



**ISLAMIC REPUBLIC OF AFGHANISTAN
NATIONAL WATER AFFAIRS REGULATION AUTHORITY
CENTRAL PROJECT MANAGEMENT OFFICE
Wardak Province
Chak District**

Nowkarkhail and Haidarkhail Check Dam (WDK-CAK-002)





Project DRAWINGS

Sep – 2020


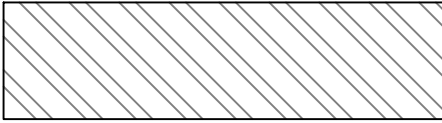
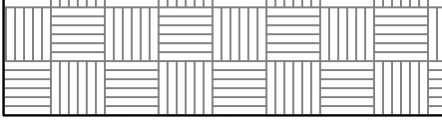

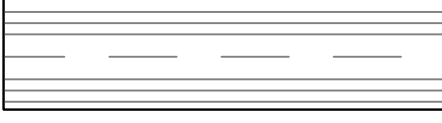

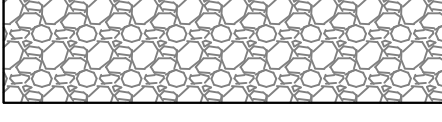

TECHNICAL SPECIFICATIONS





- 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 fy shall not be less than 2500 kg/cm².
- 19- Concrete design should be based on a compressive strength of $f_c = 200 \text{ kg/cm}^2$ as specified on the drawings.
- 20- Weight per unit volume of concrete $W = 2400 \text{ kg/m}^3$
- 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.

				Project	Drawing Content	Employer					DWG NO	
 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	WAD-CAK-002	Technical Specification	Surveyed by :	Designed by:	Drawn by:	Checked by:	Cross Checked by:	Approved by:	1/12
						Abdul Husain and Saifulraman	Faridoon Danesh	Faridoon Danesh	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqeeem Sadat	Date: Sep-2020





Legend Table

	Slope
	Mass concrete
	Compacted Backfilling
	Ground
	Embankment Backfilling
	Dry Stone pitching
	Gravel
	Gravel Filter

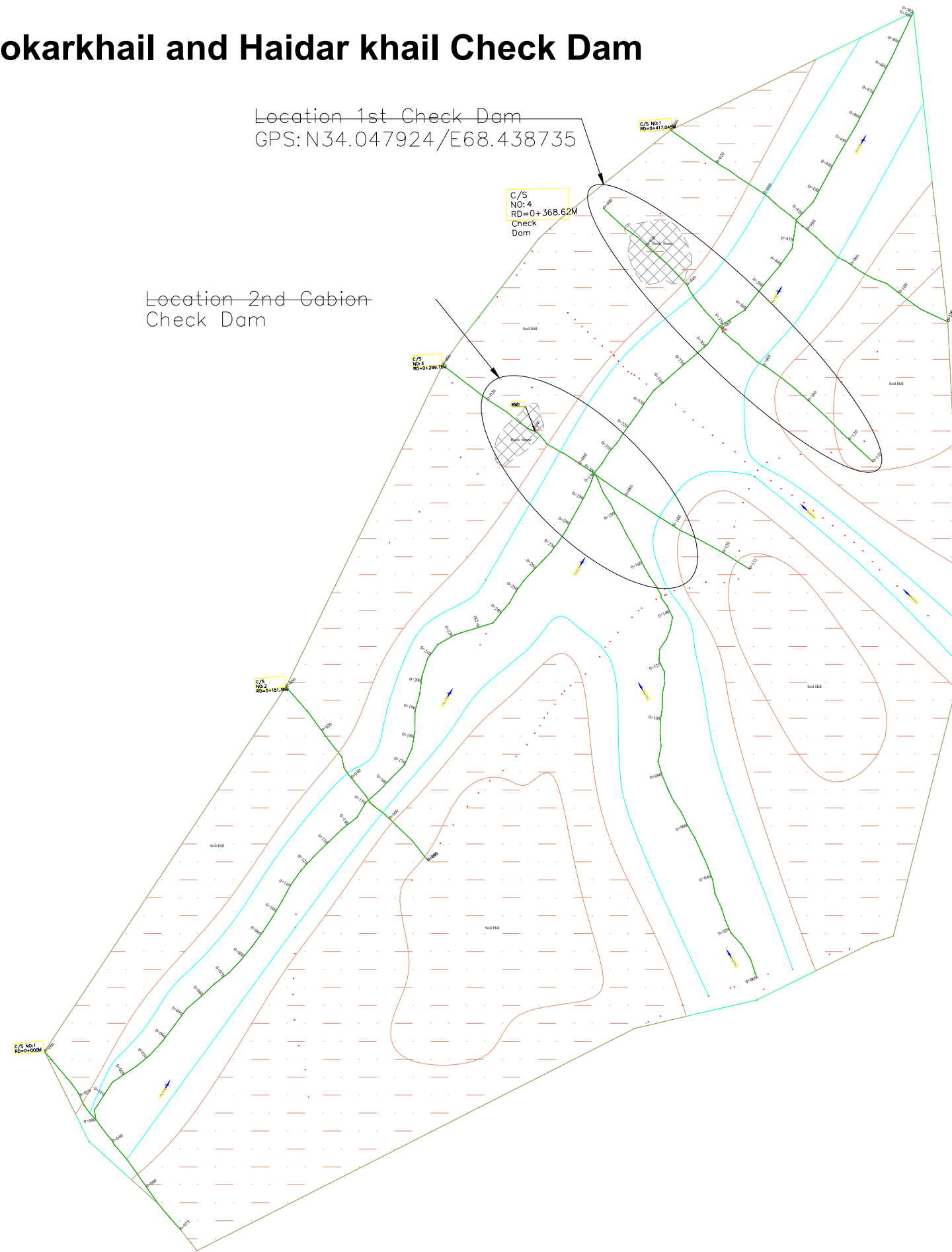
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						Abdul Husain and Saifulraman	Faridoon Danesh	Faridoon Danesh	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqees Sadat	Date: Sep-2020

Google Map of Nokarkhail and Haidar khail Check Dam



 Islamic Republic of Afghanistan	 National Water Affairs Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				WAD-CAK-002	Google Map	Surveyed by : Abdul Husain and Saifulraman	Designed by: Faridoon Danesh	Drawn by: Faridoon Danesh	Checked by: Eng. Muhammad Akram Paktinyar	Croos Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqem Sadat

Site Plan of Nokarkhail and Haidar khail Check Dam



Location 1st Check Dam
GPS: N34.047924/E68.438735





Location 2nd Gabion
Check Dam

Legend	
Bench marck	
Check Dam Site	
Gravel,Sand,Clay Mountain	
Rock Stone	
River Bank	
River Cinter line	

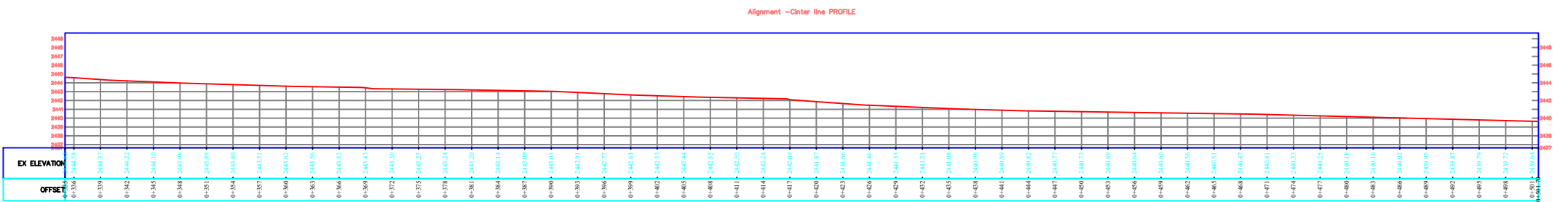
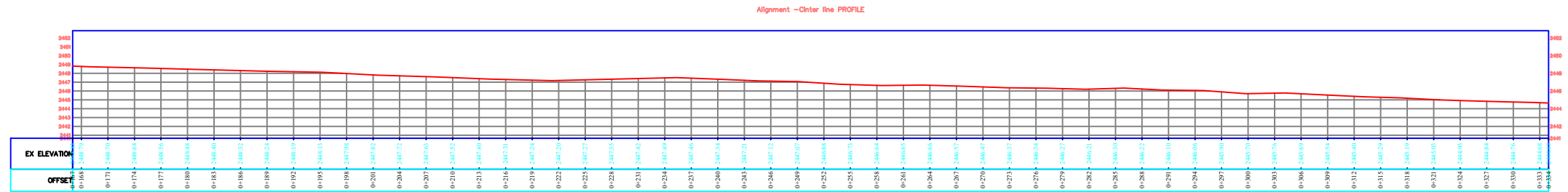
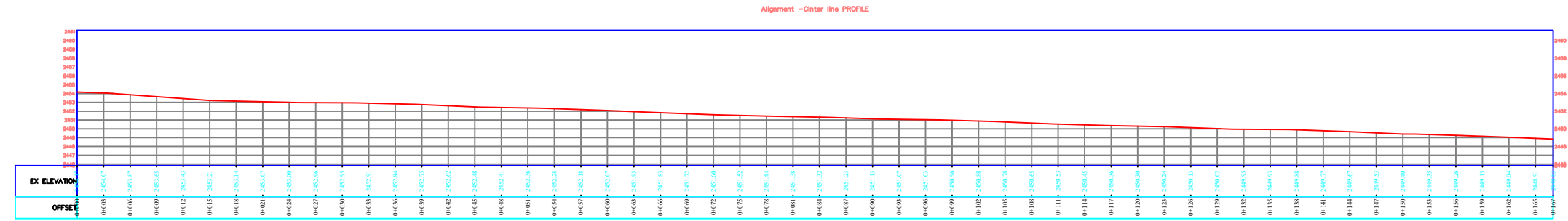
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Contour Map of Nokarkhail and Haidar khail Check Dam

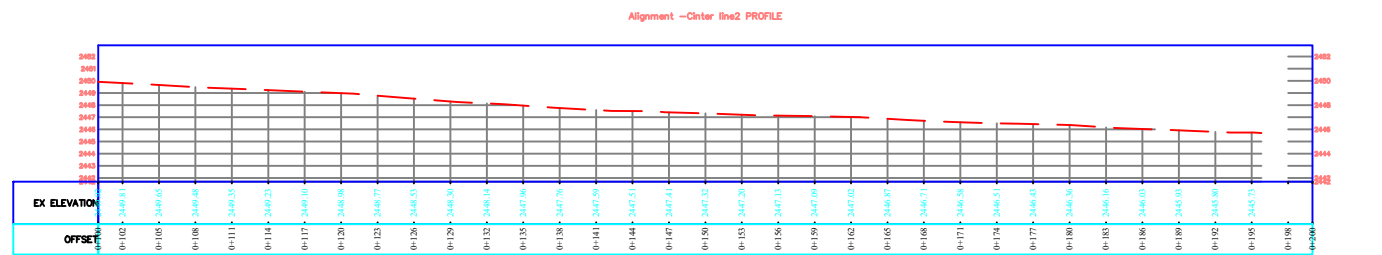
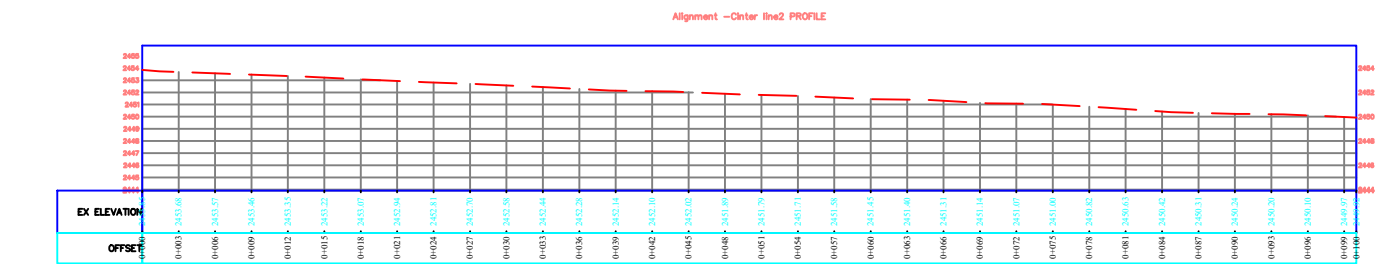






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Profile of Nokar Khail&Haidar Khail Khail Check Dam, 1st Line



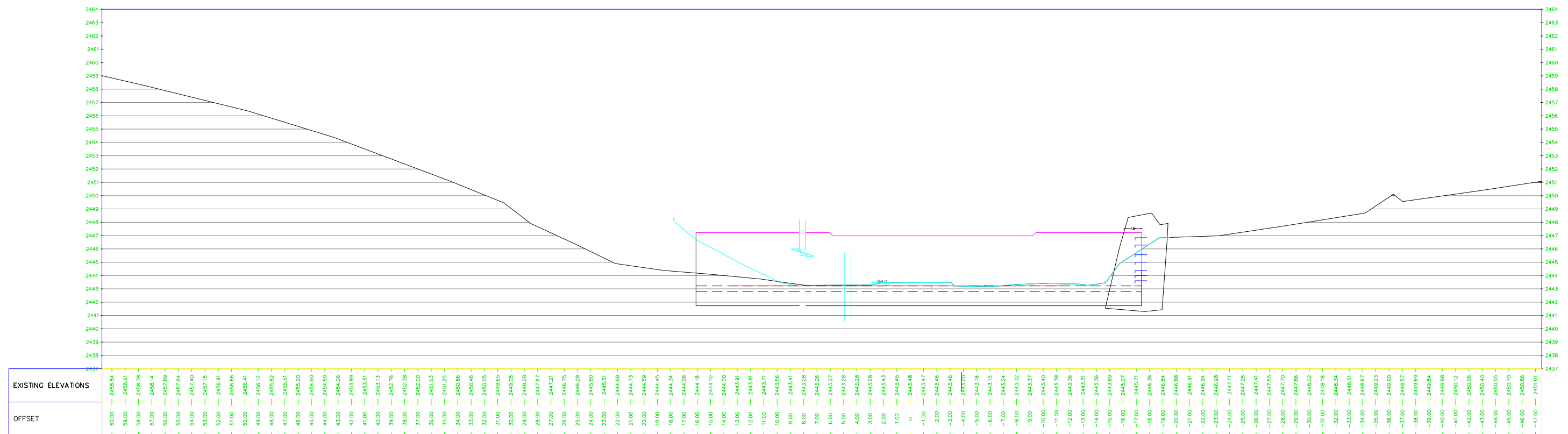
Profile of Nokar Khail&Haidar Khail Khail Check Dam, 2nd Line







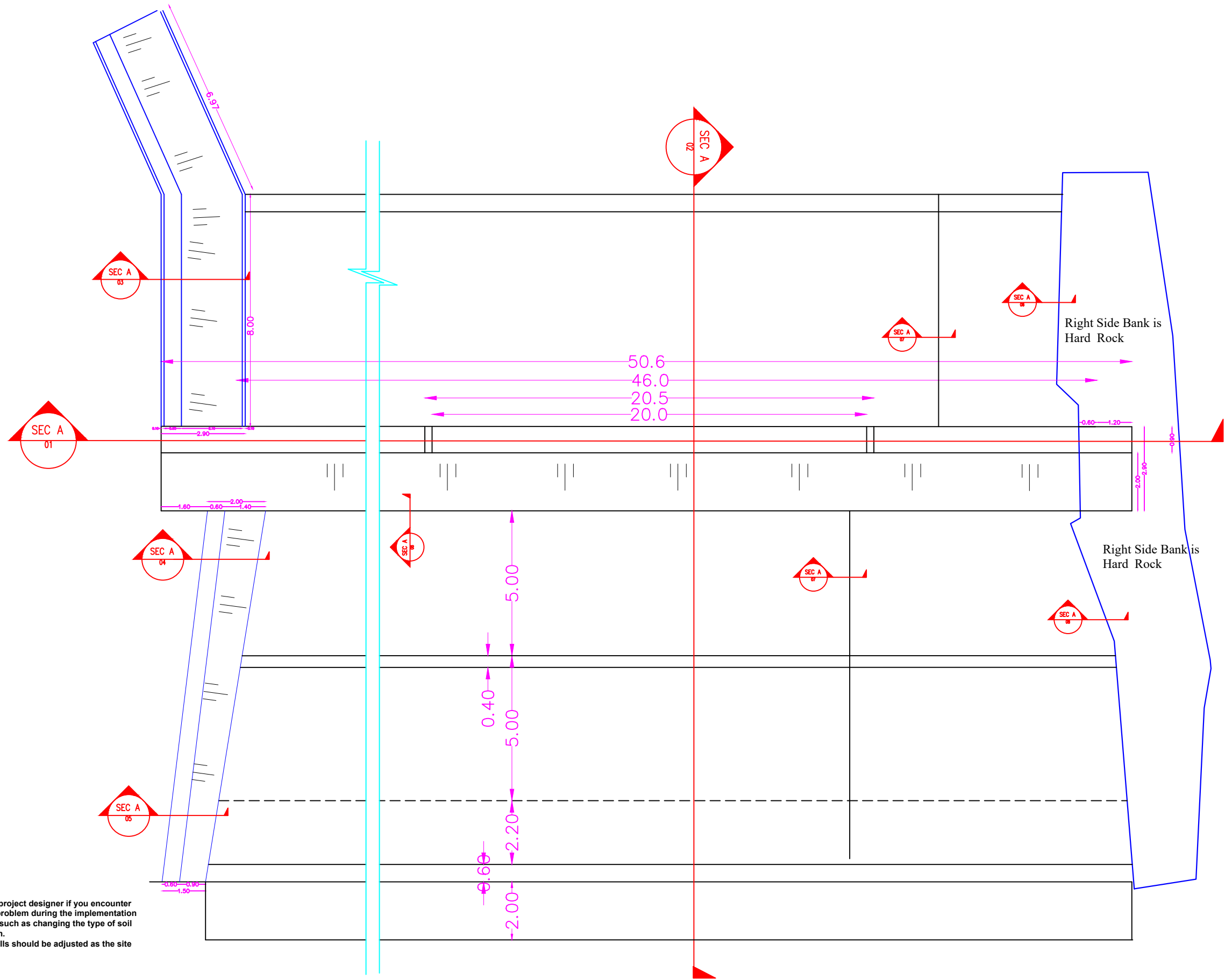
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											Date: Sep-2020

Cross Section of Nokar Khail&Haidar Khail Khail Check Dam RD (0+368.62)

0+368.62







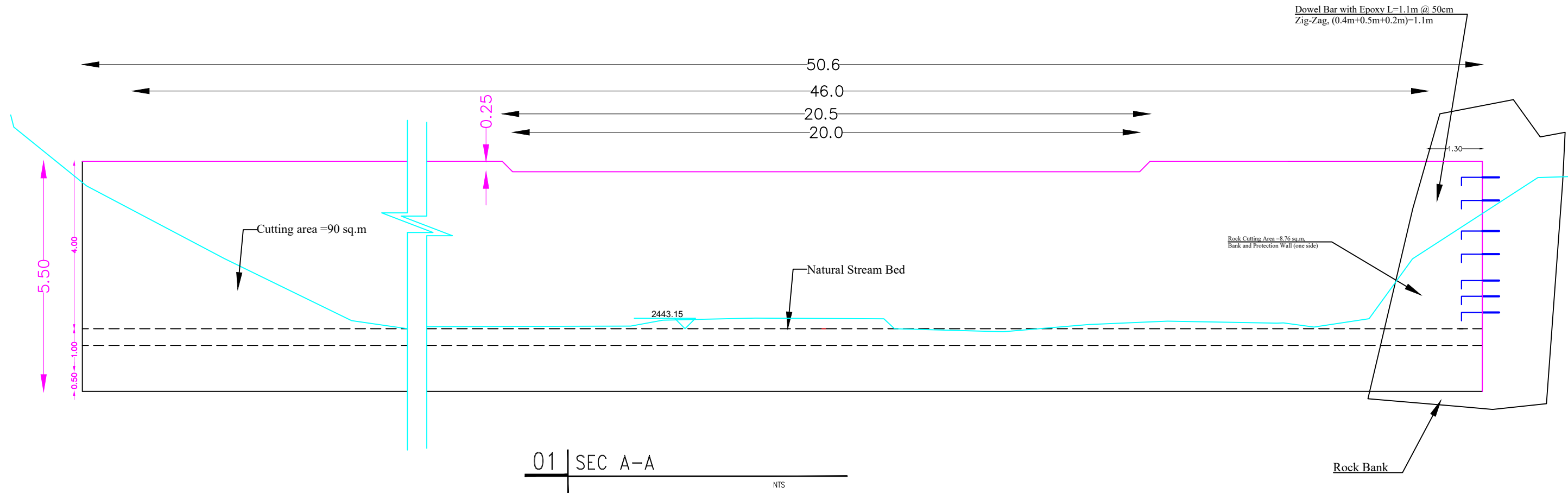
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				Abdul Husain and Saifulraman	Faridoon Danesh	Faridoon Danesh	Eng. Muhammad Akram Paktinyar	Eng. Fardeen Azimi	Eng. Said Moqem Sadat	Date: Sep-2020	



Note:

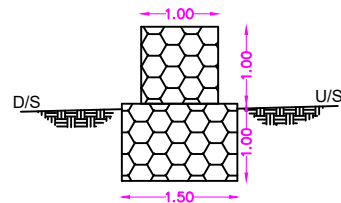
1. Contact the project designer if you encounter a technical problem during the implementation of the work, such as changing the type of soil in foundation.
2. The wing walls should be adjusted as the site condition

 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				WAD-CAD-002	Plan	Surveyed by : Abdul Husain and Saifulraman	Designed by: Faridoon Danesh	Drawn by: Faridoon Danesh	Checked by: Eng. Muhammad Akram Paktinyar	Croos Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqem Sadat

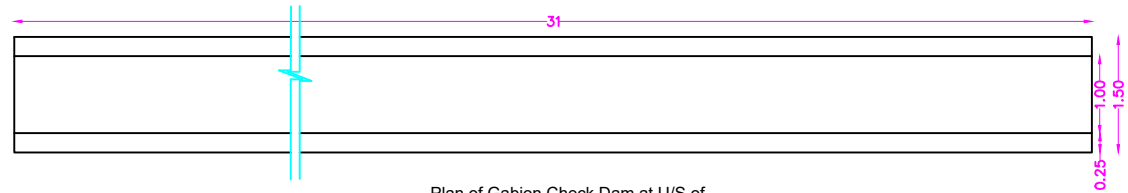


Note:





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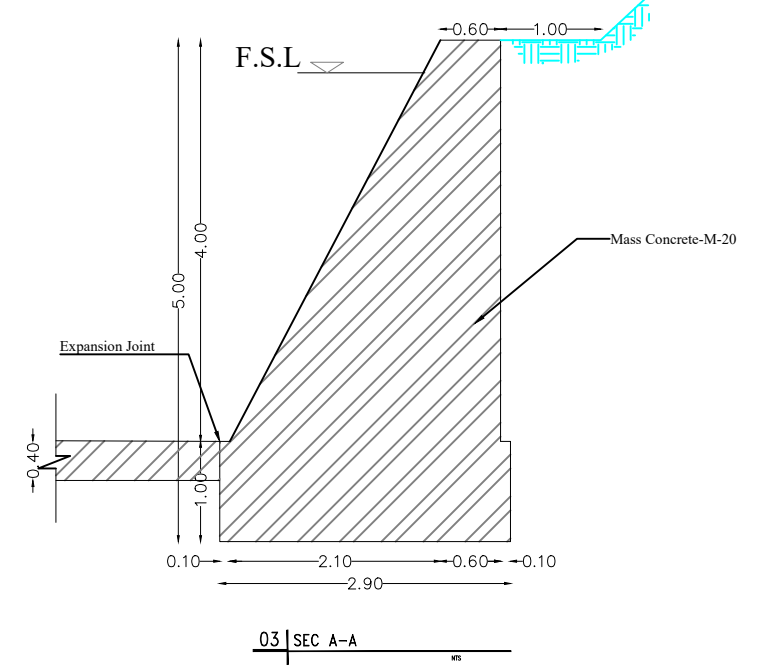
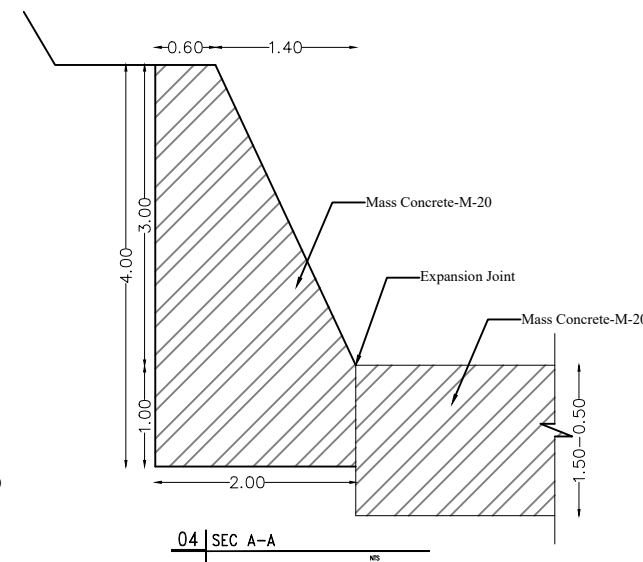
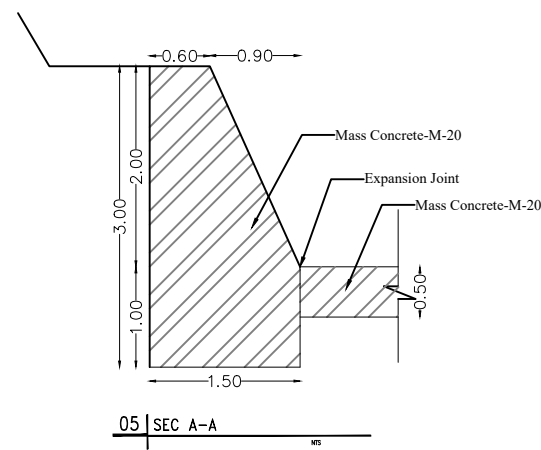
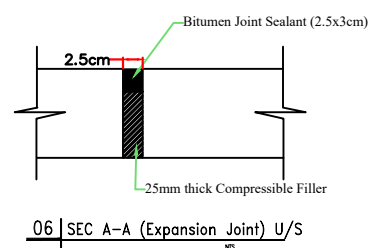
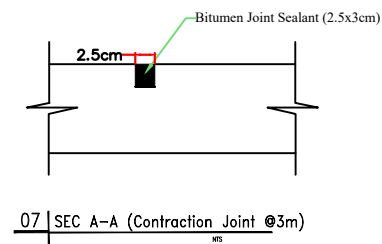
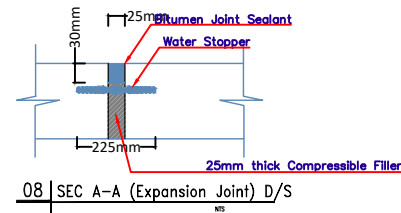
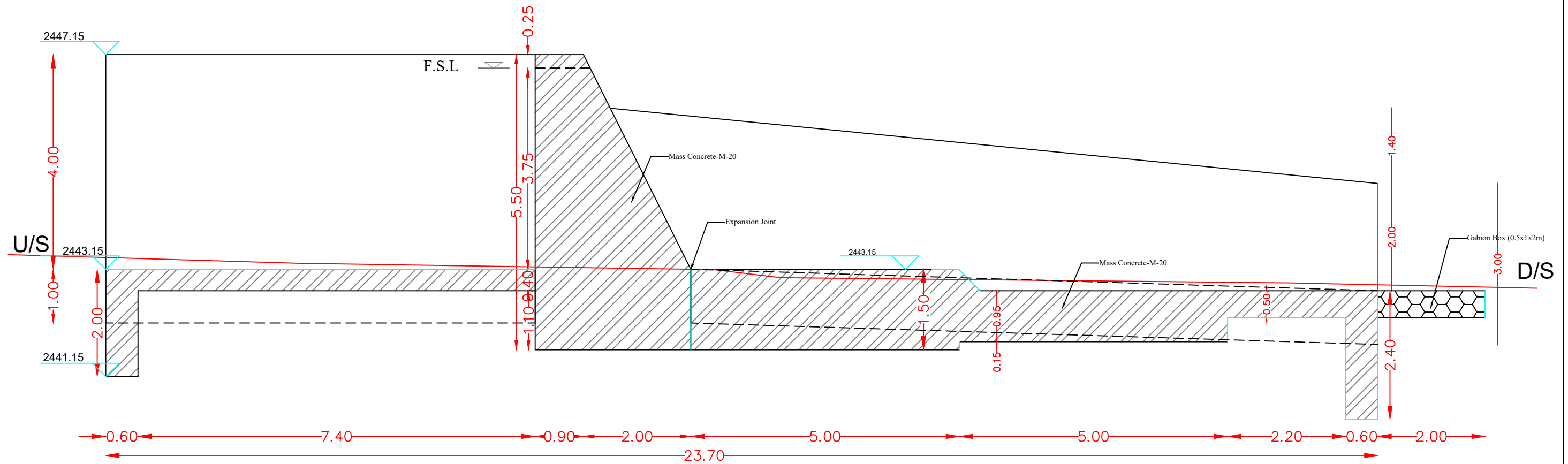






Section of Gabion Check Dam
(at U/S of the Main Check Dam)



Plan of Gabion Check Dam at U/S of
the Main Check Dam

 Islamic Republic of Afghanistan	 National Water Affairs Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				WAD-CAD-002	Section A-A 01	Surveyed by : Abdul Husain and Saifulraman	Designed by: Faridoon Danesh	Drawn by: Faridoon Danesh	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqem Sadat



 Islamic Republic of Afghanistan	 National Water Affair Regulation Authority	 Asian Development Bank (ADB)	 Central Project Management Office	Project	Drawing Content	Employer					DWG NO
				WAD-CAK-002	Sections	Surveyed by : Abdul Wahed	Designed by: Eng. Muhammad Akram Paktinyar	Drawn by: Eng. Munir /En.Khoshal Wardak	Checked by: Eng. Muhammad Akram Paktinyar	Cross Checked by: Eng. Fardeen Azimi	Approved by: Eng. Said Moqem Sadat