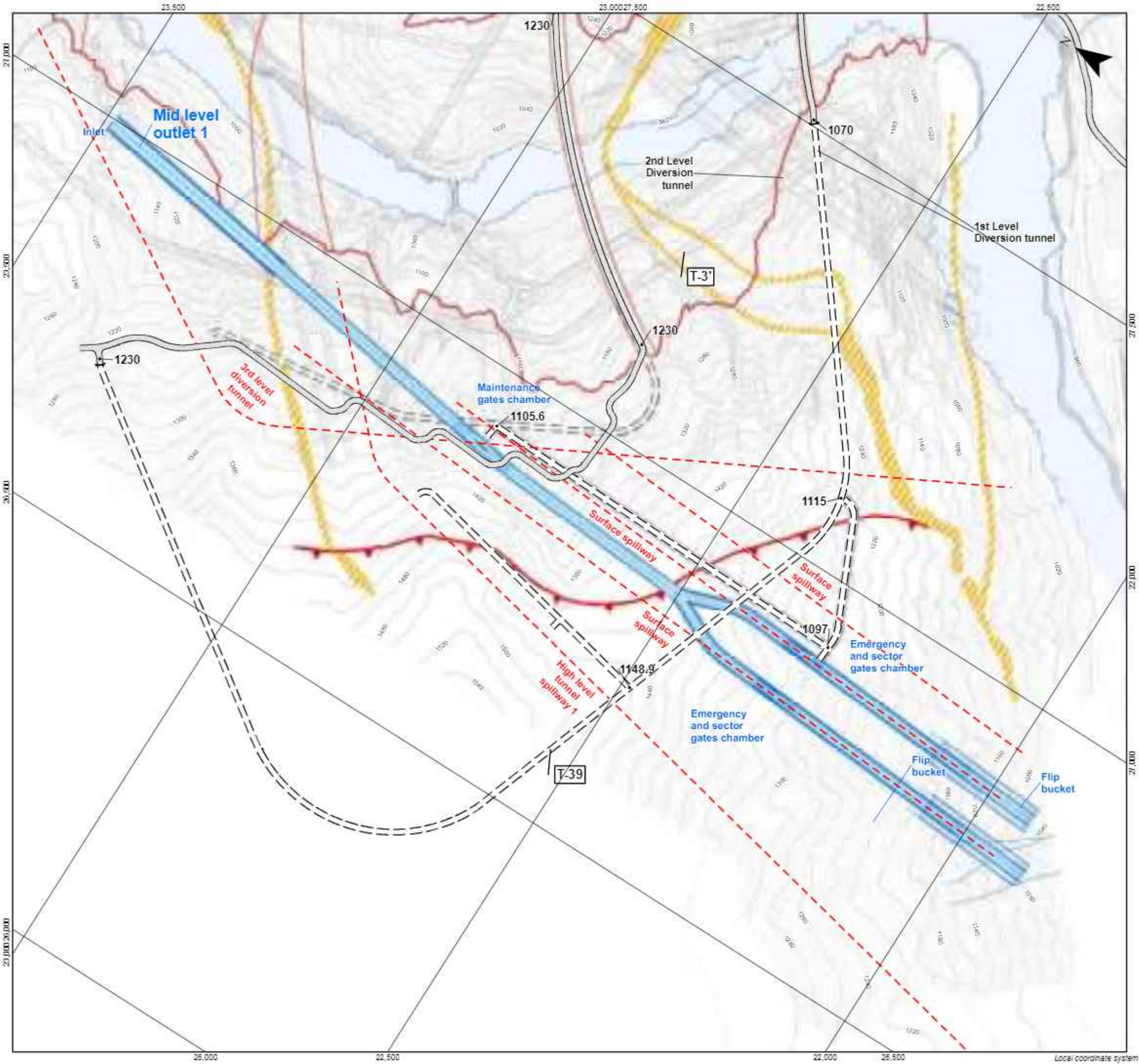


Legend



-  High level tunnel spillway with chainage (m)
-  Dam layout

| | |
|---|---|
| B 2012.12.10 Second issue A 2012.06.10 First issue | DHR LCD BAR LCD |
|   | |
| OSHPC BARDU TOJK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1220 m a.s.l. HIGH LEVEL TUNNEL SPILLWAYS GENERAL PLAN | |
|  | 1:5,000 1/1 A3 RFS 1730 ELC 4 0 3 1 3 B |

Loft 500 coordinate system

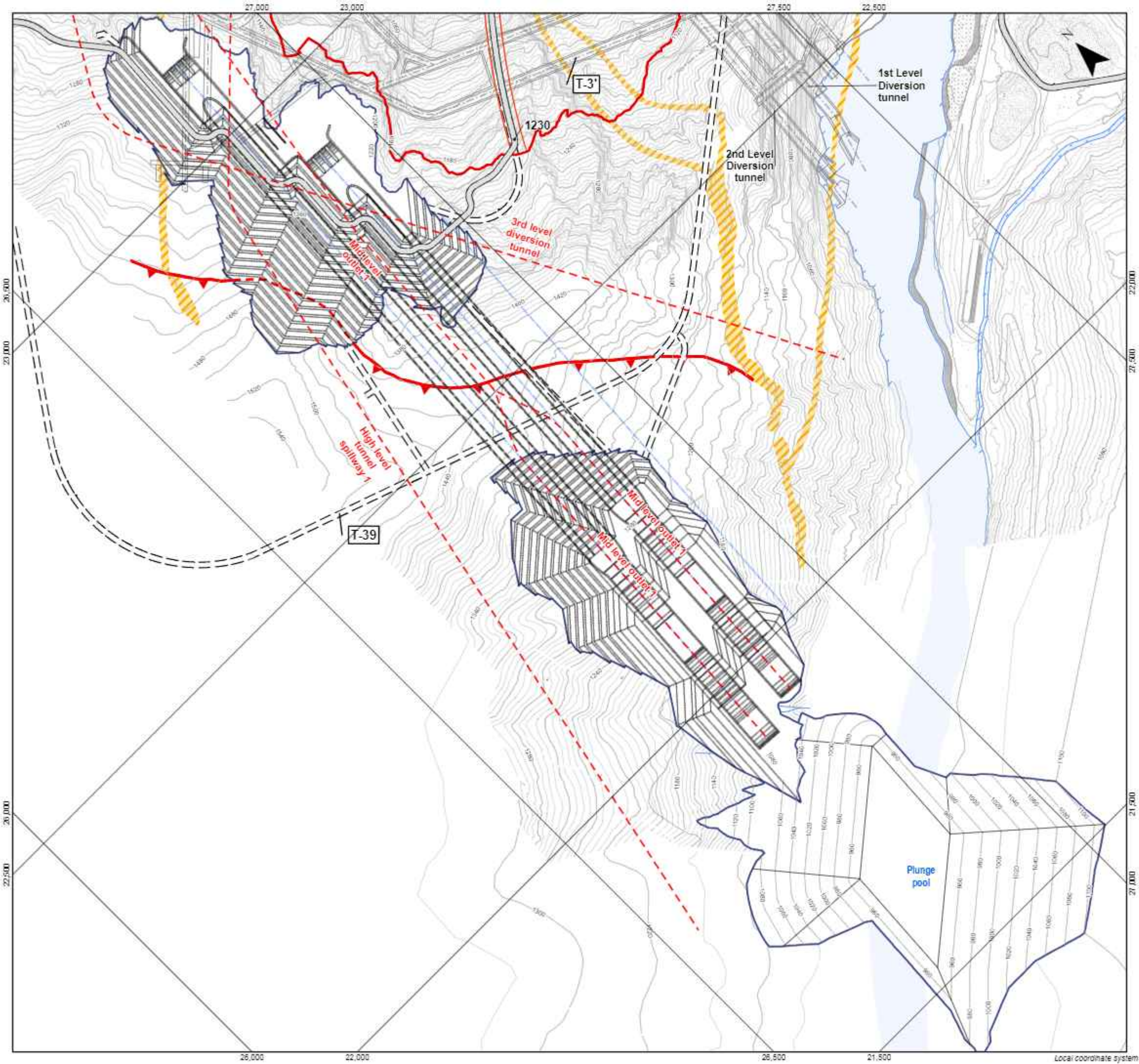


Legend

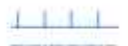

-  Mid level outlet with chainage (m)
-  Dam layout

| | |
|---|--|
|   | |
|  OSMPC BAIKO TOJK | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE II | |
| ROGUN FEASIBILITY STUDY DAM ALTERNATIVE FSL 1220 m a.s.l. MID LEVEL OUTLET GENERAL PLAN | |
|  | 1:5,000 1/1 A3 RFS 1730 ELC 40314 A |

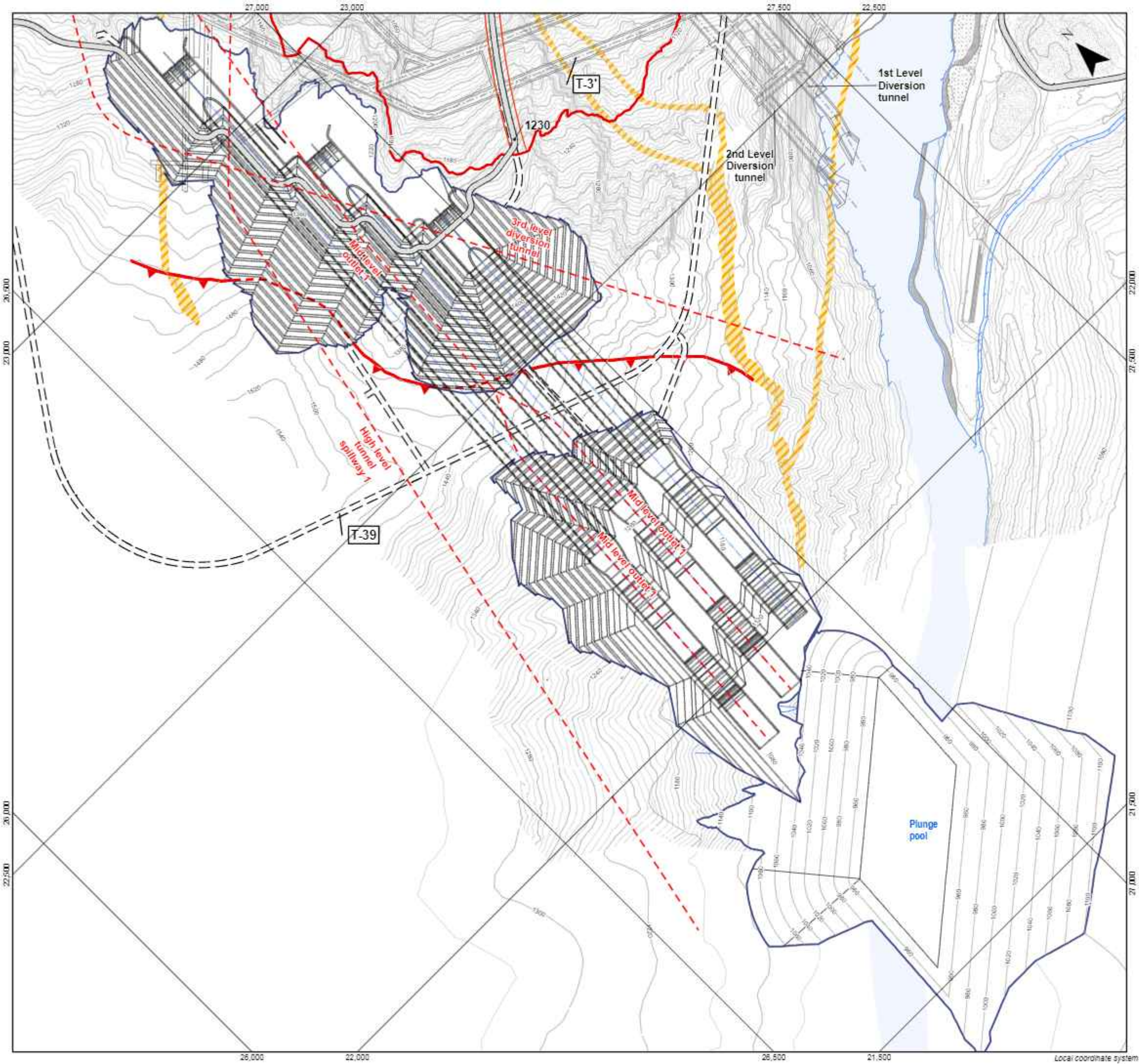
Local coordinate system



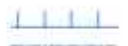

Legend

-  Surface spillway with chainage (m)
-  Dam layout

| | | | |
|---|--|---|--|
| A 2015.12.12 First Issue | | EAS LCC | |
|  | |  | |
| OSHPC BARDU TOJK | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| ROGUN FEASIBILITY STUDY | | | |
| DAM ALTERNATIVE FSL 1220 m a.s.l. | | | |
| SURFACE SPILLWAY - FIRST STAGE | | | |
| GENERAL PLAN | | | |
|  | | 1:5,000 1/1 A3 | |
| RFS 1730 | | ELC | |
| 40317 | | A | |

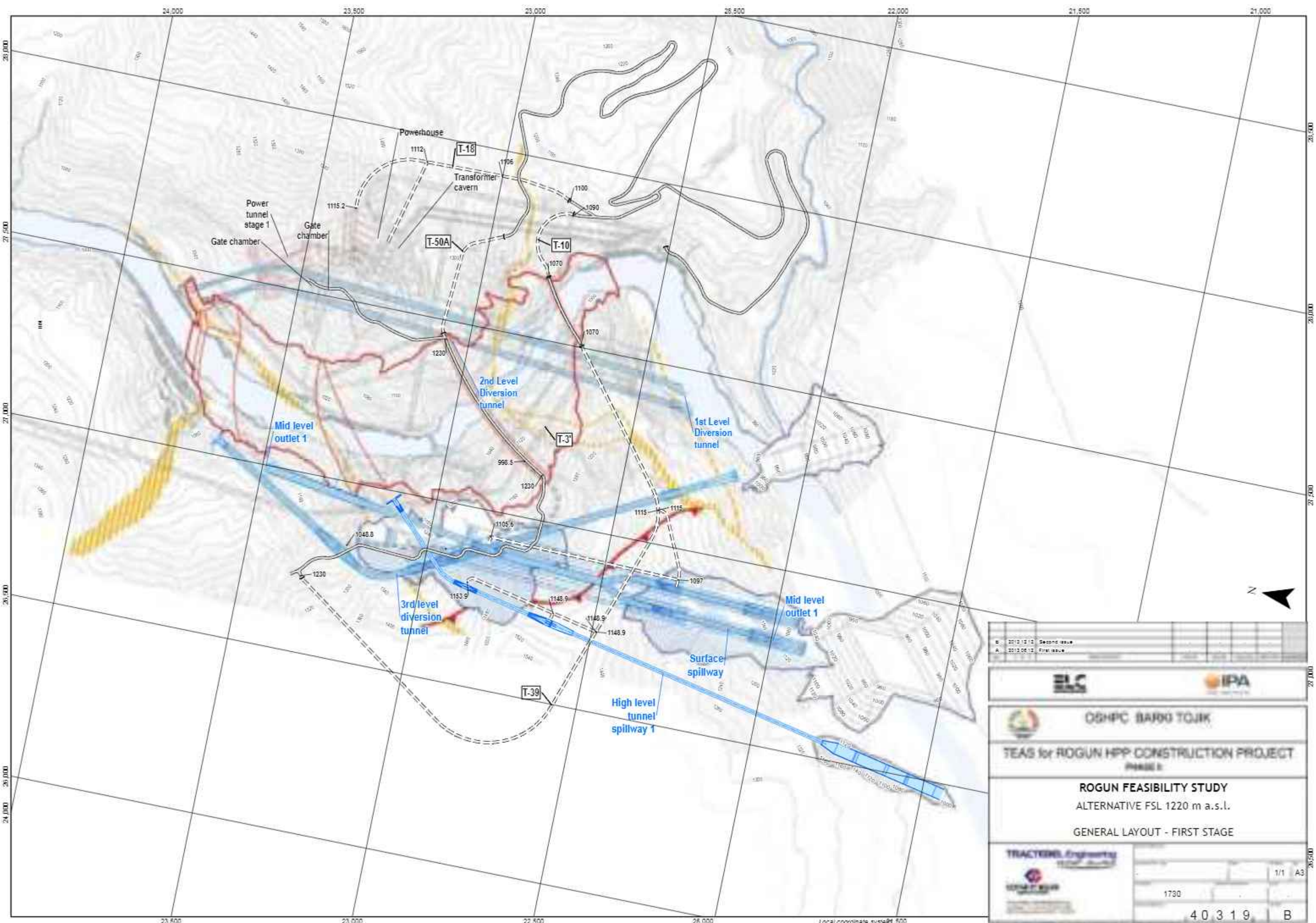


Legend

-  Surface spillway with chainage (m)
-  Dam layout

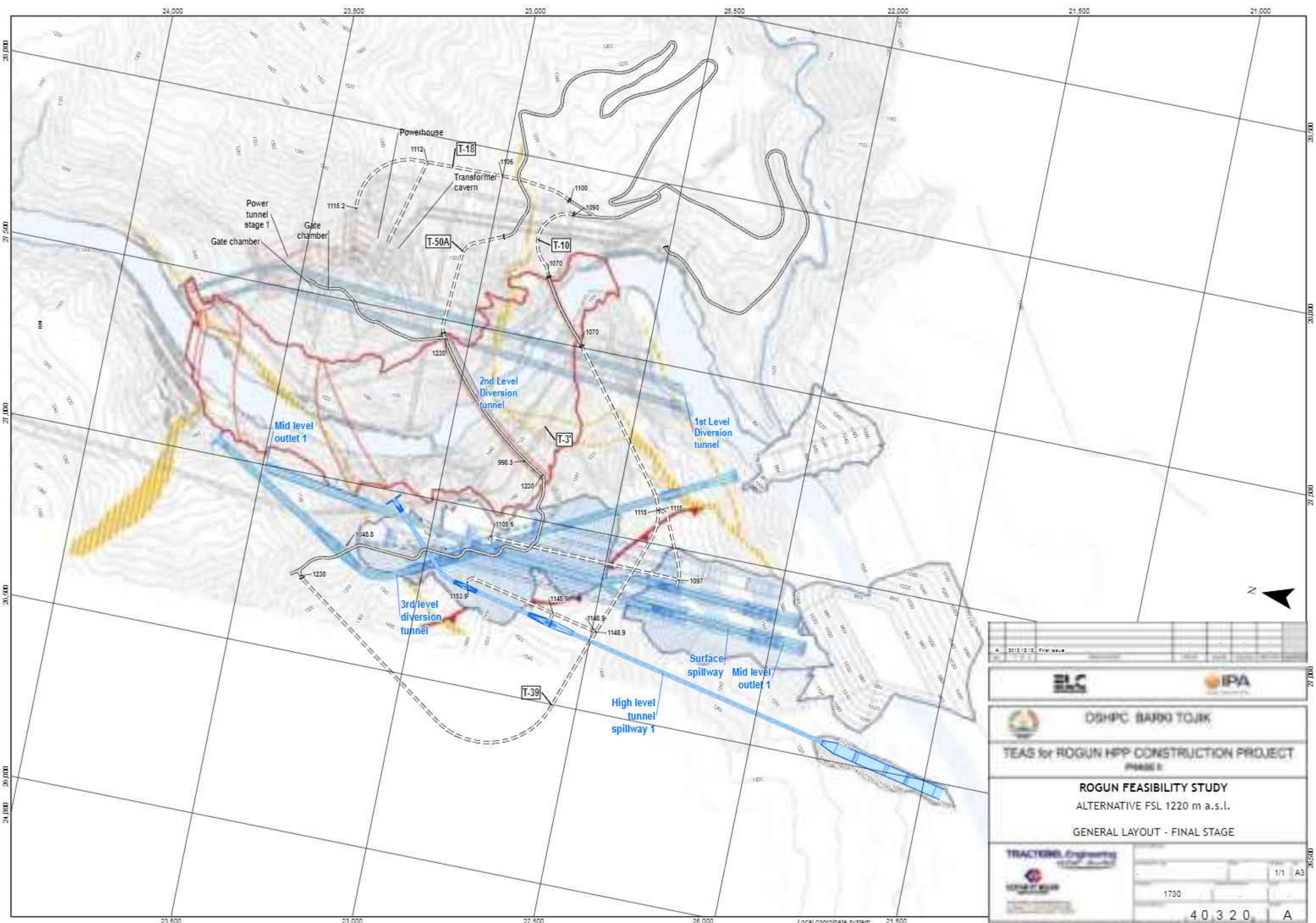
| | | | |
|---|--|---|--|
| A 2013.06.12 First Issue | | BAR LCC | |
|  | |  | |
|  | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT | | | |
| ROGUN FEASIBILITY STUDY | | | |
| DAM ALTERNATIVE FSL 1220 m a.s.l. | | | |
| SURFACE SPILLWAY - FINAL STAGE | | | |
| GENERAL PLAN | | | |
|  | | 1:5,000 1/1 A3 | |
| RFS 1730 | | ELC | |
| 4 0 3 1 8 | | B | |

Local coordinate system



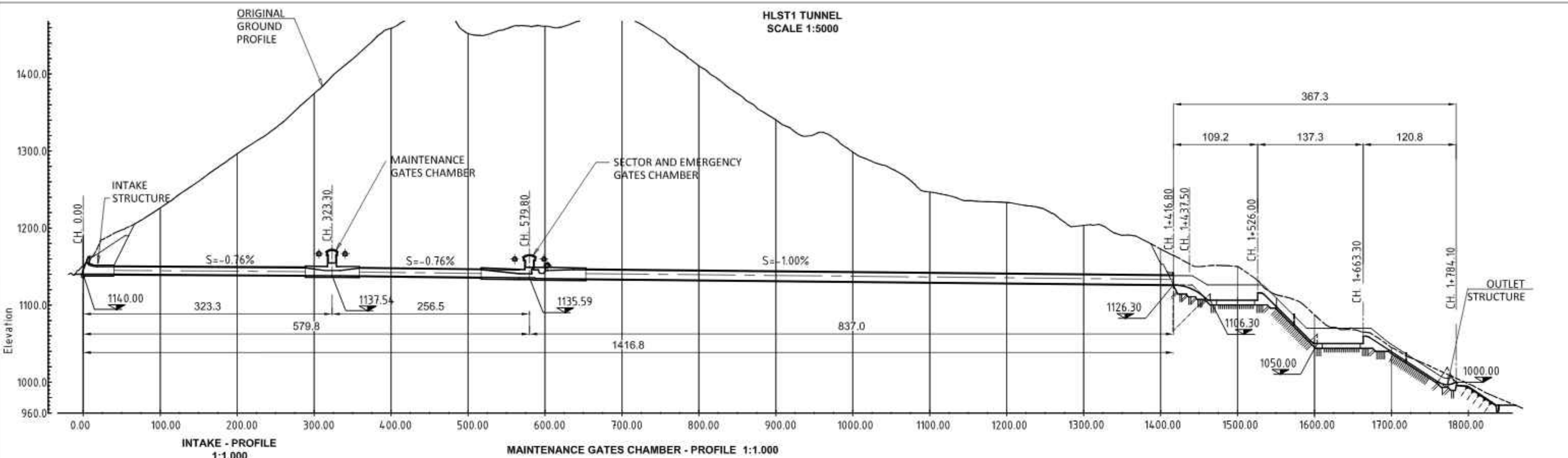
| | |
|---|-------------|
| E 2012.12.12 Second issue A 2012.06.12 First issue | |
| | |
| | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY ALTERNATIVE FSL 1220 m a.s.l. GENERAL LAYOUT - FIRST STAGE | |
| | 1/1 A3 |
| 1730 | 4 0 3 1 9 B |

Local coordinate system: 500



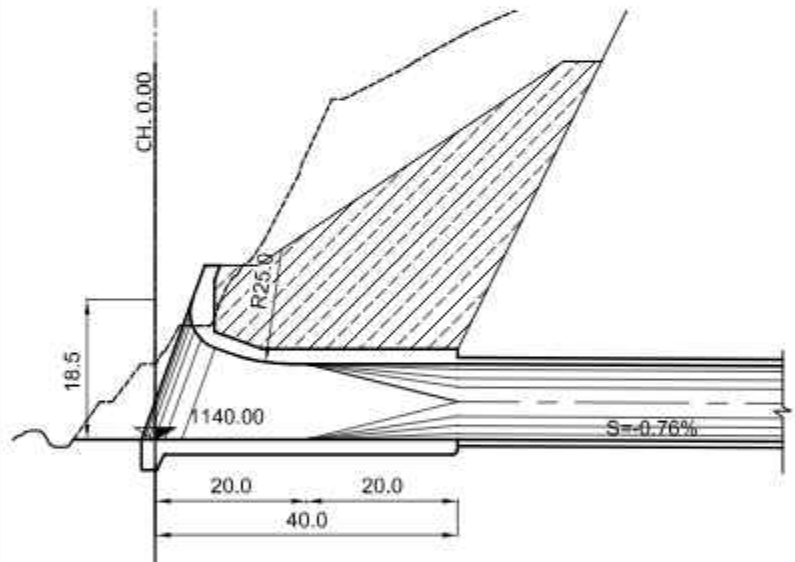
| | |
|---|----------------------------------|
| A 2012.12.12 Final issue | |
| | |
| OSMPC BARDU TOJK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE I | |
| ROGUN FEASIBILITY STUDY ALTERNATIVE FSL 1220 m a.s.l. GENERAL LAYOUT - FINAL STAGE | |
| | 1/1 A3 1730 40320 A |

Local coordinate system

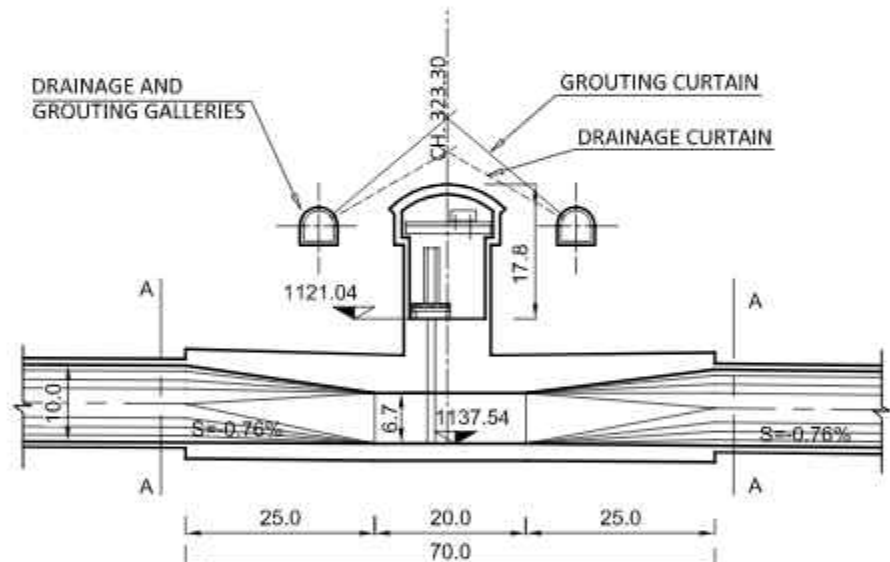


INTAKE - PROFILE
1:1.000

MAINTENANCE GATES CHAMBER - PROFILE 1:1.000

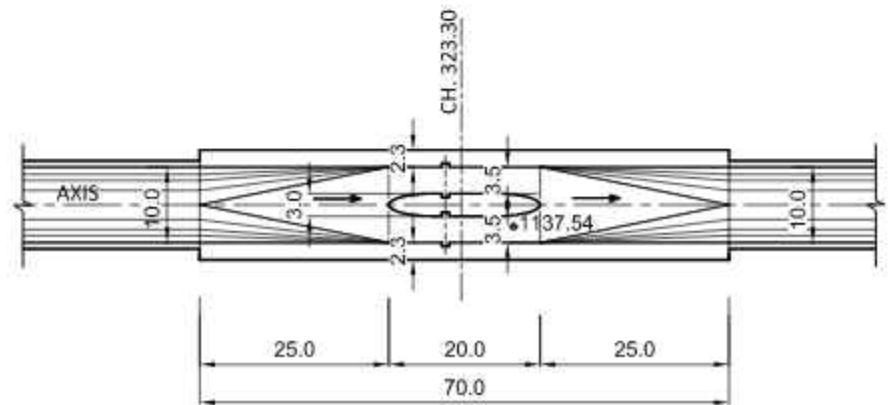
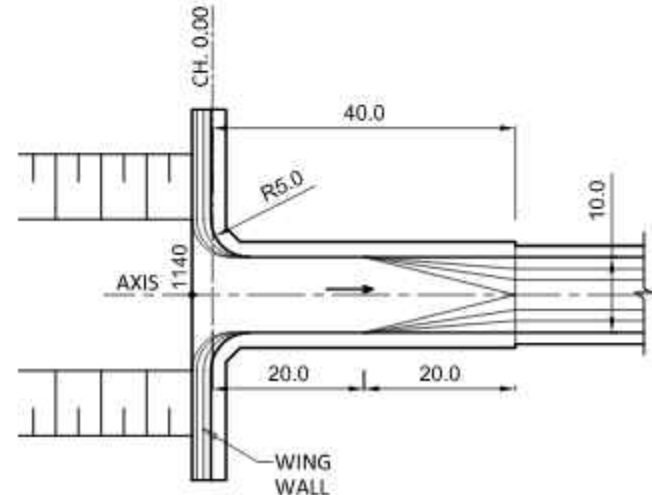
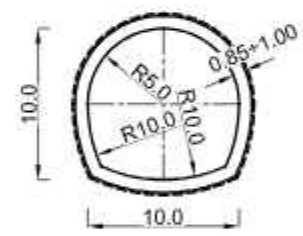


INTAKE - PLAN
1:1.000



MAINTENANCE GATES CHAMBER - PLAN
1:1.000

SECTION A-A
1:500



| | | | | | | | | | |
|------|------|----|----|-------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | PROTECTORS | | PYB | DES/GER | LDJ | |
| A | 2013 | 04 | 15 | PREL DESIGN | | PYB | LDJ-PAB | LDJ-PAB | |



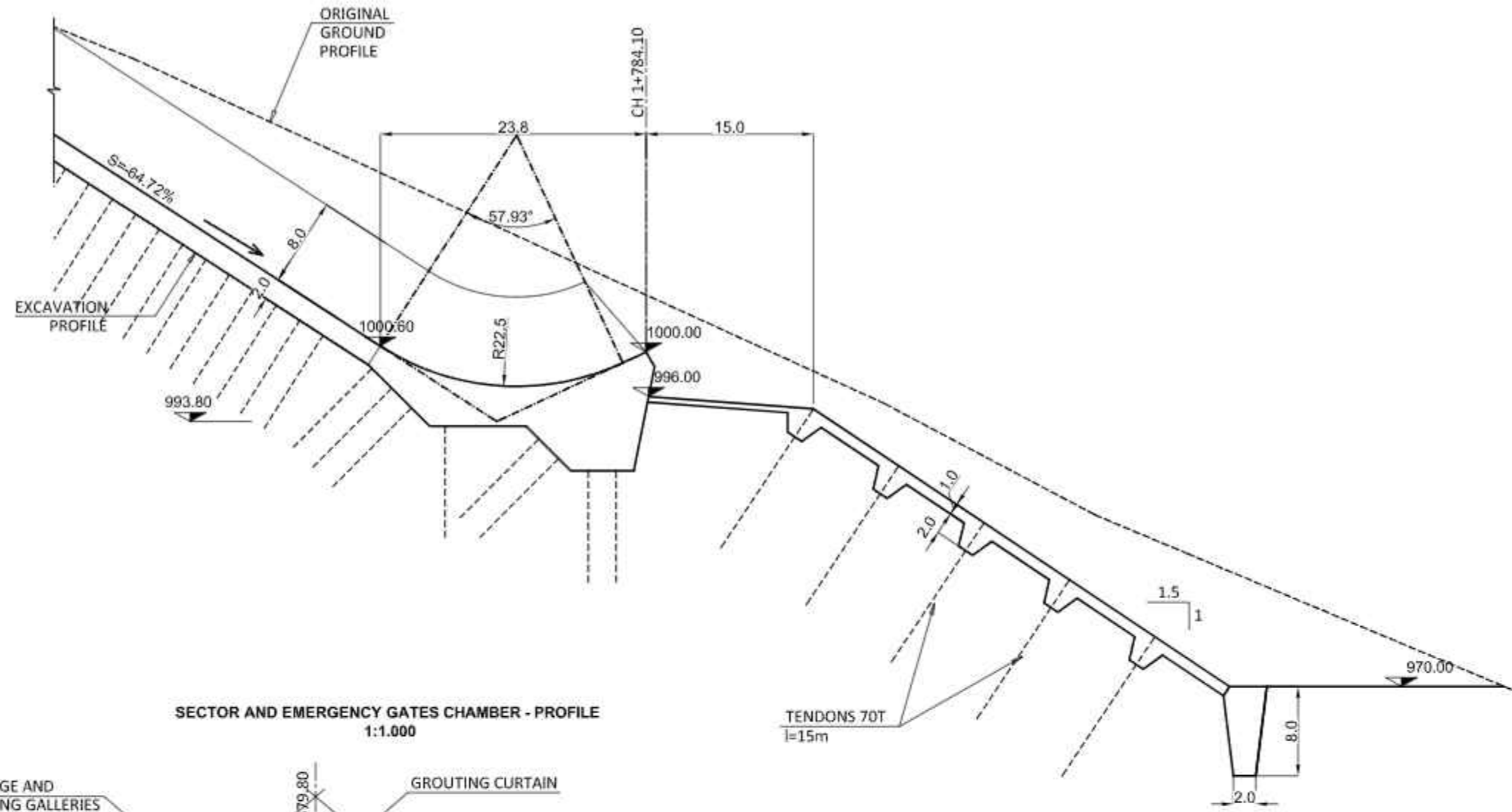
OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1220 - HLST1 TUNNEL
PROFILE, INTAKE, GATES CHAMBERS AND SECTIONS

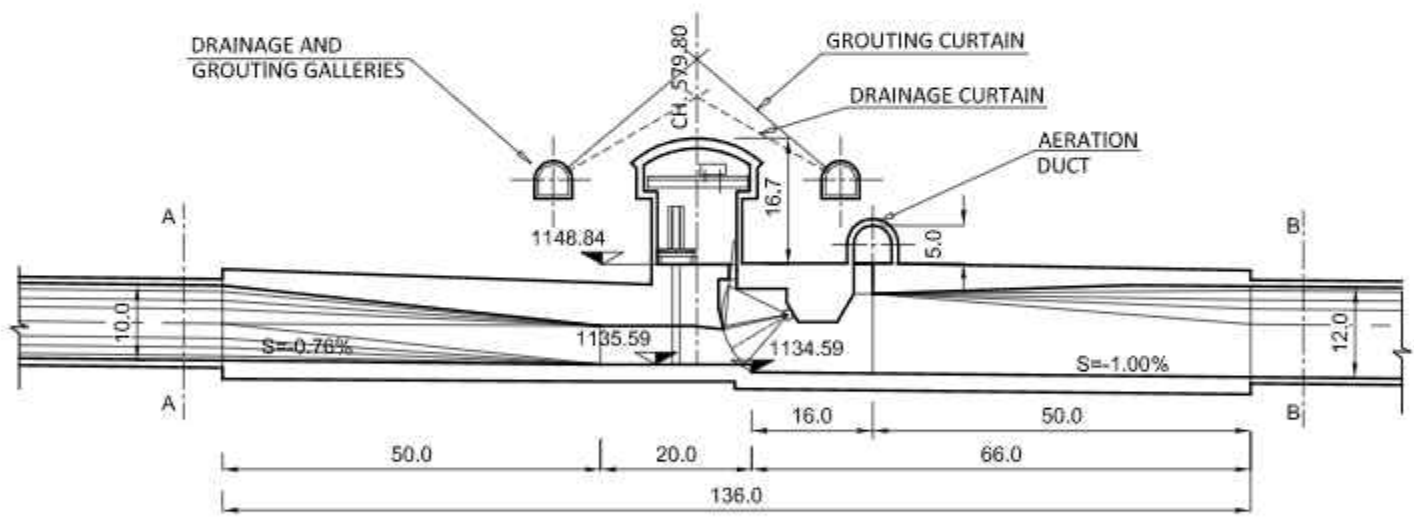
| | | | | | |
|-----------------------|------------|------------------------|------|------------------|------|
| TRACTEBEL Engineering | | GDF SVEZ | | COYNE ET BELLIER | |
| Computer File .dwg | 40_351 | Scale | VAR. | 16 Sheet | 1 A3 |
| Impression | 1730 | Technical Substitution | | Level | |
| Drawing Reference | 4,0,3,5,1, | Project | | | B |

This document is the property of Tractebel Engineering, any duplication or reproduction to third parties is forbidden without its prior approval.

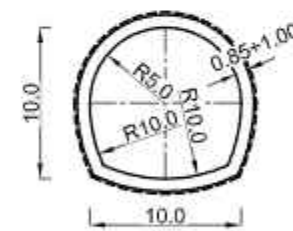
OUTLET - PROFILE
1:500



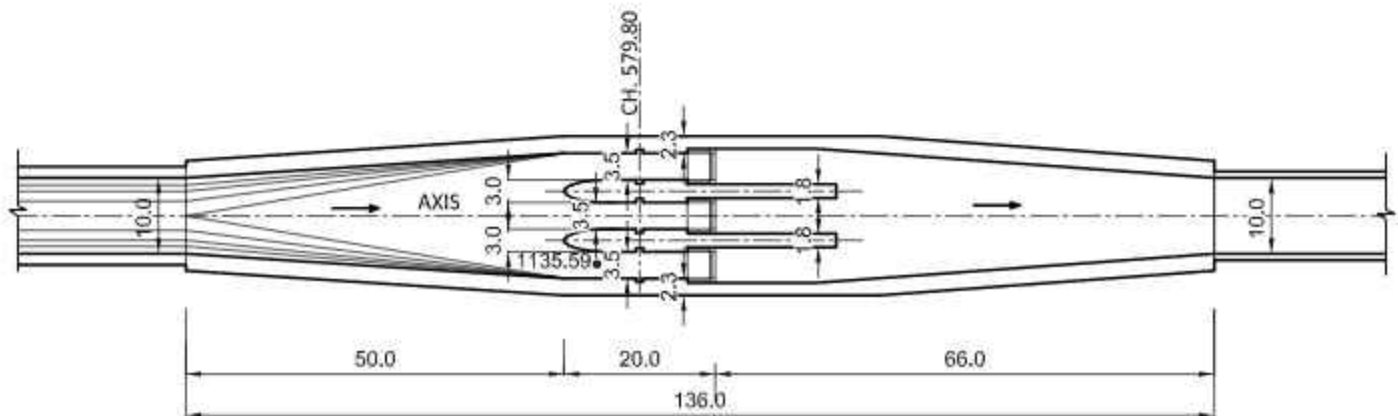
SECTOR AND EMERGENCY GATES CHAMBER - PROFILE
1:1.000



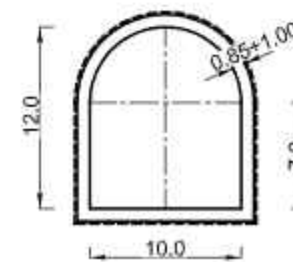
SECTION A-A
1:500



SECTOR AND EMERGENCY GATES CHAMBER - PLAN
1:1.000



SECTION B-B
1:500



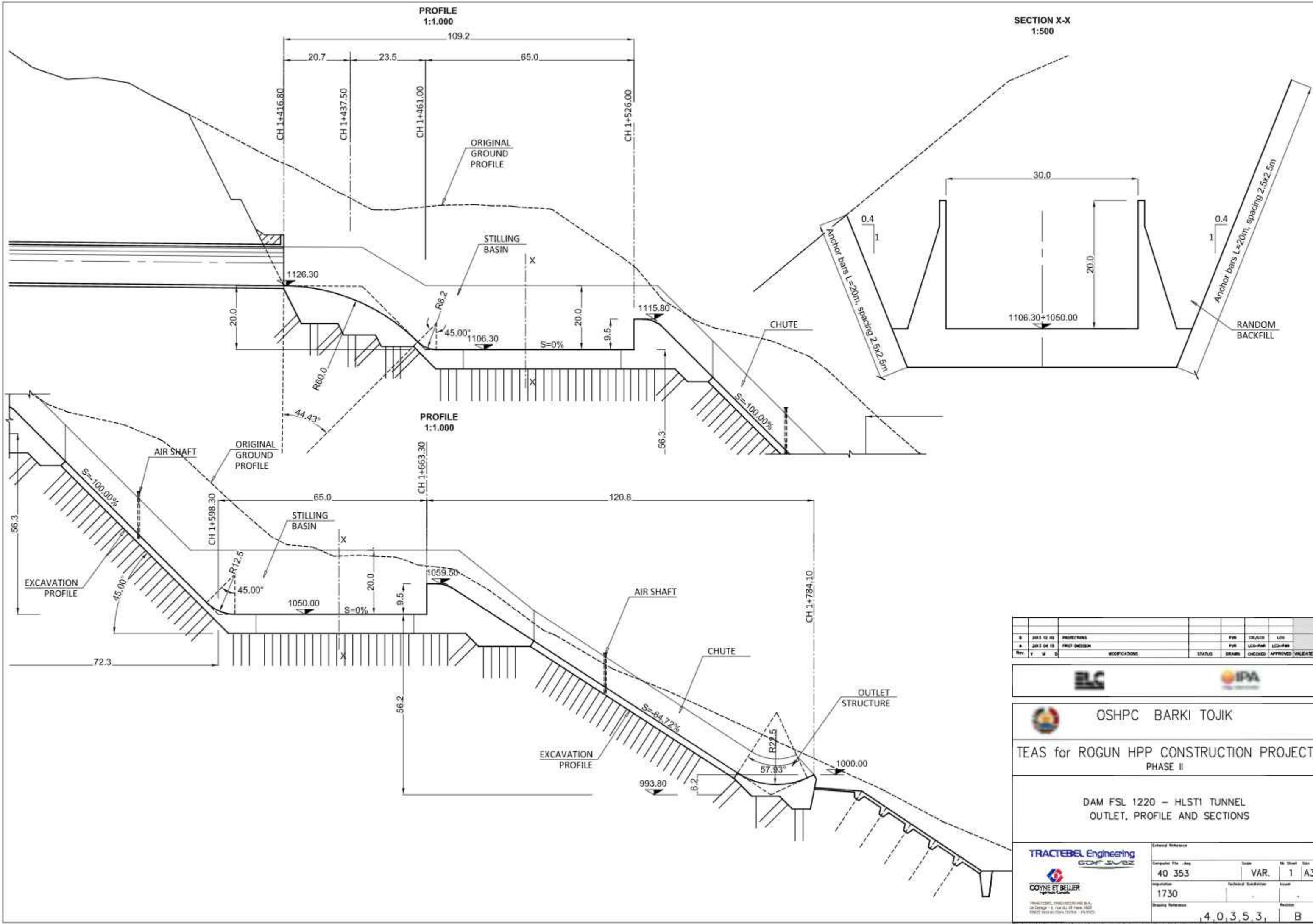
| | | | | | | | | | |
|------|------|----|----|----------------------------|--------|-------|---------|----------|-----------|
| Rev. | Y | M | D | DESCRIPTION | STATUS | DRAWN | CHECKED | APPROVED | VALIDATED |
| B | 2013 | 12 | 02 | VENTILATION AND PROTECTION | | PYB | LDG/PAK | LDG | |
| A | 2013 | 04 | 15 | PRELIMINARY DESIGN | | PYB | LDG/PAK | LDG/PAK | |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1220 - HLST1 TUNNEL
GATES CHAMBER AND OUTLET
PROFILE, PLAN AND SECTIONS

| | | | |
|-----------------------------------|------------|------------------|------|
| TRACTEBEL Engineering GOF JV&Z | | COYNE ET BELLIER | |
| Computer File .dwg | 40_352 | Scale | VAR. |
| Revision | 1730 | No. Sheet | 1 |
| Sheet | | Total | A3 |
| Drawing Reference | 4,0,3,5,2, | Position | B |



| | | | | | | | | | |
|-----|------------|------|-------------|---------------|----------|----------|----------|-----------|-----------|
| REV | NO | DATE | DESCRIPTION | STATUS | DESIGNED | CHECKED | APPROVED | VALIDATED | |
| B | 2013 12 02 | | PROTECTORS | | PKB | DS/GR | | LD | |
| A | 2013 04 15 | | PROJ DESIGN | | PKB | LDI-PAB | | LDI-PAB | |
| REV | Y | M | D | MODIFICATIONS | STATUS | DESIGNED | CHECKED | APPROVED | VALIDATED |

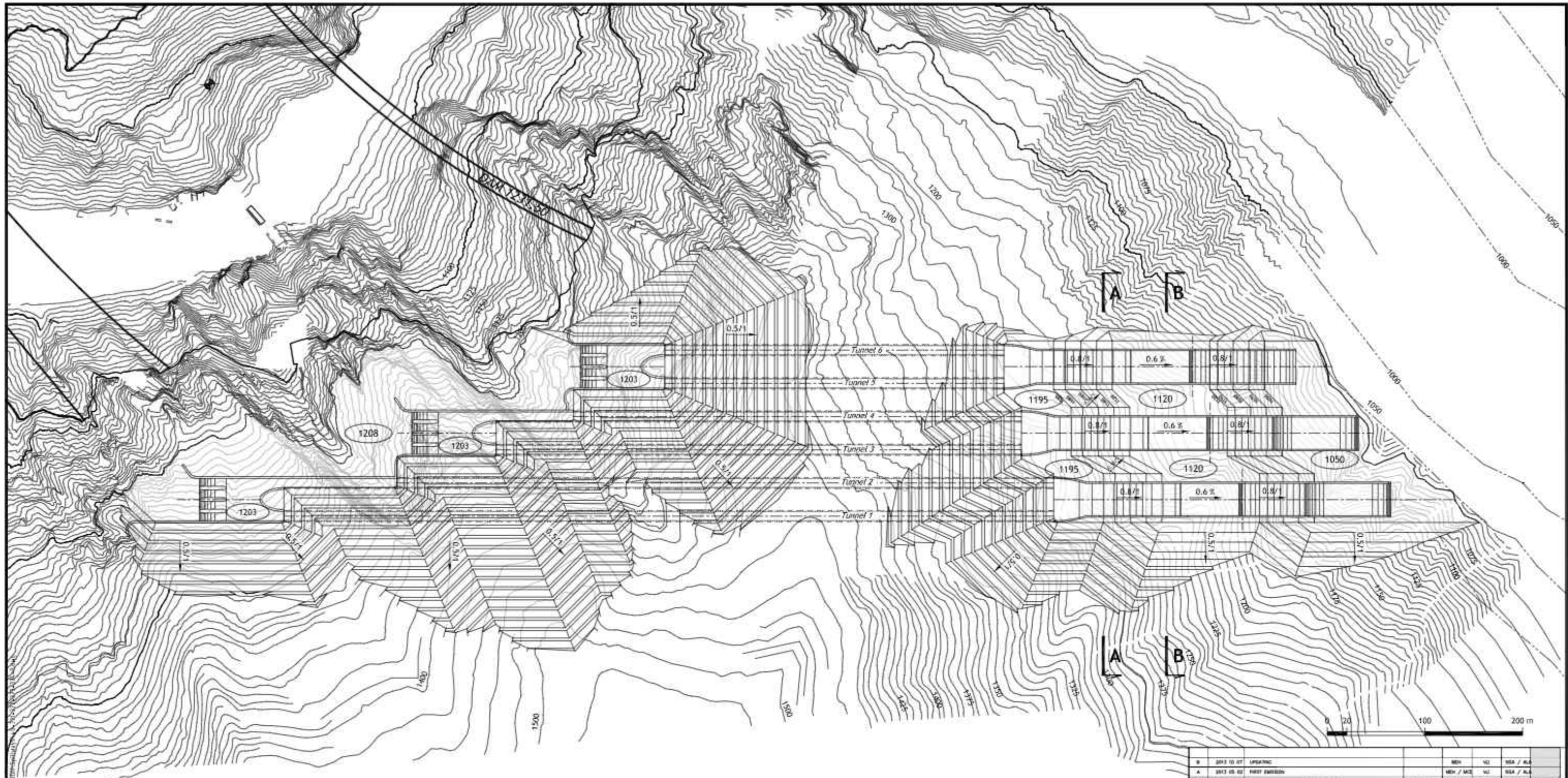


OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1220 - HLST1 TUNNEL
 OUTLET, PROFILE AND SECTIONS

| | | | |
|---|------------------------|-------|------------|
| TRACTEBEL Engineering GOF JVZ | | | |
| COYNE ET BELLIER <small>TRACTEBEL ENGINEERING S.A. 10, Rue de la Vallée - 1200 Lausanne - Suisse 0035 2010 0100 - 0100 - 100000</small> | | | |
| Computer File .dwg | Scale | No | Sheet Size |
| 40 353 | VAR. | 1 | A3 |
| Impression | Technical Substitution | Level | |
| 1730 | | | |
| Drawing Reference | Project | | |
| | 4,0,3,5,3, | | B |

This document is the property of Tractebel Engineering, any application or reproduction to third parties is forbidden without its prior approval.



ҲАМРАСТАИ ИТБИ ИИС, Бунғалӣ, Ҷумҳурии Тоҷикистон - PHASE 2 DRAWINGS - 2D ENGINEERING - 2013-2014 - 40-371-372-373-374-8

| | | | | | | | |
|-----|------------|--------------------|---------------|--------|-------|---------|----------|
| № | 2013.05.07 | ИРРАДИ | МН | М | М | М | М |
| А | 2013.05.02 | ҲАМРАСТАИ ИТБИ ИИС | МН | М | М | М | М |
| Rev | 1 | 0 | MODIFICATIONS | STATUS | DRAWN | CHECKED | APPROVED |



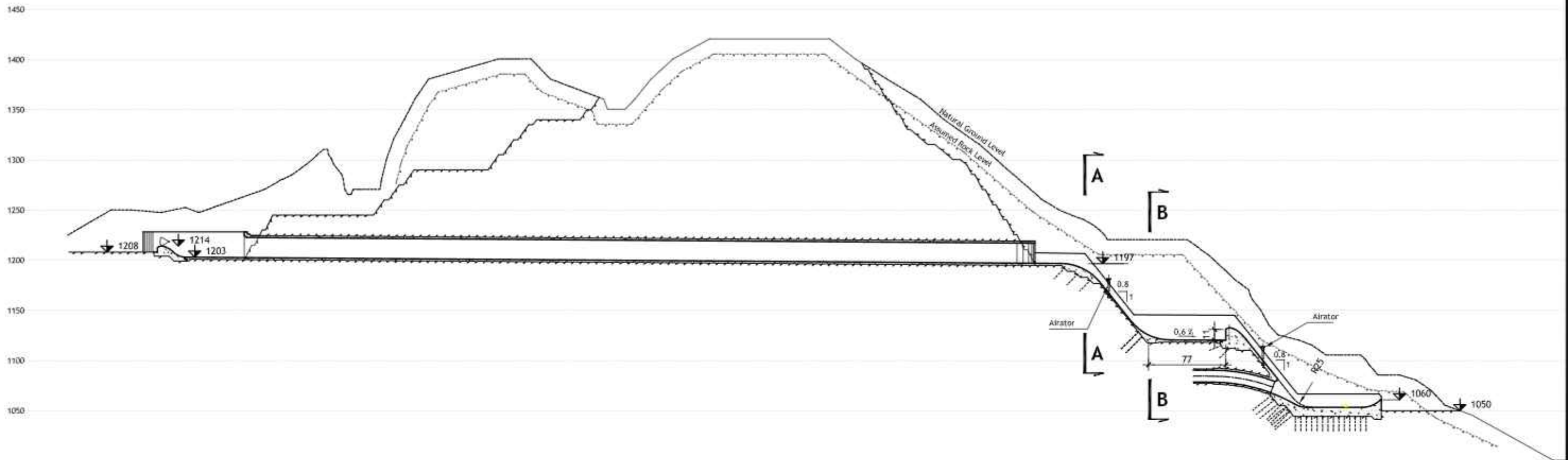
OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
 SURFACE SPILLWAY
 FINAL STAGE
 PLAN VIEW

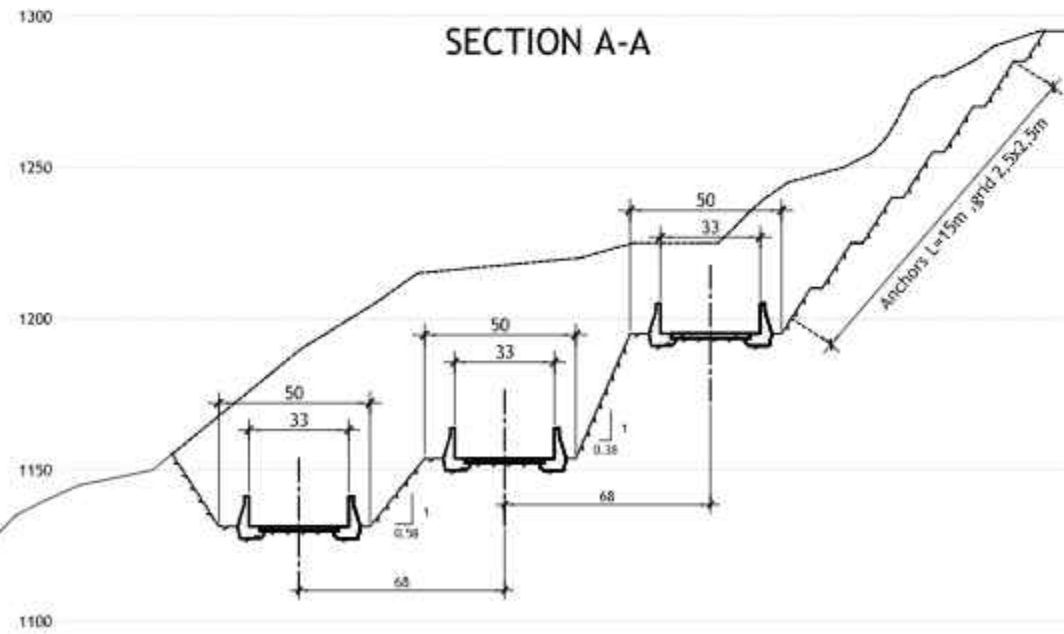
| | | | |
|--|-------------------------------------|------------------------------|---------------------|
| | External Reference | | |
| | Computer File: 40-371-372-373-374-8 | Scale: 1/2000 | No. Sheet: 1/3 A1 |
| | Project: P 002 378 | Technical Substitution: FORM | Issue: HYDRO |
| | Drawing Reference: 4.0.3.7.1 | B | |

The document is the property of Tractebel Engineering. Any utilization or reproduction in third parties is forbidden without the prior approval.

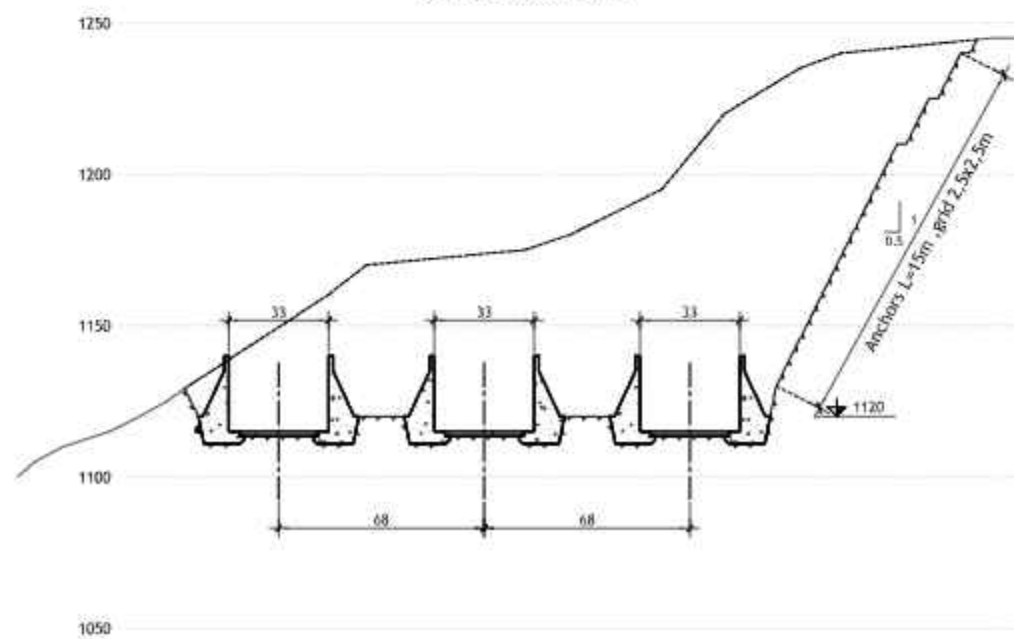
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS



SECTION A-A



SECTION B-B



| № | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED | VALIDATED |
|---|---------|-----------------|--------|----|---------|----------|-----------|
| 1 | 2014.07 | ISSUED | | | | | |
| 2 | 2014.08 | FOR LAYOUT | | | | | |
| 3 | 2014.08 | WORKING DRAWING | | | | | |

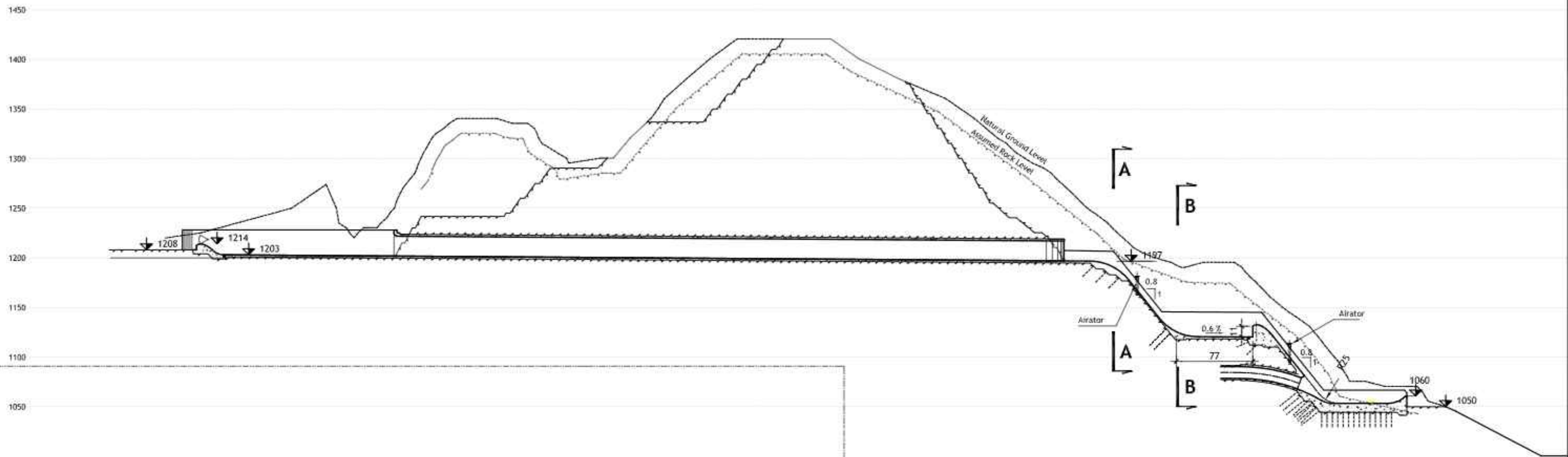
OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

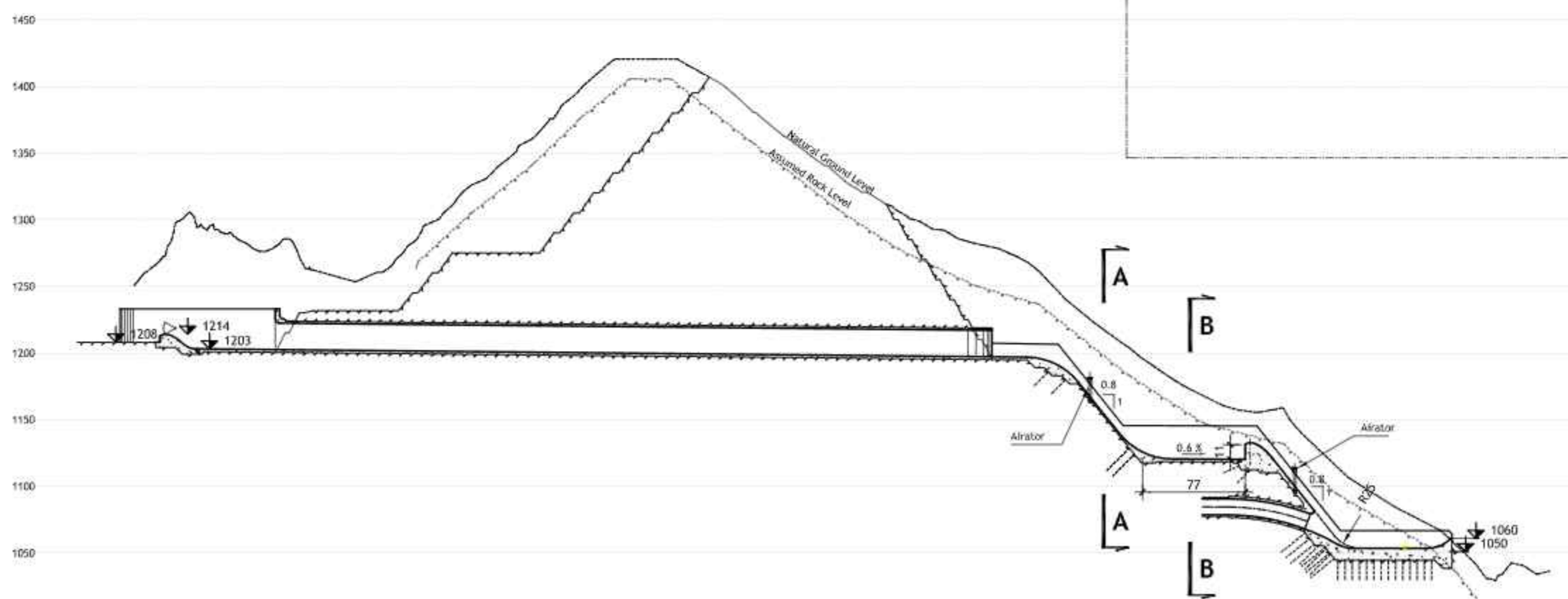
DAM ALTERNATIVE FSL=1220 m.a.s.l.
SURFACE SPILLWAY
FINAL STAGE
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS & SECTIONS

| | | | | | | | |
|-------------------|----------------------|-------------|--------|-----------|-------|-------------|----|
| Project No: | 40-371-372-373-374-B | Scale: | 1/2000 | Sheet No: | 3/3 | Sheet Size: | A1 |
| Project Name: | P 002 378 | Discipline: | FORM | Subject: | HYDRO | | |
| Project Location: | 4 0 3 7 2 B | | | | | | |

LONGITUDINAL PROFILE ALONG TUNNEL 2 AXIS



LONGITUDINAL PROFILE ALONG TUNNEL 3 AXIS

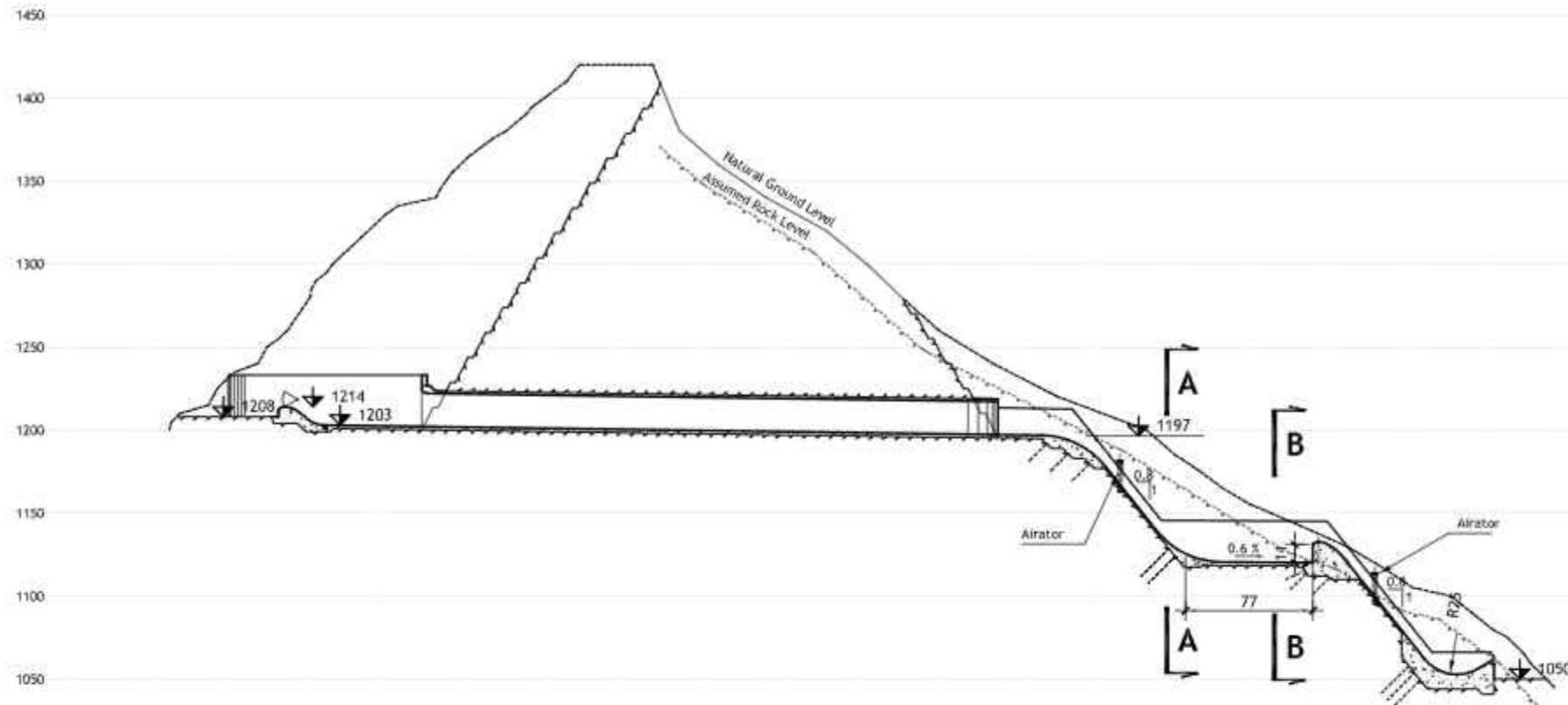


| | | | | | | |
|---|----------|-----------|--|--------|------|--------|
| № | 2011.07 | СРЕДНЕ | | ИМ | ИИ | ИСПИТА |
| № | 2012.01 | ПРОЕКТ | | ИМУС | ИИ | ИСПИТА |
| № | 11.01.11 | ИЗМЕНЕНИЯ | | СТАТУС | ИМУС | ИСПИТА |

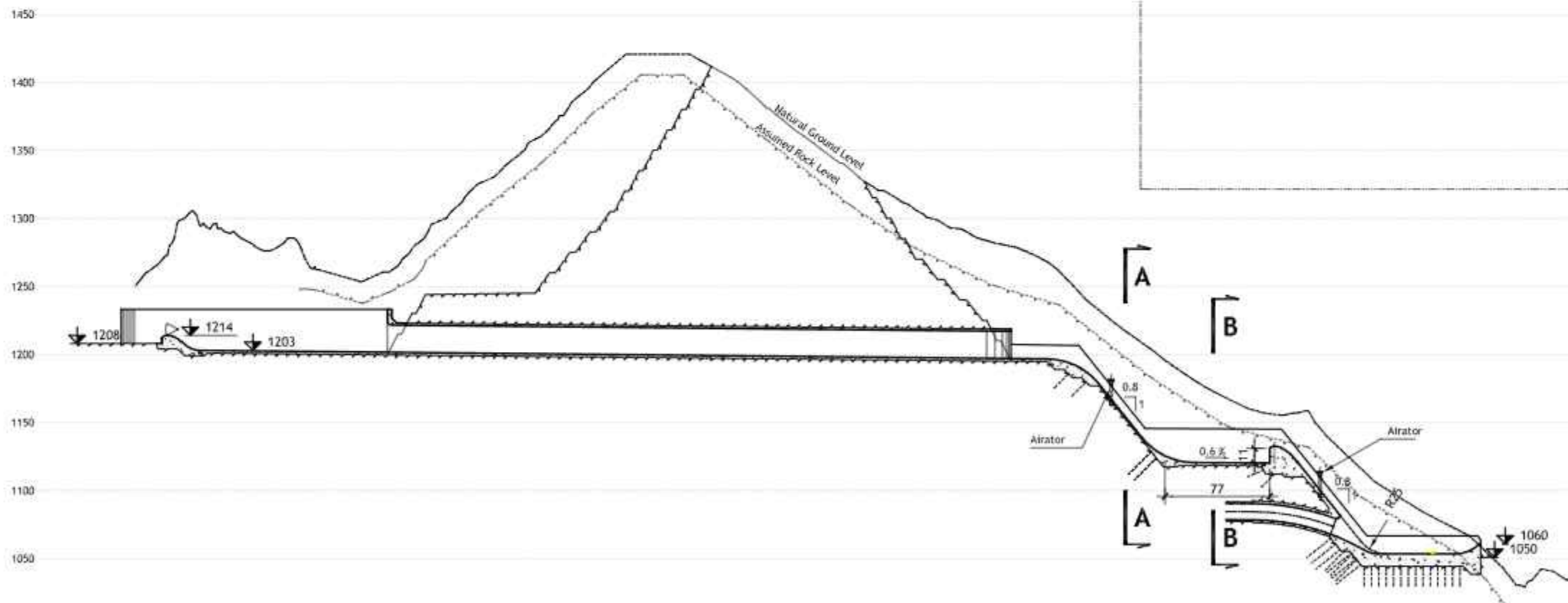
| | | | | | | | | | | | | | | | | | | | | | |
|--|---------------|---|------|-------|--------|-------|-----|-----|----|---------|-----------|------|------|-------|-------|--------|---------------|-------|--|--|---|
| ILC | | ИПА | | | | | | | | | | | | | | | | | | | |
| OSHPC BARKI TOJIK | | | | | | | | | | | | | | | | | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | | | | | | | | | | | | | | | | | | | |
| DAM ALTERNATIVE FSL=1220 m.a.s.l. SURFACE SPILLWAY FINAL STAGE LONGITUDINAL PROFILES ALONG TUNNEL 3 & 2 | | | | | | | | | | | | | | | | | | | | | |
| TRACTEBEL Engineering <i>sof svez</i> | | <table border="1"> <tr> <td>Scale</td> <td>1/2000</td> <td>Sheet</td> <td>2/3</td> <td>Set</td> <td>A1</td> </tr> <tr> <td>Project</td> <td>P 002 378</td> <td>Form</td> <td>FORM</td> <td>Hydro</td> <td>HYDRO</td> </tr> <tr> <td>Design</td> <td>4, 0, 3, 7, 3</td> <td>Scale</td> <td></td> <td></td> <td>B</td> </tr> </table> | | Scale | 1/2000 | Sheet | 2/3 | Set | A1 | Project | P 002 378 | Form | FORM | Hydro | HYDRO | Design | 4, 0, 3, 7, 3 | Scale | | | B |
| Scale | 1/2000 | Sheet | 2/3 | Set | A1 | | | | | | | | | | | | | | | | |
| Project | P 002 378 | Form | FORM | Hydro | HYDRO | | | | | | | | | | | | | | | | |
| Design | 4, 0, 3, 7, 3 | Scale | | | B | | | | | | | | | | | | | | | | |
| COYNE ET BELLER <i>Engineering</i> | | <table border="1"> <tr> <td>Scale</td> <td>1/2000</td> <td>Sheet</td> <td>2/3</td> <td>Set</td> <td>A1</td> </tr> <tr> <td>Project</td> <td>P 002 378</td> <td>Form</td> <td>FORM</td> <td>Hydro</td> <td>HYDRO</td> </tr> <tr> <td>Design</td> <td>4, 0, 3, 7, 3</td> <td>Scale</td> <td></td> <td></td> <td>B</td> </tr> </table> | | Scale | 1/2000 | Sheet | 2/3 | Set | A1 | Project | P 002 378 | Form | FORM | Hydro | HYDRO | Design | 4, 0, 3, 7, 3 | Scale | | | B |
| Scale | 1/2000 | Sheet | 2/3 | Set | A1 | | | | | | | | | | | | | | | | |
| Project | P 002 378 | Form | FORM | Hydro | HYDRO | | | | | | | | | | | | | | | | |
| Design | 4, 0, 3, 7, 3 | Scale | | | B | | | | | | | | | | | | | | | | |

Y:\proj\Production\Commission\TDR\WP5_Rogun\Feasibility Study\113 - EAD\AR\TDR\113010 - PHASE 2 DRAWINGS\DWG\OSHP\OSHP\113010_01A_01B.DWG

LONGITUDINAL PROFILE ALONG TUNNEL 5 & 6 AXIS



LONGITUDINAL PROFILE ALONG TUNNEL 4 AXIS



| | | | | | | | |
|-----|----------|------|------------|----|----------|--------|--------|
| No. | 001/027 | DATE | 19/11/2014 | BY | Y. M. S. | STATUS | ISSUED |
| No. | 001/028 | DATE | 20/11/2014 | BY | Y. M. S. | STATUS | ISSUED |
| No. | Y. M. S. | DATE | | BY | | STATUS | ISSUED |



OSHPC BARKI TOJIK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
 SURFACE SPILLWAY
 FINAL STAGE
 LONGITUDINAL PROFILES ALONG TUNNEL 4, 5 & 6

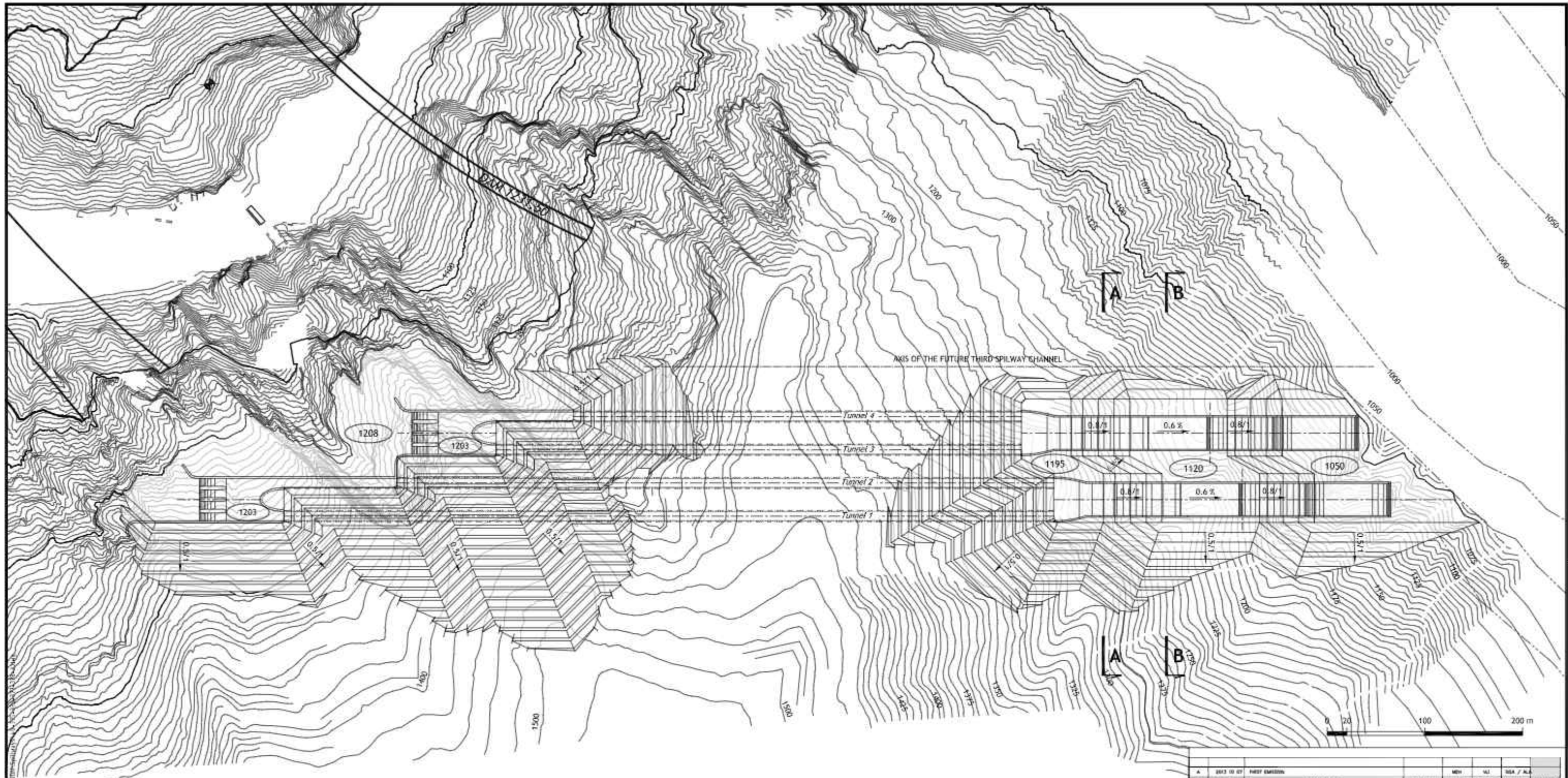
TRACTEBEL Engineering
 s.p.a. s.r.l.

COYNE ET BELLER
 s.p.a. s.r.l.

PROGETTO E DIREZIONE DEI LAVORI
 LAVORI DI PROGETTO E DIREZIONE DEI LAVORI
 DIREZIONE DEI LAVORI

| | | | | | | | |
|--------------|----------------------|-------|--------|------------|-------|-------|----|
| Project No. | 40-371-372-373-374-B | Scale | 1/2000 | Sheet No. | 2/3 | Sheet | A1 |
| Project Name | P 002 378 | Form | FORM | Discipline | HYDRO | | |
| Project Code | 4, 0, 3, 7, 4, | | | | | | B |

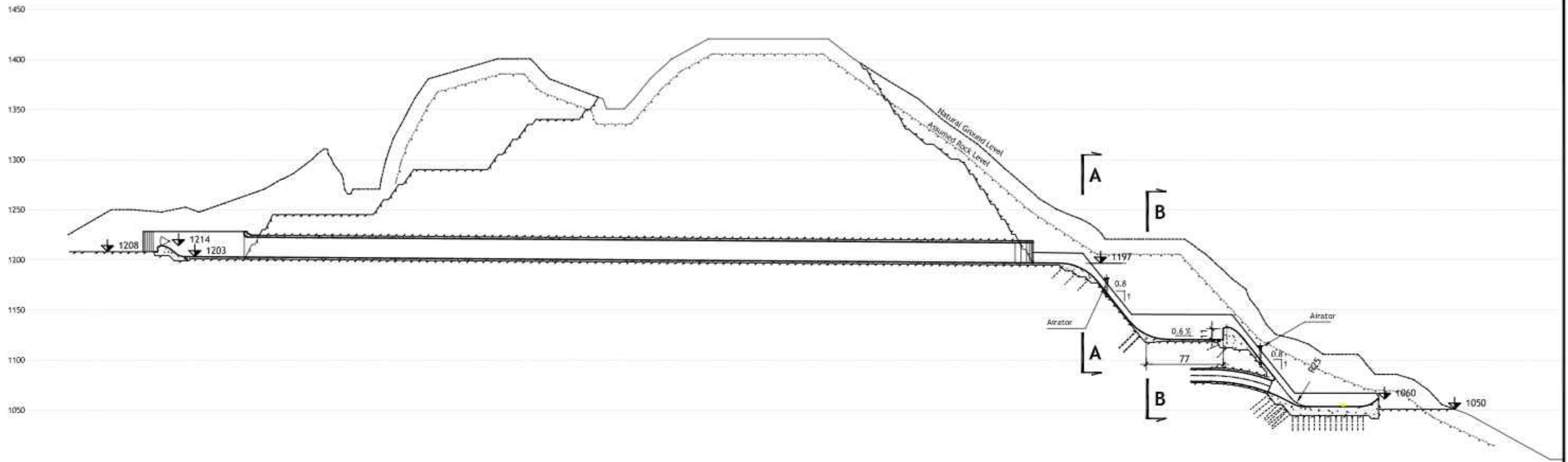
001/027/2014 - 001/028/2014 - PHASE 2 - DAM ALTERNATIVE FSL=1220 m.a.s.l. - SURFACE SPILLWAY - FINAL STAGE - LONGITUDINAL PROFILES ALONG TUNNEL 4, 5 & 6



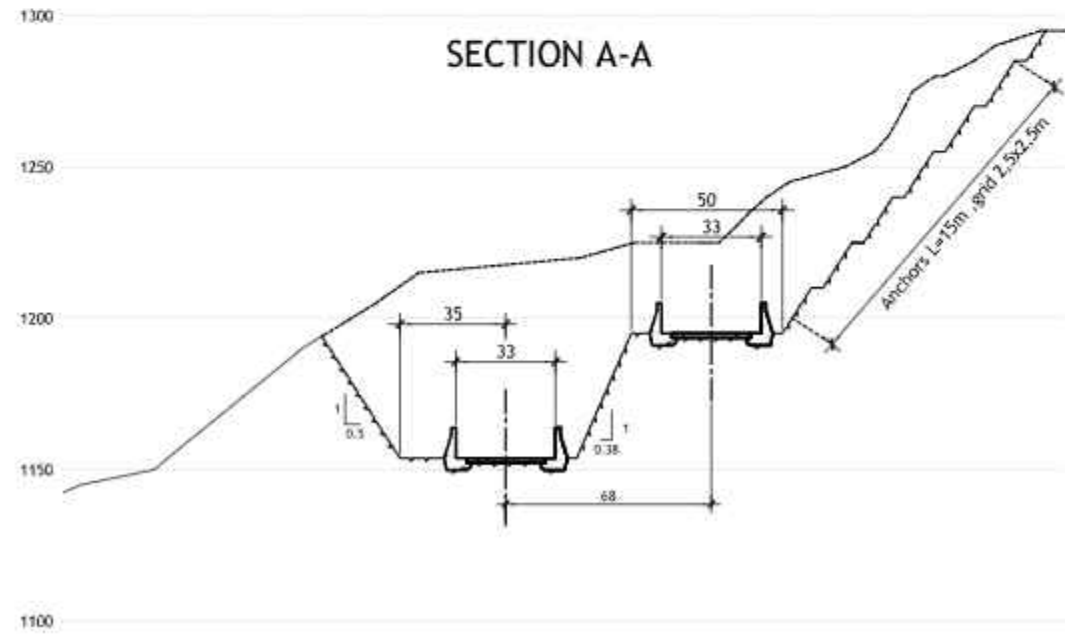
40-375-376-377-378-A
 1/3 A1
 2023.10.07
 1:2000
 1/3 A1
 40-375-376-377-378-A
 1/3 A1

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---------|-------|--------|--|-----------------|--------|----------|-------|-------|------|----|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Rev | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| Author | Checked | Drawn | Design | Supervisor | Project Manager | Client | Contract | Scale | Sheet | Size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | OSHPC BARKI TOJK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 DAM ALTERNATIVE FSL=1220 m.a.s.l. SURFACE SPILLWAY FIRST STAGE PLAN VIEW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | TRACTEBEL Engineering GDF SUEZ <small>COYNE ET BELLIER</small> <small>Ingénierie et Conseil</small> <small>19, rue de la République - 10000 Yverdon - Suisse</small> <small>Tel: +41 26 300 11 11 - Fax: +41 26 300 11 12</small> <small>www.tractebel.com</small> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Computer File 40-375-376-377-378-A | | | | | | | | | | | | Scale 1/2000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Author P 002 378 | | | | | | | | | | | | Technical Substitution FORM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drawing Reference 4.0.3.7.5 | | | | | | | | | | | | Sheet A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

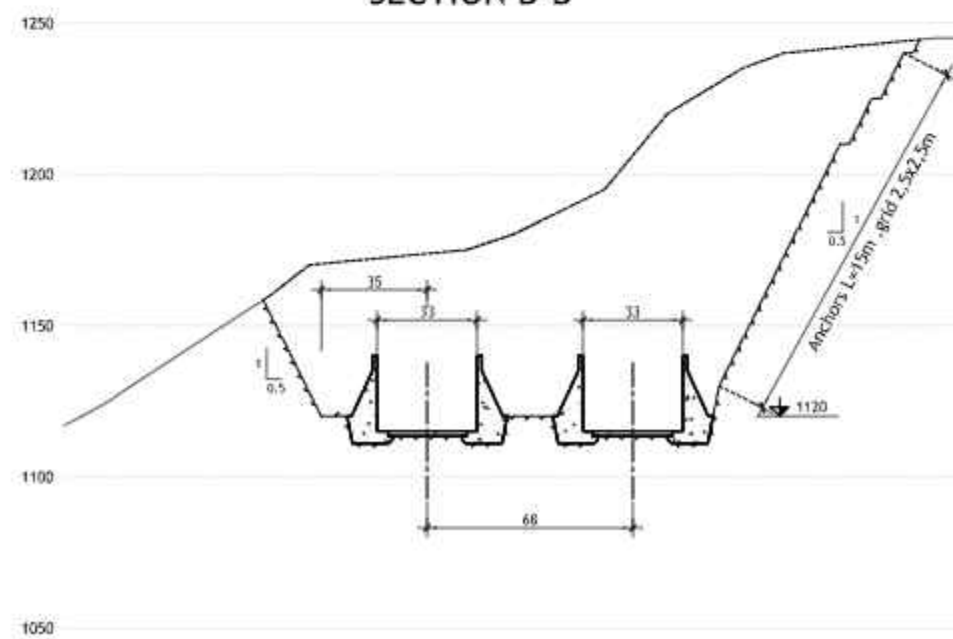
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS



SECTION A-A



SECTION B-B



| | | | | | | | |
|--------------|--|------------|--|-------|--|--------------------------|--|
| PROJECT | | NO. / DATE | | SCALE | | SHEET NO. / TOTAL SHEETS | |
| PROJECT NAME | | DATE | | SCALE | | SHEET NO. / TOTAL SHEETS | |
| PROJECT NO. | | DATE | | SCALE | | SHEET NO. / TOTAL SHEETS | |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
SURFACE SPILLWAY
FIRST STAGE
LONGITUDINAL PROFILE ALONG TUNNEL 1 AXIS & SECTIONS

TRACTEBEL Engineering
GDF SUEZ

COYNE ET BELLER
Ingénieurs Conseils

TRACTEBEL ENGINEERING S.A.
1201 Chêne - 1200 Lausanne, Suisse
0041 (0)21 318 11 11 - 0041 (0)21 318 11 12

Scale: 1/2000

Sheet: 3/3

Discipline: HYDRO

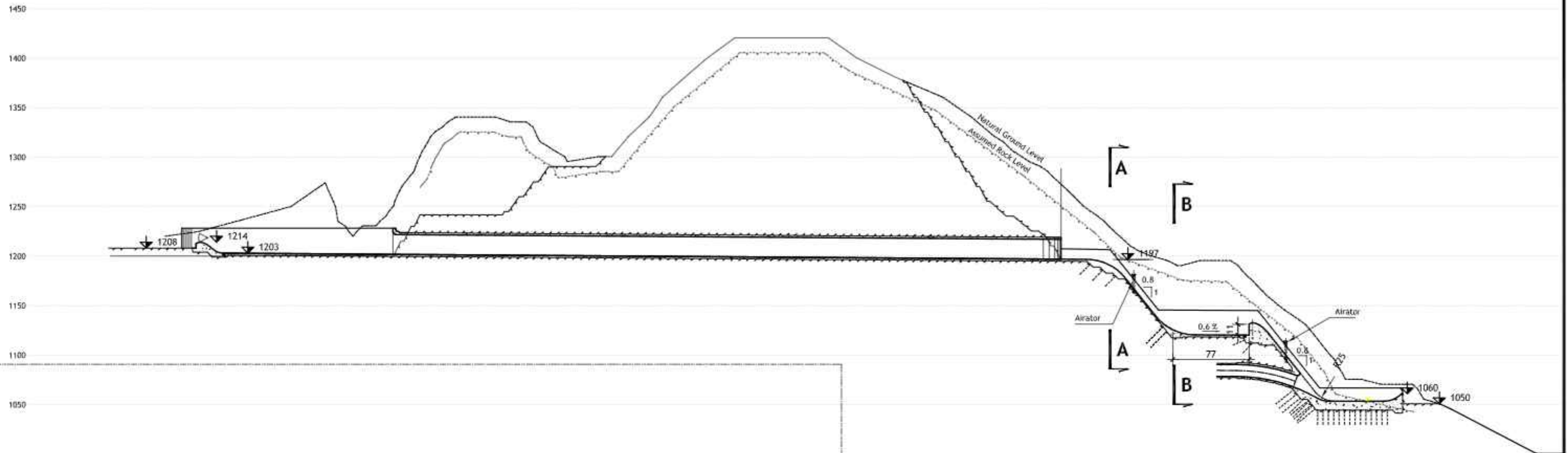
Project No: P 002 378

Form: FORM

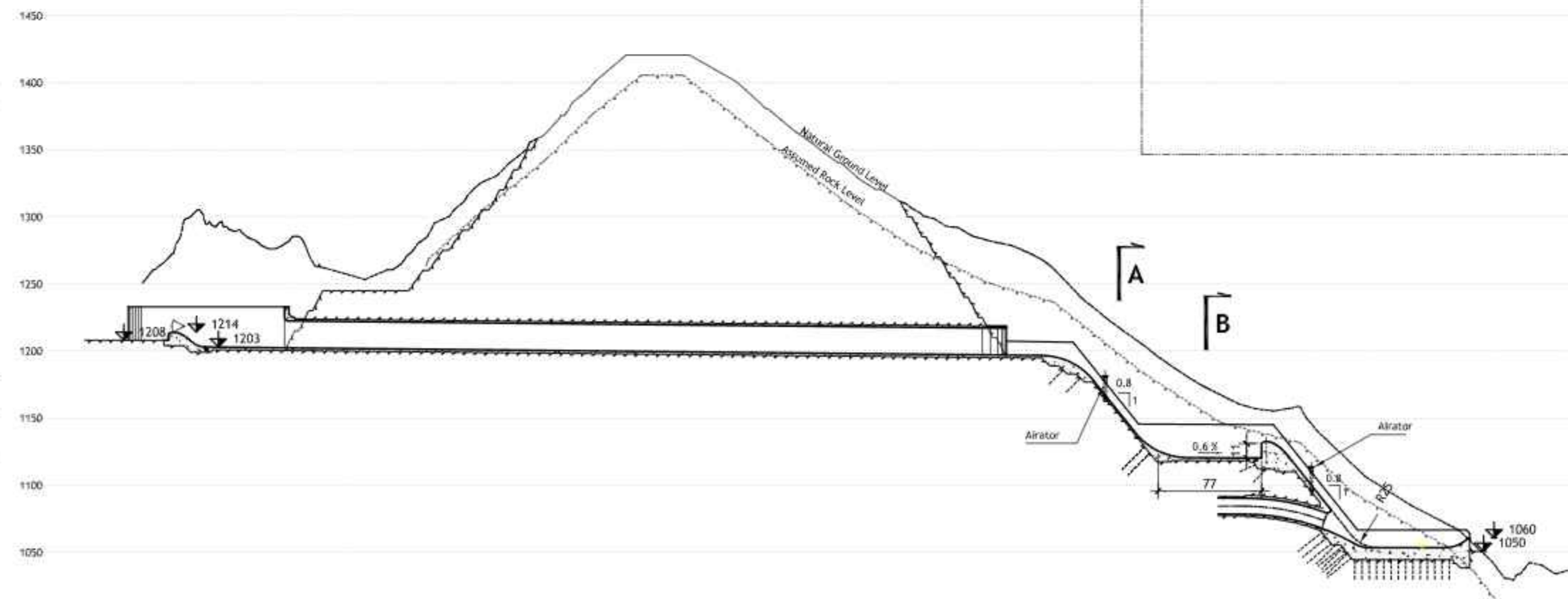
Quantity: 4,037,6

Section: A

LONGITUDINAL PROFILE ALONG TUNNEL 2 AXIS



LONGITUDINAL PROFILE ALONG TUNNEL 3 AXIS



| | | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| № | 101/101 | 102/102 | 103/103 | 104/104 | 105/105 | 106/106 | 107/107 | 108/108 | 109/109 | 110/110 |
| № | 111/111 | 112/112 | 113/113 | 114/114 | 115/115 | 116/116 | 117/117 | 118/118 | 119/119 | 120/120 |



OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE 2

DAM ALTERNATIVE FSL=1220 m.a.s.l.
 SURFACE SPILLWAY
 FIRST STAGE
 LONGITUDINAL PROFILES ALONG TUNNEL 3 & 2

TRACTEBEL Engineering
GDF SUEZ

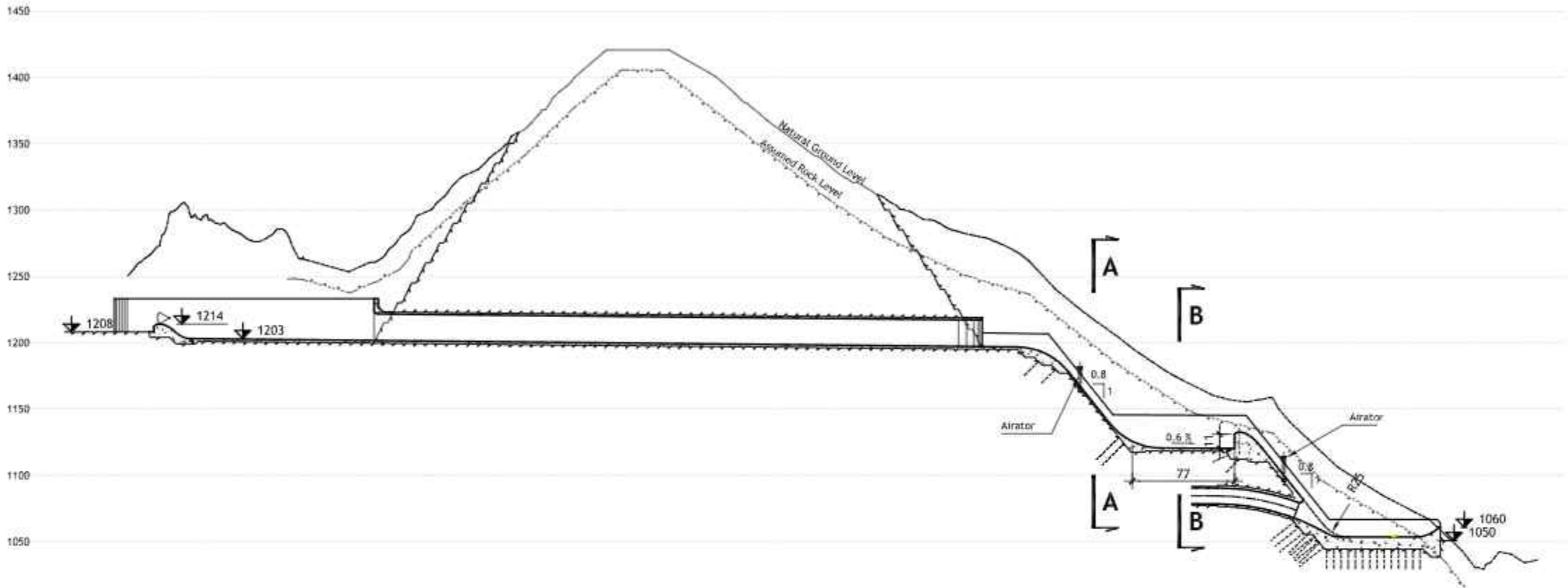
COYNE ET BELLER
 Ingénieurs Conseils

TRACTEBEL, INGENIEROS S.L.
 28100 Madrid, España, T91 494 19 79
 91000 Getafe, España, T91 494 19 79

| | | | | | | | |
|--------------|----------------------|-------|--------|-----------|-------|-------|----|
| Project No. | 40-375-376-377-378-A | Scale | 1/2000 | Sheet No. | 2/3 | Scale | A1 |
| Project Name | P 002 378 | Form | FORM | Hydro | HYDRO | | |
| Project No. | 40 3 7 7 | Scale | A | | | | |

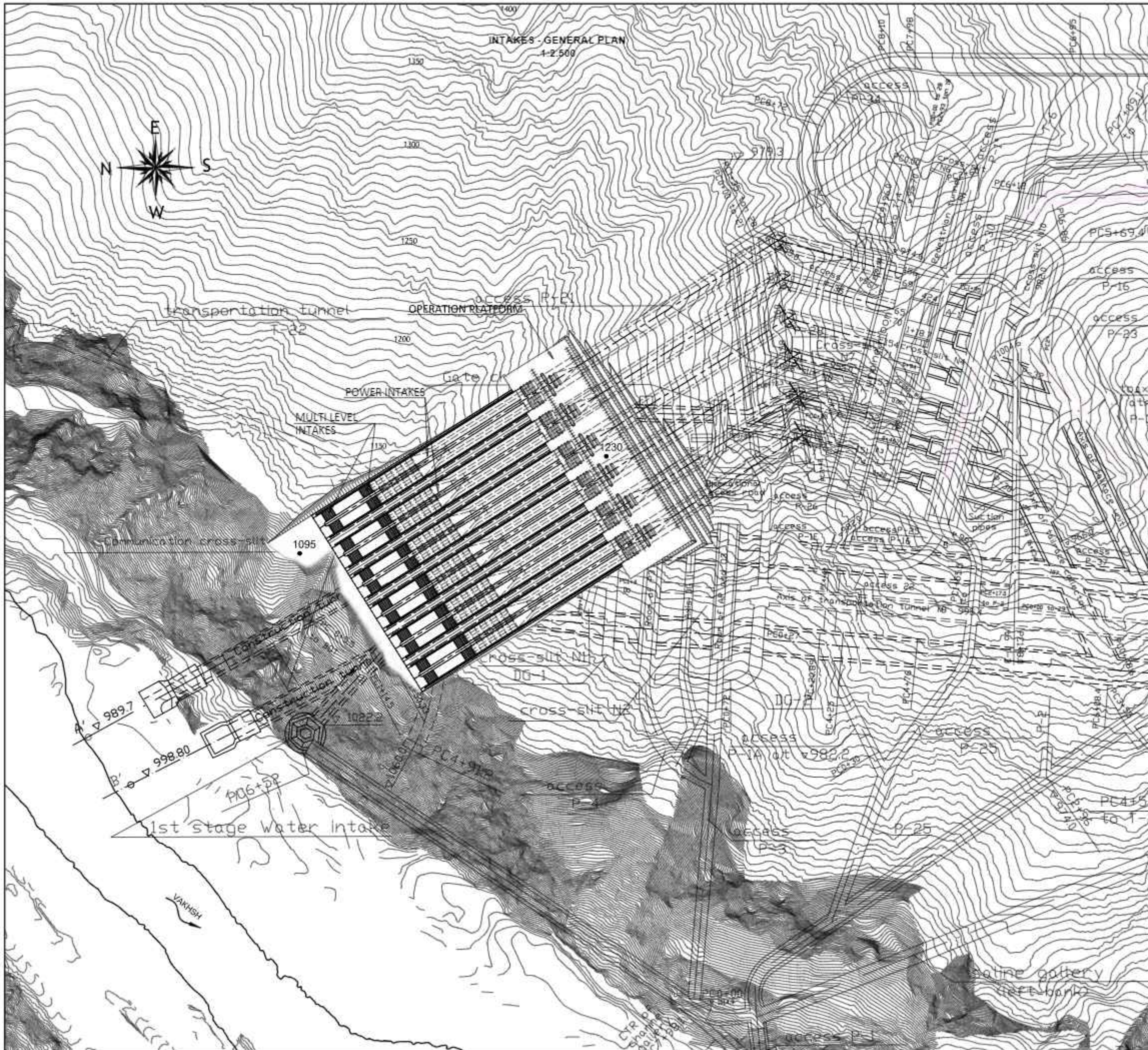
C:\Users\p\Documents\1023_HPP_Rogun_Feasibility_Study\2.2 - CLADONATIONS\10100 - PHASE 2 DAM\WGS_3RD_CMS\50M\sp\wg\wg_375_376_377_378_A.dwg

LONGITUDINAL PROFILE ALONG TUNNEL 4 AXIS



\\p0101p\product\Accessories\TD3\RF5 Rigue Feasibility Study\23 - ELADORA106510100 - PHASE 2 DESIGN\3D00\spaths\42-375-29-371-371-1.dwg

| | | | | | | | |
|---|--|--------------------------|--|-------|--|----------|--|
| | | | | | | | |
| | | | | | | | |
| | | OSHPC BARKI TOJIK | | | | | |
| TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | | | | | |
| DAM ALTERNATIVE FSL=1220 m.a.s.l. SURFACE SPILLWAY FIRST STAGE LONGITUDINAL PROFILE ALONG TUNNEL 4 | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | Project ID | | Scale | | Revision | |
| 40-375-378-377-378-A | | 1/2000 | | 2/3 | | A1 | |
| P.002.378 | | FORM | | HYDRO | | | |
| | | 40378 | | A | | | |



| | | | | | | | |
|---|----------|-------------|------|----|---------|----------|--------|
| 1 | REVISION | DESCRIPTION | DATE | BY | CHECKED | APPROVED | STATUS |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

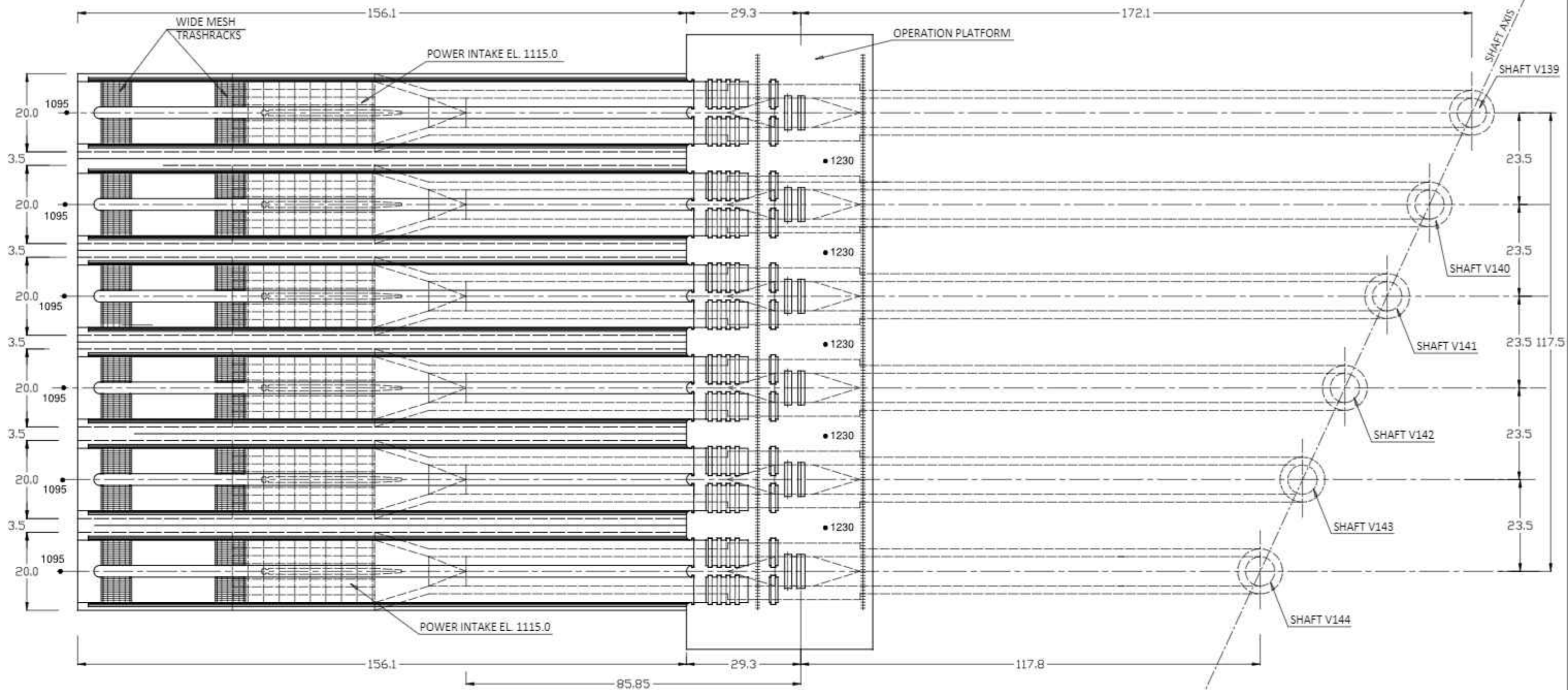


OSHPC BARKI TOJIK
 TEAS for ROGUN HPP CONSTRUCTION PROJECT
 PHASE II

DAM FSL 1220
 MULTI LEVEL INTAKES
 GENERAL PLAN

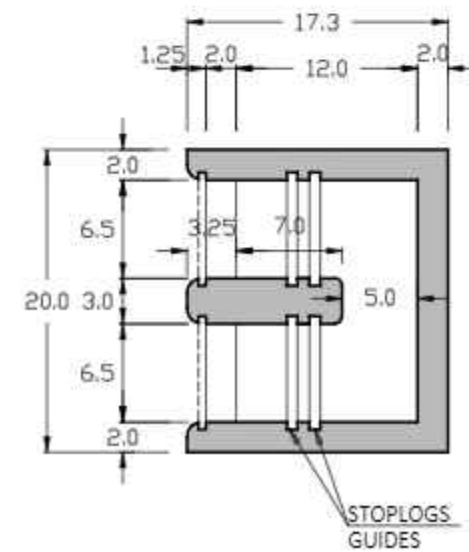
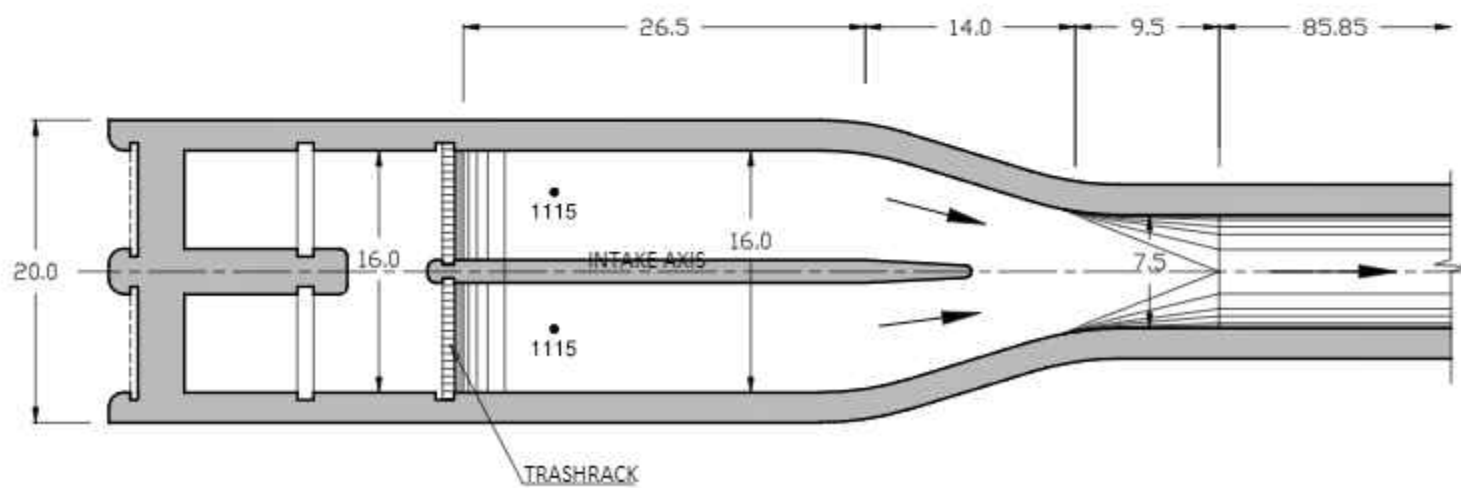
| | | | | |
|------|----------------------|---------------------|---------------------|----------------------|
| | Drawing No. 40381 | Scale 1:2500 | No. of Sheets 1 | Sheet No. A3 |
| | Drawing Date 1730 | Drawing Status - | Drawing Author - | Drawing Checker - |

4, 0, 3, 8, 1, A



HORIZONTAL SECTION Y-Y
1:500

SECTION X-X
1:500



| NO. | DATE | BY | CHKD. | STATUS | DESIGN | CHECKED | APPROVED | SCALE |
|-----|------------|----------|-------|--------|--------|---------|----------|-------|
| 1 | 2014.07.15 | Y. M. D. | | | | | | |

OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT

PHASE II

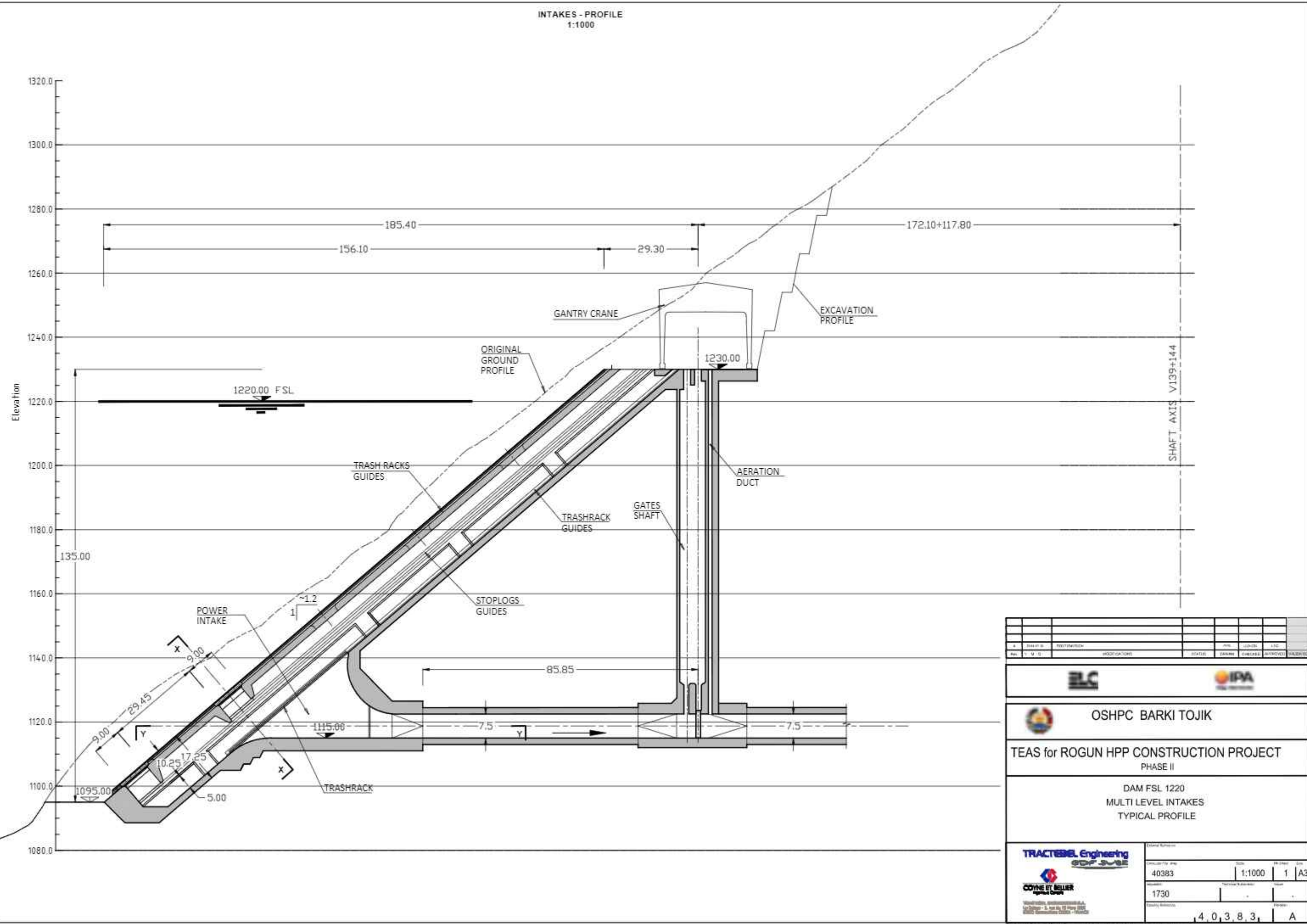
DAM FSL 1220

MULTI LEVEL INTAKES

PLAN VIEW AND SECTIONS

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-------------|-------|---------|------|----------|----|--------|----|---------------|------|--------|--|---------|--|----------|--|----------------|------------|----------|--|--------|--|-------|---|
| TRACTEBEL Engineering GDF SUEZ | <table border="1" style="width: 100%;"> <tr> <td>Project No:</td> <td>40382</td> <td>Rev:</td> <td>VAR.</td> <td>Sheet:</td> <td>1</td> <td>Total:</td> <td>A3</td> </tr> <tr> <td>Project Name:</td> <td>1730</td> <td>Scale:</td> <td></td> <td>Author:</td> <td></td> <td>Checker:</td> <td></td> </tr> <tr> <td>Design Period:</td> <td>4.0.3.8.2.</td> <td>Project:</td> <td></td> <td>Phase:</td> <td></td> <td>Year:</td> <td>A</td> </tr> </table> | Project No: | 40382 | Rev: | VAR. | Sheet: | 1 | Total: | A3 | Project Name: | 1730 | Scale: | | Author: | | Checker: | | Design Period: | 4.0.3.8.2. | Project: | | Phase: | | Year: | A |
| Project No: | 40382 | Rev: | VAR. | Sheet: | 1 | Total: | A3 | | | | | | | | | | | | | | | | | | |
| Project Name: | 1730 | Scale: | | Author: | | Checker: | | | | | | | | | | | | | | | | | | | |
| Design Period: | 4.0.3.8.2. | Project: | | Phase: | | Year: | A | | | | | | | | | | | | | | | | | | |

INTAKES - PROFILE
1:1000



| NO. | DATE | DESCRIPTION | STATUS | BY | CHECKED | APPROVED |
|-----|----------|-------------|--------|----|---------|----------|
| 1 | 11.10.20 | ISSUANCE | ISSUED | | | |

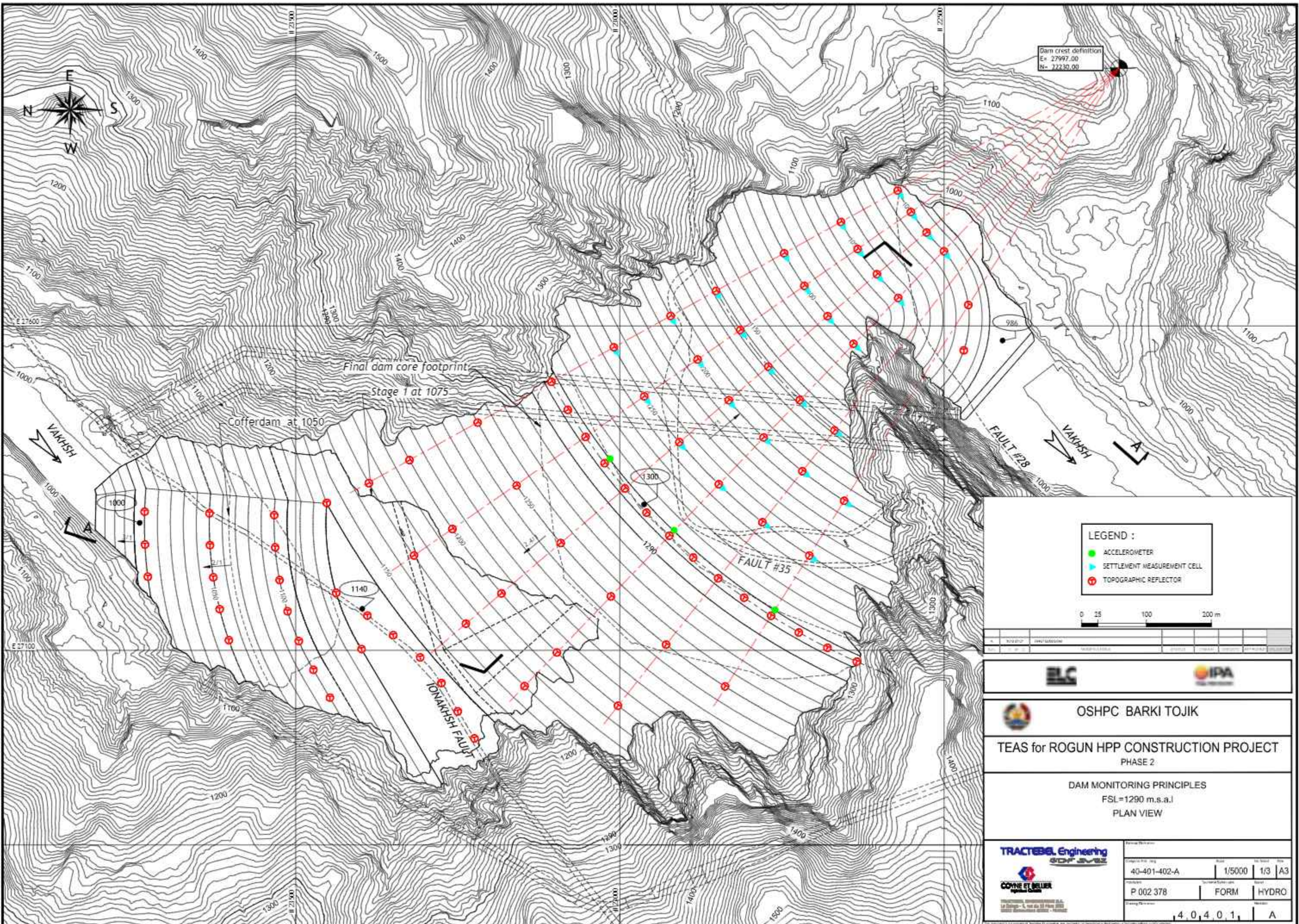
OSHPC BARKI TOJIK

TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE II

DAM FSL 1220
MULTI LEVEL INTAKES
TYPICAL PROFILE

| | | | | | | | |
|-------------|-------|--------|--------|-----------|---|----------|----|
| Project No. | 40383 | Scale | 1:1000 | Sheet No. | 1 | Size | A3 |
| Revision | 1730 | Author | | Checked | | Approved | |

4, 0, 3, 8, 3, A

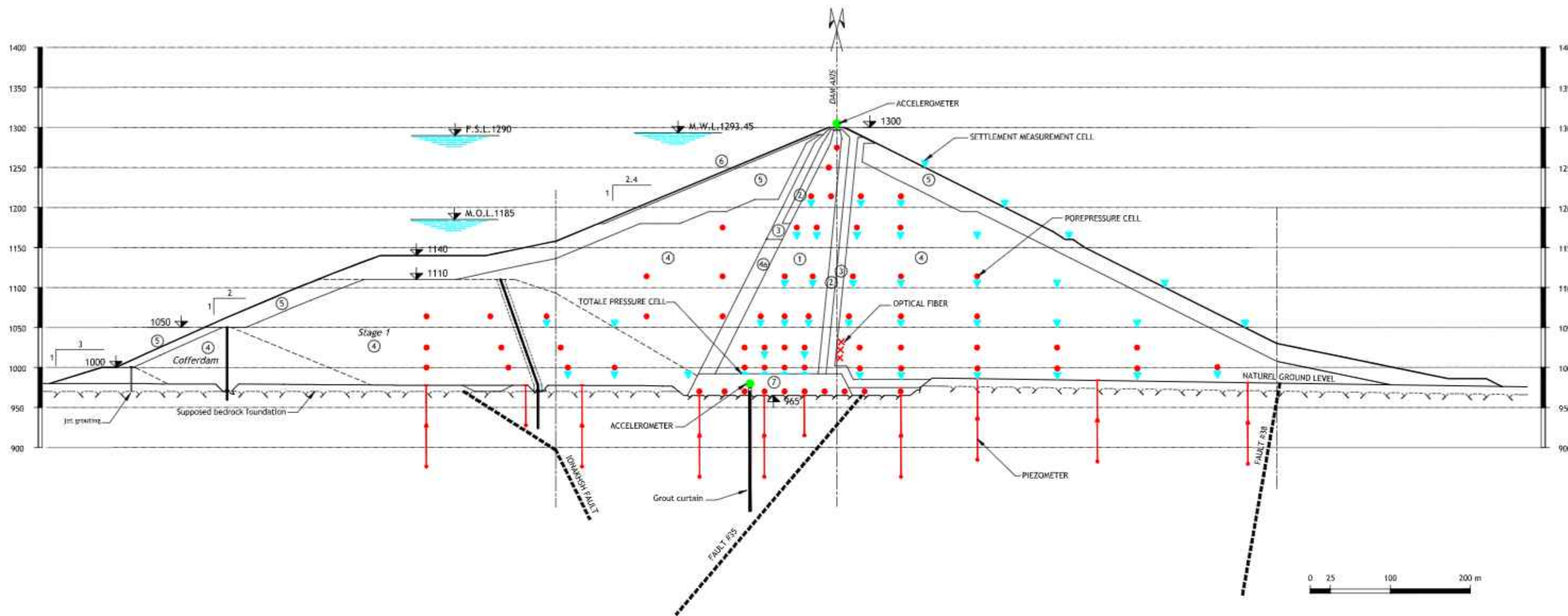


- LEGEND :**
- ACCELEROMETER
 - ▲ SETTLEMENT MEASUREMENT CELL
 - TOPOGRAPHIC REFLECTOR



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------|--------------|--------|-----------|-----------|------------|------------|----|--------------|-----------|------------|------|---------|-------|--|--|----------|--|--|--|--|--|--|--|-----------|--|--|--|--|--|--|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OSHPC BARKI TOJIK TEAS for ROGUN HPP CONSTRUCTION PROJECT PHASE 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DAM MONITORING PRINCIPLES FSL=1290 m.s.a.l PLAN VIEW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project No. / Rev. No.</td> <td>40-401-402-A</td> <td>Scale</td> <td>1/5000</td> <td>Sheet No.</td> <td>1/3</td> <td>Sheet Size</td> <td>A3</td> </tr> <tr> <td>Project Name</td> <td>P 002 378</td> <td>Discipline</td> <td>FORM</td> <td>Subject</td> <td>HYDRO</td> <td colspan="2"></td> </tr> <tr> <td colspan="7" style="text-align: center;">Revision</td> <td></td> </tr> <tr> <td colspan="7" style="text-align: center;">4 0 4 0 1</td> <td style="text-align: center;">A</td> </tr> </table> | Project No. / Rev. No. | 40-401-402-A | Scale | 1/5000 | Sheet No. | 1/3 | Sheet Size | A3 | Project Name | P 002 378 | Discipline | FORM | Subject | HYDRO | | | Revision | | | | | | | | 4 0 4 0 1 | | | | | | | A |
| Project No. / Rev. No. | 40-401-402-A | Scale | 1/5000 | Sheet No. | 1/3 | Sheet Size | A3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Name | P 002 378 | Discipline | FORM | Subject | HYDRO | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Revision | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 0 4 0 1 | | | | | | | A | | | | | | | | | | | | | | | | | | | | | | | | | |

TYPICAL CROSS SECTION



NOTE:
 MEANS THAT BOTH THE PORE PRESSURE AND SETTLEMENT CELLS ARE SET AT SAME ELEVATION.

| LEGEND | |
|--------|--|
| ① | CORE |
| ② | FINE FILTER |
| ③ | COARSE FILTER |
| ④ | ALLUVIUM SHELL |
| ④a | ALLUVIUM SCREENED ($\pm 200\text{mm}$) |
| ⑤ | ROCKFILL SHELL |
| ⑦ | RIP RAP |
| ⑥ | CONCRETE FOUNDATION |

| MONITORING INSTRUMENTS | |
|------------------------|--------------------------|
| | ACCELEROMETER SETTLEMENT |
| | MEASUREMENT CELL |
| | TOPOGRAPHIC REFLECTOR |
| | PORE PRESSURE CELL |
| | TOTAL PRESSURE CELL |
| | OPTICAL FIBER |
| | PIEZOMETER |

| | | | |
|-----|---------|----|------|
| No. | Revised | By | Date |
| 1 | | | |



OSHPC BARKI TOJK
TEAS for ROGUN HPP CONSTRUCTION PROJECT
PHASE 2

DAM MONITORING PRINCIPLES
 FSL=1290 m.s.a.l
TYPICAL CROSS SECTION

| | | | | | | | | |
|------|--------------|------------------|------------|--------|-----------|-------|-------|----|
| | Project No. | 40-401-402-A | Scale | 1/5000 | No. Sheet | 2/3 | Sheet | A3 |
| | Project Name | P 002 378 | Discipline | FORM | Subject | HYDRO | | |
| | Revision | 4, 0, 4, 0, 2, 1 | | | | | | A |
| | | | | | | | | |