



**ISLAMIC REPUBLIC OF AFGHANISTAN
NATIONAL WATER AFFAIRS REGULATION AUTHORITY
CENTRAL PROJECT MANAGEMENT OFFICE**

**Kunduz Province
Dasht Archi District**





Touqz Sangab (KDZ-DTA-001) Check Dams

Sub Project DRAWINGS

August - 2020





SUMMARY OF TECHNICAL SPECIFICATIONS

- 1- Mass Concrete M-20: Supplying, placing, adding boulders, compacting and curing mass concrete M-20 (1:1.5:3) including frameworks and expansion joints sealing works as per relevant drawing, specification and to the complete satisfaction of the site engineer. crushed aggregates should be used
- 2-A good quality Stone for stone masonry, mass concrete, gabion and All stone related construction work should be of and approved by The Engineer.
- 3-All Grouted stone pitching in stilling basin and foundations should be with ratio of 1:3.
- 4-All Masonry cutoff wall shall be with 1:4 Cement Sand Mortar or as specified on the drawing.
- 5-Bitumen coating should be used in all contraction / expansion joints.
- 6-Percentage of boulder in the mass concrete should be between (25-40)% of total volume, also the sizes of the boulder should not be neither more than 1/5th of the lateral dimension of the structural element, nor 20 cm, whichever is less)
- 7-Backfilling material should be properly tested and selected to be suitable as per standard practice.
- 8-For backfilling maximum thickness of each loose soil layer should not more than 15 cm.
- 9-Standard Compaction tests should be carried out for the backfilling.
- 10-The percentage of compaction should be not less than 95% of the maximum dry density.
- 11-All Quality control field tests should be carried out by the Contractor in a specified laboratory as accepted by the client.
- 12-Expansion joints for Mass Concrete and weir walls should be provided as (12-15)m center to center.
- 13-Stone size for gabion shall range from (20-30) cm.
- 14-Galvanized iron wire of specified thickness (3mm) should be properly woven and knotted together to form the required mesh in hexagonal / rectangular shape of size (6-8)cm for gabion basket and (10-12)cm for gabion mattress to fabricate gabion boxes to the satisfaction of the Engineer.
- 15-Principal wire along the gabion edges (selvedges) for Gabion boxes should be of Galvanized Iron having minimum thickness of 4mm
- 16- Gabion Galvanized Iron wire tensile strength should be 350-575 N/mm². two type of Gabions should be used (1.5X0.5X1)M WITH 18.5KG/BOX OF WEIGHT AT THE TOP OF AND (2X1X1)M WITH 25KG/BOX OF WEIGHT AT BASE OF THE STRUCTURE.
- 17- All PCC under footings to have cement, sand and aggregate as specified on the drawings.
- 18- Reinforcement yield stress f_y shall not be less than 2500 kg/cm².
- 19- Concrete design should be based on a compressive strength of $f_c = 200$ kg/cm² as specified on the drawings.
- 20- Weight per unit volume of concrete $W = 2400$ kg/m³
- 21- Sand or fine aggregate shall be free from salt, alkali, calcium sulphate or vegetation and it shall not contain more than 0.5 percent by weight of clay.
- 22- Aggregate:- Coarse aggregate shall consist of crushed gravel with the max. size of 20mm.
- 23- The maximum slump for Mass concrete should be between (2.5-4) cm.
- 24- To increase the workability of the concrete provide the chemical admixture (Super plasticizer)
- 25- Water used for concrete mixture and concrete curing shall be from a source approved by the Engineer and at the time of use shall be free from contaminants.
- 26- Concrete compaction should be done by using concrete vibrator at the time of pouring in such a way to form a solid compact concrete.
- 27- Concrete curing should be continued for 14 days.
- 28- During Cold weather concreting should be stopped or the contractor has to consider cold weather concreting procedure as accepted by the engineer.
- 29- Concrete shuttering/framework should be of Steel type.
- 30-Concrete shuttering can be removed as per below minimum duration:
 Side of beams,walls,columns 16-24 hours
 Forms from beneath the slabs(spaning upto 6m) 14 days
 Forms from beneath the slabs(spaning above 6m) 21days
- 31- As the geo technical survey is not conducted in the site of check dam, so any changes in the quantities of the contract is changeable due to need of site and guide of the site engineers and project manager.
- 32- Further, air-entraining admixture (AEA) to be added during mixing of concrete according to ASTM C260.
- 33- In-place, air content shall range 5 to 6 percent of the volume of concrete.
- 34- where weir or protection walls are touch to hard rock, dowel bar 20mm with epoxy should be used.
- 35- in mass concrete when cold and warm joint occur, stone grubbing should be used.
- 36- In expansion joints should have water stopper. installation of best quality PVC water stopper with 22.5 cm width(The water stopper shall be of extruded polyvinyl chloride complying with BS 2571: Class 3, Compound Type G4) and (2) cm thick cork filling as per relevant design drawings, technical specification and with satisfaction of Engineer Supervisor.

 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				KDZ-DTA-001	Technical Specifications	Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeesm Sadat

SUMMARY OF TECHNICAL SPECIFICATIONS



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 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project KDZ-DTA-001	Drawing Content Technical Specifications	Employer						DWG NO 2/13
						Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng.Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Croos Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeen Sadat	Date: Aug-2020

Tuqz Sangab Catchment

Catchment Area = 1.89 sq.km





Legend

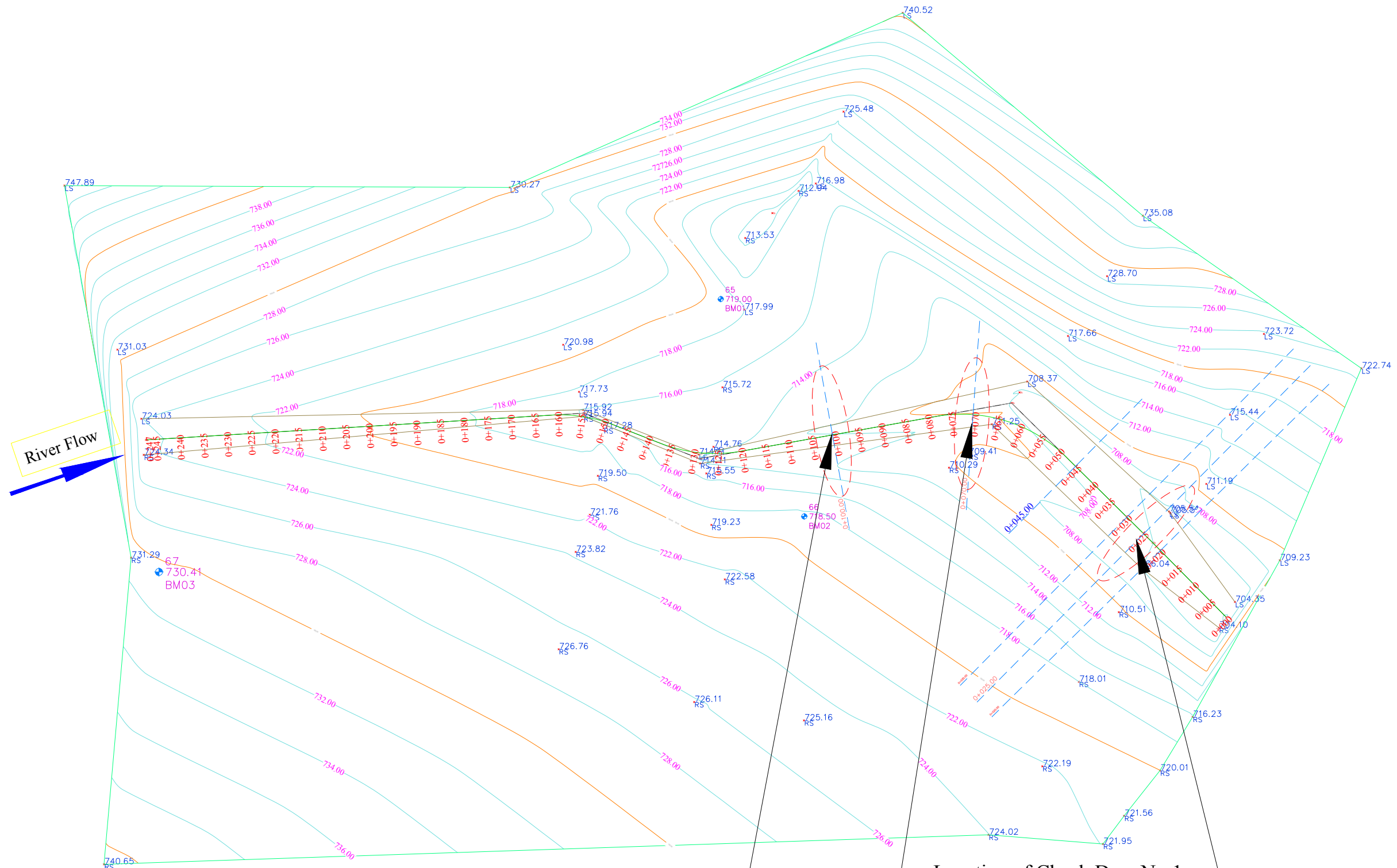
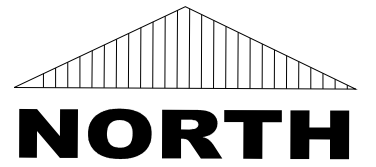
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-  Tuqz Sangab



Google Earth

Image © 2020 CNES / Airbus
 © 2020 Google
 US Dept of State Geographer

 Islamic Republic of Afghanistan	 National Water Affairs Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				KDZ-DTA-001	Google Map	Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeen Sadat



River Flow

Benchmarks Table Of Qara Batur Check Dame





Northing	Easting	Elevation	Description
4100086.0140	500437.1780	719	BM-1
4100041.0420	500456.3750	718.500	BM-2
4100029.9620	500319.4660	730.410	BM-3

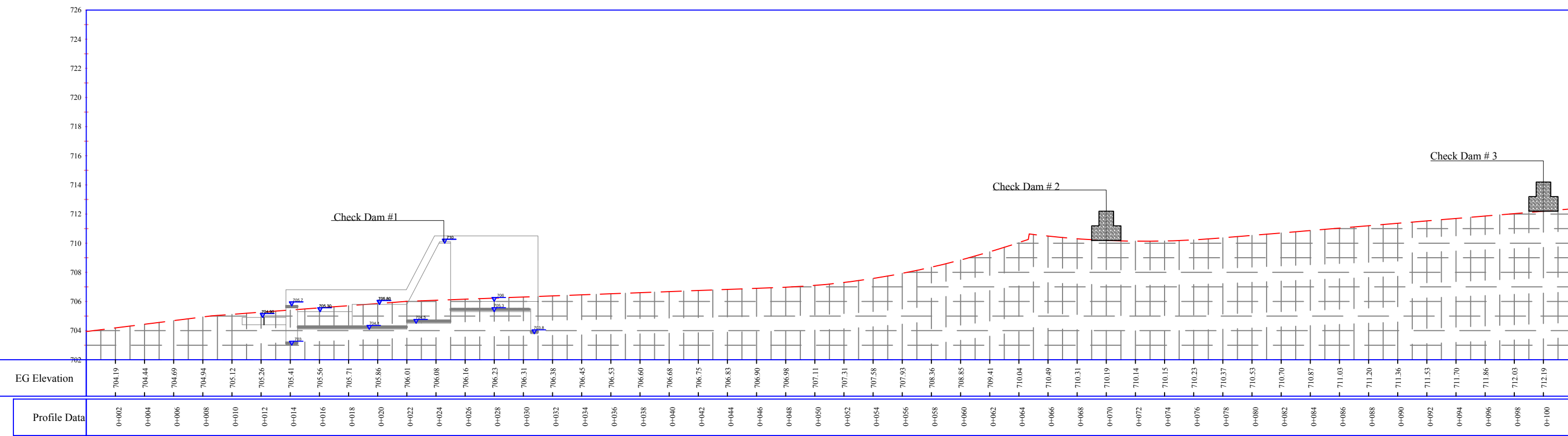
Location of Check dam NO #3





Location of Check dam NO #2

Location of Check Dam No:1
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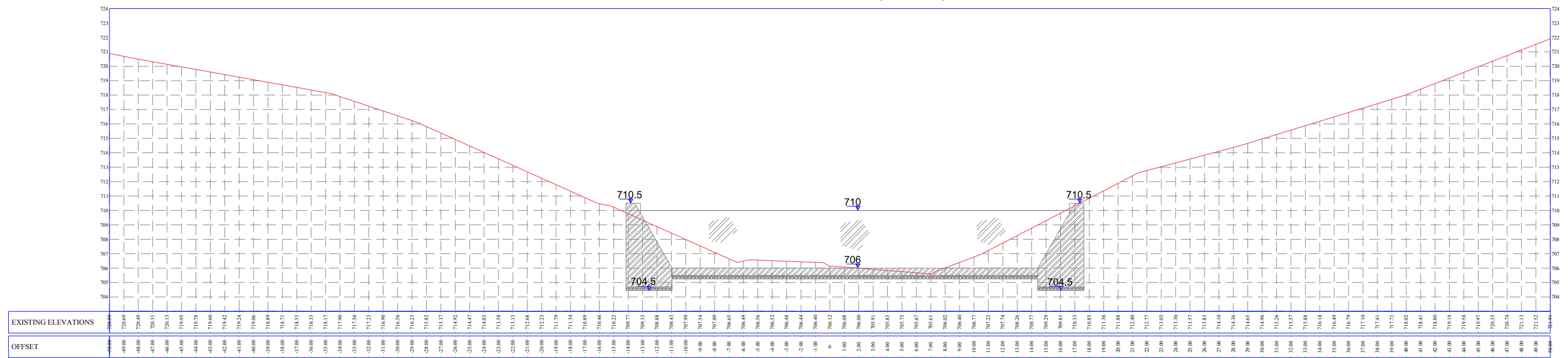
Drawn Scale=NTS
All Dimension Shown in (m)





 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				KDZ-DTA-001	Topography Map	Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Croos Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeeem Sadat



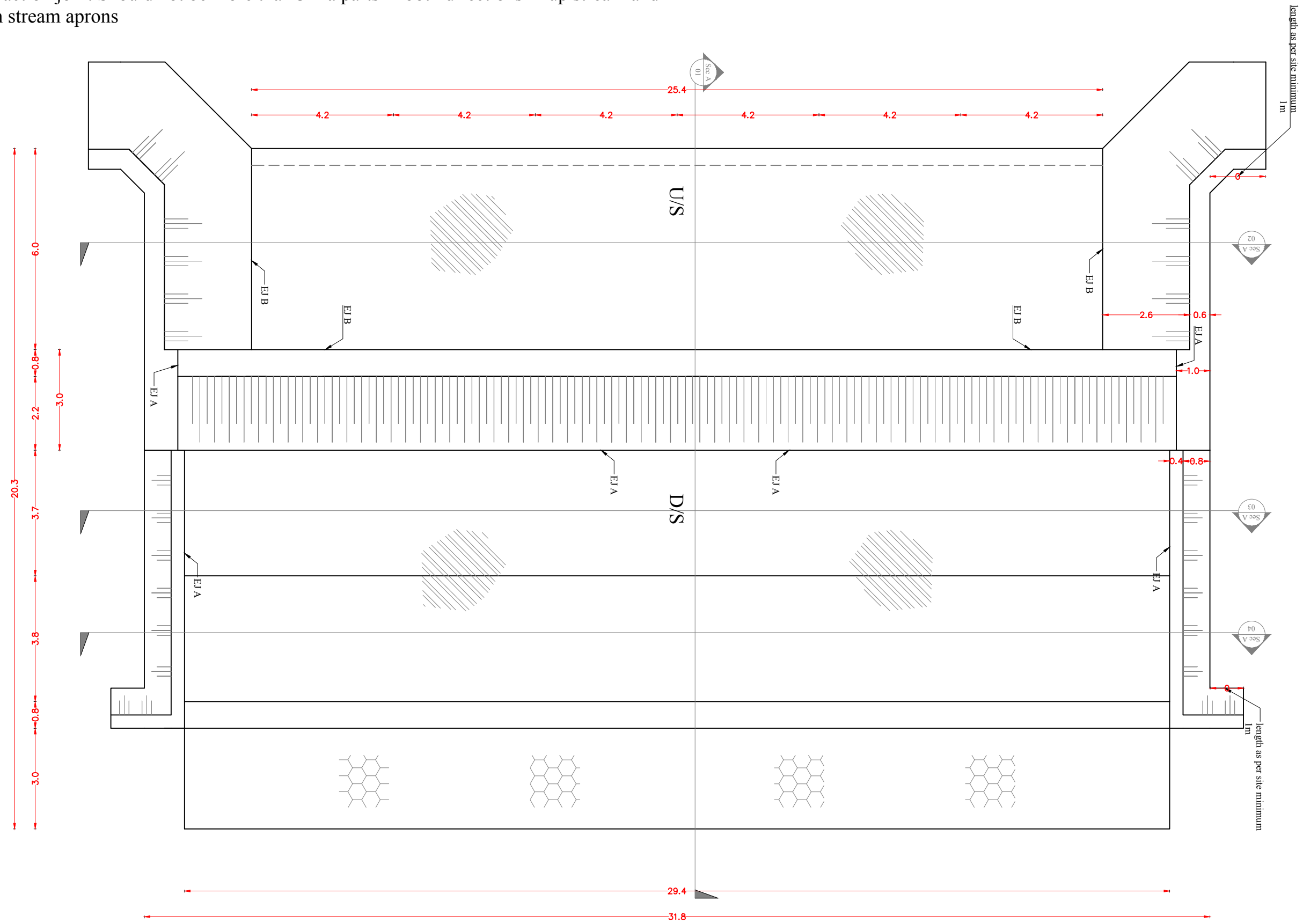
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
				KDZ-DTA-001	Longitudinal Section	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	6/13
						Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Aug-2020





Check dam NO #1 (0+025)

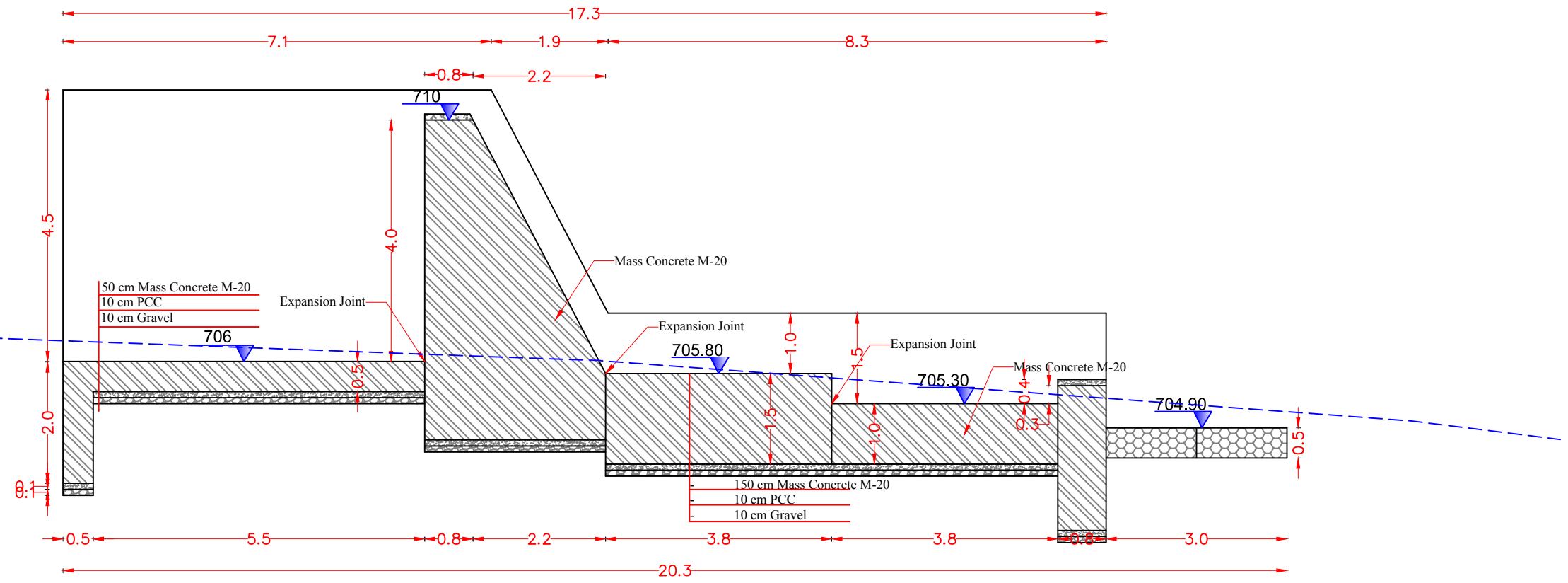


 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				KDZ-DTA-001	Cross Section	Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Croos Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqeeem Sadat

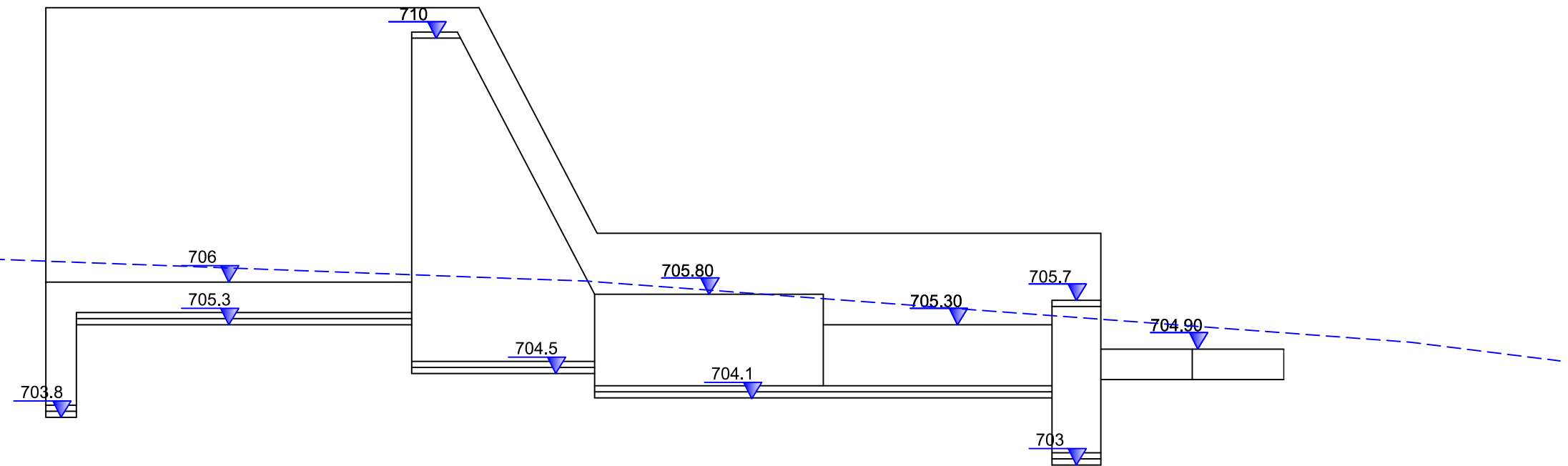
Notes: All Expansion joint at downstream are Type (A) except otherwise mentioned on the drawings
 All Expansion joint at upstream are Type (B) except otherwise mentioned on the drawings
 Contraction joint Should not be more than 3m a parts in both directions in up stream and down stream aprons







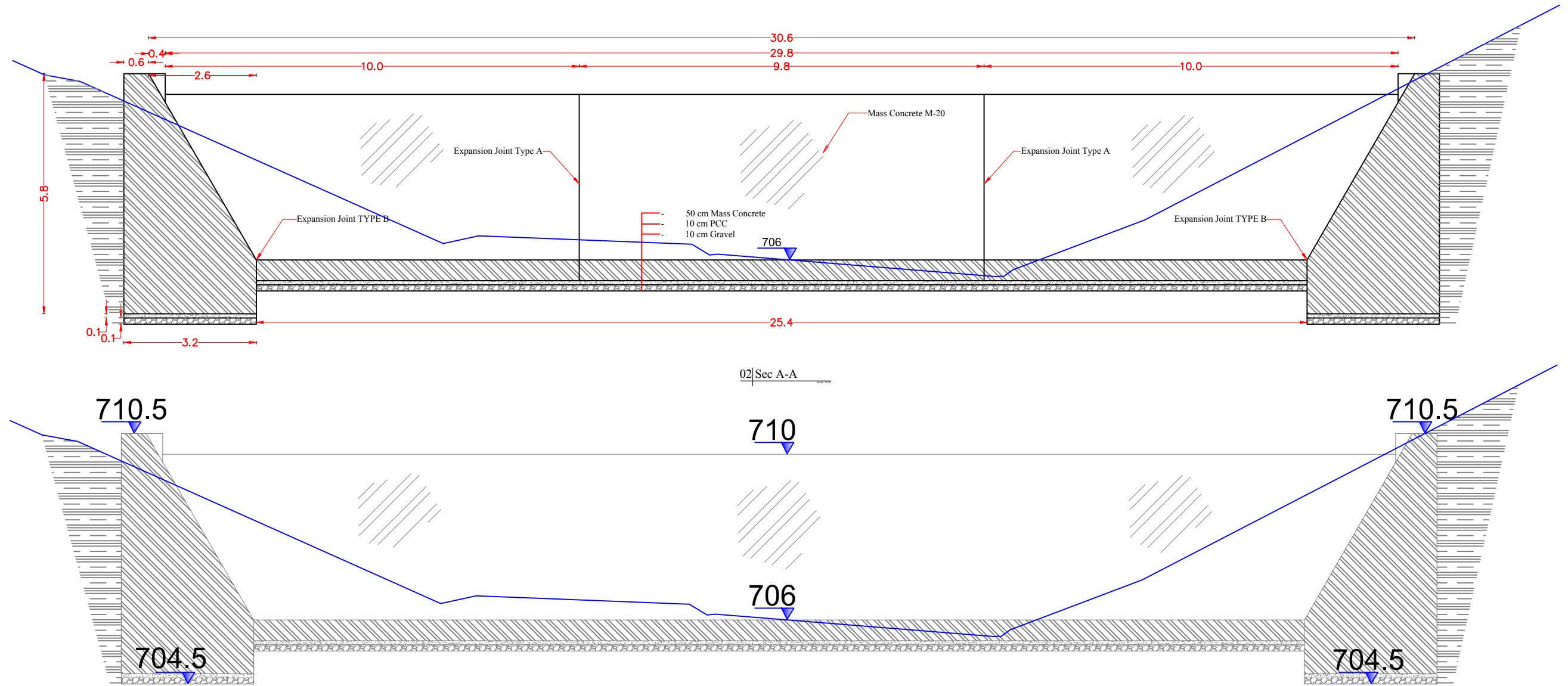
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
				KDZ-DTA-001	Plan	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	8/13
						Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Aug-2020







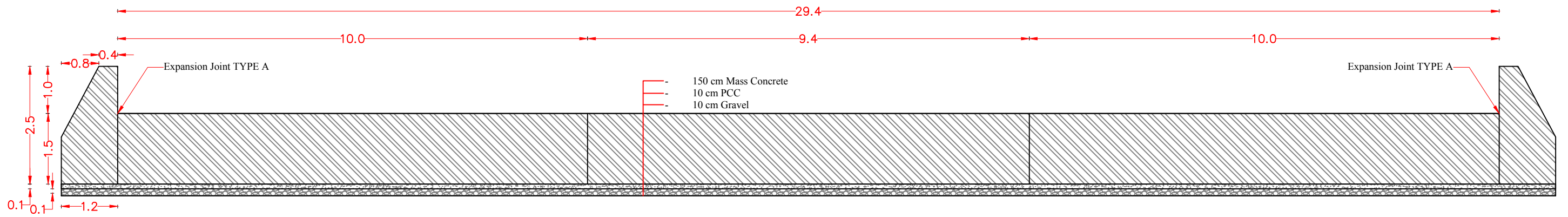
01 Sec A-A



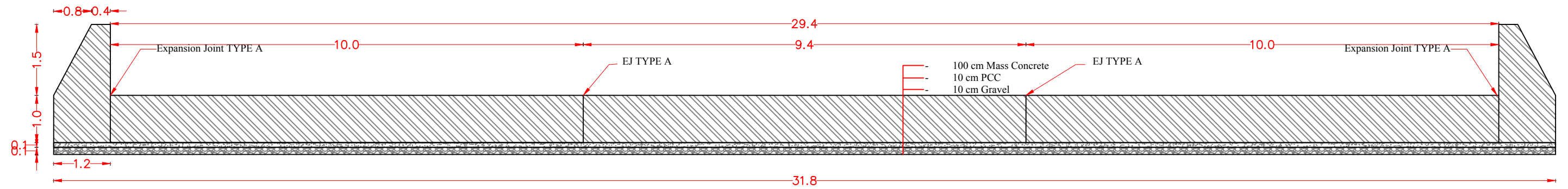
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO	
				KDZ-DTA-001	Section 01	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	9/13
						Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Aug-2020



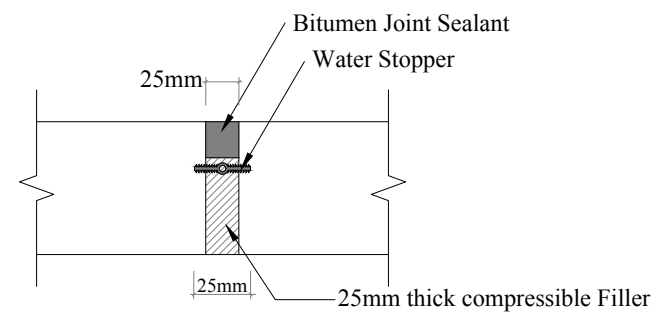
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
				KDZ-DTA-001	Section-02	Surveyed by :	Designed by:	Drawn by:	Checked by:	Croos Checked by:	Approved by:	10/13
						Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng.Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeen Sadat	Date: Aug-2020



03 | Sec A-A

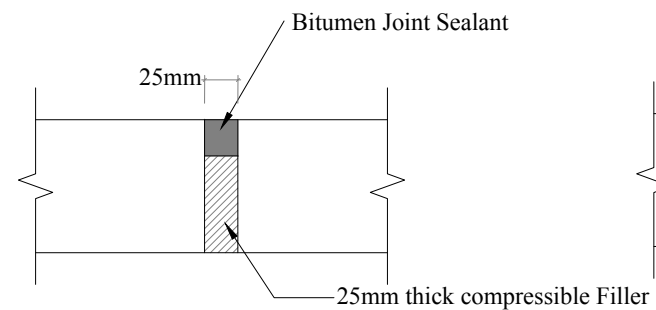


04 | Sec A-A



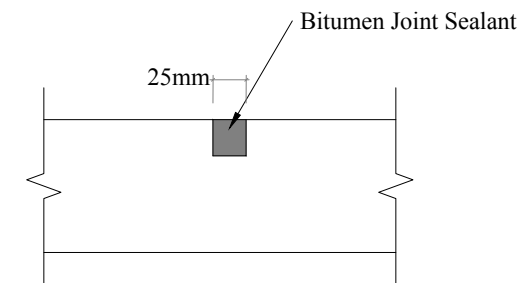
Expansion joint Type (A)

Scale: NTS







Expansion joint Type (B)

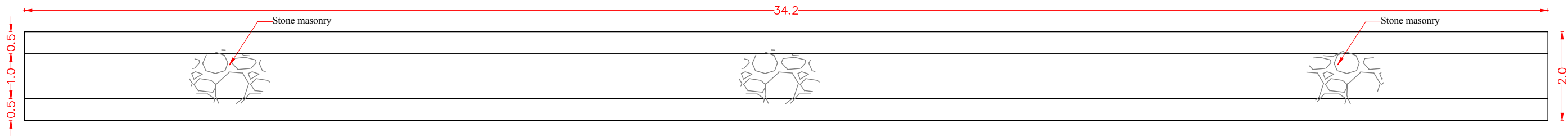
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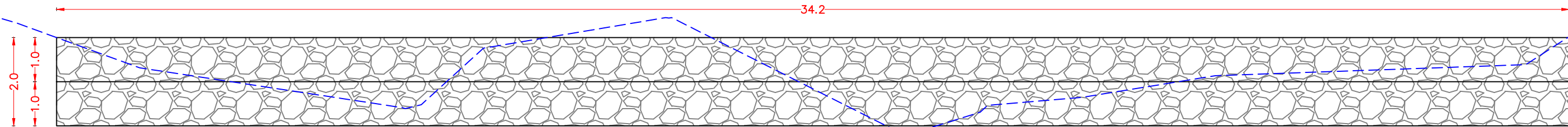
Contraction joint (CTJ)

Scale: NTS

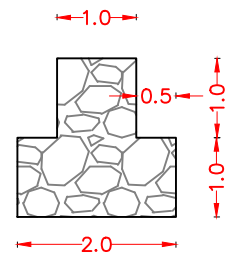
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer						DWG NO
				KDZ-DTA-001	Section-03-04 / Joints Details	Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:	11/13
						Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Aug-2020



Check dam NO #2 (Plan)

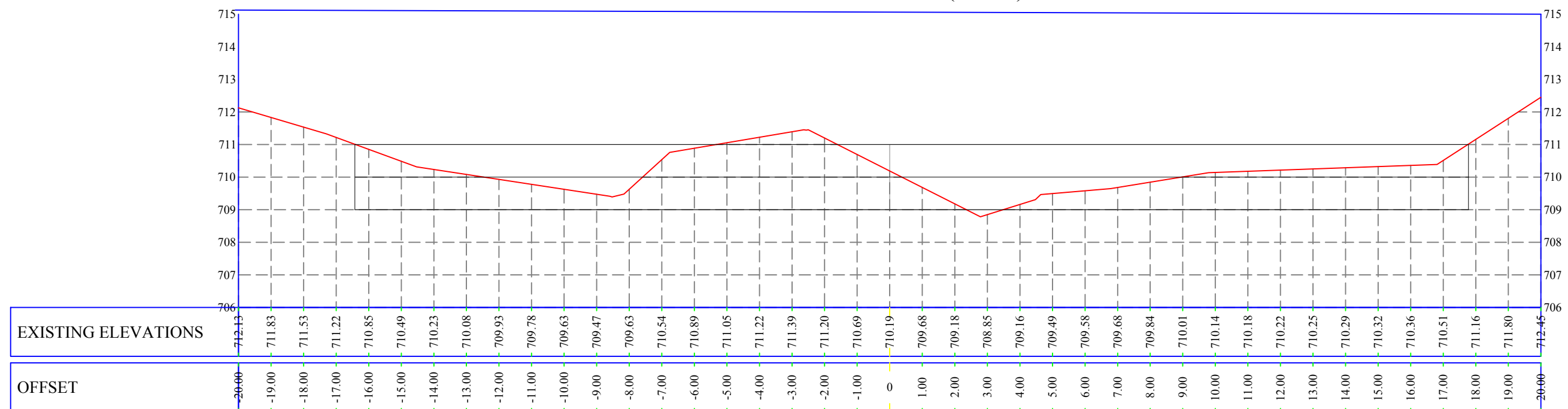


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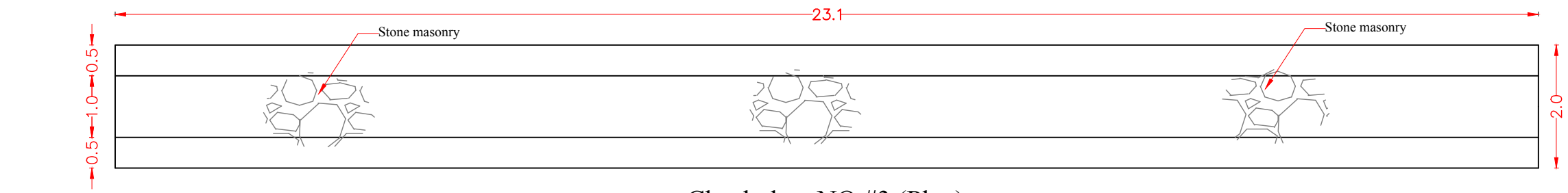


Check dam NO #2 (Section-B-01)

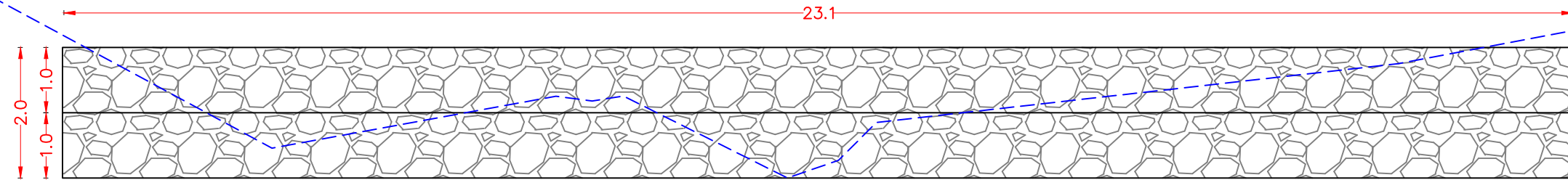
Check dam NO #2 (0+070)



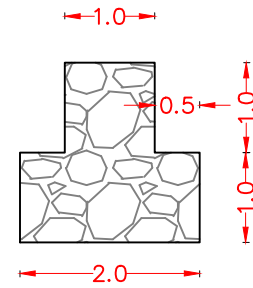
<p>Islamic Republic of Afghanistan</p>	<p>National Water Affair Regulation Authority</p>	<p>Asian Development Bank (ADB)</p>	<p>Central Project Management Office</p>	Project	Drawing Content	Employer					DWG NO
				KDZ-DTA-001	Check dam NO #2 Plan /Cross Section /Sections	Surveyed by : Ghulam Hazrat	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqem Sadat
											Date: Aug-2020



Check dam NO #3 (Plan)

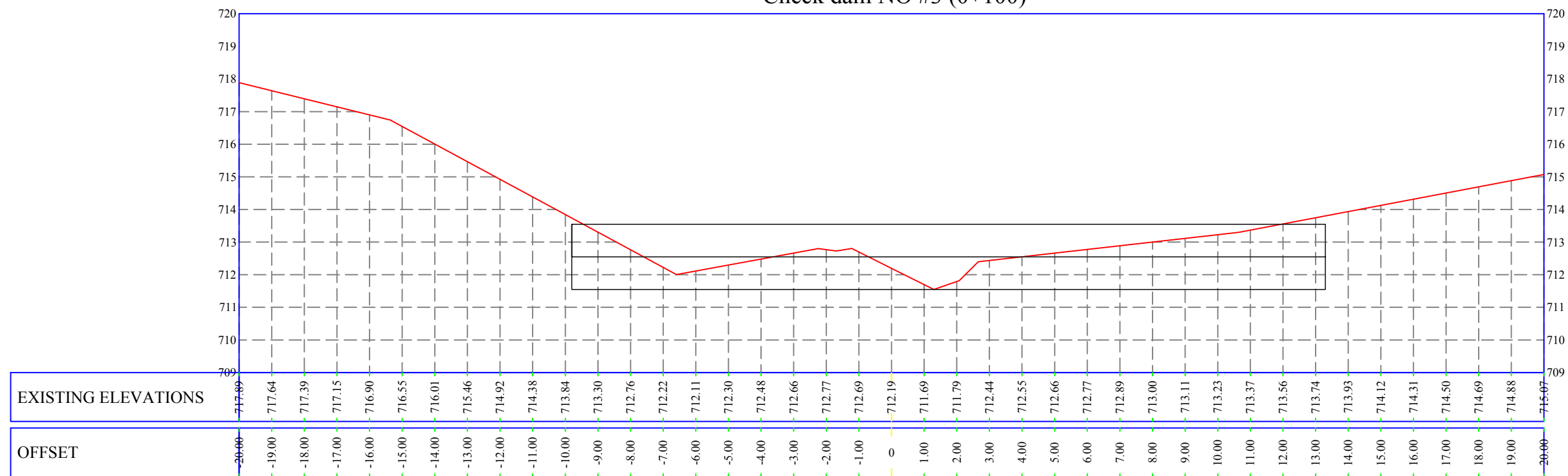


Check dam NO #3 (Section-C-02)



Check dam NO #3 (Section-C-01)

Check dam NO #3 (0+100)



Islamic Republic of Afghanistan



National Water Affairs Regulation Authority



Asian Development Bank (ADB)



Central Project Management Office

Project

KDZ-DTA-001

Drawing Content

Check dam NO #3 Plan /Cross Section /Sections

Employer

Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:	DWG NO
Ghulam Hazrat	Eng. Muhammad Akram Paktinyar	Eng. Khoshal Wardak	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	13/13
						Date: Aug-2020