



Maxar


esri

34°59'39.581"N 65°03'39.372"E elev 2,818.06 m eye alt 5,538.14 m

WORLD VISION AFGHANISTAN

Flood Response Project

World Vision

Province Ghor	District Charsada	Village: Khafak	Project ID Number: A222823		
Prepared by: WASH Engineer		Review by: WASH Advisor		File Name: Drawing.dwg	
				A3	Sheet Reference Number: W-01
Stalite Image as site plan				Plot Date: 09, Sep, 2024	Plot Scale: NTS

Stalite Image as site plan

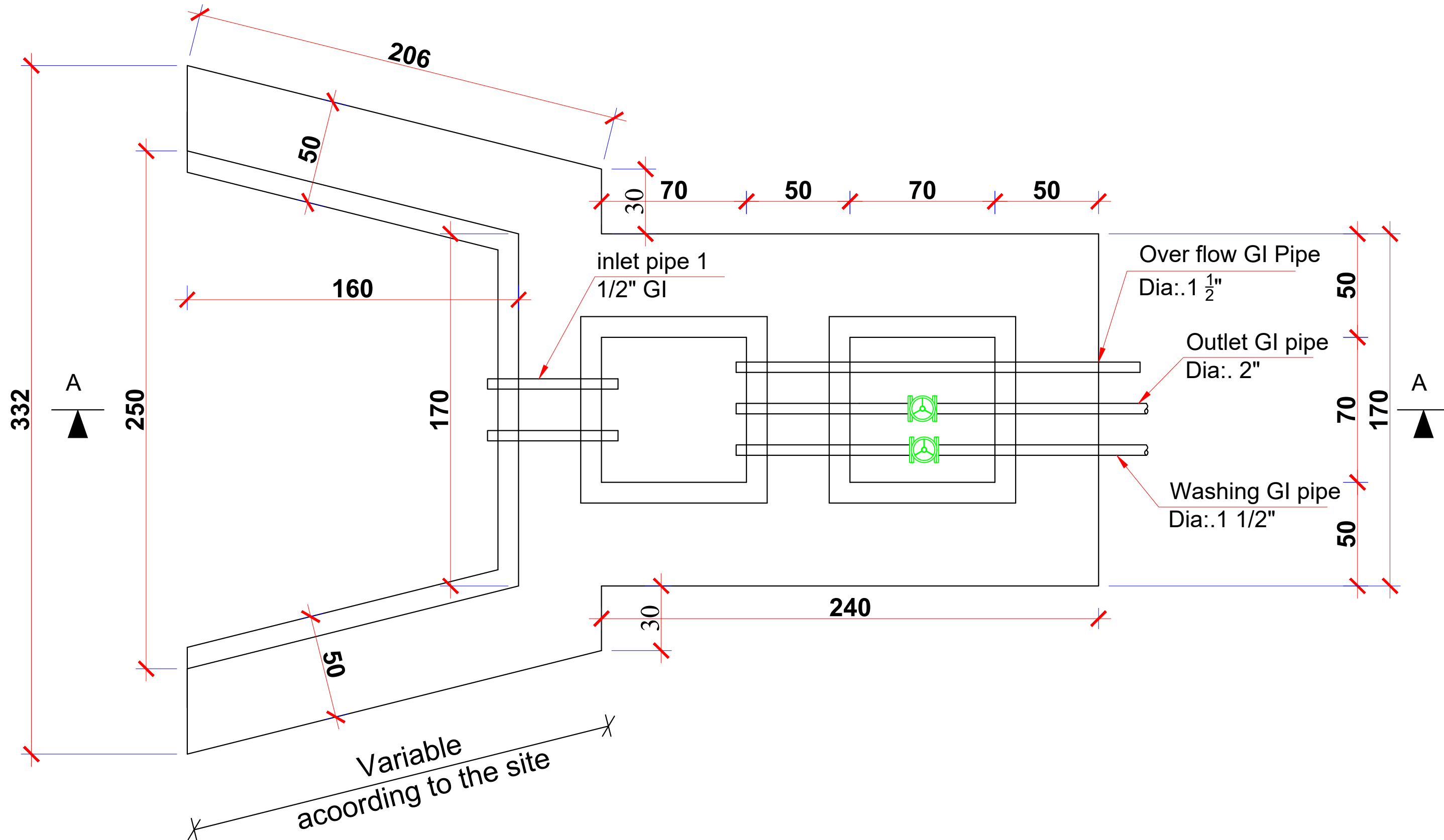
Rehabilitation Plan for Khafak Gravity-Fed Water System

Introduction: Khafak is a community of 400 families and 2,800 individuals located in the Charsada district of Ghor province. Recent flash floods have severely damaged the existing water system, leaving the community without access to potable water. The floods damaged the spring catchment structure and caused additional issues in the reservoir. The gravity-fed water network spans approximately 5 kilometres from the spring source to the reservoir near the village. Design flaws in the existing network have also contributed to reduced water flow to the reservoir, despite sufficient discharge from the spring. Specifically, 2.3 kilometres of the transmission pipe is only 40mm in diameter, causing low water flow. Additionally, the 560-meter elevation difference between the spring and the reservoir, combined with inadequate break pressure mechanisms, has led to significant leakage due to high pressure.

Plan for Rehabilitation:

- 1. Spring Box:** The spring box, fully damaged by the flash flood, needs to be reconstructed according to the detailed drawings provided in the following pages.
- 2. Break Pressure:** To address the high pressure in the transmission pipe caused by the topographical terrain and elevation difference, we plan to construct five break pressure points at strategic locations along the transmission pipe. These will reduce the pressure in stages before the water reaches the reservoir, ensuring a regulated flow and full discharge. This action will mitigate water depletion in the reservoir and reduce leakage in the transmission pipe, alleviating the community's current struggles.
- 3. Transmission Pipe:** We plan to replace the existing 40mm pipe with a 63mm HDPE pipe (PN 10 bar) over a length of 2,350 meters. This upgrade will help regulate flow speed, reduce head loss, and increase water volume reaching the reservoir. It will also decrease leakage in the transmission pipe.
- 4. Reservoir:** The reservoir manhole cover, currently displaced, needs to be properly installed and secured. The reservoir valve box requires repair as its top slab is broken. We also plan to replace all pipes in the reservoir with GI pipes (ILL-EL-Karachi) for the inlet, outlet, overflow, and washout. Additionally, two gate valves will be supplied and installed for the outlet and washout pipes.

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Prepared by: WASH Engineer		Review by: WASH Advisor		File Name: Drawing.dwg
		A3		Sheet Reference Number: W-02
		Plot Date: 09, Sep, 2024		Plot Scale: NTS
Project Description and Rehab-Plan				



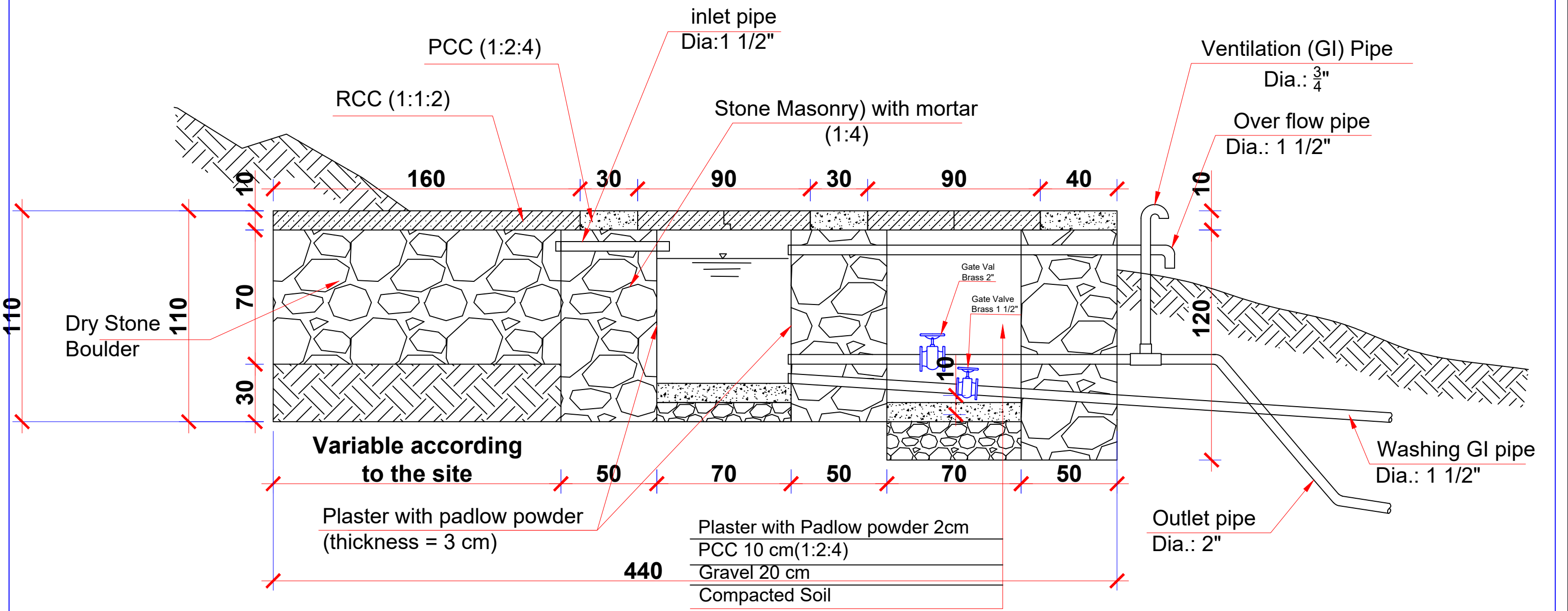
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Prepared by: WASH Engineer	Review by: WASH Advisor	File Name: Drawing.dwg			
		A3	Sheet Reference Number: W-04		
		Plot Date: 09, Sep, 2024	Plot Scale: NTS		

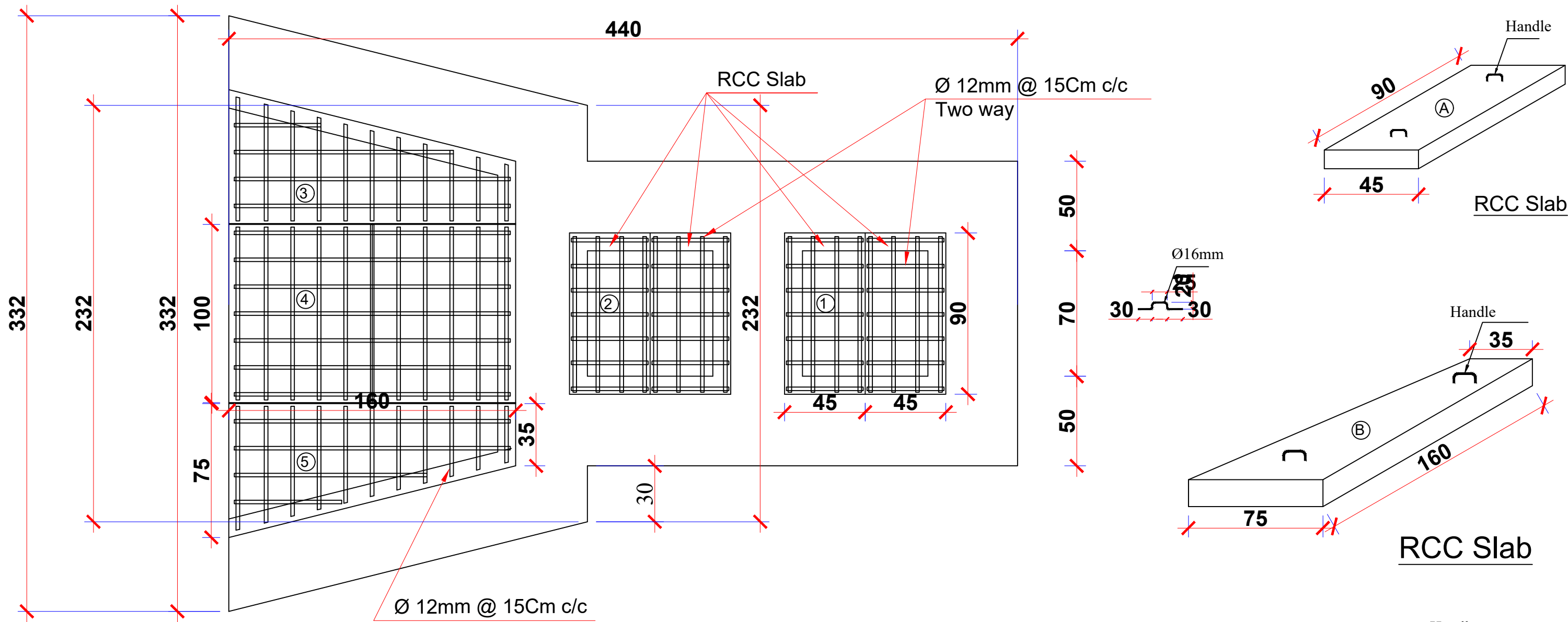
Spring box plan



Section A - A

Note:
The inside of sedimentation and gate valve box should be plastered with cement-sand mortar and padlow powder

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Prepared by: WASH Engineer		Review by: WASH Advisor		File Name: Drawing.dwg
				Sheet Reference Number: W-05
				Plot Date: 09, Sep, 2024
Spring Box Section				

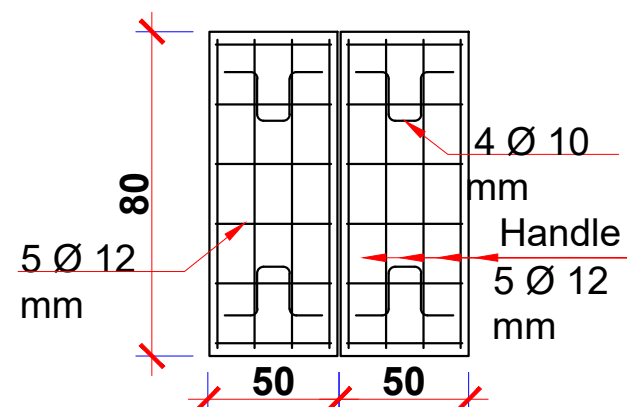


Ø 12mm @ 15Cm c/c
Two way

Steel Bar Schedule for one spring								
Bar no.	Bar dia (mm)	Num. of bar	Length (m)	Total length (m)	Weight (kg/m)	Total weight (kg)	Total weight + 5 % (kg)	Shape of bar
1,2	12	15	1	15	0.888	13.32	14	
3,5	12	30	0.69	20.70	0.888	18.38	19.30	
4	12	18	1.2	21.78	0.888	19.34	20.3	
6	16	5	1.15	5.75	1.57	9.02	9.5	
Total Weight						63.1Kg		

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Prepared by: WASH Engineer		Review by: WASH Advisor		File Name: Drawing.dwg
			A3	Sheet Reference Number: W-06
				Plot Date: 09, Sep, 2024
Spring Box RCC Plan and details				Plot Scale: NTS

Reinforcement Details of Top Slabs



BREAK PRESSURE TANK No-1,2,3,4,5

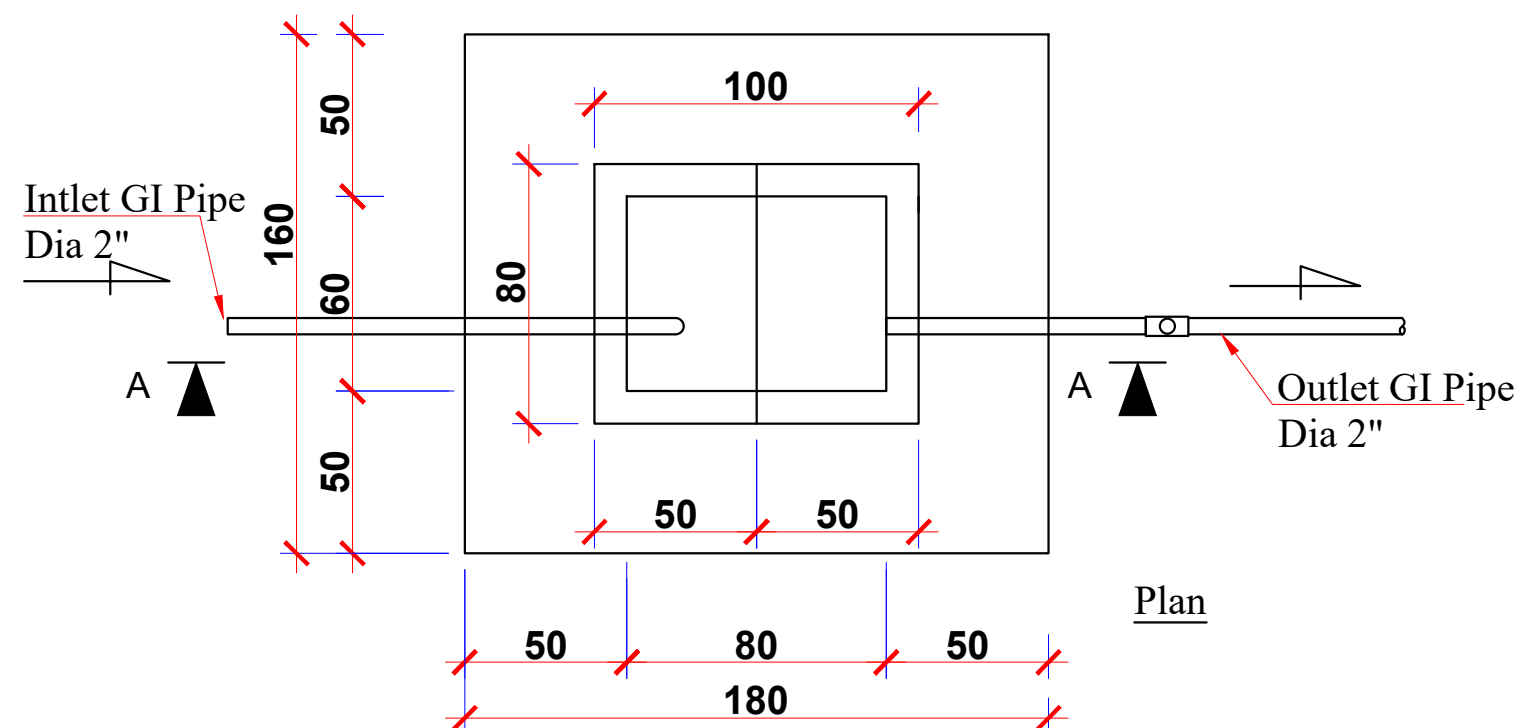
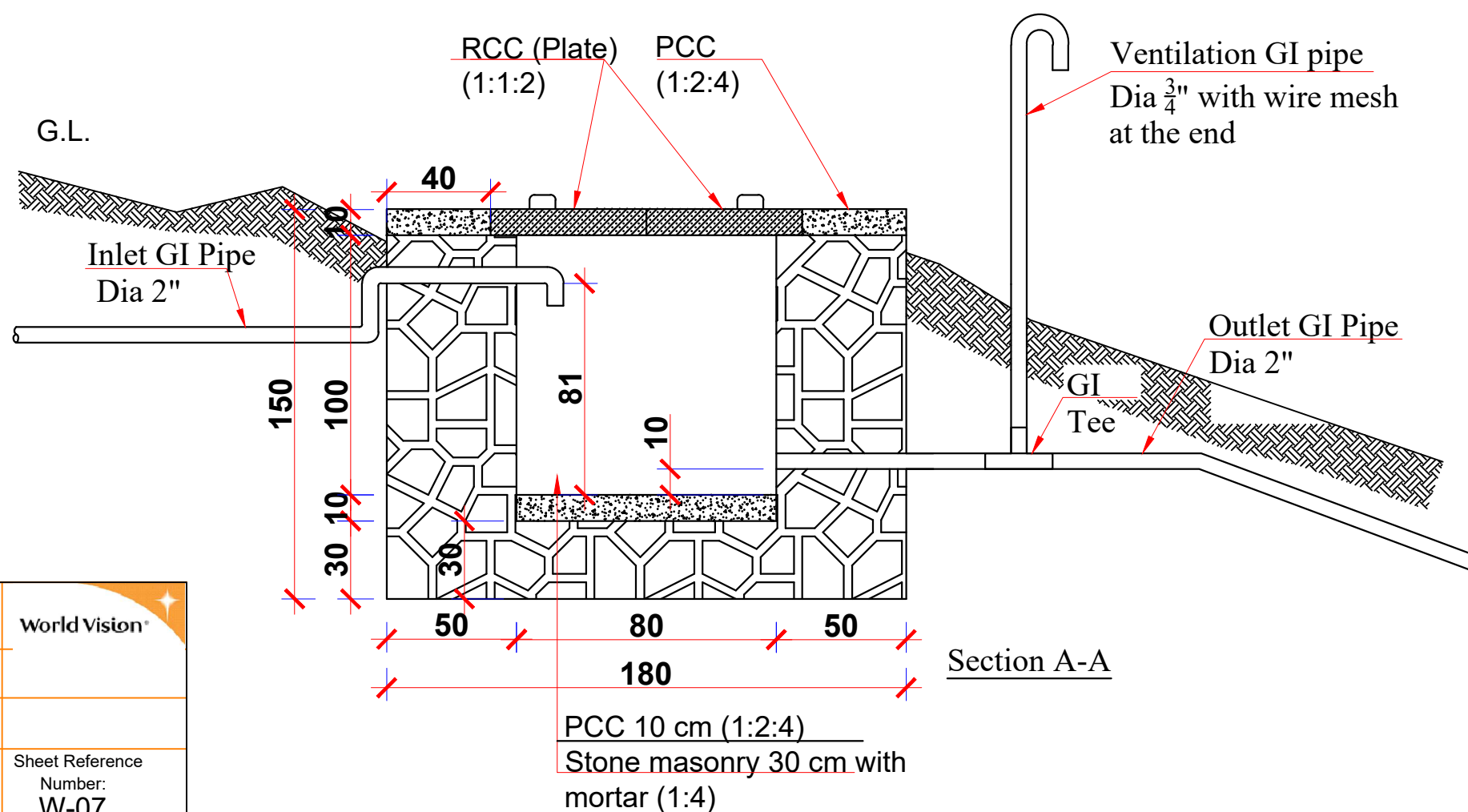


Table for break Pressure box

NO	Break Pressure Box#	E	N	Elevation (m)
1	B. P Box-1	688873	3873561	2681
2	B. P Box-2	688941	3874054	2617
3	B. P Box-3	688954	3874543	2542
4	B. P Box-4	689146	3875118	2465
5	Reservoir	690153	3877125	2263
6	spring	688538	3873119	2759



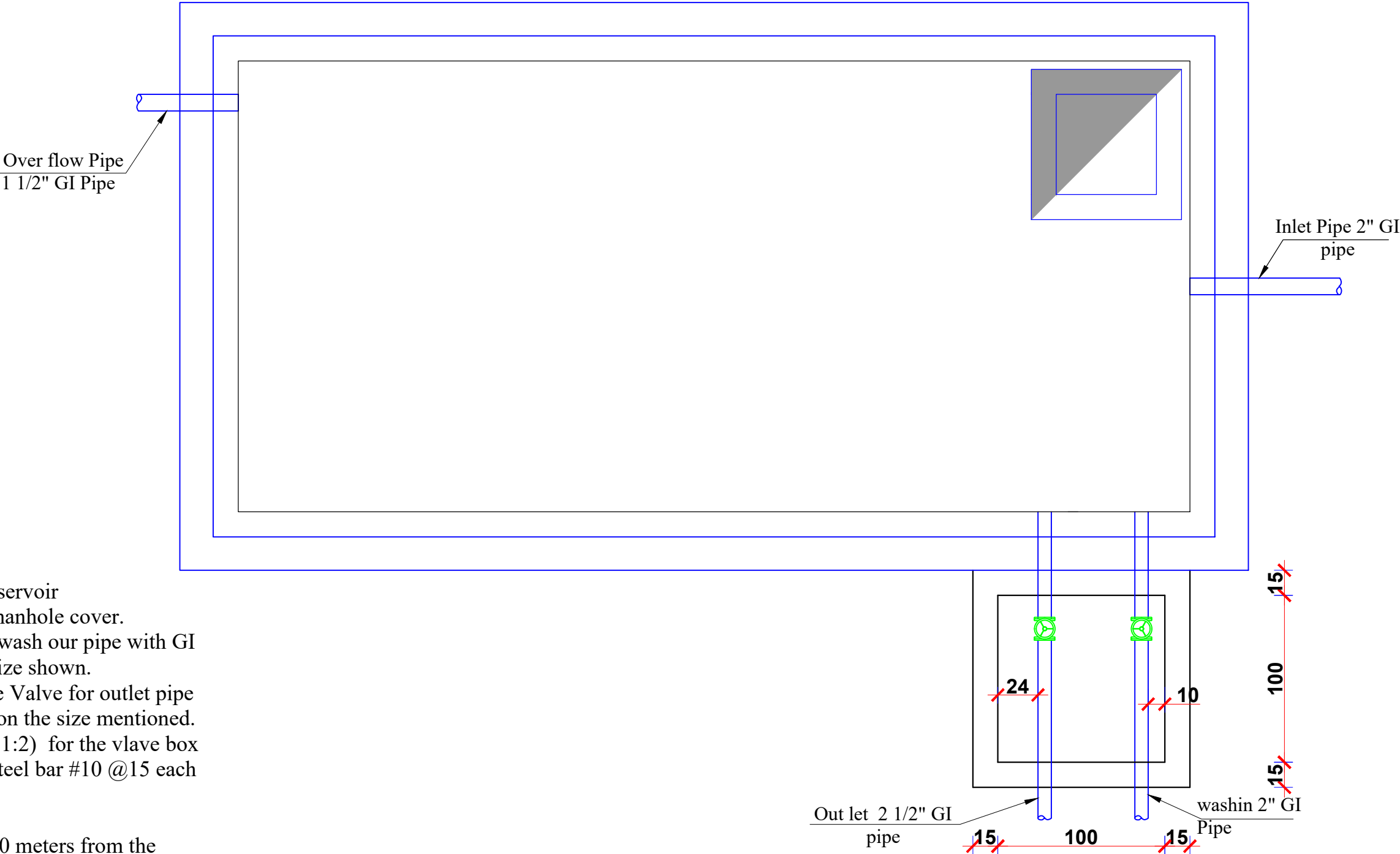
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		A3	Sheet Reference Number: W-07		
		Plot Date: 09, Sep, 2024	Plot Scale: NTS		
Break Pressure Plan and Section					

Existing Reservoir



Note:

- Following activities are planned for existing reservoir
- 1. Fixing and installation of the reservoir manhole cover.
 - 2. Replacing of the inlet, outlet, overflow, wash our pipe with GI pipe (IL-EL-Karachi) based on the pie size shown.
 - 3. Supply and installation of Cast Iron Gate Valve for outlet pipe and washout pip in the valve box based on the size mentioned.
 - 4. Construction of RCC plate Mark 250 (1:1:2) for the vlave box based on the size mentioned and using steel bar #10 @15 each direction.
 - 5. Painting of the existing reservoir
 - 6. Extension of the overflow pipe about 100 meters from the reservoir point.

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Prepared by: WASH Engineer		Review by: WASH Advisor		File Name: Drawing.dwg
				Sheet Reference Number: W-08
Existing Reservoir Repair Plan				Plot Date: 09, Sep, 2024
				Plot Scale: NTS