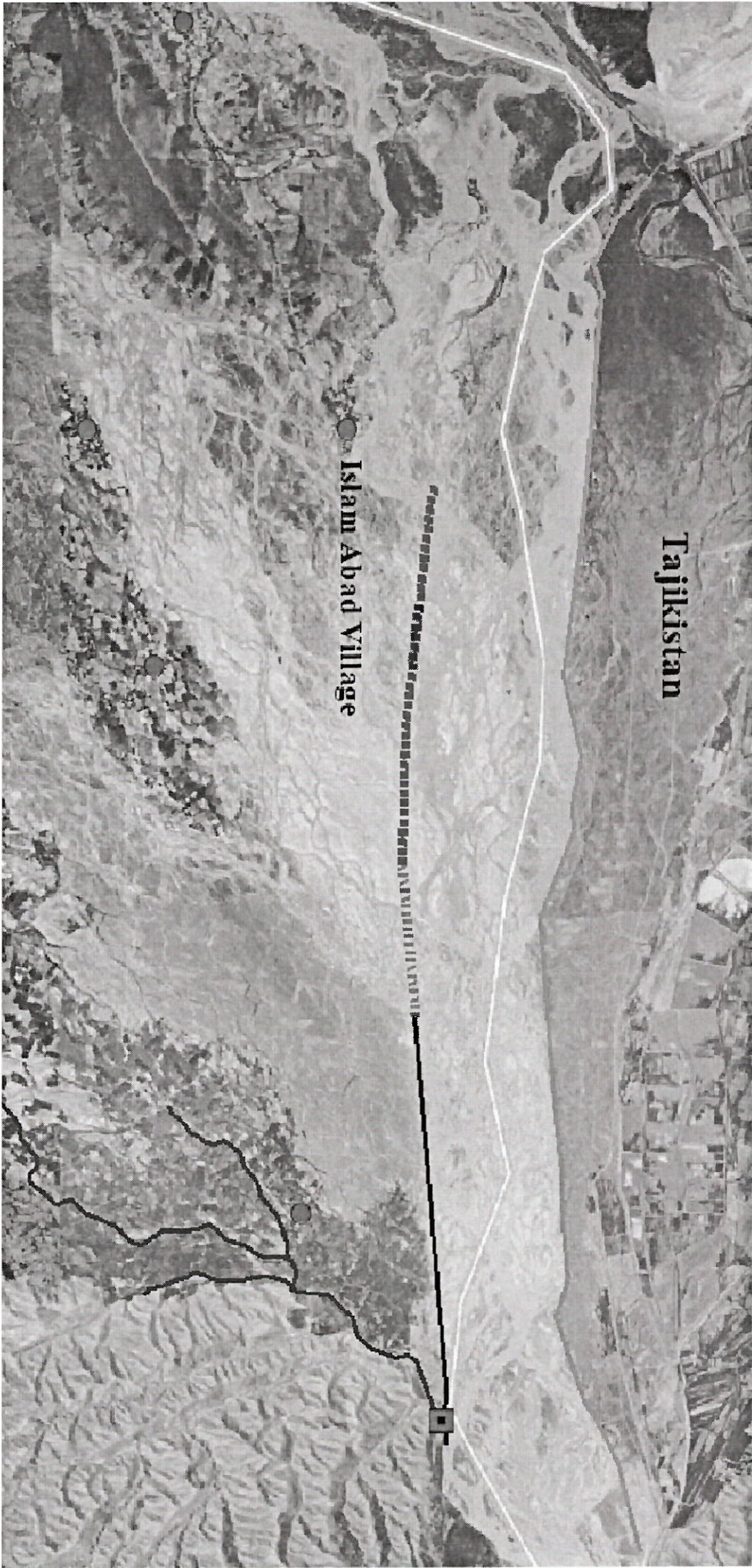
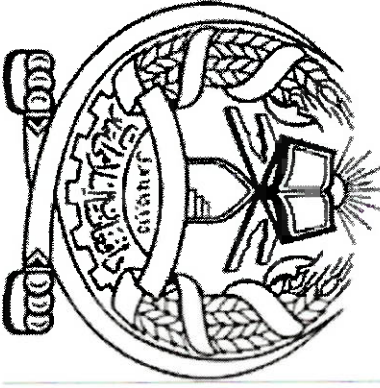
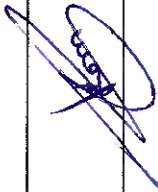
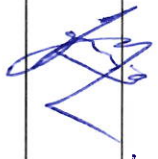
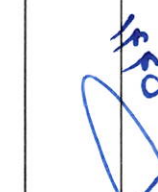






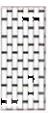











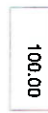


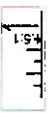



ISLAMIC EMIRATE OF AFGHANISTAN
MINISTRY OF ENERGY AND WATER
DEPUTY MINISTRY OF WATER
General Directorate of Engineering Services of Water Infrastructures
Technical Board



Amu River Bank Protection (Yatim Tepa Project) lot 8

Date		
Prepared	Checked	Approved
		
Construction Drawing		

LEGEND:-

	Center Line
	Direction of flow
	Grouted Stone Masonry/Pitching Section
	Mass concrete Section
	Brick Masonry
	P.C.C Block
	Gabion
	Graded Gravel
	Geotextile Mattress
	Plain Cement Concrete
	Reinforced Cement Concrete
	Bank Protection
	Compacted Soil
	Hill
	H.F.L / M.W.L
	Elevation of the point is (100m) in section veiw
	Elevation of the point (100m) in Plan view
	Traverse Station
	Benchmark
	Lined Slope
	Earthen Slope
	Ground Level
	Stone Pitching/Rip Rap

ABBREVIATION:-

AV	AVERAGE	ST	STATION
BM	BENCH MARK	THK	THICKNESS
B	WIDTH	TYP	TYPICAL
C/C	CENTER TO CENTER	HFL	HIGH FLOOD LEVEL
D	DEPTH OF WATER	U/S	UPSTREAM
DRG	DRAWING	YRS	YEARS
DIA , Ø	DIAMETER	Q	DESIGN DISCHARGE
D.W.L	DESIGN WATER LEVEL	W.L	WATER LEVEL
D/S	DOWNSTREAM	N.T.S	NOT TO SCALE
EL.	ELEVATION		
F.B	FREE BOARD		
HFL	HIGH FLOOD LEVEL		
HT.	HEIGHT		
H.G.L	HYDRAULIC GRADE LINE		
KM , km	KILOMETERE		
M ,m	METRE		
Chkd	CHECKED		
Apprvd	APPROVED		
M . W . L	MAXIMUM WATER LEVEL		
MIN	MINIMUM		
No(s)	NUMBER(S)		
N.G.L	NATURAL GROUND LEVEL		
P.C.C	PLAIN CEMENT CONCRETE		
R.C.C	REINFORCED CEMENT CONCRETE		

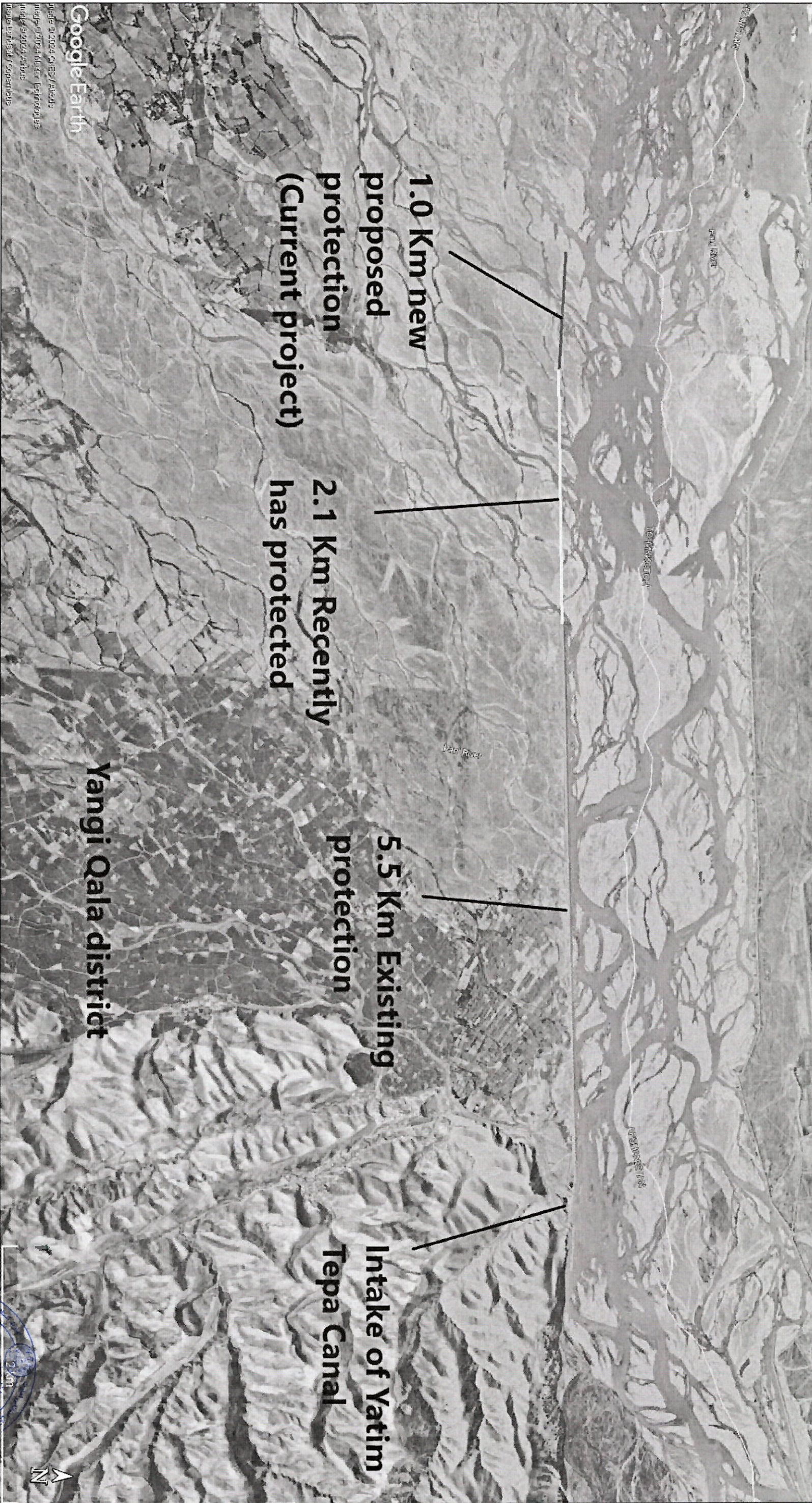
Notes:

- 1- All dimensions are in cm or as specified on drawing.
- 2- All cut-offs to be constructed against undisturbed soil.
- 3-Location of the structure, setting out and elevations to be confirmed by the WMD representative before construction.
- 4-The contractor shall construct and maintain all necessary channels, diversion and other temporary works necessary to ensure that irrigation water supplies are not interrupted during construction works.
- 5-All elevations are based on local benchmark.
- 6-Coordinates and elevatoin of local bechmark are attached to every single site.
- 7.Contraction joint in concrete base slab shall be provided at 2m centers.
- 8-Minimum concrete cover to steel reinforcement shall be 70mm.
- 9-Steel reinforcement shall have a minimum yield stress of 250N/mm2.
- 10-For retaining wall more than 12m in length, expansion joint shall be provided at 12m centers.
- 11-Abbreviations used:
GI stands for galvanized iron
EW stands for each way
EF stands for each face
FB stands for free board
Dia stands for diameter
MS stands for mild steel

River Bank Protection at Yatim Tepa
Location: Dargat district / Takhar Province
Lot # 8
Total length of protection = 1 Km

Tajekistan

Legend
Lot # 8
Previous protection



DESIGNED BY	ENG. MAHDI MATEN	PROVINCE	TAKHAR	SCALE	AS SHOWN	PROJECT NAME: YATIM TAPA RIVER BANK PROTECTION (DETAIL DESIGN OF LOT # 8)
CHECKED BY	BY TECHNICAL TEAM	DISTRICT	DARGAT	DESIGN DATE	JUNE 2023	DRAWING: Project location map
APPROVED BY						

(Total length of protection at lot # 8 = 1 Km)

Panj River

8 # Gabion Repelling Spur
after each 125m at lot no.8

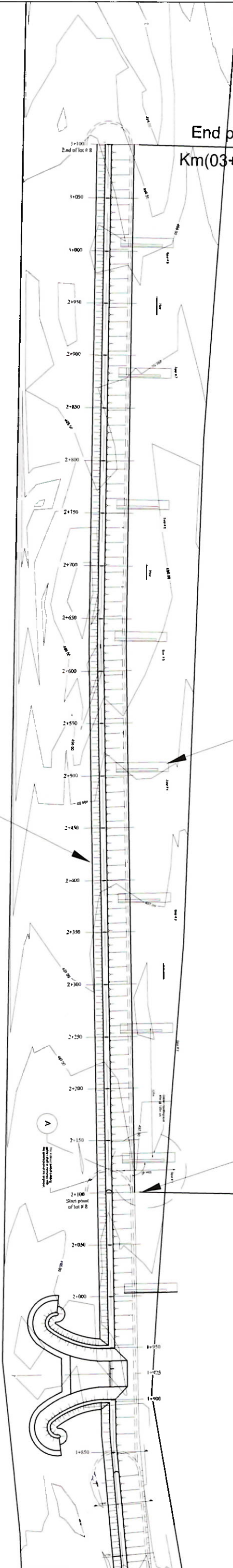
End point
Km(03+100)

End of protection
work at lot no.7

Start point
Km(02+100)

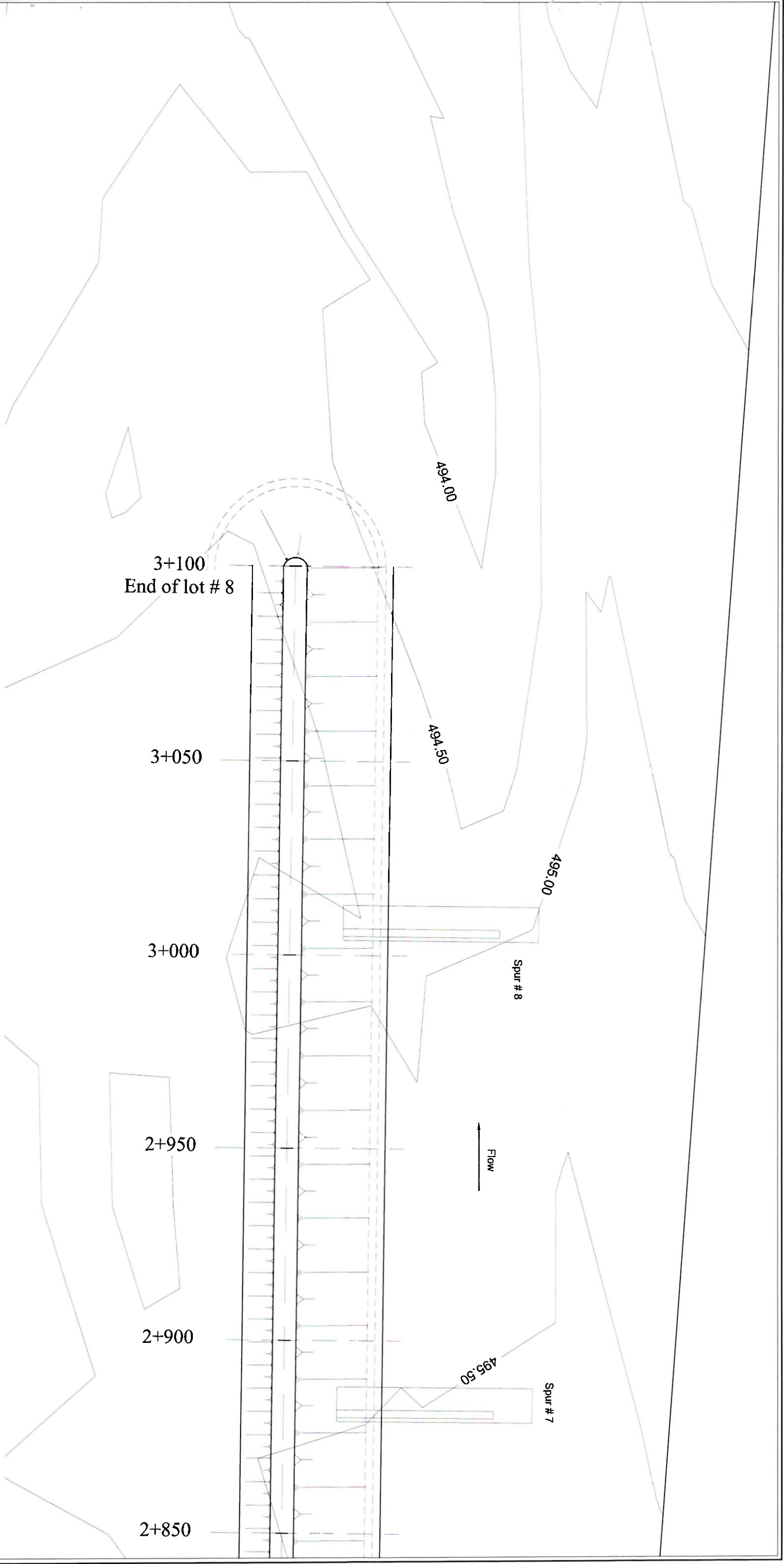
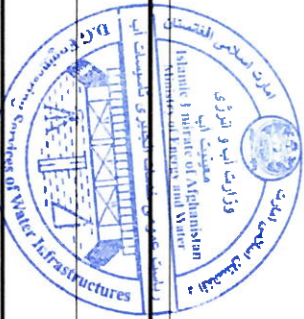
1000m Proposed Embankment
Dyke at lot # 8

General Note:
1- At the back side of embankment (Agricultural side)
two ramps shall be provided with 500m spacing.
for more detail see sheet no. 14 of drawing.
2- If the construction work stopped due any reasons,
contractor is responsible to protect all the works and
activities.



DESIGNED BY	ENG. MAHD MAITEEN	PROVINCE	TAKHAR	SCALE	AS SHOWN	PROJECT NAME: YATIM TAPA RIVER BANK PROTECTION (DETAIL DESIGN OF LOT # 8)
CHECKED BY	BY TECHNICAL TEAM	DISTRICT	DARUAT	DESIGN DATE	JUNE 2023	DRAWING: General Plan of River Bank Protection Work
APPROVED BY						

DESIGNED BY	ENG. MAHDI IMATEEN	PROVINCE	TAKHAR	SCALE	AS SHOWN	PROJECT NAME: YATIM TAPA RIVER BANK PROTECTION (DETAIL DESIGN OF LOT # 8)
CHECKED BY	BY TECHNICAL TEAM	DISTRICT	DARQAT	DESIGN DATE	JUNE 2023	DRAWING : Plan of embankment from Km(02+900) to (03+100)
APPROVED BY						



504
502
500
498
496
494
492
490
488
486
484
482

Top of Embankment

N.S.L

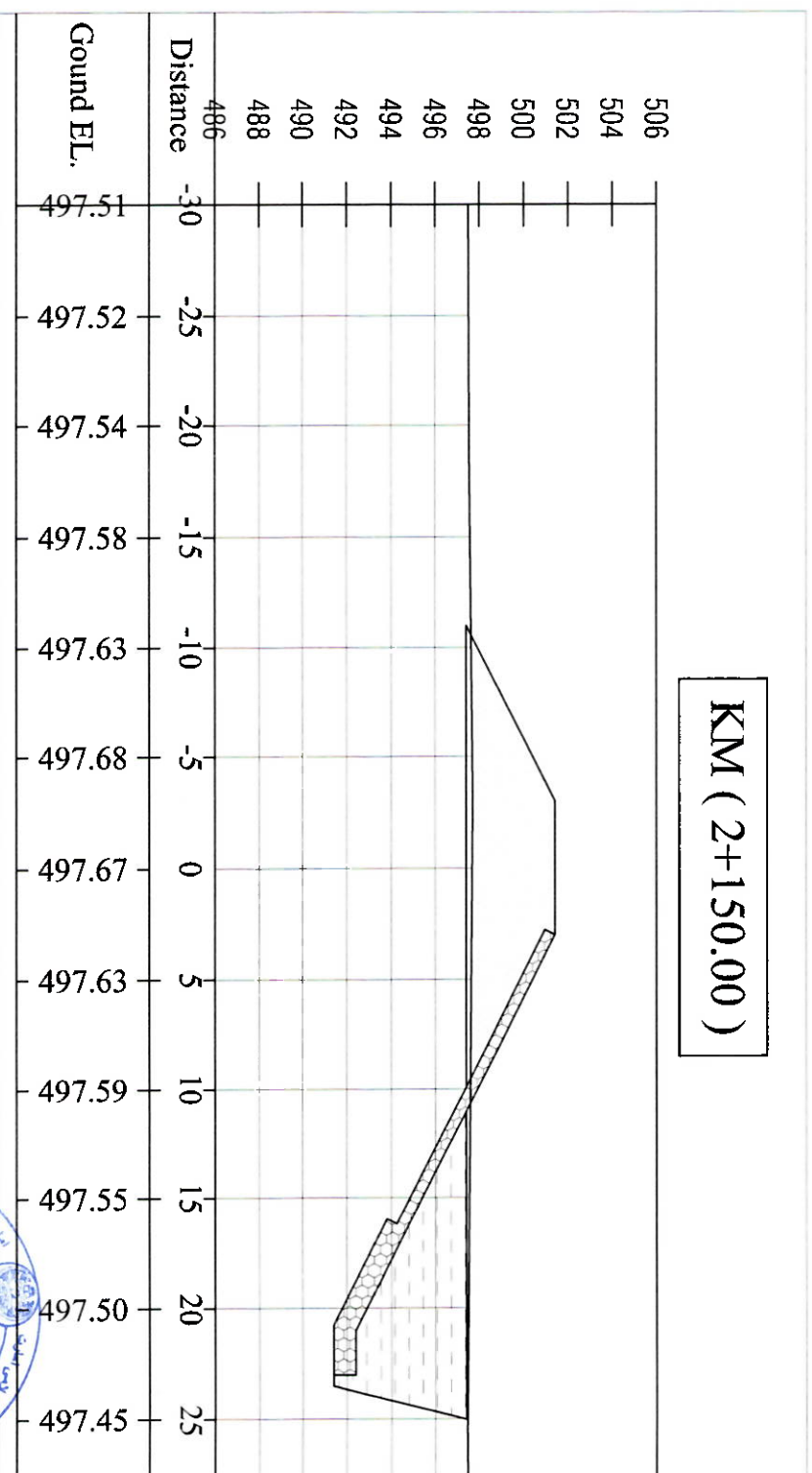
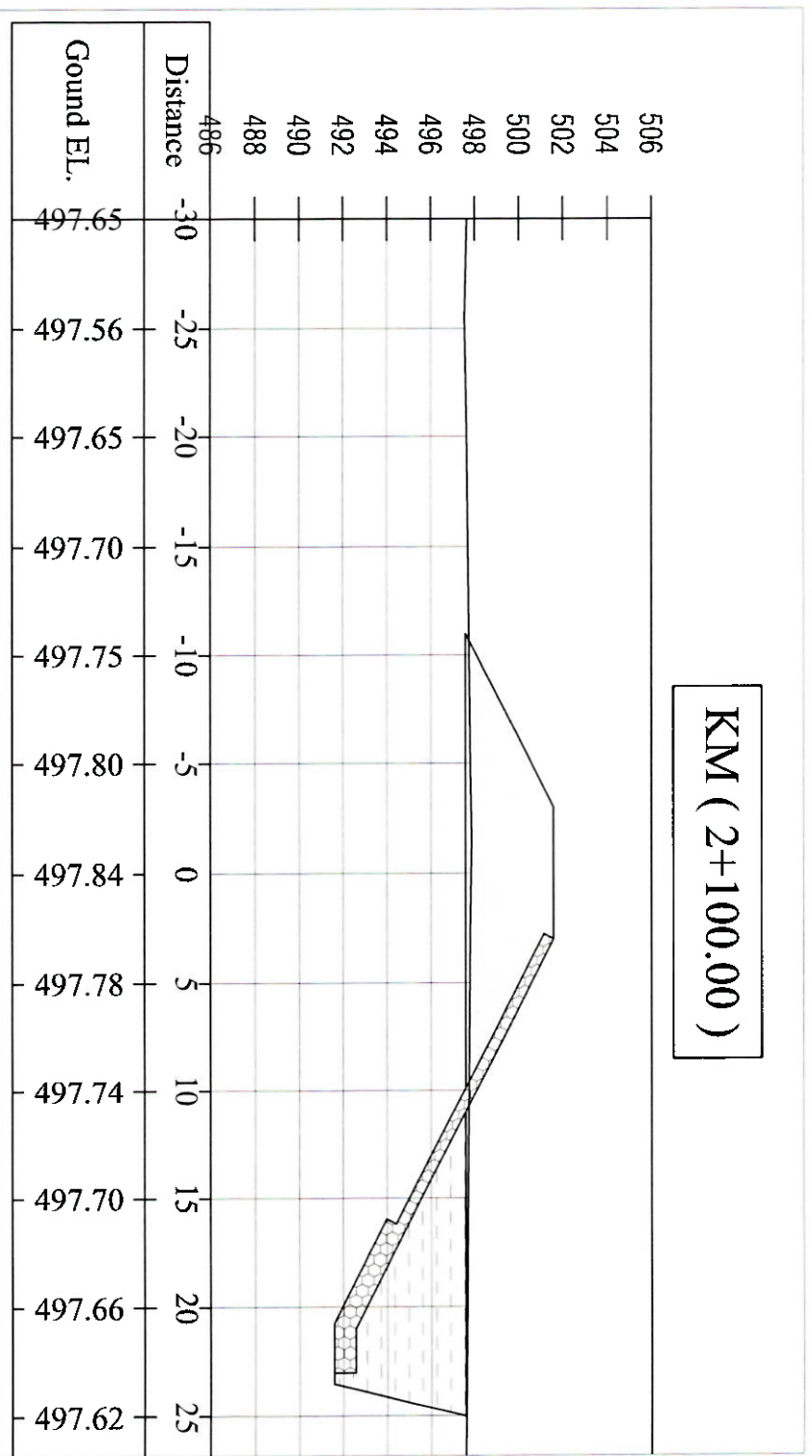
Bottom of
Embankment

Bottom of Cut off

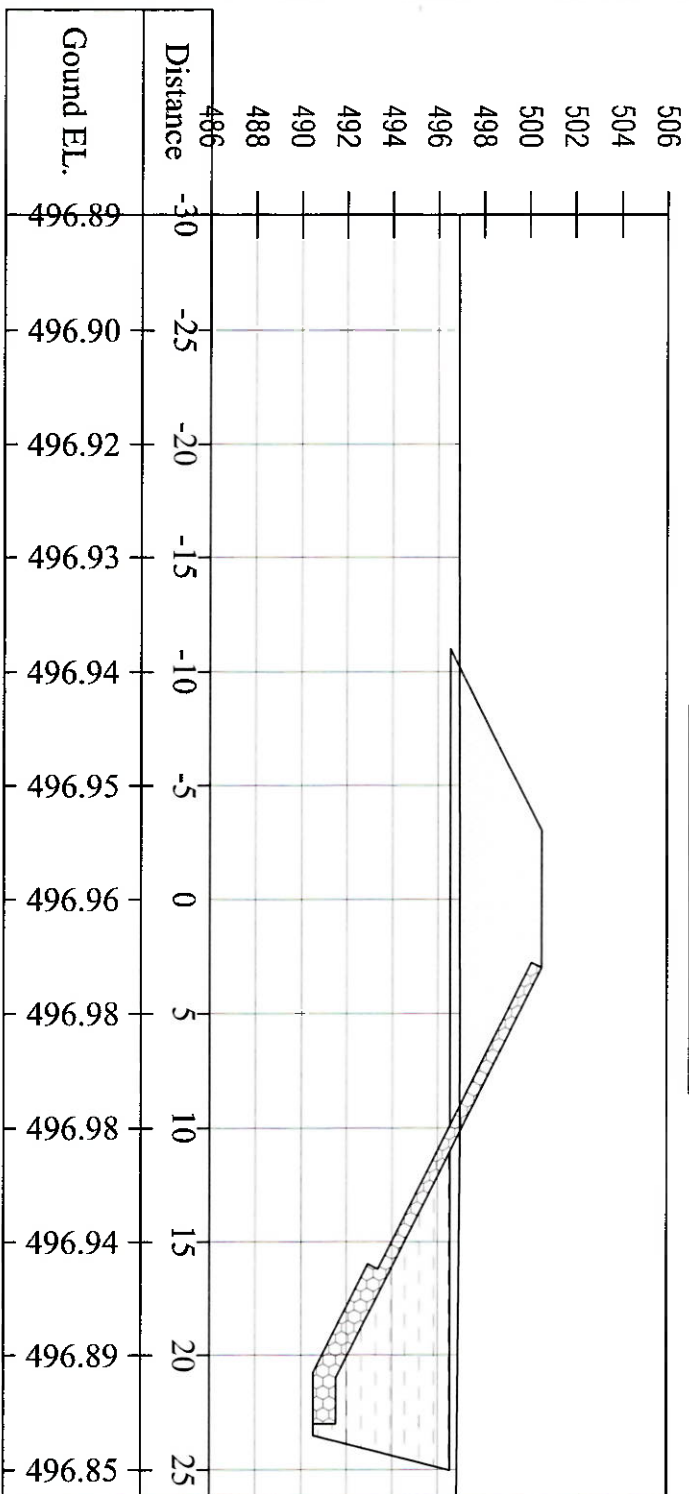
Station	2+100	2+150	2+200	2+250	2+300	2+350	2+400	2+450	2+500	2+550	2+600	2+650	2+700	2+750	2+800
Surface EL.	497.84	497.67	497.61	497.30	497.12	497.11	496.96	496.81	496.57	496.18	495.30	495.68	495.68	495.67	495.36
Foundation EL	497.58	497.41	497.24	497.07	496.89	496.72	496.55	496.37	496.20	496.03	495.85	495.68	495.51	495.34	495.16
Foundation EL of Cut off	491.58	491.41	491.24	491.07	490.89	490.72	490.55	490.37	490.20	490.03	489.85	489.68	489.51	489.34	489.16
Top EL.	501.58	501.41	501.24	501.07	500.89	500.72	500.55	500.37	500.20	500.03	499.85	499.68	499.51	499.34	499.16
Filling Depth											0.56	0.00	0.18	0.33	0.20
Cutting Depth	0.26	0.26	0.38	0.23	0.23	0.39	0.42	0.44	0.36	0.15					



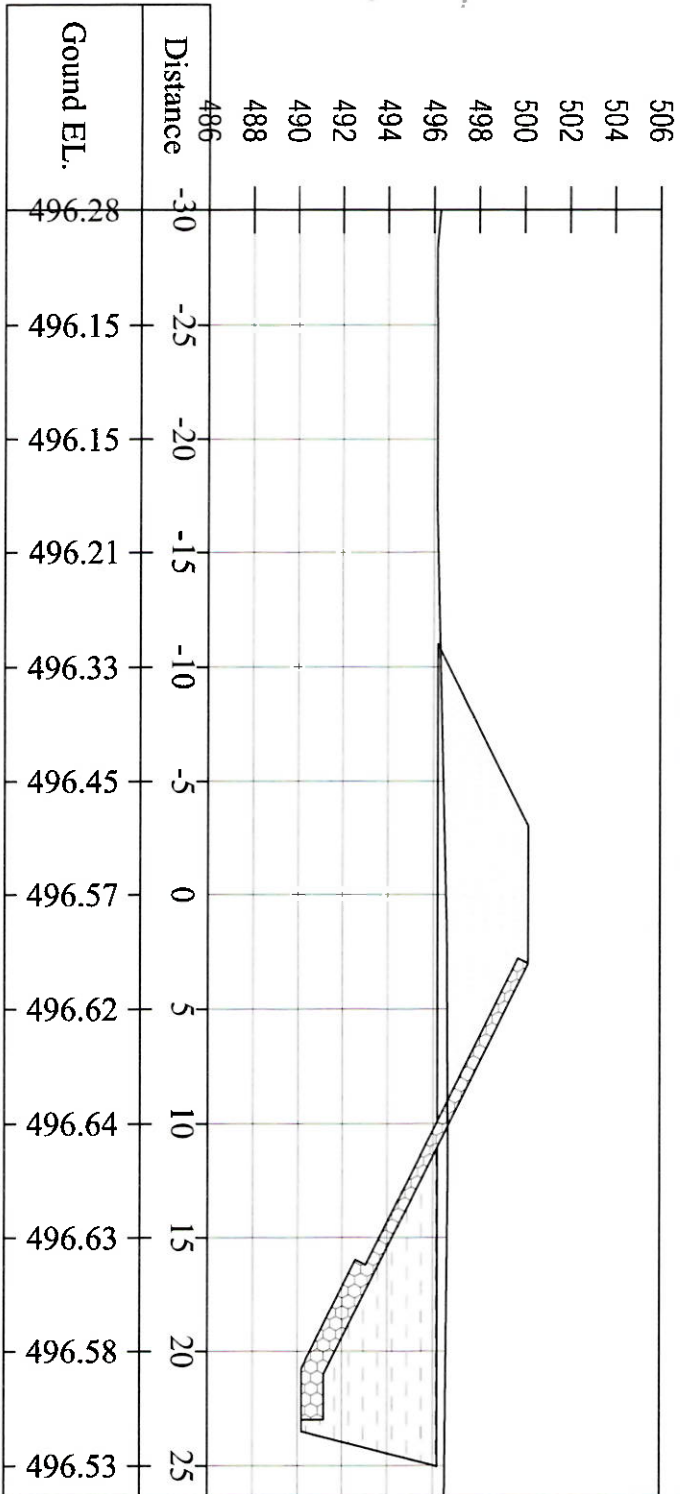
Station	2+850	2+900	2+950	3+000	3+050	3+100
Surface EL.	495.51	495.46	495.29	494.87	495.13	494.85
Foundation EL	494.99	494.82	494.64	494.47	494.30	494.12
Foundation EL of Cut off	488.99	488.82	488.64	488.47	488.30	488.12
Top EL.	498.99	498.82	498.64	498.47	498.30	498.12
Filling Depth						
Cutting Depth	0.52	0.64	0.65	0.40	0.84	0.73



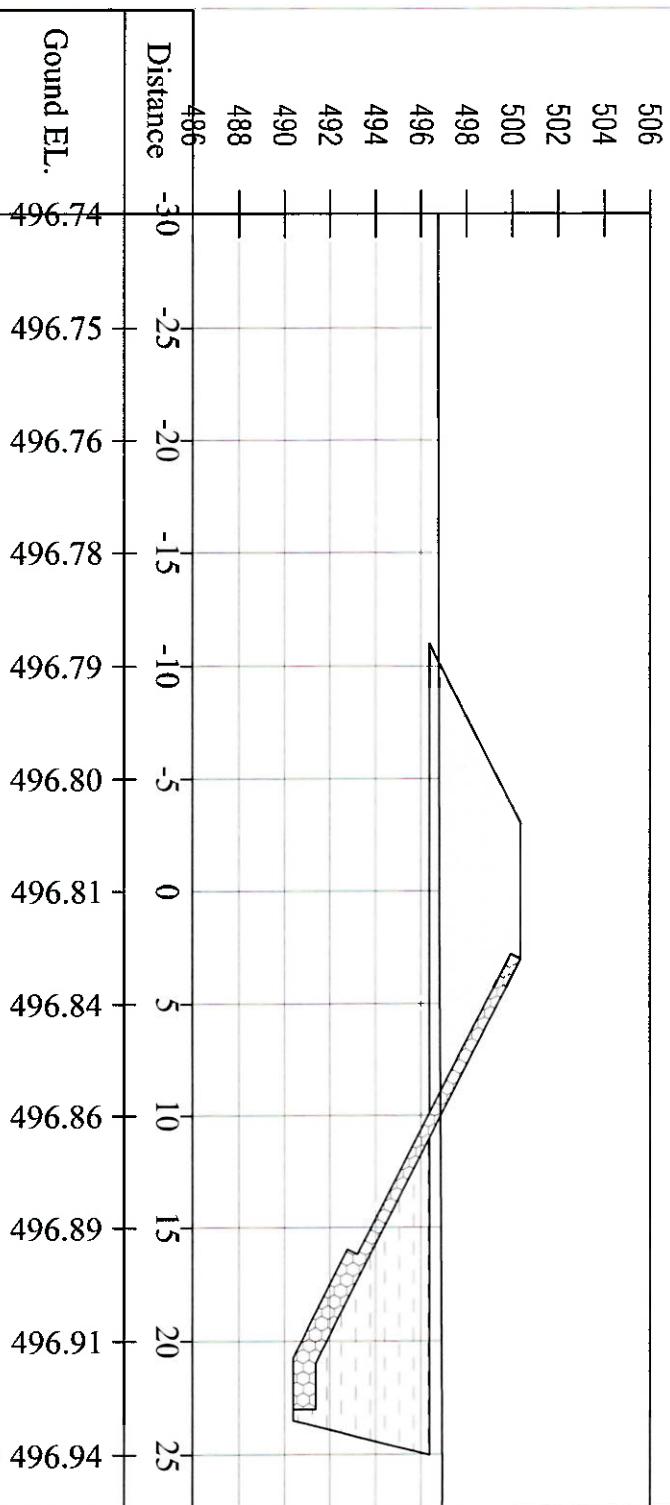
KM (2+400.00)



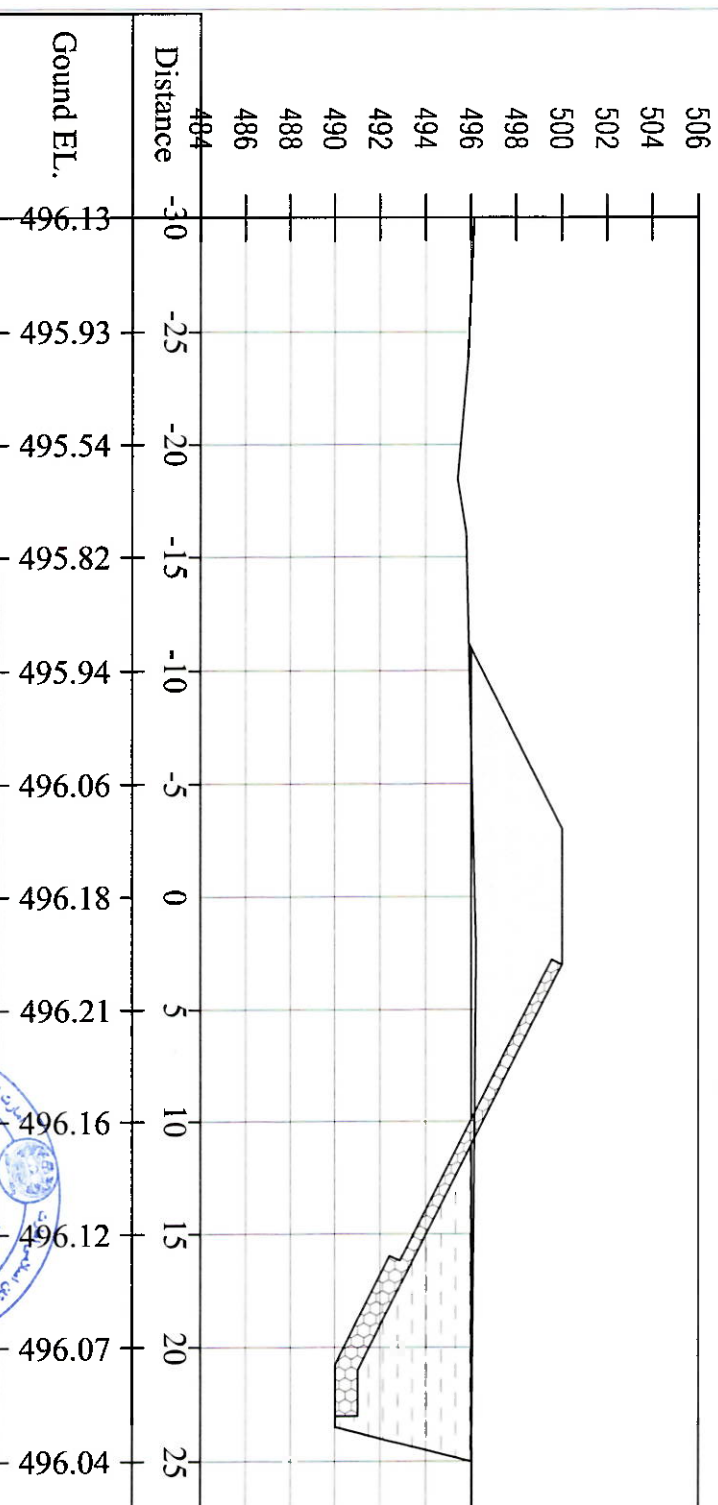
KM (2+500.00)



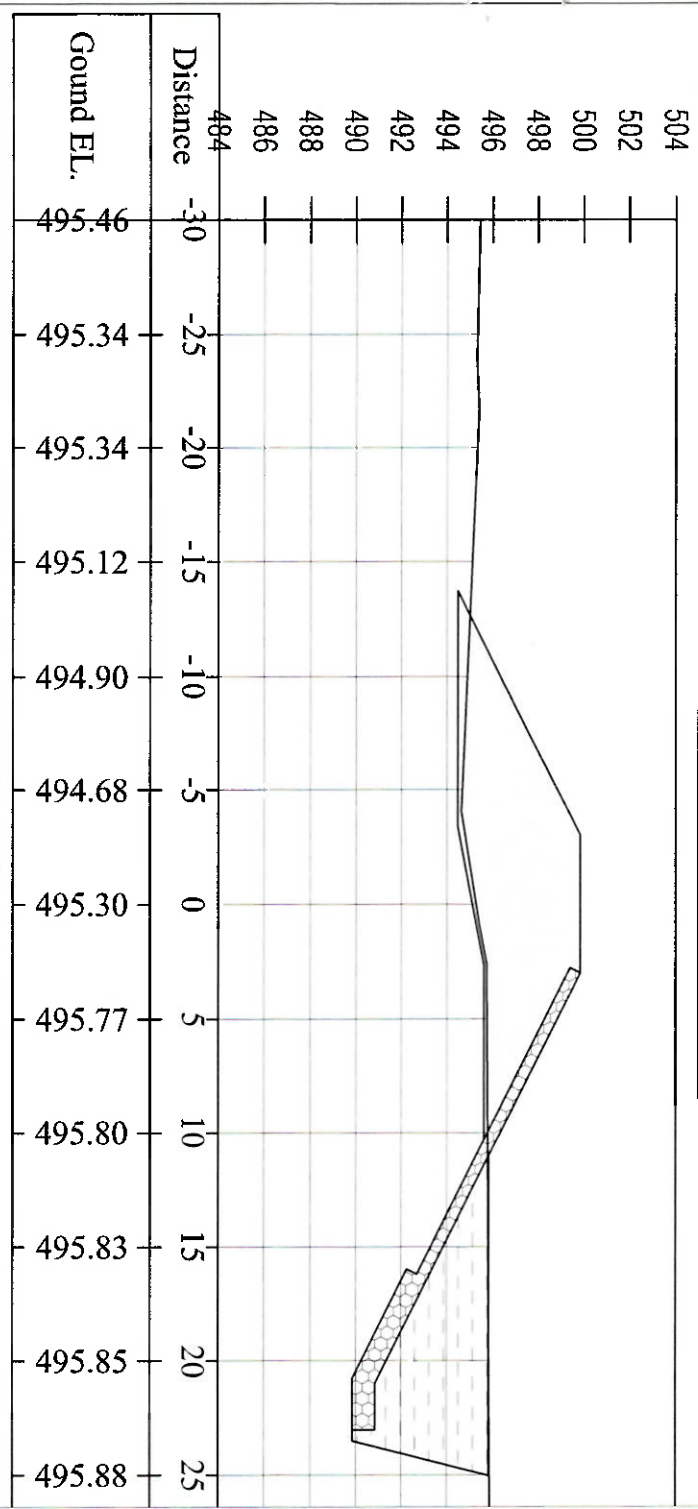
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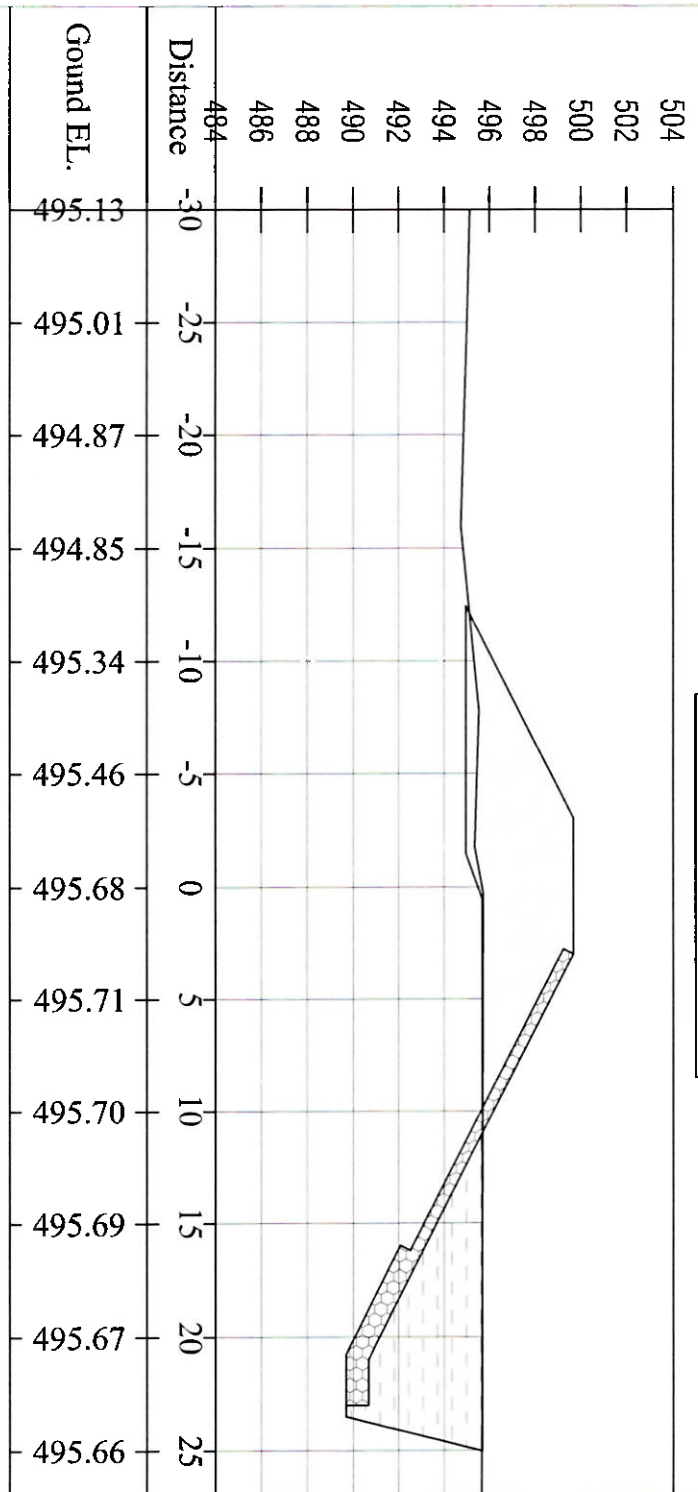
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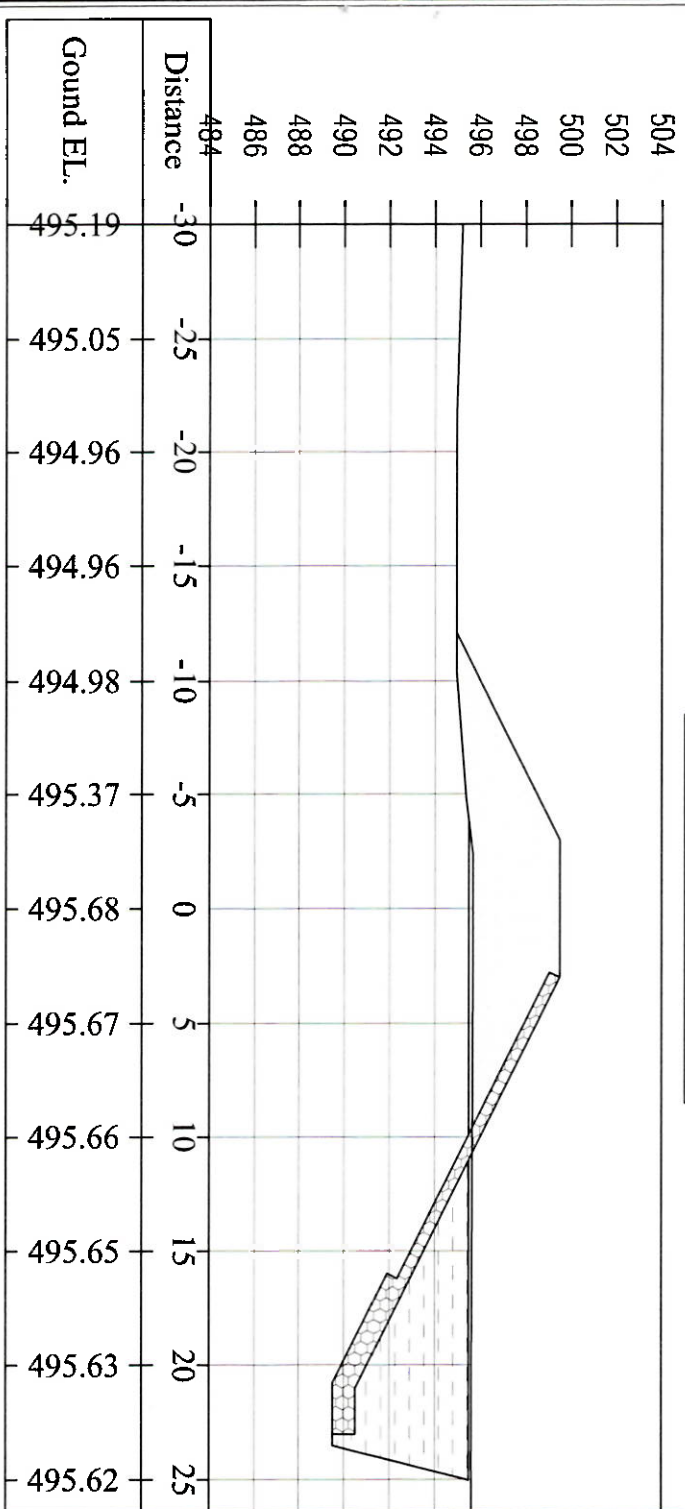
KM (2+600.00)



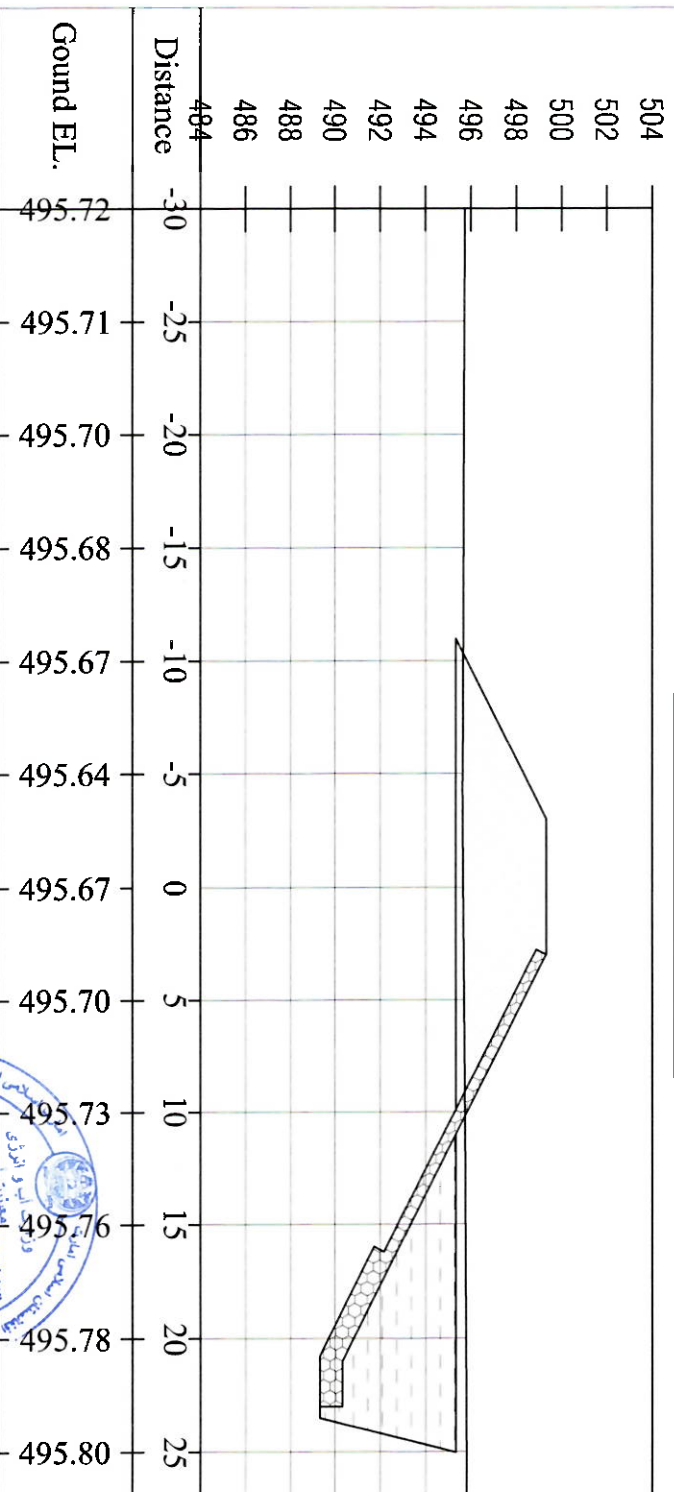
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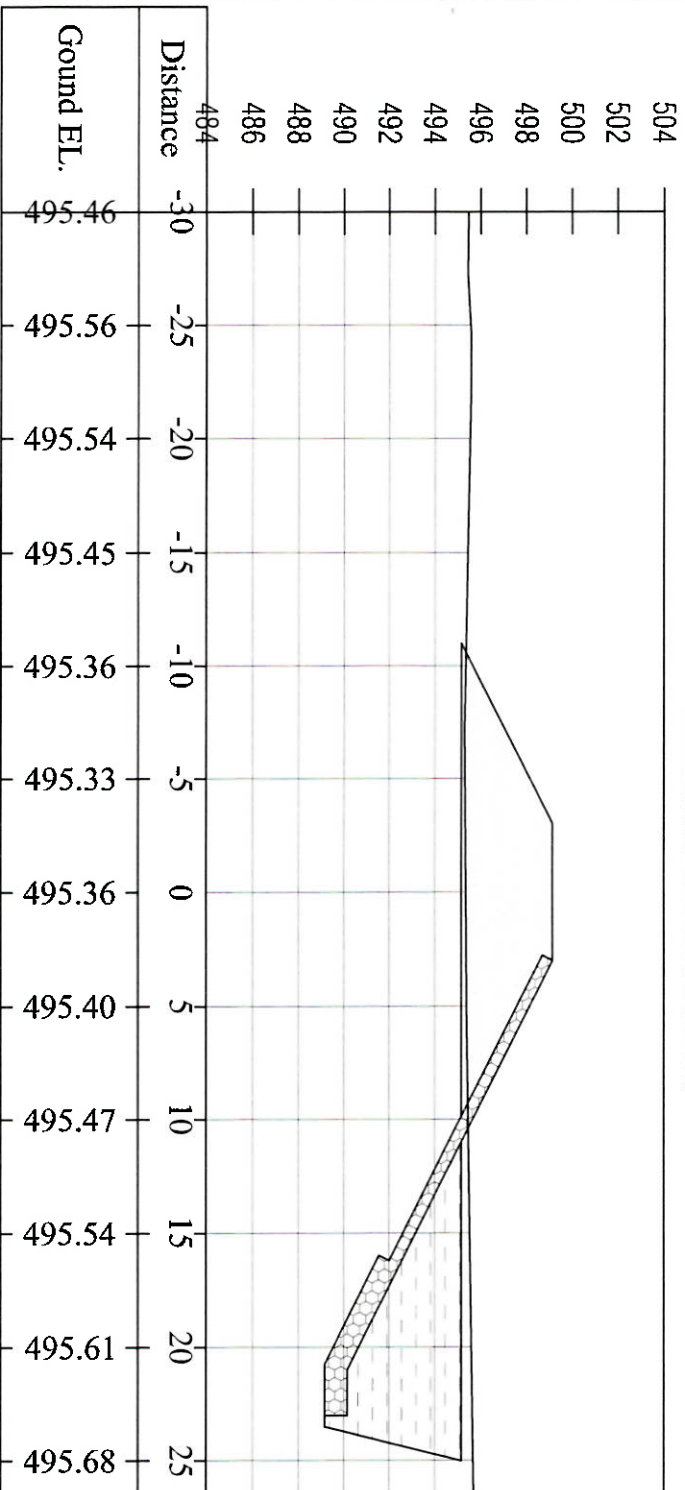
KM (2+700.00)



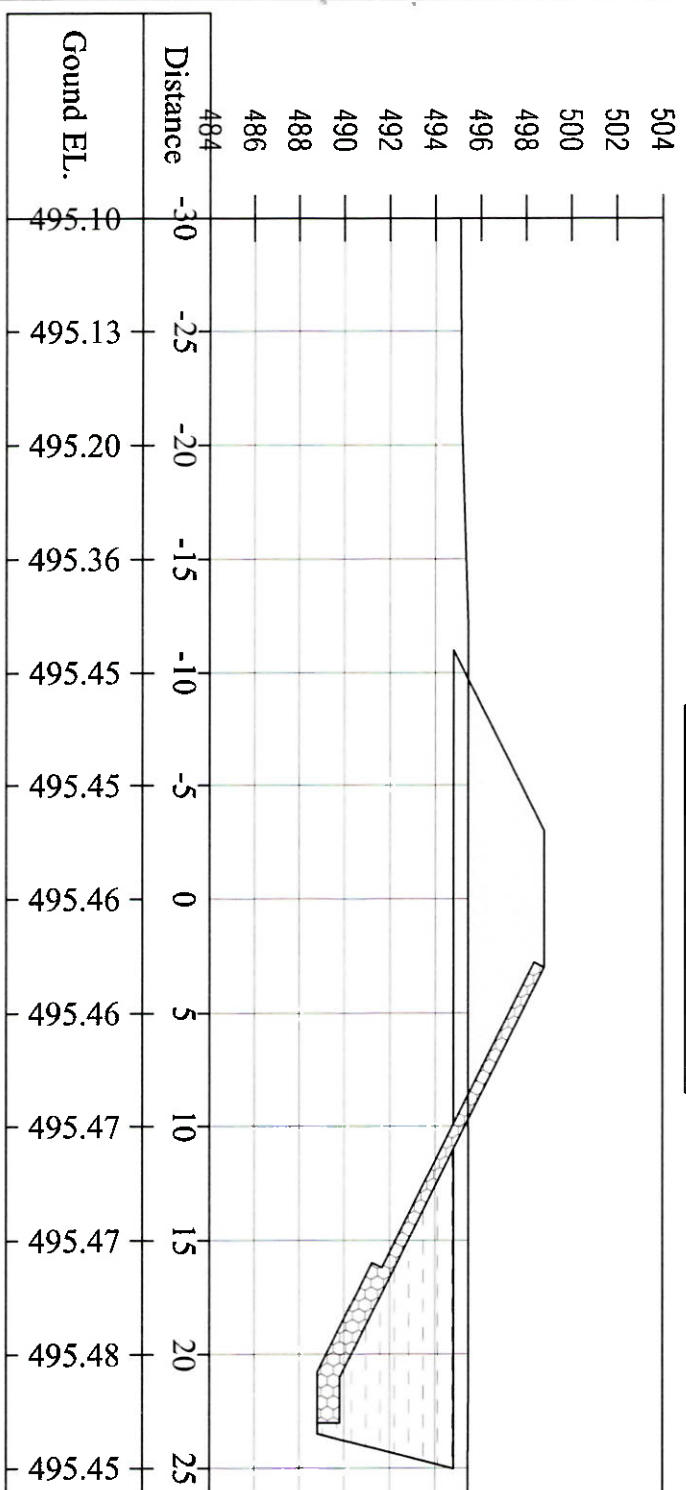
KM (2+750.00)



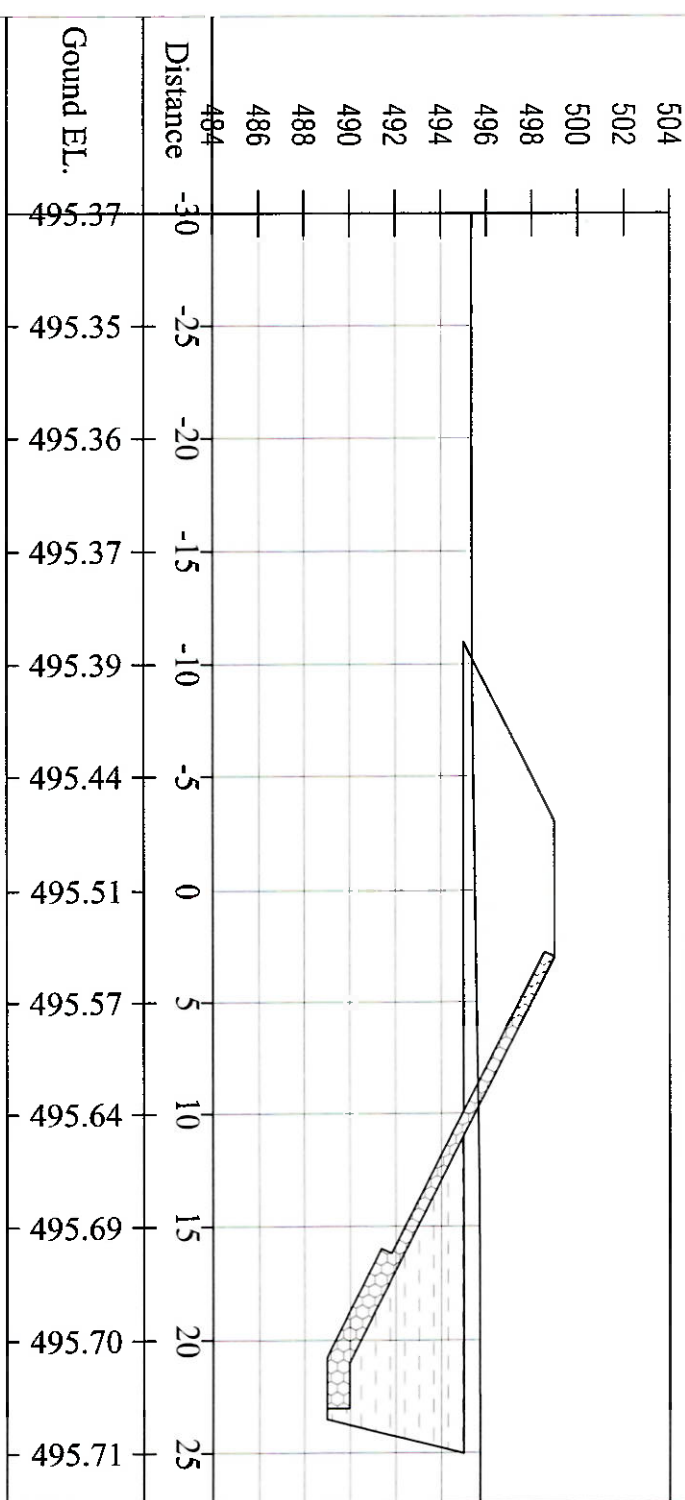
KM (2+800.00)



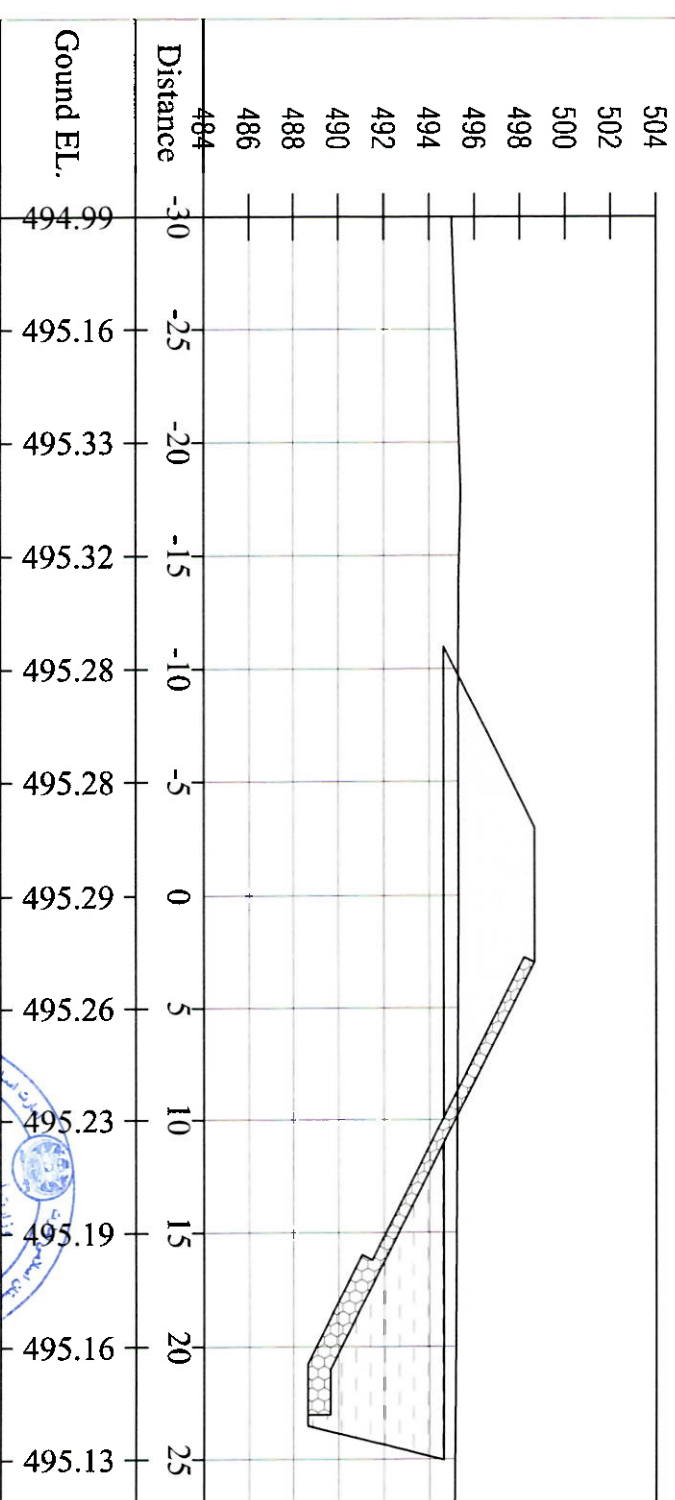
KM (2+900.00)

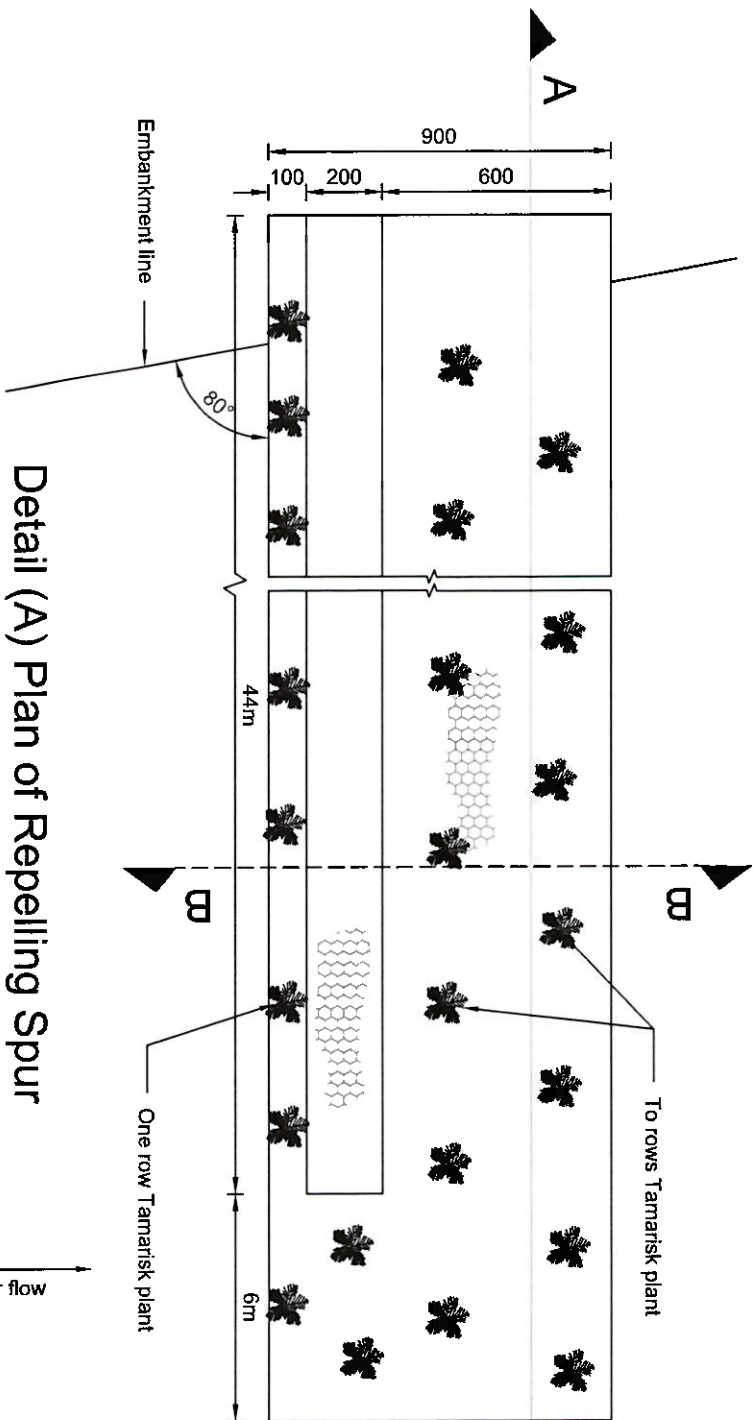


KM (2+850.00)



KM (2+950.00)

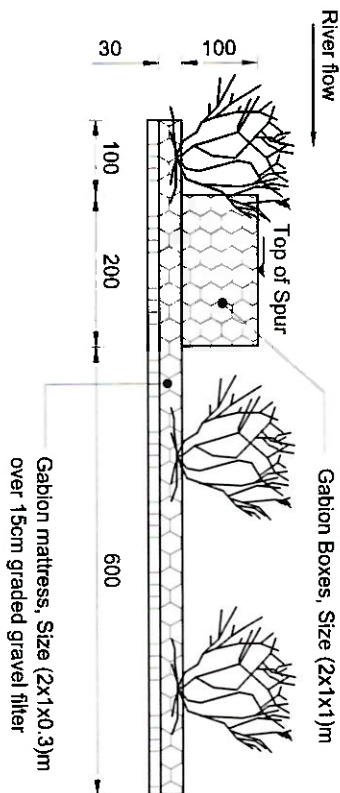




Detail (A) Plan of Repelling Spur

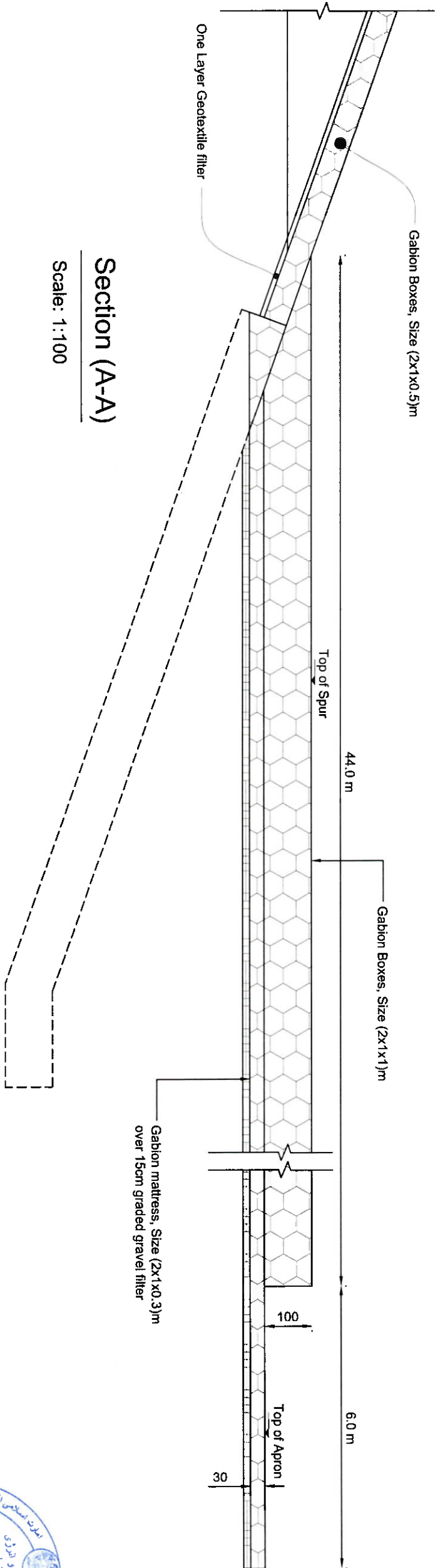
Scale: 1:200

- Note:
- 1- All repelling spurs have 50m length and 125m spacing.
 - 2- U/S angle with embankment shall not more than 80°.
 - 3- Water will flowing over them and would tend away from embankment side.
 - 4- 30cm thickness is proposed for mattress to be more suitable for plants growing.
 - 5- What plants which are currently growing at the site (River bed) shall be planted inside the mattress as shown in drawing.



Section (B-B)

Scale: 1:100



Section (A-A)

Scale: 1:100

Technical Specification for Geotextile			
Property	Test Method	Unit	Specification
Physical			
Mass per unit area	ASTM D5261	g/m ²	150
Thickness	ASTM D5199	mm	1.5
Mechanical			
Grab tensile strength	ASTM D4632	N	540
Grab elongation	ASTM D4632	%	50
Wide width Tensile strength	ASTM D4595	kN/m	12
Wide width elongation	ASTM D4595	%	40
Puncture strength-CBR	ASTM D4833 ASTM D6241	N	1850
Trapezoidal tear	ASTM D4533	N	230
Mullen burst	ASTM D3786	kPa	1655
Dynamic perforation test (Cone drop)	BS EN ISO 13433:2006	mm	28
Hydraulic			
Apparent opening size (O ₉₅)	ASTM D4751	mm	0.15
Permeitivity	ASTM D4491	s ⁻¹	1.8
Water flow rate	ASTM D4491	l/m ² /sec	90
Endurance			
Ultraviolet resistance @ 500 hours	ASTM D4355	%	70

Table of Repelling Spurs Locations & Elevations

Number of Spur	Elevation, m		Station, Km
	Bottom of mattress	Top of mattress	
Spur no.1	496.70	497.00	02+125
Spur no.2	496.26	496.56	02+250
Spur no.3	495.83	496.13	02+375
Spur no.4	495.40	495.70	02+500
Spur no.5	494.97	495.27	02+625
Spur no.6	494.53	494.83	02+750
Spur no.7	494.10	494.40	02+875
Spur no.8	493.67	493.97	03+000

Center line coordinates of Protection Alignment

Station	Easting	Northing	Existing Elevation	E1	E2	E3
KM1 02+100	555875.74	4158059.24	497.84	497.58	491.58	501.58
KM1 02+150	555825.75	4158058.37	497.67	497.41	491.41	501.41
KM1 02+200	555775.76	4158057.50	497.62	497.24	491.24	501.24
KM1 02+250	555725.76	4158056.64	497.30	497.06	491.06	501.06
KM1 02+300	555675.77	4158055.77	497.12	496.89	490.89	500.89
KM1 02+350	555625.78	4158054.90	497.11	496.72	490.72	500.72
KM1 02+400	555575.79	4158054.03	496.96	496.54	490.54	500.54
KM1 02+450	555525.79	4158053.17	496.81	496.37	490.37	500.37
KM1 02+500	555475.80	4158052.30	496.57	496.20	490.20	500.20
KM1 02+550	555425.81	4158051.43	496.18	496.02	490.02	500.02
KM1 02+600	555375.82	4158050.56	495.30	495.85	489.85	499.85
KM1 02+650	555325.82	4158050.51	495.69	495.68	489.68	499.68
KM1 02+700	555275.83	4158051.17	495.68	495.50	489.50	499.50
KM1 02+750	555225.83	4158051.84	495.67	495.33	489.33	499.33
KM1 02+800	555175.84	4158052.51	495.36	495.16	489.16	499.16
KM1 02+850	555125.84	4158053.18	495.51	494.99	488.99	498.99
KM1 02+900	555075.84	4158053.85	495.46	494.81	488.81	498.81
KM1 02+950	555025.85	4158054.52	495.30	494.64	488.64	498.64
KM1 03+000	554975.85	4158055.18	494.87	494.47	488.47	498.47
KM1 03+050	554925.86	4158055.85	495.13	494.29	488.29	498.29
KM1 03+100	554875.86	4158056.52	494.85	494.12	488.12	498.12

BanchMark and Control Points

Easting	Northing	Elevation	Description
558020.6020m	4158239.4350m	511.267m	BM 1
558033.8740m	4158236.3490m	511.342m	BM 2
556650.2070m	4158052.6340m	500.435m	CP 1