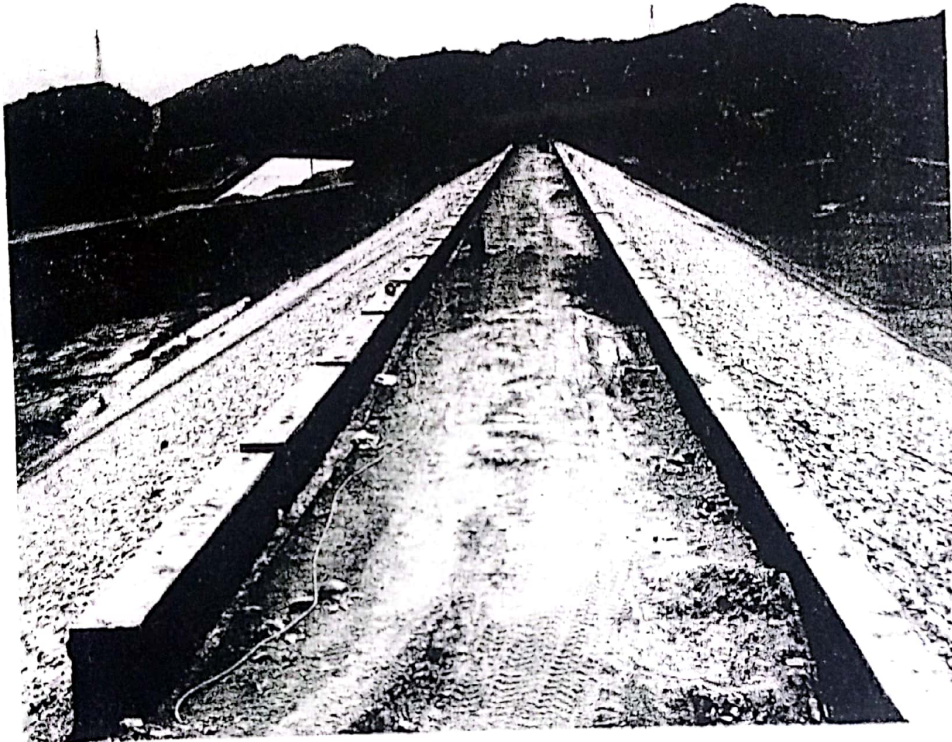


**GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS
IRRIGATION DEPARTMENT**



DETAILED ESTIMATE

**NAME OF WORK: CONSTRUCTION OF SHAH KALEEM DAM
PROJECT DISTRICT NOWSHERA,
KHYBER PAKHTUNKHWA**

Estimated Cost RS: 607.02 Million

SEPTEMBER - 2018



CONSULTING ASSOCIATE, PESHAWAR

**Near Deans Complex Apartments, Board Bazar, Behind Gul CNG,
Jamrud Road, Peshawar**

Ph: +92-91-5701774 Fax: +92-91-5701775.

Email: consultingassociates127@gmail.com

DETAIL ESTIMATE REPORT

Name of Work : Construction of Shah Kaleem Dam District Nowshera
Estimated Cost Rs : 607.02 Million
Estimate Framed by : Consulting Associates Peshawar

1.0 Project Location

The proposed dam site is located on Shah Kaleem Khwar locally known as Pitao Khwar. The proposed dam site is located in village Shaidu district Nowshera. The village Shaidu is located on Rawalpindi-Peshawar GT road. The site is accessible through a Shingle road in the ravine of the Nullah.

2.0 Hydrology

The catchment area of the Pitao Khwar upto the proposed dam site is 9.96 sq. miles. The point of maximum elevation in the catchment area is 2750 ft (838.2 m) and at proposed dam site Nullah bed is at elevation 1125.3 ft (343 m). The Length of the main channel is 3.016Km. The Nullah bed slope is 181 ft/mile.

Rainfall data of Cherat has been adopted for the proposed dam site as it is nearest gauge station. Daily rainfall data for Cherat has been collected from Meteorological Department Lahore for period of 1970-2009. Mean monthly rainfall for project area varies from 0.51 inches to 4.08 inches while mean annual rainfall for corresponding period is 23.77 inches. The mean annual flow at dam site is estimated as 1,862 Acre-ft.

Inflow hydrographs against 1,000 years (peak 16,687 cusecs) are routed through spillway and resulting inflow - outflow hydrographs against these return periods are calculated. Surcharge head of 9.27 ft resulted against these peak inflows. Outflow against this inflow is 16,427 (peak) cusecs from spillway. An ogee type spillway with crest elevation and length 359m and 150 ft (45m) is recommended against 1000 yr flood. Reservoir capacity at gross storage and dead storage is 647 and 98 acre-ft at elevation of 359 m and 350 m respectively. Life of reservoir is more than 30 yrs.

Embankment Dam Design Studies

In order to carryout a safe and economical design of the project, several options for the location and type of Structure were studied before the finally selected layout is optimized for technically feasible and financially viable project.

The main dam embankments will block the existing gap in the reservoir periphery of Pitao Khwar. The spillway is located at right abutment of main dam. The selected type of the dam is Earth Core Rockfill Dam with total length of 223.8m (734.28ft) and height 21 m (70 ft). The crest width of dam is kept as 10 m (32.8 ft).

The conservation level of the reservoir has been kept at El. 359 m (1177.8 ft) and the height of dam crest has been fixed at El. 364 m (1193.92 ft) with 5 meter (16.4ft) free board.

Spillway Area

4.8 Surface Geology

The proposed location of the spillway is falling on the area along the Nullah, which consist of phyllite.

4.9 Subsurface Geology

The subsurface geology is the same as that of the overall Geology of the site as earlier described.

4.10 Reservoir Geology

The reservoir is spread over some broad valleys upstream the dam axis. Both left and right abutments are on sound rocks.

Spillway

5. General

For Shah Kaleem dam an ogee type overflow spillway is proposed due to simplicity and economy of design and construction. A gated spillway would have increased the overall project cost, and at the same time created construction and operational complications resulting in a significant increase in construction time.

A chute spillway with ogee crest is proposed for Shah Kaleem Dam with vertical upstream face. The Spillway Crest is placed at the Max. Conservation Level i.e. 359 m (1177.8 ft) a.m.s.l. The spillway is having a width of 45 m (150 ft). With a designed discharge of 16,427 cusecs designed on the basis of 1000 years return period flood with a surcharge of 9.27 ft and surcharge level of 361.83 m (1187.09 ft) a.m.s.l. The stilling basin is placed at an elevation of 340 m (1115.48 ft) a.m.s.l with a length of 23.16 m (76 ft).

6. Intake Outlet

Concrete lined irrigation channel is proposed to off-take from outlet conduit stilling basin at an elevation 349 m (1145.0 ft) a.m.s.l with a channel width of 2.5 ft. and depth of 2 ft. with a free board of 1 ft. in a length of 3016 m (9,895 ft) which is main left channel. Right side channel have a length of 1600m. The cultuarable command area is 900 acres for which 3 cusecs discharge is allocated according to crop water requirements. The outlet conduit structure is multistage tower intake with invert level of 350 m (1148.29 ft).

7.0 Construction Material

The typical cross-section of main embankment comprised Rip-rap, Up-stream Rock fill, Up-stream Gravel Fill, Up-stream Filter, Central Core, Down-stream Filter, Drainage Blanket, Coarse Filter, Down-stream Gravel Fill, Down-stream Rock fill, and Toe Drain. Design features of various embankment components are as below:-

Construction of Shah Kaleem Dam involves an ample amount of construction materials comprising naturally available materials such as clay for central core, shoulder materials, sand and gravels for filters, rocks for riprap, embankment fill and water. Besides, industrial

materials like cement will be used in spillway.

The identified potential borrow sources for construction materials are: Azim Ghari Jehangira (Clay source); Azim Ghari Jehangira (Sand source); Khair abad (Sand source); Shah Kaleem Khwar (River Bed) for gravels; Dam Site Excavation Areas (Rock fill); and Nizam Pur Area (Rockfill / Riprap). The evaluation of laboratory test results showed that quality of borrow materials identified as potential sources are suitable for construction of embankment dam..

8.0 Soil and Agriculture

Total CCA of 900 acres, the proposed cropping pattern and intensities include Maize 25% of CCA followed by Kharif Fodders 8%, Sugarcane 10% and K Vegetables 5%. During Rabi Wheat occupies 40% of CCA, R. Vegetables 8%, Orchards 2%. The total Kharif intensity comes to 45 % and total Rabi intensity comes to 55%, which aggregate to 100 percent as annual cropping intensity. The Kharif Rabi ratio comes to 1:1.22. The ultimate cropping intensity of 100% will be achieved in 2 years after the commencement of the project. The estimated incremental production of cereals, fruits, vegetables and pulses totalling to 1766 tones which is almost 12 times the existing production from these un-irrigated areas. The total requirements of Nitrogen, Phosphorous and Potassium (N-P-K) have been computed and estimated as 33.4 tones. The total annual potential evapotranspiration (ET_o) is estimated as 1307 inches/year. The effective rain fall are estimated as 510.8 inches. Total water allowance required is 3.11 cfs / 1000 acres of CCA.

9.0 Environment

Located on Pitao Khwar in district Nowshera, Shah Kaleem Dam Project besides providing flood control, will irrigate lands in Nowshera district. The stream bed elevation is 1125.00 ft. above mean sea level. It will have gross storage of 646 acre ft. Based on 60 % reduction of gross storage, the life of the dam is estimated more than 30 years. The 150 ft. wide ogee type spillway will be located on the ~~Left~~^{Right} side of the dam designed for a surcharge of 8.9 ft.

9.1 Environmental Baseline

9.1.1 Physiography

Physiographic ally the proposed Shah Kaleem Dam site area is situated where the mountains are medium high and become high at east. Flood plains of Nowshera are present in the north-east river Kabul runs parallel to these plains. The irrigated area is composed of Quaternary deposits. Climatically the area lies in the region characterized by cold in the winter and very hot in the summer.

JUSTIFICATION (REASON FOR REVISION)

1. DAM EMBANKMENT

During the course of detailed design and physical execution of the project the estimation of the quantities were carefully concluded with the highest possible degree of accuracy by plotting adequate cross sections of the dam structure. And almost decrease in quantities in excavation for core trench, providing sandy/silty gravel in dam embankment, fine filter material and Stone pitching. Furthermore there are increase in some items quantitates as per site requirements and conditions. So over all the cost of dam embankment a sub component of the project has decreased as per approved TS. Which is 22.46%.

As Per Project Cost(Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
219.97	170.56	(49.41)

2. SPILLWAY

During the course of physical execution of the project the estimation of the quantities were carefully calculated. There is almost decrease in quantities in Excavation, providing Structure back fill, Concrete and reinforcements. Furthermore in some items quantitates increased as per site requirements. Over all the cost of this sub component has been decreased. The decreased in cost is tabulated below.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
211.93	182.61	(29.32)

3. INTAKE /OUT LET STRUCTURE

Intake outlet works is used to deliver reservoir stored water to irrigation system. Shah Kaleem dam irrigation system is designed for 3 cusec discharge. Therefore delivery pipe is designed for 3 cusec discharge and in addition to cater some additional discharge. Over all there is decreased in cost of this sub component. Saving is due the decreased inexcavated quantities.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
13.84	5.85	(7.99)

4. IRRIGATION

Irrigation system is designed to irrigate 900 acre of CCA. There are two channels i.e. right and left which are to be used to irrigate the proposed CCA. Right side channel have length is 1600 m in length while left side channel have length 3+022 km. The cost of irrigation system increased due to excess in quantities of concrete i.e. P.C.C, R.C.C. and canal affiliated structures. Channels top covers are provided where there is suspect to sliding of adjoining slopes. The overall increase in cost is 15.15%.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
38.21	44	5.79

5. Electrification of Dam embankment

Solar system has been added as per site requirement and client engineer advice which is added in this technical sanction. Due to which cost increased.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
2.02	4.96	2.94

6. RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR

The cost of Road is decreased due to decrease of cut./fill quantities of Road . The Decrease in cost is tabulated as below.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
28.01	26.84	(1.18)

7. NEW ACCESS ROAD

Originally this road was not part of estimate, anew road estimate has been added from Shaidu to KozPitao as per advice of the client representative.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
-	37.42	37.42

8. Inspection Hut

The increase in scope of work is as per advice of the client representative.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
1.80	2.81	1.01

9. CONSTRUCTION SUPERVISION

For Supervision of the Construction activities, time has been extended for the Consultant and subsequently Cost has been increased.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
34	37.87	3.87

10. Land Acquisition and trees and in built area

The cost of Land Acquisition got increased upon receipt of actual Demand Bill from the Revenue Deptt. The Amount has been increased to Rs 56.63 million. Which is 26.53 million in excess of the provision made for land acquisition.

As Per Project Cost (Million Rs.)	As Per T.S. (Million Rs.)	Cost Difference (Million Rs.)
30	56.63	26.53



OFFICE OF THE DIRECTOR GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT GOVT. OF KHYBER
PAKHTUNKHWA PESHAWAR
PLOT #27, SECTOR E-8, PHASE-VII HAYATABAD PESHAWAR
Phone No. 091-9219555

No. 6940 /SD/DG/ 147-D
To

Dated Peshawar the, 27/07/2018.

The Deputy Director,
(P&C) Small Dams Division,
Peshawar.

Subject: SHAH KALEEM DAM PROJECT DISTRICT NOWSHERA (VARIATION ORDER NO. SKD-01)

Reference: 1. M/S Consulting Associates Peshawar Letter No.CA/DG/SD/SKD/150 dated 21-5-2018.
2. Deputy Director (P&C) Peshawar office No. 477/DD/(P&C)/Shah Kaleem dated 16-7-2018.

As recommended by you and agreed by the employer i.e. Director General Small Dam Peshawar, approval for the quantities and rates of the following items contained in Variation Order No. SKD-01 duly prepared, verified and recommended by the M/S Consulting Associates Peshawar is hereby accorded under Clause 51.1, 51.2, 52.1 and 52.2 of General Conditions, Part-I of the Contract Agreement. The Variation order is returned herewith in original.

Bill No 1. Dam Embankment

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
1.21(a)	06-05-i	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)	M ³	4,860.62	70.00
1.21(b)	08-01-d-02	Random rubble masonry in foundation. & plinth in cement, sand mortar : Ratio 1:4	M ³	5413.81	308.40
1.21(c)	11-19-c-02	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3	M ²	161.24	900.40
1.21(d)	06-05-f	Plain Cement Concrete including placing, compacting, finishing, & curing (Ratio 1:2:4)	M ³	6,469.09	47.60
1.21(e)	25-30	Making and fixing steel grated doors, complete with locking arrangements & angle iron frame	M ²	5,695.52	12.00

Bill No 2. Spillway & Spill Channel:

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
2.14(a)	03-64	Provide, place and compact impervious clay core in dam embankment of specified grading, permeability i/c leveling dressing and haugage obtaining 95% modified ASHTO dry density	M ³	395.71	2,500.00
2.14(b)	06-05-h	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	M ³	5,603.70	120
2.14(c)	06-36-c	PCC 1:3:6 in mass concrete less formwork using 30% boulders	M ³	4,312.40	2,959.50
2.14(d)	06-38-b	Erecting & removing formwork to concrete in any shape / position (vertical)	M ²	428.15	289.27

Bill No. 3: Intake/Outlet Works

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
3.12(a)	08-01-d-03	Random rubble masonry in foundn. & plinth in cement,sand mortar : Ratio 1:4	M ³	4500	18.03
3.12(b)	11-19-c-02	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3	M ³	161.24	45.66

Bill No. 4.1: Irrigation Channel

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
4.1.1(a)	03-10-a	Earth excavation in irrigation channels/drains & disposal upto 25m. & dressing : in Ordinary Soil	M ³	122.61	5010
4.1.1(b)	03-68-b	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Soft Rock/Shale requiring 20% blasting i/c removing of material from outside of the structure area	M ³	300	1928
4.1.5(a)	06-05-i	Plain Cement Concrete including placing, compacting, finishing& curing (Ratio 1:4:8)	M ³	4,860.62	514.00
4.1.5(b)	06-06-a-03	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4)	M ³	8,168.74	150
4.1.5(c)	06-07-b	Supply & fabricate M.S reinforcement for cement concrete (hot rolled deformed bars Grade 60)	Ton	119,471.42	15

4.5: Pipe Culvert/Slab Culvert

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
4.5.7(a)	08-01-d-03	Random rubble masonry in foundation. & plinth in cement, sand mortar: Ratio 1:6	M ³	4500	31.76
4.5.7(b)	11-19-c-02	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3	M ³	161.24	77.12

4.8: Super passage

Item	Item Code	Description	Unit	Rate(Rs)	Quantity
4.8.1	03-10-d	Earth excavation in irrigation channels/drains & disposal upto 25m. & dressing : in Shingle/Gravel	M ³	321.86	49.61
4.8.2	03-60-c	Structural backfill using Common Material available at site	M ³	326.79	12.40
4.8.3	06-05-i	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)	M ³	4860.62	9.03

4.8.4	06-05-h	Plain Cement Concrete including placing, compacting, finishing& curing (Ratio 1:3:6)	M ³	5603.7	1.78
4.8.5	06-38-b	Erecting & removing formwork to concrete in any shape / position (Vertical)	M ³	428.15	36.79
4.8.6	06-06-a-03	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4)	M ³	8168.74	15.35
4.8.7	06-07-b	Supply & fabricate M.S reinforcement for cement concrete (hot rolled deformed bars Grade 60)	Ton	119471.42	0.51
4.8.8	06-05-f	Plain Cement Concrete including placing, compacting, finishing& curing (Ratio 1:2:4)	M ³	6469.09	25.23
4.8.9	19-27	Providing and Laying stone pitching with hammer dressed stones on surface, laid in courses	M ³	2669.93	21.40

Bill No. 05: Electrification of Dam Embankment

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
5.9a	NSI	P/I of solar panel (PV module) mono crystalline, A Grade minimum 250 watt, IEC 61215 and 61730 certified (NSI)	No	18750	38
5.9b	NSI	P/I SMD light 12w (NSI)	No	350	50
5.9c	NSI	P/I of Road light fixture SMD type white LED minimum 60 watt AC type, IP 65, Led efficacy min 100 lumens/ watt (NSI)	No	12000	12
5.9d	NSI	Flexible 1" dia PVC pipe for 4.0 mm ² copper cable through the pole for providing extra insulation and to avoid power loss (NSI)	M	110	150
5.9e	NSI	UPVC pipe 2" (NSI)	M	139	600
5.9f	NSI	P/I 16 mm copper cable(imported) along with proffer connector from solar panel to inverters and Batteries (NSI)	M	263	200
5.9g	NSI	P/I of 2 single core PVC insulated sheathed cable 7/29(PAK cable) (NSI)	M	240	600
5.9h	NSI	P/I of 2 single core PVC insulated sheathed cable 3/29(PAK cable) (NSI)	M	166	350
5.9i	NSI	provision of 600 AH Dry cells 2 volt along with stand (NSI)	No	32000	24
5.9j	NSI	P/I of 200 AH battery AGM / gel type (NSI)	No	55000	4
5.9k	NSI	P/I of MPPT inverter 48 volt 5KW infini (NSI)	No	150000	1
5.9l	NSI	P/I of MPPT inverter 48 volt 5KW (NSI)	No	110000	1
5.9m	NSI	Mounting structure for 38 panels (NSI)	Job	135000	1
5.9n	NSI	light sensors and conductors of appropriate size (NSI)	No	5000	4
5.9o	NSI	DC/ AC breakers and accessories etc.(NSI)	Job	65000	1
5.9p	NSI	Installation and transportation (NSI)	Job	120000	2

Bill No. 6: Construction of Inspection Hut /Sub Engineer Office

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
6.21(a)	12-56-a	Supply and Fixing MS Sheet 16 gauge (10x20 feet) boxtype chow Kats including fixing in position with all charges for Hold fast, Hinges and Painting etc	M ³	957.32	167.63

Bill No. 7 (4B) :RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR (CULVERTS)

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
8(a)	08-01-d-03	Random rubble masonry in foundn. & plinth in cement, sand mortar: Ratio 1:6 (08-01-d-03)	M ³	4500	100
8(b)	11-19-b	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3	M2	161.24	50

ROAD FROM SHaidu TO KOZ PETAO AREA (NEW ROAD)

Item	Item Code	Description	Unit	Rate (Rs)	Quantity
Bill No. 1 :EARTH WORK					
1	03-56	Clearing & Grubbing	M ²	20.94	5,204.46
2	03-58	Compaction of Natural Ground	M ²	5	5,204.46
3	03-59-a	Roadway Excavation in Surplus / Unsuitable Common Material	M ³	259.08	5,646.00
4	03-61-a	Formation of Embankment from Roadway Excavation in common Material i/c compaction by power roller	M ³	310	4,757.00
5	16-03-a	Granular Sub Base Course using Pit Run Gravel	M ³	700	1,412.00
6	16-04-b	Water Bound Macadam Base Course	M ³	2,148.61	3,472.00
7	16-06	Bitumenous Prime Coat	M ³	135.54	17,267.00
8	16-12-b	Asphaltic Wearing Course (Asphalt Batch Plant Hot Mixed)	M ³	18,683.22	842.00
Bill No.4B. CULVERT/CAUSEWAY					
1	03-60-a	Structural Excavation in Common Material	M ³	218.85	690.00
2	06-05-f	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:2:4)	M ³	6,469.09	168.00
3	06-05-i	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:4:8)	M ³	4,860.62	43.00
4	06-06-a-03	RCC in roof slab, beam, column & other structural members, insitu or precast, Type-C (1:2:4)	M ³	8,168.74	30.00
5	06-07-b	Supply & fabricate M.S reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	Ton	119,471.42	3.00

6	06-36-c	PCC 1:3:6 in mass concrete less formwork using 30% boulders	M ³	4,312.40	1,030.00
7	06-36-b	Erecting & removing formwork to concrete in any shape / position (Vertical)	M ²	428.15	1,015.89
8	23-03-a-05	Providing and Laying RCC pipe sewers complete As per ASTM C-76-79, Class II : 24" i/d, Wall B	M	3,455.06	33.00
Bill No.6: ANCILLARY WORKS					
1	16-19-c-03	Supply & Fixing Cat Eye single as specified	M ³	317.36	240.00
2	16-67-a	Pavement marking in reflective chlorinated rubber paint with glass beads for line 15 cm width	M ³	45.54	7,078.00

Encl: Variation order
No-SKD-01

DIRECTOR (SOUTH)

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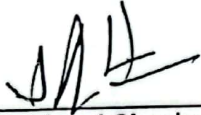
1. Director General Small Dam Peshawar w/r to above for information please.
- ✓ 2. Project Manager, Shah Kaleem Dam Project, M/S consulting associates Peshawar w/r to above information.
3. M/S Atif khan Khattak & Co.
4. Contract Agreement.

DIRECTOR (SOUTH)

Total Adjusted Contract amount

Original contract	616.91 Million
Decrease cost of T.S	9.89 Million
Technical Sanction	607.02 Million

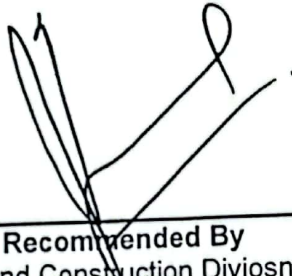
Estimate amounting to Rs 607.02 Million is submitted for Technical Sanction & Return please.



Prepared and Checked By:
Chief Executive
Consulting Associates
Peshawar



Counter Checked By:
(Assistant Director Shah Kaleem Dam Project)



Recommended By
(Deputy Director Planning and Construction Diviosn Small Dmas Peshawar)

(Director)

Directorate General Small Dams, Irrigation Department, Govt, of Khyber Pakhtunkhwa



GOVERNMENT OF KHYBER PAKHTUNKHWA
IRRIGATION DEPARTMENT

No. PMC/PDWP/021014/ADP
Dated Peshawar, the 27-10-2014

To,

The Director General,
Small Dams, Peshawar

SUBJECT: ADMINISTRATIVE APPROVAL

In exercise of the powers delegated vide Part-I serial No. 6 Second Schedule of the Delegation of Powers under the Financial Rules and Powers of Re-appropriation Rules, 2001, the Khyber Pakhtunkhwa, Provincial Government is pleased to accord Administrative Approval for the implementation of the ADP (2014-15) scheme No. 1207 "140522- Construction of Shah Kaleem dam district Nowshera approved at reduced cost of Rs. 575.20 million as per detail given below:-

Particulars	Amounts (Rs. Million)
Capital expenditure	575.20
Revenue expenditure	Nil
Foreign Exchange/Donor Assistance	Nil

The scheme was approved by the PDWP in its meeting held on 02-10-2014 under the Chairmanship of Additional Chief Secretary, Khyber Pakhtunkhwa. The minutes of the meeting were circulated vide Planning & Development Department letter No: P&D/Water/1-5/1577-84 dated: 22-10-2014.

The expenditure involved is chargeable to 04-Economic Affairs, 042 Agricultural, Food, Irrigation, Forestry and 042250-others.

The approval does not constitute any approval or sanction to the design, rates and estimates for the work/sub work included in the PC-I, which will be the responsibility of office and authority sanctioning the estimate technically. All the codal formalities/standing instructions regarding financial regularity etc should be observed in letter and spirit.

D.Y.

M. 22/10

Secretary Irrigation

Endst. No Even as above

Copy forwarded to the following for information:

1. The Additional Chief Secretary, Khyber Pakhtunkhwa, Peshawar.
2. The Secretary to Govt. of Khyber Pakhtunkhwa, Finance Department, Peshawar.
3. The Accountant General, Khyber Pakhtunkhwa, Peshawar
4. The Additional Secretary, Irrigation Department, Peshawar with the request to take-up case with Finance Department for early releases of allocated funds for CFY.
5. The Chief Draftsman (local).

may file
13 Shah
Decm. i.e
147 D.



copy for
Shah Kaleem Dam

(Engr. Nadir Khan)
Senior Planning Officer
27th Oct. 2014

DETAIL ESTIMATED COST

SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION
GENERAL ABSTRACT OF COST

S. No	Description	As Per Project Cost (In Millions)	As Per TS (In Millions)	Difference (In Millions)	Remarks
A	PRELIMINARIES				
i.	Land acquisition and trees and in built area	30.00	56.53	26.53	
ii.	Relocation of Power Line out of Reservoir.	5.00	5.00	-	
	Sub Total A	35.00	61.53	26.53	
B	WORKS				
i.	Dam Embankment	219.97	170.56	(49.41)	Amount Decreased due to site requirement.
ii.	Spillway & Spill Channel	211.93	182.61	(29.32)	-do-
iii.	Intake & Outlets Structure	13.84	5.85	(7.99)	-do-
iv.	Irrigation System	38.21	44.00	5.79	Amount Increased due to variation in length.
v.	Electrification Dam Embankment	2.02	4.96	2.94	Amount Increased due to site requirement.
vi.	Construction of Inspection Hut /Sub Engineer Office	1.80	2.81	1.01	-do-
vii.	Relocation of existing Shingle Track out of Reservoir+Shaidu To Koz Petao Road (New Road) CM Directive	28.01	64.25	36.24	Amount Increased due to site requirement.
	Sub Total B	515.79	475.04	(40.76)	
C	GENERAL				
i.	Consultancy Charges for construction supervision as per actual Bid +Escalation	34.00	37.87	3.87	
ii.	Escalation on specified material & labour (6.5%)	32.12	32.58	0.46	
	Sub Total C	66.12	70.45	4.33	
	Grand Total (A+B+C)	616.91	607.02	(9.89)	



Project Manager
Consulting Associate Peshawar

[Signature]
Deputy Director
P&C Division Small Dams
Peshawar

[Signature]
Assistant Director
Small Dams, Department
Peshawar

[Signature]
CHIEF DRAFTSMAN
Small Dams Irr: Deptt:
Peshawar

[Signature]
Director
Small Dams, Department
Peshawar

Sanctioned for Rs: 607.02
Rs. Six hundred and Seven Million
and Two Thousand only

[Signature]
Director General
Directorate General
Small Dams Irr: Department
Peshawar

**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 1: Embankment Dam

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1.1	Clearing and Stripping	M ²	21,569.00	20.94	451,655	13,270.00	277,873.80	(8,299.00)	(173,781)	The quantities decreased as per actual site requirement.
1.2	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto a minimum depth of 35 ft in shingle gravel including removing of excavated material by machinery in 1 KM radius	M ³	11,601.10	300.00	3,480,330	9,556.00	2,866,800.00	(2,045.10)	(613,530)	-do-
1.3	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Soft Rock/Shale requiring 20% blasting i/c removing of material from outside of the structure area	M ³	13,921.32	300.00	4,176,396	1,208.00	362,400.00	(12,713.32)	(3,813,996)	-do-
1.4	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Medium Hard Rock requiring 50% blasting i/c removing of material from outside of the structure area	M ³	20,881.98	300.00	6,264,594	-	-	(20,881.98)	(6,264,594)	-do-
1.5	Provide , Place & compact shoulder material (sandy / silty gravel) in Dam Embankment, of specified grading, leveling / dressing i/c haulage for obtaining of 95% modified ASHTO dry density. (zone -4)	M ³	159,696.00	380.00	60,684,480	112,712.80	42,830,864.00	(46,983.20)	(17,853,616)	-do-
1.6	Providing and Laying stone pitching for top layer only : On slope (zone -6)	M ³	15,174.74	2,976.46	45,167,007	8,996.30	26,777,127.10	(6,178.44)	(18,389,880)	-do-
1.7	Providing and Laying stone pitching/filling, dry hand packed in pitching & aprons	M ³	928.00	1,805.29	1,675,309	486.00	877,370.94	(442.00)	(797,938)	-do-
1.8	Provide , Place & compact Fine Filter in chimney drain vertical / horizontal on downstream of clay core (zone -2)	M ³	6,655.36	1,350.00	8,984,736	5,352.20	7,225,470.00	(1,303.16)	(1,759,266)	-do-
1.9	Provide , Place & compact Coarse Filter (well graded gravel) in chimney drain vertical / horizontal on downstream of fine filter i/c leveling, moistening etc (zone -3)	M ³	15,605.08	775.00	12,093,937	8,373.85	6,489,733.75	(7,231.23)	(5,604,203)	-do-
1.10	Provide, place and compact impervious clay core in dam embankment of specified grading, permeability i/c leveling dressing and haulage obtaining 95% modified ASHTO dry density	M ³	55,481.57	575.00	31,901,903	46,327.55	26,838,341.25	(9,154.02)	(5,263,562)	-do-
1.11	Transportation of earth all types for every 500m extra lead beyond 1.5 km. upto 8 km	M ³	47,377.00	1.00	47,377	47,377.00	47,377.00	-	-	No Change



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 1: Embankment Dam

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1.12	Drilling of 2" Dia bore hole for Grout Curtain.	M	1,000.00	6,000.00	6,000,000.00	1,000.00	6,000,000.00	-	-	-do-
1.13	Providing And Filling Cement Slurry / Bentonite grout curtain through bore hole including pressure test.	Bag	1,750.00	1,500.00	2,625,000.00	1,750.00	2,625,000.00	-	-	-do-
1.14	Excavation for Slurry Trench through Percussion/rotary drilling. 1 m dia	M	1,500.00	8,000.00	12,000,000.00	1,881.00	15,048,000.00	381.00	3,048,000.00	As per Site requirement
1.15	Cement Bentonite Slurry for Filling of Slurry Trench	M	1,500.00	15,000.00	22,500,000.00	1,881.00	28,215,000.00	381.00	5,715,000.00	-do-
1.16	Providing and lowering piezometer 1.25 GI pipe including all accessory	M	350.00	2,640.00	924,000.00	350.00	924,000.00	-	-	No Change
1.17	P&F Surface Maker	Nos.	8.00	5,000.00	40,000.00	4.00	20,000.00	(4.00)	(20,000.00)	The quantities decreased as per actual site
1.18	Slope Indicator	Nos.	8.00	20,000.00	160,000.00	4.00	80,000.00	(4.00)	(80,000.00)	-do-
1.19	Settlement gauges	Nos.	8.00	18,000.00	144,000.00	4.00	72,000.00	(4.00)	(72,000.00)	-do-
1.20	Providing and fixing boundary pillar including paint etc.	Nos.	150.00	742.76	111,414.00	150.00	111,414.00	-	-	No Change
1.21	P&F Barbed wire fencing with 4 Horizontal & 2 cross wire with PCC 1:4:8 base 12"x12"x21"	M	950.00	571.07	542,517.00	950.00	542,516.50	-	-	-do-
1.21(a)	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)(06-05-i)	M³	-	4,860.62	-	70.00	340,243.40	70.00	340,243.40	New item added due to site requirement.
1.21(b)	Random rubble masonry in foundn. & plinth in cement, sand mortar : Ratio 1:4 (08-01-d-02)	M³	-	5,413.81	-	308.40	1,669,619.00	308.40	1,669,619.00	-do-
1.21(c)	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3(11-1q-c-02)	M²	-	161.24	-	900.40	145,180.50	900.40	145,180.50	-do-
1.21(d)	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)(06-05-f)	M³	-	6,469.09	-	47.60	307,928.68	47.60	307,929.00	-do-
1.21(e)	Making and fixing steel grated doors, complete with locking arrangements & angle iron frame (25-30)	M²	-	5,695.52	-	12.00	68,346.24	12.00	68,346.00	-do-
Total Amount					219,974,654.00		170,562,606.16		(49,412,047.84)	
Total Amount in Million					219.97		170.56		(49.41)	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 2: Spillway & Spill Channel

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
2.1	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto a minimum depth of 35 ft in shingle gravel including removing of excavated material by machinery in 1 KM radius	M ³	29,251	300	8,775,300	11,992.72	3,597,816.00	(17,258.28)	(5,177,484)	The quantities decreased as per actual site requirement.
2.2	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Medium Hard Rock requiring 50% blasting i/c removing of material from outside of the structure area	M ³	23,933.00	670.00	16,035,110	40,475.43	27,118,538.10	16,542.43	11,083,428	The quantities increased as per actual site requirement.
2.3	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Soft Rock/Shale requiring 20% blasting i/c removing of material from outside of the structure area	M ³	74,819.00	700.00	52,373,300	97,440.85	68,208,595.00	22,621.85	15,835,295	-do-
2.4	Structural backfill using Common Material available at (site retaining walls)	M ³	4,927.08	328.79	1,610,120	600.00	196,074.00	(4,327.08)	(1,414,046)	The quantities decreased as per actual site
2.5	Reinforced cement concrete work as in dams, spillways, weirs, barrages, cross drainage works and other hydraulic structures using crushed stone aggregate (screening & washing) and coarse sand i/c cost of all labour and material and all kinds of form works, moulds, shuttering lifting/ pumping, curing, rendering and finishing the exposed surface, cast in situ/precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	M ³	5,052.30	10,000.00	50,523,000	3,200.00	32,000,000.00	(1,852.30)	(18,523,000)	-do-
2.6	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	Tonne	396.42	120,000.0	47,570,400	200.00	24,000,000.00	(196.42)	(23,570,400)	-do-
2.7	Providing and Laying stone pitching for top layer only : On slope	M ³	7,207.96	2,978.46	21,454,205	300.00	892,938.00	(6,907.96)	(20,561,267)	-do-
2.8	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)	M ³	806.98	5,000.00	4,034,900	360.00	1,800,000.00	(446.98)	(2,234,900)	-do-
2.9	Drilling , grouting, installation and tying of Anchors bars 08 # reinforcement of structure complete.	Rm	236.21	14,562.00	3,439,690	297.00	4,324,914.00	60.79	885,224	As per Site requirement
2.10	Providing and Laying cut, joint, test, disinfect PVC pipe line BSS Class 'C' working pressure : 4" i/d	Rm	234.00	689.66	161,380	600.00	413,796.00	366.00	252,416	-do-
2.11	Providing and Laying cut, joint, test, disinfect PVC pipe line BSS Class 'B' working pressure : 4" i/d	Rm	786.04	562.63	442,250	-	-	(786.04)	(442,250)	The quantities decreased as per actual site requirement.



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 2: Spillway & Spill Channel

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
2.12	Supply and fixing of 1.0 HP Monoblock water pump 1.25"x1" single phase upto 90 ft head (Type SE) i/c all accessories.	Nos	1.00	15,049.43	15,049	1.00	15,049.43	-	-	No Change
2.13	Providing and Laying cut, joint, test & disinfect GI pipe line Using heavy quality GI Pipe : 4" Dia	Rm	4.85	2,338.05	11,340	4.85	11,339.54	-	-	No Change
2.14	RCC manhole cover 22" dia with: 3"x3"x1/4" angle iron frame, 22" i/d complete	Nos	1.00	14,531.29	14,531	1.00	14,531.29	-	-	No Change
2.14(a)	Provide, place and compact impervious clay core in dam embankment of specified grading, permeability i/c leveling dressing and haugae obtaining 95% modified ASHTO dry density (03-64)	M ³	-	395.71	-	2,500.00	989,275.00	2,500.00	989,275	New Item added due to site requirement.
2.14(b)	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6) (06-05-h)	M ³	-	5,603.70	-	120.00	672,444.00	120.00	672,444	-do-
2.14(c)	PCC 1:3:6 in mass concrete less formwork using 30% boulders (06-36-c)	M ³	-	4,312.40	-	2,959.50	12,762,547.80	2,959.50	12,762,548	-do-
2.14 (d)	Erecting & removing formwork to concrete in any shape / position (vertical)	M ²	-	428.15	-	289.27	123,850.95	289.27	123,851	-do-
RCC Retaining Wall										
2.15	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Soft Rock/Shale requiring 20% blasting i/c removing of material from outside of the structure area	M ³	325.00	400.00	130,000	325.00	130,000.00	-	-	No Change
2.16	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)	M ³	97.50	5,000.00	487,500	97.50	487,500.00	-	-	-do-
2.17	PCC 1:3:6 in mass concrete less formwork using 30% boulders	M ³	950.00	4,312.40	4,096,780	950.00	4,096,780.00	-	-	-do-
2.18	Erecting & removing formwork to concrete in any shape / position (vertical)	M ²	1,760.00	428.15	753,544	1,760.00	753,544.00	-	-	-do-
Total Amount					211,928,400		182,609,533.11		(29,318,866)	
Total Amount In Million					211.93		182.61		(29.32)	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 3: Intake/Outlet Works

Item	Description	Unit	As Per Project Cost			As Per TS			Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	Quantity	
3.1	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Medium Hard Rock requiring 50% blasting i/c removing of material from outside of the structure are	M ³	4,530.00	700.00	3,171,000	1,280.00	896,000.00	(3,250.00)	(2,275,000)		The quantities decreased as per actual site requirement.
3.2	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto a minimum depth of 35 ft in shingle gravel including removing of excavated material by machinery in 1 KM radius	M ³	10,570.00	150.00	1,585,500	-	-	(10,570.00)	(1,585,500)		-do-
3.3	Structural backfill using Common Material available at site.	M ³	14,000.00	326.79	4,575,060	-	-	(14,000.00)	(4,575,060)		-do-
3.4	Cement Concrete (brick/ston ballast, 1.5" to 2" nullah shingle well graded and cleaned) in foundation & plinth (Ratio 1:4:8)	M ³	15.15	4,000.00	60,600	25.00	100,000.00	9.85	39,400		As per Site requirement
3.5	Reinforced cement concrete work as in dams, spillways, weirs, barrages, cross drainage works and other hydrolic structures using crushed stone aggregate (screening & washing) and coarse sand i/c cost of all labour and material and all kinds of form works, moulds, shuttering lifting/ pumping, curing, rendering and finishing the exposed surface, cast in situ/precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	M ³	126.68	10,000.00	1,266,800	126.68	1,266,800.00	-	-		No Change
3.6	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	Tonne	9.69	120,000.00	1,162,800	13.00	1,560,000.00	3.31	397,200		As per Site requirement
3.7	Providing and Laying RCC pipe sewers complete As per ASTM C-76-79, Class II : 30" I/d, Wall B	RM	70.00	6,000.00	420,000	81.00	486,000.00	11.00	66,000		-do-
3.8	Supply and fix trashrack for intake as per drawing, specification and direction of the Engineer Incharge.	Nos	3.00	60,000.00	180,000	3.00	180,000.00	-	-		No Change
3.9	Providing and placing gate valve at outlet of conduit all accessories.	Nos	1.00	750,000.00	750,000	1.00	750,000.00	-	-		-do-
3.10	Providing and placing 2' dia butterfly valve with all accessories.	Nos.	1.00	250,000.00	250,000	1.00	250,000.00	-	-		-do-
3.11	Providing and placing 1' dia butterfly valve with all accessories. (for drinking water supply)	Nos.	1.00	150,000.00	150,000	-	-	(1.00)	(150,000)		The quantities decreased as per actual site
3.12	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)	M ³	42.00	6,469.09	271,702	42.00	271,701.78	-	-		No Change
3.12(a)	Random rubble masonry in foundn. & plinth in cement,sand mortar : Ratio 1:6 (08-01-d-03)	M ³	-	5,018.45	-	18.03	90,468.87	18.03	90,469		As per Site requirement
3.12(b)	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3(11-19-c-02)	M ³	-	271.32	-	45.66	12,387.61	45.66	12,388		-do-
Total Amount					13,843,462	13.84	5,863,358.26		(7,980,104)		
Total Amount in Million							5.86		(7.98)		



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No 4 : Irrigation System

S. No	Description of Item	As Per Project Cost (In Millions)	As Per TS (In Millions)	Difference In Millions	Remarks
1	Irrigation Channel	30,893,571	28,232,536	(2,661,036)	Amount Decreased due to site requirement.
2	Aqueduct	1,257,004	10,737,808	9,480,802	Amount Increased due to variation in length.
3	Falls	2,511,826	2,511,826	-	No Change.
4	Tail Cluster Outlets	51,247	51,247	-	-do-
5	Water shed Crossing (Culverts)	925,218	1,817,916	892,698	Amount Increased due to site Requirement.
6	Pipe outlet	151,627	151,627	-	No Change.
7	Syphon	2,421,635	-	(2,421,635)	As Per site requirement.
8	Super Passage	-	496,120	496,120	As Per site requirement.
	TOTAL:	38,212,129	43,999,078	5,786,950	
	TOTAL IN MILLION	38.21	44.00	5.79	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 4.1: Irrigation Channel

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.1.1	Earth Excavation in Irrigation Channels including clearing grubbing and disposal of Excavated Material in Shingle/Gravel	M ³	48,213.00	321.86	15,517,836	6,897	2,219,845	(41,316)	(13,297,991)	The quantities decreased as per actual site requirement.
4.1.1(a)	Earth excavation in irrigation channels/drain & disposal upto 25m. & dressing : in Ordinary Soil (03-10-a)	M ³	-	122.61	-	5,010	614,336	5,010	614,336	New item added due to site requirement.
4.1.1(b)	Excavation for core trench of Dam Embankment/ Spillway/Intake & Outlet Structure and Irrigation System upto design depth in Soft Rock/Shale requiring 20% blasting i/c removing of material from outside of the structure area (03-68-b)	M ³	-	300.00	-	1,928	578,460	1,928	578,460	-do-
4.1.2	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	M ³	200.00	5,603.70	1,120,740	533	2,985,423	333	1,864,683	As per Site requirement
4.1.3	PCC 1:3:6 in mass concrete less formwork using 30% boulders	M ³	2,500.00	4,312.40	10,781,000	2,500	10,781,000	-	-	No Change
4.1.4	Structural backfill using Common Material available at site	M ³	1,200.00	326.79	392,148	980	320,254	(220)	(71,894)	As per Site requirement
4.1.5	Erecting & removing formwork to concrete in any shape / position (Horizontal)	M ³	8,179.00	376.80	3,081,847	13,847	5,217,477	5,668	2,135,630	As per Site requirement
4.1.5(a)	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8) (06-05-i)	M ³	-	4,860.62	-	514	2,498,359	514	2,498,359	New item added due to site requirement.
4.1.5(b)	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4) (06-06-a-03)	M ³	-	8,168.74	-	150	1,225,311	150	1,225,311	-do-
4.1.5(c)	Supply & fabricate M.S reinforcement for cement concrete (hot rolled deformed bars Grade 60) (06-07-b)	Tonne	-	119,471.42	-	15	1,792,071	15	1,792,071	-do-
Sub Total					30,893,571		28,232,536		(2,661,036)	

Sulaiman

**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.2: Aqueducts

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.2.1	Earth excavation In Irrigation channels/drains & disposal up to 25m. & dressing : in Shingle/Gravel	m ³	59.86	321.86	19,267	59.86	19,266.54	-	0.00	No Change
4.2.2	Structural backfill using Common Material available at site	m ³	2.99	326.79	977	50.00	16,339.50	47.01	15,362.40	As per Site requirement
4.2.3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	m ³	5.64	5,603.70	31,605	87.30	489,217.02	81.66	457,612.15	-do-
4.2.4	Cement plaster 1:4 up to 20' height 3/4" thick	m ²	51.93	167.44	8,695	51.93	8,695.16	0.00	0.00	-do-
4.2.5	Reinforced cement concrete work as an dams, spillway, weirs, barrages, cross drainage works and other hydraulic structure using crushed stone aggregate (screening & washing) and coarse sand aggregate (cost of all labour and material and all kinds of form works, moulds, shuffling lifting / pumping, curing, rendering and finishing the exposed surface, cast in situ / precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	m ³	59.79	10,000.00	597,900	414.63	4,146,322.50	354.84	3,548,422.50	-do-
4.2.6	Supply & fabricate M.S reinforcement for cement concrete (hot rolled deformed bars Grade 60)	Tonne	4.78	120,000.00	573,600	50.28	6,033,005.00	45.50	5,459,405.00	-do-
4.2.7	Providing and Laying stone pitching for top layer only : On slope	m ³	8.32	3,000.00	24,960	8.32	24,960.00	-	-	No Change
Total Amount					1,257,004		10,737,806		9,480,802	
Total Amount in Million					12.57		107.38		94.81	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.3. Falls

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.3.1	Earth excavation in irrigation channels/drain & disposal upto 25m. & dressing : in Shingle/Gravel	M ³	793.17	321.86	255,290	793.17	255,290	-	-	No Change
4.3.2	Structural backfill using Common Material available at site	M ³	198.31	326.79	64,806	198.31	64,806	-	-	-do-
4.3.3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)	m ³	108.36	4860.62	526,697	108.36	526,697	-	-	-do-
4.3.4	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	M ³	216.58	5603.70	1,213,649	216.58	1,213,649	-	-	-do-
4.3.5	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)	M ³	27.51	6469.09	177,965	27.51	177,965	-	-	-do-
4.3.6	Supplying and Fixing PVC Water Stopper 8" wide 3/8" thick	M	303.80	900.00	273,420	303.80	273,420	-	-	-do-
Total Amount for (07 Nos)					2,511,826		2,511,826			
Total Amount (In Million)					2.51		2.51			



SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION

4.4: Tail Cluster Outlet

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.4.1	Earth excavation in irrigation channels/drain & disposal upto 25m. & dressing : in Shingle/Gravel	m3	10.00	321.86	3,219	10.00	3,219	-	-	No Change
4.4.2	Structural backfill using Common Material available at site	m3	0.48	326.79	157	0.48	157	-	-	-do-
4.4.3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)	m3	7.4	6469.09	47,871	7.40	47,871	-	-	-do-
Total Amount for 01 No.					51,247		51,247			
Total Amount For 01 No. (in Million)					0.51		0.51			



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.5: Pipe Culvert/Slab Culvert

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.5.1	Structural Excavation in Common Material	m ³	40.95	218.85	8,962	111.51	24,404	71	15,442	As per Site requirement
4.5.2	Structural backfill using Common Material available at site	m ³	8.20	326.79	2,680	36.08	11,790	28	9,110	-do-
4.5.3	Plain Cement Concrete including placing compaction, finishing & curing (ratio 1:4:8)	m ³	20.45	4860.62	99,400	31.03	150,844	11	51,445	-do-
4.5.4	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	m ³	23.55	5603.70	131,967	23.55	131,967	-	-	
4.5.5	Reinforced cement concrete work as in dams, spillways, weirs, barrages, cross drainage works and other hydrolic structures using crushed stone aggregate (screening & washing) and coarse sand i/c cost of all labour and material and all kinds of form works, moulds, shuttering lifting/ pumping, curing, rendering and finishing the exposed surface, cast in situ/precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	m ³	30.25	10000.00	302,500	50.41	504,100	20	201,600	-do-
4.5.6	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	tonne	2.35	120000.00	282,000	6.18	741,739	4	459,739	-do-
4.5.7	Reinforced Concrete Pipe Culvert (AASHTO M-170) Dia: 760mm	m	21.50	4544.64	97,710	21.50	97,710	-	-	-do-
4.5.7(a)	Random rubble masonry in foundn. & plinth in cement, sand mortar: Ratio 1:6 (08-01-d-03)	M ³	-	4500.00	-	31.76	142,927	32	142,927	New item added due to site requirement.
4.5.7(b)	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3 (11-19-c-02)	M ²	-	161.24	-	77.12	12,435	77	12,435	-do-
Sub-Total					925,218		1,817,916		892,698	
Total Amount for 9 Nos Culverts in Million					9.25		18.18		8.93	

**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.6: Pipe Outlet

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.6.1	Excavation in Foundation of Building, bridges etc complete in shingle/gravel	m3	5.24	250.00	1,310	5.24	1,310	-	-	No Change
4.6.2	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)	m3	10.88	5603.70	60,968	10.88	60,968	-	-	-do-
4.6.3	Reinforced cement concrete work as in dams, spillways, weirs, barrages, cross drainage works and other hydrolic structures using crushed stone aggregate (screening & washing) and coarse sand i/c cost of all labour and material and all kinds of form works, moulds, shuttering lifting/ pumping, curing, rendering and finishing the exposed surface, cast in situ/precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	m3	0.52	10000.00	5,200	0.52	5,200	-	-	-do-
4.6.4	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	tonne	0.04	120000.00	4,800	0.04	4,800	-	-	-do-
4.6.5	Reinforced Concrete Pipe Culvert (AASHTO M-170) Dia: 760mm	m	14.64	4544.64	66,534	14.64	66,534	-	-	-do-
4.6.6	Providing and Laying stone pitching with hammer dressed stones on surface, laid in courses	m3	4.80	2669.93	12,816	4.80	12,816	-	-	-do-
Total Amount for 04 Nos.					151,627		151,627			
Total Amount for 04 Nos (In Million)					1.52		1.52			



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.7: Syphon

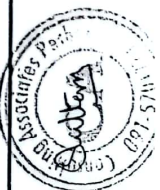
Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.7.1	Structural Excavation in Common Material	m3	431.04	218.85	94,333	-	-	(431)	(94,333)	The quantities decreased as per actual site requirement.
4.7.2	Structural backfill using Common Material available at site	m3	80.38	326.79	26,267	-	-	(80)	(26,267)	-do-
4.7.3	Plain Cement Concrete including. placing compaction. finishing & curing (ratio 1:4:8)	m3	14.73	4860.62	71,597	-	-	(15)	(71,597)	-do-
4.7.4	Reinforced cement concrete work as in dams, spillways, weirs, barrages, cross drainage works and other hydraulic structures using crushed stone aggregate (screening & washing) and coarse sand i/c cost of all labour and material and all kinds of form works, moulds, shuttering lifting/ pumping, curing, rendering and finishing the exposed surface, cast in situ/precast excluding the cost of steel reinforcement and labour for bending binding also excluding cost of additives which have to be paid separately. Type C (1:2:4)	m3	99.81	10000.00	998,100	-	-	(100)	(998,100)	-do-
4.7.5	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	tonn	7.98	120000.00	957,600	-	-	(8)	(957,600)	-do-
4.7.6	Providing and Laying RCC pipe sewers complete As per ASTM C-76-79, Class II : 30" i/d, Wall B	m	33.53	5501.20	184,455	-	-	(34)	(184,455)	-do-
Total carried over to Summary					2,421,635	-	-	-	(2,421,635)	
Total Amount in Million					2.42	-	-	-	(2.42)	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

4.8: Super passage

Item	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
4.8.1	Earth excavation in irrigation channels/drain & disposal upto 25m. & dressing : in Shingle/Gravel (03-10-d)	M ³	-	321.86	-	49.61	15,966	49.61	15,966.03	New item added due to site requirement.
4.8.2	Structural backfill using Common Material available at site (03-60-c)	M ³	-	326.79	-	12.40	4,053	12.40	4,052.65	-do-
4.8.3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)(06-05-i)	m ³	-	4,860.62	-	9.03	43,888	9.03	43,887.97	-do-
4.8.4	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)(06-05-h)	M ³	-	5,603.70	-	1.78	9,995	1.78	9,995.32	-do-
4.8.5	Erecting & removing formwork to concrete in any shape / position (vertical) (06-38-b)	M ³	-	428.15	-	36.79	15,750	36.79	15,749.93	-do-
4.8.6	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4) (06-06-a-03)	M ³	-	8,168.74	-	15.35	125,378	15.35	125,378.29	-do-
4.8.7	Supply & fabricate M.S reinforcement for cement concrete (hot rolled deformed bars Grade 60) (06-07-b)	Tonne	-	119,471.42	-	0.51	60,748	0.51	60,748.41	-do-
4.8.8	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)(06-05-f)	M ³	-	6,469.09	-	25.23	163,193	25.23	163,193.26	-do-
4.8.9	Providing and Laying stone pitching with hammer dressed stones on surface, laid in courses	m3	-	2669.93	-	21.40	57,148	21.40	57,148.26	-do-
Total Amount for (02 Nos)					-		496,120		496,120.11	
Total Amount (In Million)					-		0.50		0.50	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 5 : Electrification of Dam Embankment (Solar System)

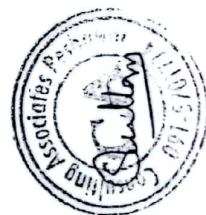
Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
5.1	S/F G. I. Tubular st. light pole 8' of 5" dia 7' 4" 5' of 3" dia single arm of 5' of 1.5" dia.	Nos	11.00	33,927.40	373,201	11	373,201	-	-	No Change
5.2	S/F pole mounted street light complete for fitting 125/250 watt mercury lamp Phillips mad.	Nos	10.00	3,952.40	39,524	10	39,524	-	-	-do-
5.3	Wiring of main and sub main in 2 single core pvc insulated and sheathed cable 7-29	M	400.00	210.19	84,076	400	84,076	-	-	-do-
5.4	Wiring of main and sub main in 2 single core pvc insulated and sheathed cable 7-64	M	60.00	772.18	46,331	60	46,331	-	-	-do-
5.5	Wiring of main and sub main in 2 single core pvc insulated and sheathed cable 7-44	M	663.00	434.31	287,948	663	287,948	-	-	-do-
5.6	S&E cubical type factory fabricated floor/wall mounting steel main boar complete.	Nos	1.00	55,095.50	55,096	1	55,096	-	-	-do-
5.7	S& E 2"x2"x1/8" copper plate l/c revitting to copper tape & placing in mixture of salt etc.	Nos	11.00	5,785.48	63,640	11	63,640	-	-	-do-
5.8	Supply and Erection PVC pipe for wiring purpose complete On surface including clamps etc: 3" i/d	M	349.00	212.67	74,222	349	74,222	-	-	-do-
5.9	Provide install make necessary connection and carryout testing transformer 1KVA 0.415KVA and 0.5 KVA pole fitted with fuse link ,platform pole outgoing HCCBTP100 AMP at a location near dam site.	Each	1.00	1,000,000.00	1,000,000	1	1,000,000	-	-	-do-
5.9a	P/I of solar panel (PV module) mono crystalline, A Grade minimum 250 watt, IEC 61215 and 61730 certified (NSI)	No	-	18750	-	38	712,500	38	712,500	New item added due to site requirement..
5.9b	P/I SMD light 12w (NSI)	No	-	350	-	50	17,500	50	17,500	-do-
5.9c	P/I of Road light fixture SMD type white LED minimum 60 watt AC type, IP 65, Led efficacy min 100 lumens/ watt (NSI)	No	-	12000	-	12	144,000	12	144,000	-do-
5.9d	Flexible 1" dia PVC pipe for 4.0 mm ² copper cable through the pole for providing extra insulation and to avoid power loss (NSI)	M	-	110	-	150	16,500	150	16,500	-do-
5.9e	UPVC pipe 2" (NSI)	M	-	139	-	600	83,400	600	83,400	-do-

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**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 5 : Electrification of Dam Embankment (Solar System)

Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
5.9f	P/I 16 mm copper cable(imported) along with proffer connector from solar panel to inverters and Batteries (NSI)	M	-	263	-	200	52,600	200	52,600	-do-
5.9g	P/I of 2 single core PVC insulated sheathed cable 7/29(PAK cable) (NSI)	M	-	240	-	600	144,000	600	144,000	-do-
5.9h	P/I of 2 single core PVC insulated sheathed cable 3/29(PAK cable) (NSI)	M	-	166	-	350	58,100	350	58,100	-do-
5.9i	provision of 600 AH Dry cells 2 volt along with stand (NSI)	No	-	32000	-	24	768,000	24	768,000	-do-
5.9j	P/I of 200 AH battery AGM / gel type (NSI)	No	-	55000	-	4	220,000	4	220,000	-do-
5.9k	P/I of MPPT inverter 48 volt 5KW infini (NSI)	No	-	150000	-	1	150,000	1	150,000	-do-
5.9l	P/I of MPPT inverter 48 volt 5KW (NSI)	No	-	110000	-	1	110,000	1	110,000	-do-
5.9m	Mounting structure for 38 panels (NSI)	Job	-	135000	-	1	135,000	1	135,000	-do-
5.9n	light sensors and conductors of appropriate size (NSI)	No	-	5000	-	4	20,000	4	20,000	-do-
5.9o	DC/ AC breakers and accessories etc.(NSI)	Job	-	65000	-	1	65,000	1	65,000	-do-
5.9p	Installation and transportation (NSI)	Job	-	120000	-	2	240,000	2	240,000	-do-
Total Amount					2,024,037		4,960,637		2,936,600	
Total Amount in Million					2.02		4.96		2.94	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 6 :Construction of Inspection Hut /Sub Engineer Office

S.No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
6.1	Excavation in foundation of building, bridges etc complete : in shingle/gravel	m ³	93.86	300.00	28,158	47.99	14,397	(45.87)	(13,761)	The quantities decreased as per actual site.
6.2	Cement Concrete (brick/stone ballast, 1.5" to 2" nullah shingle well graded and cleaned) in foundation & plinth (Ratio 1:4:8)	m ³	19.96	3685.90	73,571	12.57	46,347	(7.39)	(27,223)	-do-
6.3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8) under floor	m ³	12.59	4860.62	61,195	16.91	82,176	4.32	20,981	As per site requirement
6.4	Pucca brick work in foundation and plinth in Cement, sand mortar 1:4	m ³	33.42	6132.83	204,959	19.95	122,343	(13.47)	(82,616)	The quantities decreased as per actual site.
6.5	Damp proof course of cem. conc. 1:2:4 including bitumen coat, 1 layer polythene & 1 coat bitumen (2" thick)	m ²	18.08	504.92	9,129	26.50	13,382	8.42	4,253	As per site requirement
6.6	Pucca brick work in ground floor Cement, sand mortar 1:6	m ³	51.46	8000.00	411,680	71.59	572,690	20.13	161,010	-do-
6.7	RCC in roof slab, beam, column & other structural members, Insitu or precast. Type C (1:2:4)	m ³	22.47	10000.00	224,700	38.49	384,950	16.02	160,250	-do-
6.8	Supply & fabricate M.S. reinforcement for cement concrete (Hot rolled deformed bars Grade 40)	Tonne	1.12	115000.00	128,800	3.18	365,893	2.06	237,093	-do-
6.9	Provide & lay topping of concrete 1:2:4, including surface finishing & dividing in panels : 2" thick	m ²	82.66	495.60	40,966	145.26	71,991	62.60	31,025	-do-
6.10	Providing and Fixing marble strip 2" wide and 3/8" thick for dividing the floor into panels	m	322.25	22.69	7,312	403.46	9,154	81.21	1,843	-do-
6.11	Cement plaster 1:6, upto 20' height 1/2" thick	m ²	302.88	167.63	50,772	528.00	88,677	226.12	37,905	-do-
6.12	Cement plaster 3/8" thick under soffit of RCC roof slabs only upto 20' height : (1:3)	m ²	122.88	208.31	25,597	231.69	48,264	108.81	22,667	-do-
6.13	Cement pointing struck joints, on walls, upto 20' height : Ratio 1:3	m ²	130.66	184.59	24,119	130.66	24,119	-	-	No Change
6.14	Preparing surface and painting with emulsion paint : First coat	m ²	24.65	113.13	2,789	186.11	21,054	161.46	18,266	As per site requirement
6.15	Priming coat of chalk under distemper	m ²	302.86	15.71	4,758	760.69	11,950	457.83	7,193	-do-
6.16	Distemping New surface : Three coats	m ²	302.87	57.66	17,463	760.69	43,862	457.82	26,398	-do-
6.17	Filling, watering and ramming earth under floor with surplus earth from foundation, etc	m ³	25.18	76.63	1,930	55.32	4,239	30.14	2,309	-do-
6.18	Supplying and filling sand under floor or plugging in walls	m ³	8.38	1010.63	8,469	11.07	11,184	2.69	2,715	-do-



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 6 :Construction of Inspection Hut /Sub Engineer Office

S.No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
6.19	Supplying and Fixing 18 SWG MS Sheet Gate with angle iron frame (2"x2"x3/16") with side window, lock, painting etc	m ²	7.44	6508.74	48,425	-	-	(7.44)	(48,425)	The quantities decreased as per actual site.
6.20	Supplying and Fixing 18 SWG MS Sheet Door with angle iron frame (1.5"x1.5"x1/8"), bolt, hinges, paint etc complete	m ²	9.76	4838.79	47,227	28.95	140,082	19.19	92,855	As per site requirement
6.21	Providing and Fixing steel windows 18 gauge with openable glazed panels With 22 SWG wire gauze : Glass pane 2.5mm	m ²	7.11	5794.02	41,195	33.09	191,698	25.98	150,503	-do-
6.21(a)	Supply and Fixing MS Sheet 16 gauge(10x20 feet) box type chowkats including fixing in position with all charges for Hold fast, Hinges and Painting etc.(12-56-a)		-	957.32	-	167.63	160,477	167.63	160,477	New item added due to site requirement.
6.22	Providing and Fixing glazed earthen ware WC squatting type with built-in foot rests : White	No	2.00	1485.20	2,970	2.00	2,970	-	-	No Change
6.23	Providing and Fixing glazed earthen ware WHB complete Size 22"x16" : White with pedestal	No	3.00	2516.70	7,550	3.00	7,550	-	-	-do-
6.24	P/F best quality 5 mm glass shelf 24" x 5" with chromium plated brackets and railing	No	2.00	634.27	1,269	2.00	1,269	-	-	-do-
6.25	Providing and Fixing best quality 5mm mirror 22"x16" size	No	2.00	796.30	1,593	2.00	1,593	-	-	-do-
6.26	Providing and Fixing CP towel rail : 24" long, 3/4" dia	No	2.00	651.03	1,302	2.00	1,302	-	-	-do-
6.27	Providing and Fixing CP toilet paper holder	No	2.00	439.28	879	3.00	1,318	1.00	439	As per site requirement
6.28	Providing and Fixing Plastic soap dish	No	2.00	185.18	370	3.00	556	1.00	185	-do-
6.29	P/F glazed earthen ware low down flushing cistern 3 gallons	No	2.00	1954.05	3,908	3.00	5,862	1.00	1,954	-do-
6.30	P/F stainless steel sink with drain boarded size 48" x 24" I/C brackets, waste pipe etc.	No	1.00	3303.20	3,303	1.00	3,303	-	-	No Change
6.31	Providing and Fixing CP mixing valve for WHB, sink or shower	No	3.00	2115.13	6,345	3.00	6,345	-	-	-do-
6.32	P/F C-P shower rose 3/4"x6"	No	2.00	508.25	1,017	2.00	1,017	-	-	-do-
6.33	P/F "P" trap including G-1 Grating and Pcc chamber 4"glazed	No	7.00	309.30	2,165	7.00	2,165	-	-	-do-
6.34	Providing and laying 1" dia G.I. Pipe	m	21.33	399.08	8,512	50.00	19,954	28.67	11,442	As per site requirement
6.35	Providing and laying 3/4" dia G.I. Pipe	m	6.09	294.93	1,796	60.00	17,696	53.91	15,900	-do-
6.36	Providing and laying 1/2" dia G.I. Pipe	m	12.19	213.74	2,605	60.00	12,824	47.81	10,219	-do-
6.37	P/F Polyethylene Water Tank 500 gallons (Vertical)	No	1.00	27292.58	27,293	1.00	27,293	-	-	-do-



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No. 6 :Construction of Inspection Hut /Sub Engineer Office

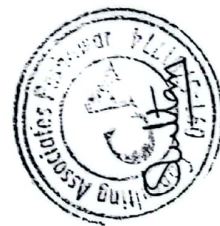
S.No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
6.38	Septic tank inner size (7"x2"x5')	No	1.00	20000.00	20,000	1.00	20,000	-	-	-do-
6.39	Soakage pit 6 ft dia and 15 ft deep complete	No	1.00	14372.05	14,372	1.00	14,372	-	-	-do-
6.4	E/F cutt joint, test pvc pipe line 4" dia	m	3.96	253.22	1,003	3.96	1,003	-	-	-do-
6.41	S/F CI main hole with frame complete 18" dia	No	10.00	1883.51	18,835	10.00	18,835	-	-	-do-
6.42	P/F gun metal peet /gate wall 1" dia	No	4.00	1327.60	5,310	4.00	5,310	-	-	-do-
6.43	P/F brass stop /bib cock 1/2" dia	No	8.00	179.13	1,433	8.00	1,433	-	-	-do-
6.44	Electrification									
6.45	S/E pvc pipe for wiring purpose complete in recessed in wall I/C chase etc. 1" internal dia	m	60.95	162.82	9,924	60.95	9,924	-	-	-do-
6.46	Wiring of light / fan / call bell point in 3-29 pvc Insulated cable in pvc pipe recessed	No	50.00	1014.60	50,730	50.00	50,730	-	-	-do-
6.47	Wiring of 2/3 pin 5 AMP plug point in 3/029 pvc insulated cable in pvc pipe recessed	No	17.00	607.11	10,321	17.00	10,321	-	-	-do-
6.48	S/E pvc best quality exhaust fan complete with shutter & regulator 12" sweep	No	5.00	2289.25	11,446	4.00	9,157	(1.00)	(2,289)	The quantities decreased as per actual site.
6.49	S/E best Quality ceiling fan complete with G-I rod canopy blade & regulator 56" sweep	No	6.00	3045.08	18,270	6.00	18,270	-	-	No Change
6.50	Floor S/E cubical type factory fabricated floor / wall mounted main board steel complete recessed	m2	1.00	55095.50	55,096	1.00	55,096	-	-	-do-
6.51	Supply and Erection white round globe with holder, gallery & 100 Watt bulb complete : 8" dia.	No	10.00	394.02	3,940	6.00	2,364	(4.00)	(1,576)	The quantities decreased as per actual site.
6.52	S/E tube light rod and choke complete 40 watt	set	3.00	1086.93	3,261	8.00	8,695	5.00	5,435	As per site requirement
6.53	Wiring of main & sub-main in 2 single core PVC insulated & sheathed cable : 7/0.029	m	100.00	210.19	21,019	100.00	21,019	-	-	No Change
6.54	Supply and fixing of 2.0 HP Monoblock water pump 2"x2" size 1 stage SE model single phase for 65 ft head with all accessories and fittings.	No	1.00	16767.03	16,767	1.00	16,767	-	-	-do-
Total Amount					1,797,818		2,805,242		1,007,424	
Total Amount in Million					1.798		2.805		1.01	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

Bill No.7: RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR

S. No	Bill No	Description	As Per Project Cost (In Millions)	As Per TS (In Millions)	Difference In Millions	Remarks
1	1	EARTH WORK	10,578,347	8,688,487.39 ✓	✓ (1,889,859.80)	✓ Amount decreased as per actual site requirement.
2	2	SUB BASE & BASE COURSE	1,935,000	✓ 1,617,435.00	✓ (317,565.00)	✓ -do-
3	4 (A)	ROAD STRUCTURE (RETAINING WALLS)	10,408,133	✓ 10,408,133.01	✓ -	No Change
4	4 (B)	ROAD STRUCTURE (CULVERTS)	5,091,052	✓ 6,121,091.87	✓ 1,030,040.25	✓ Amount increased due to additional Road Structure.
GRAND TOTAL:			28,012,531.83	✓ 26,835,147.27	✓ (1,177,384.55)	✓
GRAND TOTAL AMOUNT IN MILLION			28.01	✓ 26.84	✓ (1.18)	✓

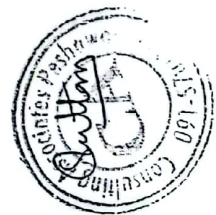


SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION

RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR

Bill No. 1 : EARTH WORK

Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1	Clearing & Grubbing	M ²	11300.00	20.94	236,622	7,140.00	149,512	(4,160.00)	(87,110)	The quantities decreased as per actual site requirement.
2	Removal of Tree : Girth 150mm - 300 mm including	No	50.00	449.86	22,493	-	-	(50.00)	(22,493)	-do-
3	Removal of Tree : Girth 300mm - 600 mm including removal of stump & backfilling with sand	No	23.00	899.71	20,693	-	-	(23.00)	(20,693)	-do-
4	Compaction of Natural Ground	M ²	11300.00	5.00	56,500	8,140.00	40,700	(3,160.00)	(15,800)	The quantities decreased as per actual site requirement.
5	Roadway Excavation in Surplus / Unsuitable Rock Material	M ³	4991.78	259.08	1,293,270	27,552.40	7,138,276	22,560.62	5,845,005	As per Site requirement
6	Formation of Embankment from Roadway Excavation in common Material i/c compaction by power roller	M ³	10607.54	310.00	3,288,337	2,000.00	620,000	(8,607.54)	(2,668,337)	The quantities decreased as per actual site requirement.
7	Formation of Embankment from Borrow Excavation in common Material i/c compaction by power roller	M ³	15266.03	370.00	5,648,431	2,000.00	740,000	(13,266.03)	(4,908,431)	-do-
8	Scarifying/Dismantling old road surface i/c removal of debris within one chain (NHA specified)	M ²	1200.00	10.00	12,000	-	-	(1,200.00)	(12,000)	-do-
Total Amount					10,578,347		8,688,487		(1,889,860)	
Total Amount In Million					10.58		8.69		(1.89)	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

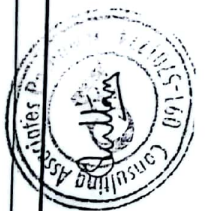
RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR

Bill No. 2. SUB BASE AND BASE COURSE

Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1	Sub grade Preparation	M ²	7300.00	45.00	328,500	7,943.00	357,435	643.00	28,935	As per Site requirement
1	Granular Sub Base course using pit run gravel i/c shoulder	M ³	2295.00	700.00	1,606,500	1,800.00	1,260,000	(495.00)	(346,500.00)	The quantities decreased as per actual site requirement.
Sub Total Amount					1,935,000		1,617,435		(317,565.00)	
Sub Total Amount in Million					0.19		0.16		(0.03)	

Bill No. 3 A: RETAINING WALL

Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1	Structural Excavation in Common Material	M ³	1125.00	300.00	337,500	1125	337,500.00	-	-	No Change
2	Structural backfill using Common Material available at site	M ³	281.25	326.79	91,910	281.25	91,909.69	-	-	-do-
3	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:2:4) in coping	M ³	12.50	6,469.09	80,864	12.5	80,863.63	-	-	-do-
4	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:4:8)	M ³	135.00	4,860.62	656,184	135	656,183.70	-	-	-do-
5	Random rubble masonry in foundn. & plinth in cement, sand mortar: Ratio 1:6	M ³	2012.50	4,500.00	9,056,250	2012.50	9,056,250.00	-	-	-do-
6	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3	M ²	1150.00	161.24	185,426	1150	185,426.00	-	-	-do-
Sub Total Amount					10,408,133		10,408,133		-	
Sub Total Amount in Million					10.41		10.41		-	



**SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION**

RELOCATION OF EXISTING SHINGLE TRACK OUT OF RESERVOIR

Bill No. 4 B: CULVERT

Item No	Description	Unit	As Per Project Cost			As Per TS		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1	Structural Excavation in Common Material	M ³	35.87	300.00	10,761	200.00	60000	164.13	49,239	As per Site requirement
2	Structural backfill using Common Material available at site	M ³	10.76	326.79	3,516	33.33	10893	22.57	7,377	-do-
3	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:2:4) in copping	M ³	20.21	6,469.09	130,740	7.07	45736.4663	(13.14)	(85,004)	-do-
4	Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:4:8)	M ³	42.80	4,860.62	208,035	14.27	69344.84533	(28.53)	(138,690)	-do-
5	RCC in roof slab, beam, column & other structural members, insitu or precast, Type C (1:2:4)	M ³	8.77	8,168.74	71,640	16.67	136145.6667	7.90	64,506	-do-
6	Supply & fabricate M.S reinforcement for cement concrete (Hot rolled deformed bars Grade 60)	Ton	0.67	120,000.00	80,400	2.00	240000	1.33	159,600	-do-
7	Pacca brick work in foundation and plinth in Cement, sand mortar 1:4	M ³	54.58	6,132.83	334,730	-	0	(54.58)	(334,730)	The quantities decreased as per actual site requirement.
8	Cement plaster 1:4 upto 20' height 3/8" thick	M ²	51.88	167.44	8,687	-	0	(51.88)	(8,687)	-do-
8(a)	Random rubble masonry in foundn. & plinth in cement, sand mortar: Ratio 1:6 (08 01-d-03)	M ³	-	5016.45 4,500.00	-	100.00	450,000.00	100.00	450,000	additional item comes as per site requirement
8(b)	Pointing flush on stone work, upto 20' height On stone work raised : in c/s mortar 1:3 (11-19-b)	M ²	-	161.24	-	50.00	8,062.00	50.00	8,062	-do-
Sub Total					848,509				171,673	
Total for 06-Nos Culverts					5,091,052	6-Nos			1,030,040	
Total Amount In Million					5.09		6.12		1.03	



SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION
SHAIDU TO KOZ PETAO ROAD (NEW ROAD) CM DIRECTIVE

S. No	Bill No	Description	As Per BOQ In Millions	As Per VO:01 In Millions	Difference in Millions	Remarks
1	1	EARTH WORK	-	29,975,703.74	29,975,703.74	New item added due to site requirement...
2	4 (B)	ROAD STRUCTURE (CULVERT/CAUSEWAY)	-	7,041,039.96	7,041,039.96	-do-
3	6	ANCILLARY WORKS	-	398,498.52	398,498.52	-do-
GRAND TOTAL:			-	37,415,242.22	37,415,242.22	
GRAND TOTAL AMOUNT IN MILLION			-	37.42	37.42	-



SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION
SHAIDU TO KOZ PETAO ROAD (NEW ROAD) CM DIRECTIVE

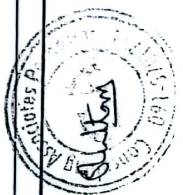
Bill No. 1 : EARTH WORK										
Item No	Description	Unit	As Per BOQ			As Per Vo:01		Difference		Remarks
			Quantity	Rate (Rs)	Amount (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1	Clearing & Grubbing (03-56)	M ²	-	20.94	-	5,204.46	108,981	5,204.46	108,981	New item added due to site requirement..
2	Compaction of Natural Ground (03-58)	M ²	-	5.00	-	5,204.46	26,022	5,204.46	26,022	-do-
3	Roadway Excavation In Surplus / Unsuitable Common Material (03-59-a)	M ³	-	259.08	-	5,646.00	1,462,766	5,646.00	1,462,766	-do-
4	Formation of Embankment from Roadway Excavation in common Material l/c compaction by power roller (03-61-a)	M ³	-	310.00	-	4,757.00	1,474,670	4,757.00	1,474,670	-do-
5	Granular Sub Base Course using Pit Run Gravel (16-03-a)	M ³	-	700.00	-	1,959.50	1,371,650.00	1,959.50	1,371,650.00	-do-
6	Water Bound Macadam Base Course (16-04-b)	M ³	-	2,148.61	-	3,472.00	7,459,973.92	3,472.00	7,459,973.92	-do-
7	Bitumenous Prime Coat (16-06)	M ³	-	135.54	-	17,267.00	2,340,369.18	17,267.00	2,340,369.18	-do-
8	Asphaltic Wearing Course (Asphalt Batch Plant Hot Mixed) (16-12-b)	M ³	-	18,683.22	-	842.00	15,731,271.24	842.00	15,731,271.24	-do-
Sub Total Amount							3.00		3.00	
Sub Total Amount In Million										



SHAH KALEEM DAM
DISTRICT NOWSHERA
TECHNICAL SANCTION
SHAIDU TO KOZ PETAO ROAD (NEW ROAD) CM DIRECTIVE

Item No		Description	Unit	As Per BOQ		As Per Vo:01		Difference		Remarks
				Quantity	Rate (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1		Structural Excavation in Common Material (03-60-a)	M ³	-	218.85	690	151006.5	690.00	151,007	New item added due to site requirement..
2		Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:2:4) (06-05-f)	M ³	-	6,469.09	168	1086807.12	168.00	1,086,807	-do-
3		Plain Cement Concrete i/c placing compaction finishing & curing (ratio 1:4:8)(06-05-l)	M ³	-	4,860.62	43	209006.66	43.00	209,007	-do-
4		RCC in roof slab, beam, column & other structural members, insitu or precast, Type C (1:2:4) (06-06-a-03)	M ³	-	8,168.74	30	245062.2	30.00	245,062	-do-
5		Supply & fabricate M.S reinforcement for cement concrete (Hot rolled deformed bars Grade 60) (06-07-b)	Ton	-	119,471.42	3	358414.26	3.00	358,414	-do-
6		PCC 1:3:6 in mass concrete less formwork using 30% boulders (06-36-c)	M ³	-	4,312.40	1030.00	4441772	1,030.00	4,441,772	-do-
6		Erecting & removing formwork to concrete in any shape / position (vertical) (06-38-b)	M ²	-	428.15	1015.89	434954.2426	1,015.89	434,954	-do-
7		Providing and Laying RCC pipe sewers complete As per ASTM C-76-79, Class II : 24" i/d, Wall B(23-03-a-05)	M	-	3,455.06	33.00	114016.98	33.00	114,017	-do-
Sub Total							7,041,040		7,041,040	
Total Amount In Million							7.04		7.04	

Item No		Description	Unit	As Per BOQ		As Per Vo:01		Difference		Remarks
				Quantity	Rate (Rs)	Quantity	Amount (Rs)	Quantity	Amount (Rs)	
1		Supply & Fixing Cat Eye single as specified (16-19-c-03)	No	-	317.36	240	76166.4	240.00	76,166	As per Site requirement
2		Pavement marking in reflective chlorinated rubber paint with glass beads for line 15 (cm width)(16-67-a)	M	-	45.54	7078	322332.12	7,078.00	322,332	-do-
Sub Total							398,499		398,499	
Total Amount In Million							0.40		0.40	



**SHAH KALEEM DAM
DISTRICT NOWSHERA**

Dam Embankment (Clearing Grubbing U/S & D/S)

S,No	Location	Distance	Lenght (M)	Sq (M)
1	40	0	85.74	0.00
2	50	10	90.94	883.40
3	60	10	98.41	946.75
4	70	10	97.95	981.80
5	80	10	95.45	967.00
6	90	10	95.75	956.00
7	100	10	94.64	951.95
8	110	10	90.51	925.75
9	120	10	92.55	915.30
10	130	10	95.92	942.35
11	140	10	96.47	961.95
12	150	10	96.38	964.25
13	160	10	96.46	964.20
14	170	10	96.43	964.45
15	180	10	92.58	945.05
Total Quantity in M2				13,270.20



**SHAH KALEEM DAM
DISTRICT NOWSHERA
Main Dam Trench Excavation**

S.No	Location	Distance	Area (sm)	Volume
1	40	0	27	0
2	50	10	22.38	246.9
3	60	10	22.74	225.6
4	70	10	18.33	205.35
5	80	10	27.67	230
6	90	10	39.5	335.85
7	100	10	31.44	354.7
8	110	10	29.02	302.3
9	120	10	28.31	286.65
10	130	10	26.55	274.3
11	140	10	27.17	268.6
12	150	10	25.28	262.25
13	160	10	24.83	250.55
14	170	10	22.76	237.95
15	180	10	56.82	397.9
Total Quantity in (CM)				3,878.900

Dam Embankment (U/S Toe wall Excavation)

S.No	Description	Length in M	Area (sm)	Volume
1	Toe wall excavation 0+080 to 0+190	110.000	1.5	165.000

Dam Embankment (U/S Toe wall excavation)

S.No	Location	Distance	Area (sm)	Volume
1	20	0	1.52	0.00
2	30	10	1.52	15.20
3	40	10	1.54	15.30
4	50	10	1.5	15.20
5	60	10	1.47	14.85
6	70	10	1.72	15.95
1	80	10	14.470	80.95
2	90	10	13.430	139.50
3	100	10	12.970	132.00
4	110	10	14.560	137.65
5	120	10	14.790	146.75
6	130	10	13.930	143.60
7	140	10	13.860	138.95
8	150	10	13.890	138.75
9	160	10	13.900	138.95
10	170	10	13.940	139.20
11	180	10	15.120	145.30
12	190	10	1.490	83.05
Total Quantity in M3				1,641.150



**SHAH KALEEM DAM
DISTRICT NOWSHERA
Dam Embankment (Clay)**

S.No	Location	Distance	Area (sm)	Volume
1	10	0	108.43	0.000
2	20	10	99.67	1040.500
3	30	10	222.68	1611.750
4	40	10	252.1	2373.900
5	50	10	265.73	2589.150
6	60	10	270.55	2681.400
7	70	10	260.11	2653.300
8	80	10	244.7	2524.050
9	90	10	237.93	2413.150
10	100	10	222.76	2303.450
11	110	10	225.93	2243.450
12	120	10	225.97	2259.500
13	130	10	226.53	2262.500
14	140	10	226.03	2262.800
15	150	10	226.26	2261.450
16	160	10	226.37	2263.150
17	170	10	227.2	2267.850
18	180	10	210.82	2190.100
19	190	10	155.01	1829.150
20	200	10	99.82	1274.150
21	210	10	49.19	745.050
22	220	10	57.56	533.750
Total Quantity in M3				42,583.550

S. No.	Description	Nos.	Length	Width	Height	Quantity
2	cutoff wall-1	1	52	6.00	6.00	1,872.0
	cutoff wall-2	1	52	6.00	6.00	1,872.0
Total Quantity in M3						3,744.000
Grand Total Quantity in M3						46,327.550



CONSTRUCTION OF SHAH KALEEM DAM PROJECT
Dam Embankment (U/S and D/S Shoulder Material)

S,No	Location	Distance	Area (sm)	Volume
1	10	0	90.5	0.000
2	20	10	397.97	2,442.350
3	30	10	516.07	4,570.200
4	40	10	588.25	5,521.600
5	50	10	650.23	6,192.400
6	60	10	720.41	6,853.200
7	70	10	676.66	6,985.350
8	80	10	661.61	6,691.350
9	90	10	650.22	6,559.150
10	100	10	589.58	6,199.000
11	110	10	591.5	5,905.400
12	120	10	611.75	6,016.250
13	130	10	623.92	6,178.350
14	140	10	627.1	6,255.100
15	150	10	626.24	6,266.700
16	160	10	626.22	6,262.300
17	170	10	627.74	6,269.800
18	180	10	567.67	5,977.050
19	190	10	461.79	5,147.300
20	200	10	290.38	3,760.850
21	210	10	98.93	1,946.550
22	220	10	20.43	596.800
23	230	10	2.72	115.750
Total Quantity in M3				112,712.800

D/S Fine Filter

S,No	Location	Distance	Area (sm)	Volume
1	10	0	14.29	0.000
2	20	10	13.59	139.400
3	30	10	24.15	188.700
4	40	10	26.04	250.950
5	50	10	30.91	284.750
6	60	10	33.2	320.550
7	70	10	32.08	326.400
8	80	10	31.06	315.700
9	90	10	30.06	305.600
10	100	10	28.77	294.150
11	110	10	28.69	287.300
12	120	10	28.69	286.900
13	130	10	28.74	287.150
14	140	10	28.67	287.050
15	150	10	28.72	286.950
16	160	10	28.71	287.150
17	170	10	28.77	287.400
18	180	10	27.41	280.900
19	190	10	22.26	248.350
20	200	10	16.46	193.600
21	210	10	9.14	128.000
22	220	10	3.91	65.250
Total Quantity in M3				5,352.200



CONSTRUCTION OF SHAH KALEEM DAM PROJECT

D/S Course Filter

S.No	Location	Distance	Area (sm)	Volume
1	10	0	3.35	0.000
2	20	10	8.53	59.400
3	30	10	12.47	105.000
4	40	10	15.39	139.300
5	50	10	20.71	180.500
6	60	10	62.53	416.200
7	70	10	61.47	620.000
8	80	10	61.37	614.200
9	90	10	61.18	612.750
10	100	10	59.00	600.900
11	110	10	55.65	573.250
12	120	10	55.91	557.800
13	130	10	55.93	559.200
14	140	10	55.97	559.500
15	150	10	56.00	559.850
16	160	10	56.01	560.050
17	170	10	56.02	560.150
18	180	10	52.14	540.800
19	190	10	14.42	332.800
20	200	10	11.76	130.900
21	210	10	6.50	91.300
Total Quantity in M3				8,373.850



Qutub

SHAH KALEEM DAM
Dam Embankment (Stone pitching D/S on slope)

S,No	Location	Distance	Area (sm)	Volume
1	10	0	3.53	0.000
2	20	10	4.49	40.100
3	30	10	6.8	56.450
4	40	10	8.71	77.550
5	50	10	11.69	102.000
6	60	10	15.05	133.700
7	70	10	15.51	152.800
8	80	10	15.62	155.650
9	90	10	15.66	156.400
10	100	10	15.14	154.000
11	110	10	14.03	145.850
12	120	10	14.12	140.750
13	130	10	14.12	141.200
14	140	10	14.14	141.300
15	150	10	14.14	141.400
16	160	10	14.15	141.450
17	170	10	12.8	134.750
18	180	10	11.59	121.950
19	190	10	7.16	93.750
20	200	10	4.96	60.600
21	210	10	2.25	36.050
22	220	10	0.99	16.200
Total Quantity in M3				2,343.900
Add U/S Stone pitching Quantity in M3				6,584.133
Net Total Quantity in M3				8,928.033

Dam Embankment (Stone pitching intake open channel slope)

S,No	Description	Length in M	Width in M	Depth in M	Quantiy in M3
1	intake open channel slope	16.61	6.85	0.6	68.267
Total Quantity in M3					68.267
Grand Total Quantity in M3					8,996.300



SHAH KALEEM DAM
Dam Embankment (Stone pitching U/S and D/S on Apron)

S,No	Location	Distance	Area (sqm)	Volume
1	20	0	1.55	0.000
2	30	10	1.52	15.350
3	40	10	1.54	15.300
4	50	10	1.5	15.200
5	60	10	2.38	19.400
6	70	10	2.63	25.050
7	80	10	2.96	27.950
8	90	10	2.47	27.150
9	100	10	2.43	24.500
10	110	10	2.4	24.150
11	120	10	2.6	25.000
12	130	10	2.42	25.100
13	140	10	2.41	24.150
14	150	10	2.42	24.150
15	160	10	2.42	24.200
16	170	10	2.41	24.150
17	180	10	2.41	24.100
18	190	10	1.49	19.500
Total Quantity in M3				384.400

Dam Embankment (Stone pitching intake open channel apron)

S,No	Description	Length in M	Width in M	Depth in M	Quantity in M3
1	intake open channel apron	24.7	6.85	0.6	101.517
Total Quantity in M3					101.517
Grand Total Quantity in M3					485.917



Signature

SHAH KALEEM DAM
Excavation for Slurry Trench through rotary drilling

S No.	Description	No	Length	width (m)	Depth(M)	Qty (M)
1	Boring	94.025			20	1881
2	Back Filling of Slurry Trench (Vertically)	94.025			20	1881

Drilling for grouting

S No.	Description	No	Length	width (m)	Depth(M)	Qty (M)
1	GROUTONG	30			20.00	600.00
2	CONSOLIDATION GROUTING	133			3.00	400.32
Total						1000

Cement for grouting

S No.	Description	No of Bags	width (m)	Depth(M)	Qty (Bags)
1	GROUTONG	1080			1080.00
2	CONSOLIDATION GROUTING	669.73536			669.74
Total					1750

Parapet wall

S No.	Description	No	Length	width (m)	Depth(M)	Qty (M)
1	Pcc 1:4:8	2	235.00	0.8	0.15	70.00
2	RRM Ratio 1:4	2	235.00	0.6	0.9	308.00
2	Pcc 1:2:4	2	235.00	0.600	0.10	47.60
3	Pointing L/S	4	235.00		0.9	897.84
	Pointing S/S	4		0.600	0.90	2.16
Total						900.00



SHAH KALEEM DAM
Spillway Cutting

S.No	Location	Distance	Area (sm)	Volume
	0	0	132.58	0.000
1	15	15	289.18	3,163.200
2	30	15	456.73	5,594.325
3	45	15	846.23	9,772.170
4	60	15	945.80	13,440.195
5	75	15	922.92	14,015.400
6	90	15	710.69	12,252.075
7	105	15	705.38	10,620.503
8	120	15	417.55	8,421.953
9	135	15	326.83	5,582.850
10	150	15	142.17	3,517.500
11	165	15	27.92	1,275.675
12	180	15	26.36	407.100
13	195	15	534.29	4,204.875
14	210	15	508.48	7,820.775
15	225	15	472.18	7,354.950
16	240	15	539.97	7,591.125
17	255	15	489.17	7,718.550
18	270	15	475.21	7,232.850
19	285	15	411.42	6,649.725
20	300	15	170.57	4,364.925
21	315	15	160.20	2,480.775
22	330	15	218.40	2,839.500
23	344.8	14.8	266.43	3,587.742
Total Quantity in M3				149,908.737

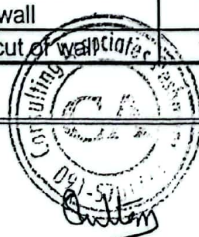
Backfilling

S.No	Description	No	Length in M	Width in M	Depth in M	Quantity in M3
1	Cut off wall	2	45.00	0.19	2.40	41.040
2	Side wall	2	79.85	1.00	3.50	558.950
Total Quantity in M3						599.990



SHAH KALEEM DAM
Spillway & Spillchannel (RCC 1:2:4)

S.No	Description	No	Length in M	Width in M	Depth in M	Quantity in M3
1	Cutt of wall concrete	1	48.35	0.45	2.40	52.218
2	Approch slab	1	6.00	48.35	0.60	174.060
3				Avg		
4	Approch slab Side wall	2	6.00	0.99	6.68	78.958
5	Cutt of wall concrete Ogee	1	48.35	0.60	5.02	145.630
6			Area given by AutoCAD			
7	Ogee left and right side wall	2	37.32	0.99		73.894
8	Chute and stilling basin left and Right wall	2	212.29	0.91		386.368
	Supprting wall L-S	1	5.00	0.30	6.68	10.020
	Supprting wall r-S	1	8.00	0.30	6.68	16.032
9						
10					Area given by AutoCAD	
11	Ogee	1		45.65	3.68	167.992
12	Chute L-S and R-S side wall					
13	slope	3	11.67	16.00	0.38	212.861
14	slope	3	9.87	16.00	0.38	180.029
15			Avg area			
16	Chute block	41	0.33		0.54	7.284
17					Area given by AutoCAD	
18	Buffle block	29	0.77		0.75	16.748
19					Area given by AutoCAD	
20	Stilling basin mid L-S and R-S Pannel	3	16.87		13.41	678.680
21	Stilling basin mid, L-S and R-S Pannel with cutt of wall	3	16.87		12.01	607.826
22						
23	Spillway side wall LHS bed	1	97.82	2.52	0.60	147.904
24					Area given by AutoCAD	
25	Spillway side wall LHS wall	1	96.23		1.86	178.988
26	End cut of wall	1	45.00	0.60	2.40	64.800
	Total Quantity in M3					3,200.290



SHAH KALEEM DAM
Spillway & Spillchannel

Stone Pitching

S.No	Description	No	Length in M	Width in M	Depth in M	Quantiy in M3
1	D/S	1	15	45.00	0.45	300.00
Total Quantity in M3						300.00

30 % Boulder 1:3:6

S.No	Description	No	Length in M	Width in M	Depth in M	Quantiy in M3
1	Exit channel	1	130.15	45.00	0.45	2,635.54
2	Exit channel	1	16.00	45.00	0.45	324.00
Total Quantity in M3						2,959.54

PCC 1:4:8

S.No	Description	No	Length in M	Width in M	Depth in M	Quantiy in M3
1	Cutt of wall lean concrete	1	49.00	0.45	0.10	2.21
2	Approch slab	1	48.35	6.00	0.10	29.01
3	Cutt of wall lean concrete Ogee	1	48.35	0.60	0.10	2.90
4	Ogee top	1	48.35	6.00	0.10	29.01
5	slope	1	23.65	49.00	0.10	115.89
6	Slope end	1	7.00	49.00	0.10	34.30
7	Stilling Basin	1	23.76	49.00	0.10	116.42
8	End cutt of wall	1	48.35	0.60	0.10	2.90
Total Quantity in M3						360.00

S.No	Description	No	Length in M	Width in M	Depth in M	Quantiy in M
1	Anchor bar	99			3.000	297.00
Total Quantity in M						297.00

S.No	Description	No	Length in M	Width in M	Depth in M	Quantiy in M
1	Perporated pipe long side	4	63.79			255.16
2	Perporated pipe long side	4	30.00			120.00
3	Perporated pipe short side	4	45.00			180.00
4	Perporated pipe short side	1	45.00			45.00
Total Quantity in M						600.16

S.No	Description	No	Length in M	Area in M2	Quantiy in M3
1	Clay filling	1	45.00	55.55	2,499.75
Total Quantity in M3					2,499.75



Qulter

SHAH KALEEM DAM
Intake, conduit and outlet (Excavation)

S.No	Location	Distance	Area (sm)	Volume
1	-30	0	4.55	0.000
2	-20	10	18.04	112.950
3	-10	10	10.64	143.400
4	0	10	6.36	85.000
5	10	10	10.61	84.850
6	17	7	6.00	58.135
7	31	14	13.47	136.290
8	40	9	17.36	138.735
9	50	10	14.56	159.600
10	60	10	24.20	193.800
11	70	10	3.94	140.700
12	81.72	11.72	0.70	27.190
Total Quantity in M3				1,280.650

Intake & Outlet Structure (PCC 1:4:8)

S.No	Description	Length in	Width in M	Depth in M	Volume
1	Intake structure	4	4.560	0.150	2.736
2	Conduit	90.00	1.430	0.150	19.305
3	outlet structure	8.30	2.410	0.150	3.00045
Total Quantity in M3					25.041

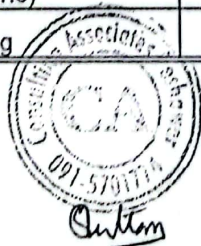


SHAH KALEEM DAM
Intake & Outlet Structure (RCC 1:2:4)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	Intake structure	1	3.16	2.91	0.3	2.76
2	Intake bed concrete	2	3.820	0.765	0.310	1.81
3	Intake bed concrete	1	3.160	4.410	0.310	4.32
4	Boom wall front and back	2	1.980	0.610	4.270	10.31
5	Side wall	2	1.980	0.610	4.270	10.31
6	trash rack	2	0.310	0.420	2.600	0.68
7	area					
8	side slope	2	0.630	2.800		3.53
9	Back pipe collar	1	1.520	0.310	1.520	0.72
10	Back pipe collar	1	1.830	1.830	0.460	1.54
11	Conduit	1	80.000	1.220	1.220	119.07
12	outlet structure bed	1	7.3	2.21	0.31	5.00
13	outlet structure left and right side wall long portion	2	5.180	0.310	2.820	9.06
14	outlet structure left and right side wall long portion (end)	2	2.140	0.310	1.250	1.66
15	outlet structure left and right side wall short portion	4	1.600	0.310	2.510	4.98
16	outlet structure left and right side wall short portion (end)	1	0.310	0.310	1.520	0.15
17	mid MS pipe base and top RCC	2	1.800	0.910	0.300	0.98
18	impact wall	1	1.600	0.340	0.910	0.50
19	Total Quantity in M3					177.37
20	Deduction					
21	trash rack	2	0.760	0.610	0.610	0.57
22	area					
23	RCC pipe	1	75.580		0.660	49.88
	Total Deduct Quantity in M3					50.45
	Net Total Quantity in M3					126.93

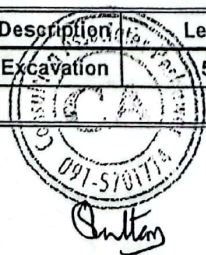
Detailed Quantity of RRM wall

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	Pcc (1:4:8) In bed	1	10.67	4.50	0.10	4.80
2	RRM (1:6)	1	10.67	0.79	2.14	18.03
3	Pointing	2	10.67		2.14	45.66



SHAH KALEEM DAM
Irrigation Channel (Excavation in Shingle Gravel Right side)

Irrigation Channel (Excavation in Shingle Gravel Right side)					
S,No	Location	Distance	Area (sm)	Volume	
1	0	0	2.250	0.000	
2	20	20	0.140	23.900	
3	40	20	0.000	1.400	
4	60	20	2.360	23.600	
5	80	20	2.880	52.400	
6	100	20	3.160	60.400	
7	120	20	0.350	35.100	
8	140	20	0.000	3.500	
9	160	20	0.000	0.000	
10	180	20	0.000	0.000	
11	200	20	0.000	0.000	
12	220	20	0.000	0.000	
13	240	20	2.350	23.500	
14	260	20	3.160	55.100	
15	280	20	3.590	67.500	
16	300	20	6.490	100.800	
17	320	20	1.940	84.300	
18	340	20	4.180	61.200	
19	360	20	2.540	67.200	
20	380	20	1.970	45.100	
21	400	20	4.530	65.000	
22	420	20	1.330	58.600	
23	440	20	0.300	16.300	
24	460	20	0.240	5.400	
25	480	20	0.000	2.400	
26	500	20	0.330	3.300	
27	520	20	2.020	23.500	
28	540	20	4.630	66.500	
29	560	20	1.460	60.900	
30	580	20	0.700	21.600	
31	600	20	0.920	16.200	
32	620	20	0.450	13.700	
33	640	20	0.300	7.500	
34	660	20	0.710	10.100	
35	680	20	7.580	82.900	
36	700	20	4.160	117.400	
37	720	20	1.390	55.500	
38	740	20	0.840	22.300	
39	760	20	0.460	13.000	
40	780	20	1.100	15.600	
41	800	20	0.800	19.000	
42	820	20	0.590	13.900	
43	840	20	0.000	5.900	
44	860	20	3.780	37.800	
45	880	20	1.510	52.900	
46	900	20	2.180	36.900	
47	920	20	2.020	42.000	
48	940	20	1.600	36.200	
49	960	20	0.420	20.200	
50	980	20	0.000	4.200	
51	1000	20	0.900	9.000	
52	1020	20	0.500	14.000	
53	1040	20	0.150	6.500	
			Total Quantity in M3		1,681.200
S,No	Description	Length	Width	Height	Volume
1	Excavation	554	1.83	2	2,026.21
Total Quantity in M3					2,026.21



SHAH KALEEM DAM
Irrigation Channel (Left side)

S.No	Location	Distance	Area (sm)	Volume
1	60	0	5.300	0.000
2	80	20	5.330	106.300
3	100	20	2.600	79.300
4	120	20	2.620	52.200
5	140	20	2.510	51.300
6	160	20	2.940	54.500
7	180	20	4.730	76.700
8	200	20	2.770	75.000
9	220	20	3.050	58.200
10	240	20	5.300	83.500
11	260	20	2.200	75.000
12	280	20	0.930	31.300
13	300	20	3.900	48.300
14	320	20	4.880	87.800
15	340	20	0.000	48.800
16	360	20	0.000	0.000
17	380	20	0.000	0.000
18	400	20	1.290	12.900
19	420	20	4.410	57.000
20	440	20	4.410	88.200
21	460	20	4.030	84.400
22	480	20	2.570	66.000
23	500	20	3.470	60.400
24	520	20	4.120	75.900
25	540	20	4.650	87.700
26	560	20	3.160	78.100
27	580	20	3.790	69.500
28	600	20	4.160	79.500
29	620	20	3.260	74.200
30	640	20	3.670	69.300
31	660	20	3.430	71.000
32	680	20	3.430	68.600
33	700	20	3.040	64.700
34	720	20	3.400	64.400
35	740	20	3.340	67.400
36	760	20	3.620	69.600
37	780	20	3.670	72.900
38	800	20	3.630	73.000
39	820	20	3.440	70.700
40	840	20	3.330	67.700
41	860	20	3.300	66.300
42	880	20	3.570	68.700
43	900	20	0.000	35.700
44	920	20	0.000	0.000
45	940	20	0.000	0.000
46	963	23	0.000	0.000
47	970	7	2.870	10.045
48	980	10	2.350	26.100
49	1000	20	2.980	53.300
50	1020	20	4.110	70.900
51	1040	20	0.000	41.100
52	1060	20	0.000	0.000
53	1080	20	2.400	24.000
54	1100	20	3.420	58.200
55	1120	20	0.000	34.200
56	1140	20	0.000	0.000
57	1160	20	0.000	0.000
58	1180	20	1.410	14.100
59	1200	20	0.000	14.100
60	1220	20	0.000	0.000
61	1240	20	0.000	0.000
62	1260	20	0.000	0.000
63	1280	20	1.930	19.300



SHAH KALEEM DAM
Irrigation Channel (Left side)

S,No	Location	Distance	Area (sm)	Volume
64	1300	20	1.360	32.900
65	1320	20	0.000	13.600
66	1340	20	0.000	0.000
67	1360	20	3.760	37.600
68	1380	20	0.750	45.100
69	1400	20	0.660	14.100
70	1420	20	0.000	6.600
71	1440	20	0.000	0.000
72	1460	20	4.350	43.500
73	1480	20	5.530	98.800
74	1500	20	0.800	63.300
75	1520	20	1.940	27.400
76	1540	20	5.750	76.900
77	1560	20	5.840	115.900
78	1585	25	5.250	138.625
79	1600	15	5.310	79.200
80	1620	20	5.100	104.100
81	1640	20	4.210	93.100
82	1660	20	3.290	75.000
83	1680	20	3.610	69.000
84	1700	20	3.630	72.400
85	1720	20	12.000	156.300
86	1740	20	19.800	318.000
87	1760	20	28.900	487.000
88	1780	20	3.290	321.900
89	1800	20	2.720	60.100
90	1820	20	2.630	53.500
91	1840	20	2.730	53.600
92	1860	20	2.750	54.800
93	1880	20	0.000	27.500
94	1900	20	2.670	26.700
95	1920	20	1.860	45.300
96	1940	20	4.540	64.000
97	1960	20	5.630	101.700
98	1980	20	6.210	118.400
99	2000	20	5.540	117.500
100	2020	20	4.760	103.000
101	2040	20	7.710	124.700
102	2060	20	7.740	154.500
103	2080	20	1.510	92.500
104	2100	20	0.390	19.000
105	2120	20	0.000	3.900
106	2140	20	0.000	0.000
107	2160	20	0.860	8.600
108	2180	20	14.260	151.200
109	2200	20	14.360	286.200
110	2220	20	14.030	283.900
111	2240	20	2.500	165.300
112	2260	20	0.000	25.000
113	2280	20	0.000	0.000
114	2300	20	0.000	0.000
115	2320	20	0.000	0.000
116	2340	20	0.000	0.000
117	2360	20	0.000	0.000
118	2380	20	0.000	0.000
119	2400	20	0.000	0.000
120	2420	20	0.000	0.000
121	2440	20	3.080	30.800
122	2460	20	2.340	54.200
123	2480	20	0.840	31.800
124	2500	20	2.250	30.900
125	2520	20	3.070	53.200
126	2540	20	3.100	61.700



SHAH KALEEM DAM
Irrigation Channel (Left side)

S.No	Location	Distance	Area (sm)	Volume
127	2560	20	1.720	48.200
128	2580	20	7.360	90.800
129	2600	20	9.540	169.000
130	2620	20	6.100	156.400
131	2640	20	6.050	121.500
132	2660	20	8.060	141.100
133	2680	20	4.520	125.800
134	2700	20	1.580	61.000
135	2720	20	4.150	57.300
136	2740	20	0.860	50.100
137	2760	20	1.590	24.500
138	2780	20	1.940	35.300
139	2800	20	2.230	41.700
140	2820	20	3.220	54.500
141	2840	20	3.350	65.700
142	2860	20	7.690	110.400
143	2880	20	11.080	187.700
144	2900	20	6.720	178.000
145	2920	20	4.100	108.200
146	2940	20	4.540	86.400
147	2960	20	1.630	61.700
148	2980	20	1.980	36.100
149	3000	20	0.850	28.300
Total Quantity in M3				9,990.870



SHAH KALEEM DAM
Irrigation Channel (Form work left side channel)

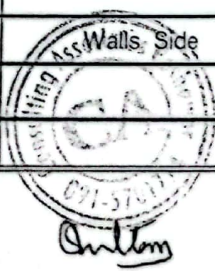
S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+060	4	60		1	240
2	0+060 to 0+210M	2.00	150		1	300.000
3	0+210 to 0+339M	4.00	129		1	516.000
4	0+339 to 0+375 Aqueduct					0.000
5	0+375 to 0+480	4.00	105		1	420.000
6	0+480 to 0+515M	2.00	35		1	70.000
7	0+515 to 0+540	2.00	25		1	50.000
8	0+540 to 0+911	4.00	371		1	904.602
9	0+911 to 0+947 Aqueduct				1	0.000
10	0+947 to 1+147	4.00	200		1	799.756
11	1+147 to 1+159 Truff				1	0.000
12	1+159 to 1+206 Deduct culvert 7m	4.00	40		1	97.531
13	1+206 to 1+269	4.00	63		2	504.000
14	1+206 to 1+269	4.00	63		1	252.000
15	1+269 to 1+290	4.00	21		1	84.000
16	1+269 to 1+290	4.00	21		1	84.000
17	1+206 to 1+290	4.00	84		1	336.000
18	1+290 to 1+570	4.00	280		1	682.719
19	1+570 to 1+810	4.00	240		1	960.000
20	Esc 40m	4.00	40		1	160.000
21	1+810 to 2+272	4.00	462		0.68	1256.640
22	2+272 to 2+344 PCC	4.00	72		0.76	218.880
23	2+344 to 2+430 Aqueduct					0.000
24	2+430 to 3+120	4.00	690		0.68	1876.800
Total Quantity in M2						9,812.928

Irrigation Channel (Form work Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+162	4.00	162		0.685	443.88
2	0+222 to 0+405	4.00	183		0.685	501.420
3	0+412.60 to 0+510	4.00	97		0.685	266.876
4	0+517.54 to 0+895.50	4.00	378		0.685	1035.720
5	0+902.90 to 1+046.00	4.00	143		0.685	392.094
6	Abbutment footing 1st step long side	10.00	1.52		0.99	15.048
7	Abbutment footing 1st step long side	10.00	1.22		0.99	12.078
8	Abbutment footing 2nd step long side	10.00	1.22		0.91	11.102
9	Abbutment footing 2nd step short side	10.00	1		0.91	5.460
Total Quantity in M2						2,683.678

Irrigation Channel (Form work Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	Walls Side	2x2	554		0.60957	1350.80712
Total Quantity in M2						1,350.807
Grand Total Quantity in M2						13,847.413



SHAH KALEEM DAM
Irrigation Channel (PCC 1:4:8 left side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+060	1	60	1.67	0.08	8.016
2	0+060 to 0+210M	1	150	1.67	0.08	20.040
3	0+210 to 0+339M deduct 6m bed	1	123	1.67	0.08	16.433
4	0+339 to 0+375 Aqueduct					
5	0+375 to 0+480	1	105	1.67	0.08	14.028
6	0+480 to 0+515M	1	35	1.67	0.08	4.676
7	0+515 to 0+540	1	25	1.67	0.08	3.340
8	0+540 to 0+911	1	371	1.67	0.08	49.566
9	0+911 to 0+947 Aqueduct					
10	0+947 to 1+147	1	200	1.67	0.08	26.720
11	1+147 to 1+159 Truff					0.000
12	1+159 to 1+206 Deduct culvert 7m	1	40	1.67	0.08	5.344
13	1+206 to 1+290	1	84	1.67	0.08	11.222
14	1+290 to 1+570	1	280	1.67	0.08	37.408
15	1+570 to 1+810	1	240	1.67	0.08	32.064
16	Esc 40m	1	40	1.67	0.08	5.344
17	1+810 to 2+272	1	462	1.52	0.08	56.179
18	2+272 to 2+344	1	72	1.52	0.08	8.755
19	2+344 to 2+430 Aqueduct					
20	2+430 to 3+120	1	690	1.52	0.08	83.904
Total Quantity in M3						383.039

Irrigation Channel (PCC 1:4:8 Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+134	1	134	1.37	0.10	18.358
2	0+222 to 0+405	1	183	1.37	0.10	25.071
3	0+412.60 to 0+510	1	97.4	1.37	0.10	13.344
4	0+517.54 to 0+895.50	1	393.23	1.37	0.10	53.873
5	0+902.90 to 1+046.00	1	146	1.37	0.10	20.002
6	Abbutment footing 1st step long side	5	1.67	1.37	0.10	1.144
Total Quantity in M3						131.791
Grand Total Quantity in M3						514.830



SHAH KALEEM DAM
Irrigation Channel (Plump 1:3:6 left side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+060	2	60	0.300	1	36.000
2	0+060 to 0+210M	2	150	0.300	1	90.000
3	0+210 to 0+339M	2	129	0.300	1	77.400
4	0+263 Abuttment U/S 1st step	1	1.5	0.600	0.6	0.540
5	0+263 Abuttment U/S 2nd step	1	1.5	0.450	0.6	0.405
6	0+263 Abuttment U/S 1st step wing wall R/s	1	4.5	0.600	0.6	1.620
7	0+263 Abuttment U/S 2nd step wing wall R/s	1	4.5	0.450	0.6	1.215
8	0+263 Abuttment U/S 1st step wing wall L/s	1	2.5	0.600	0.6	0.900
9	0+263 Abuttment D/S	1	1.5	0.600	0.6	0.540
10	0+263 Abuttment D/S 1st step wing wall R/s	1	2.5	0.600	0.6	0.900
11	0+263 Abuttment D/S 2nd step wing wall R/s	1	2.5	0.450	0.6	0.675
12	0+263 Abuttment D/S 1st step wing wall L/s	1	2	0.600	0.6	0.720
13	0+339 to 0+375 Aqueduct					
14	0+375 to 0+480	2	105	0.300	1	63.000
15	0+480 to 0+515M	2	35	0.300	1	21.000
16	0+515 to 0+540	2	25	0.300	1	15.000
17	0+540 to 0+911	2	371	0.300	1	222.600
18	0+911 to 0+947 Aqueduct					0.000
19	0+947 to 1+147	2	200	0.300	1	120.000
20	1+147 to 1+159 Truff					0.000
21	1+159 to 1+206 Deduct culvert 7m	2	40	0.300	1	24.000
22	1+206 to 1+269	2	63	0.600	2	151.200
23	1+206 to 1+269	2	63	0.450	1	56.700
24	1+269 to 1+290	2	22	0.450	1	19.800
25	1+206 to 1+290	2	84	0.300	1	50.400
26	1+290 to 1+570	2	280	0.300	1	168.000
27	1+570 to 1+810	2	240	0.300	1	144.000
28	Esc 40m	2	40	0.300	1	24.000
29	1+810 to 2+272	2	462	0.300	0.68	188.496
30	2+272 to 2+344 PCC 1:3:6					0.000
31	2+344 to 2+430 Aqueduct					
32	2+430 to 3+120	2	690	0.300	0.68	281.520
Total Quantity in M3						1,760.631

Irrigation Channel (Plump 1:3:6 Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+162	2	162	0.300	0.685	66.582
2	0+222 to 0+405	2	183	0.300	0.685	75.213
3	0+412.60 to 0+510	2	97.4	0.300	0.685	40.031
4	0+517.54 to 0+895.50	2	378	0.300	0.685	155.358
5	0+902.90 to 1+046.00	2	143.1	0.300	0.685	58.814
6	Abbutment footing 1st step	5	1.52	1.220	0.99	9.179
9	Abbutment footing 2nd step	5	1.22	0.600	0.91	3.331
Total Quantity in M3						408.508
Grand Total Quantity in M3						2,169.139



SHAH KALEEM DAM
Irrigation Channel (Bed 1:3:6 left side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+060	1	60	0.760	0.08	3.648
2	0+060 to 0+210M	1	150	0.760	0.08	9.120
3	0+210 to 0+339M deduct 6m	1	123	0.760	0.08	7.478
4	0+339 to 0+375 Aqueduct					
5	0+375 to 0+480	1	105	0.760	0.08	6.384
6	0+480 to 0+515M	1	35	0.760	0.08	2.128
7	0+515 to 0+540	1	25	0.760	0.08	1.520
8	0+540 to 0+911	1	371	0.760	0.08	22.557
9	0+911 to 0+947 Aqueduct					
10	0+947 to 1+147	1	200	0.760	0.08	12.160
11	1+147 to 1+159 Truff				0.08	0.000
12	1+159 to 1+206 Deduct	1	40	0.760	0.08	2.432
13	1+206 to 1+290	1	84	0.760	0.08	5.107
14	1+290 to 1+570	1	280	0.760	0.08	17.024
15	1+570 to 1+810	1	240	0.760	0.08	14.592
16	Esc 40m	1	40	0.760	0.08	2.432
17	1+810 to 2+272	1	462	0.600	0.08	22.176
18	2+272 to 2+344 PCC 1:3:6	1	72	0.600	0.15	6.480
19	2+272 to 2+344 PCC 1:3:6	2	72	0.220	0.76	24.077
20	2+344 to 2+430 Aqueduct					
21	2+430 to 3+120	1	690	0.600	0.08	33.120
Total Quantity in M3						192.435

Irrigation Channel (Bed 1:3:6 Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	0+000 to 0+134	1	134	1.370	0.075	18.358
2	0+222 to 0+405	1	183	1.370	0.075	25.071
3	0+412.60 to 0+510	1	97.4	1.370	0.075	13.344
4	0+517.54 to 0+895.50	1	378	1.370	0.075	51.786
5	0+902.90 to 1+046.00	1	143.1	1.370	0.075	19.605
Total Quantity in M3						128.164

Irrigation Channel (Bed 1:3:6 Right side channel)

S.No	Description	No	Length in M	Width in M	Depth in M	Volume
1	in channel Bed	1	564	0.89	0.11	57.369
2	in wall	2	554	0.23	0.61	154.390
Total Quantity in M3						211.759
Grand Total Quantity in M3						532.358



SHAH KALEEM DAM
Detail Quantity of PIPE Outlets

S. No.	Description	Unit	Nos.	Length (m)	Width (m)	Height (m)	Quantity
1	Excavation in Foundation of Building, bridges etc complete in shingle/gravel						
	Excavation for wall	m3	1	2.13	0.91	1.52	2.97
	Excavation for pipe outlet	m3	1	2.74	1.07	1.22	3.57
	Excavation for tank bed	m3	1	1.30	1.83	0.76	1.80
	TOTAL						8.35
2	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)						
	In wall foundation	m3	1	1.83	0.76	0.15	0.21
	pipe outlet bed	m3	1	2.74	0.86	0.10	0.24
	tank bed	m3	1	1.30	1.68	0.15	0.33
	TOTAL						0.77
	in wall step 1	m3	1.00	1.52	0.46	0.61	0.42
	in wall step 2	m3	1.00	1.52	0.57	1.27	1.10
	outer wall	m3	2.00	1.22	0.07	1.22	0.21
	front wall	m3	2.00	1.22	0.07	1.22	0.21
	TOTAL						1.95
3	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4)						
	RCC Cover for Tank	m3	1.00	1.30	1.30	0.08	0.13
	TOTAL						0.13
4	Reinforced Concrete Pipe Culvert (AASHTO M-170) Dia: 760mm	m	1	3.66			3.66
	TOTAL						3.66
5	Providing and Laying stone pitching with hammer dressed stones on surface, laid in courses						
	stone pitching	m ³	1.00	1.07	1.07	1.07	1.22
	TOTAL						1.22



SHAH KALEEM DAM
Detail Quantity of Pipe Culvert

S. No.	Description	Nos.	Length	Width	Height	Quantity
1	Excavation in Foundation of Building, bridges etc complete in shingle/gravel					
	Abutment	1	4.26	1.61	0.50	3.43
	Wing wall	4	1.95	1.22	0.50	4.76
	Total					8.19
2	P.C.C including, compacting, finishing and curing ratio (1:4:8)					
	Abutment	1	4.26	1.61	0.25	1.71
	Wing wall	4	1.95	1.2	0.25	2.38
	Total					4.09
3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)					
	Abutment (around Pipe)	1	4.26	1.3	1.2	6.65
	Total					6.65
	deduction of Pipe	1	4.26	0.453		1.93
	Sub Total					4.71
4	RCC in roof slab, beam, column & other structural members, insitu or precast. Type C (1:2:4)					
	Wing wall Step 1	4	2	1.2	0.35	3.36
	Wing wall Step 2	4	1.95	0.25	1.19	2.32
	Parapet	2	1.3	0.48	0.3	0.37
	Total					6.05



SHAH KALEEM DAM

Detail Quantity of tail Cluster with two Outlets

S. No.	Description	Unit	Nos.	Length(m)	Width(m)	Height (m)	Quantity
1	Excavation in Foundation of Building, bridges etc complete in shingle/gravel						
	Excavation in foundation step 1	m3	1	3.05	2.13	0.61	3.96
	Excavation in foundation step 2	m3	1	4.27	2.13	0.61	5.55
TOTAL							9.51
2	P.C.C including, compacting, finishing and curing ratio (1:2:4)						
	step 1 in bed	m3	1	2.44	1.83	0.08	0.34
	step 2 in bed	m3	1	3.66	1.83	0.08	0.51
	side wall step 1	m3	2	5.79	0.46	0.25	5.29
	side wall step 2	m3	2	5.79	0.07	0.61	0.81
TOTAL							6.95
	in bed	m2	2.00	5.79	0.30	0.11	0.40
TOTAL							0.40



SHAH KALEEM DAM
Detailed Quantity of Fall

S. No.	Description	Unit	Nos.	Length	Width	H/Thickness	Quantity
1	Excavation in Foundation of Building, bridges etc complete in shingle/gravel						
	Fall structure	m ³	1	20.00	3.32	1.68	111.31
	cut of wall	m ³	1	1.72	0.76	1.52	2.00
	TOTAL						113.31
2	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:4:8)						
	in bed	m ³	1	20.00	3.32	0.23	15.18
	cut of wall bed	m ³	1	1.72	0.76	0.23	0.30
	TOTAL						15.48
3	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:3:6)						
	side wall on section B-B						
	1st Step	m ³	2	20.00	0.65	0.30	7.92
	2nd Step	m ³	2	20.00	0.53	0.61	12.92
	3rd Step	m ³	2	10.00	0.42	0.61	5.12
	4th Step	m ³	2	10.00	0.30	0.61	3.66
	cut of wall						
	1st Step	m ³	1	1.72	0.53	0.61	0.56
	2nd Step	m ³	1	1.72	0.42	0.61	0.44
	3rd Step	m ³	1	1.72	0.30	0.61	0.31
	TOTAL						30.94
4	Plain Cement Concrete including placing, compacting, finishing & curing (Ratio 1:2:4)						
	in bed	m ³	1	20.00	1.72	0.11	3.93
	TOTAL						3.93
5	Supplying and Fixing PVC Water Stopper 8" wide 3/8" thick						
	Water Stopper	m	2	20.00			40.00
	Water Stopper	m	1	1.68			1.68
	Water Stopper	m	1	1.72			1.72
	Total:						43.40



SHAH KALEEM DAM
Supper Passage (2 Nos)

S.No	Description	No	Length	width	Height	Quantity
1	Excavation For supper passage	2	6.40	2.44	1.30	40.58
	Excavation For Wing wall	8	0.91	0.76	1.30	7.25
	Excavation For Cutoff wall	4	6.40	0.23	0.30	1.78
	Total					49.61
2	Pcc (1:4:8) in Bed	2	6.40	2.44	0.15	4.68
	Pcc (1:4:8) in Wing wall Bed	8	0.91	0.76	0.15	0.84
	Pcc (1:4:8) Up/D Stream	4	6.40	0.91	0.15	3.51
	Total					9.03
4	Pcc (1:2:4) in Side wall	4	6.40	0.69	0.91	16.05
	Pcc (1:2:4) in Wing wall	16	0.91	0.69	0.91	9.17
	Total					25.23
5	Formwork in Side wall	4	6.40		0.91	23.41
	Pcc (1:2:4) in Wing wall	16	0.91		0.91	13.38
	Total					36.79
5	Plaster on Side wall	8	1.20		2.00	19.20
	Plaster Wing wall	64	1.20		2.00	153.60
	Total					
6	Rcc (1:2:4) in slab	2	3.96	6.40	0.23	11.41
	in Parapet wall	4	3.96	0.15	0.91	2.21
	in Cutoff wall	4	6.40	0.23	0.30	1.73
	Total					15.35
4	Pcc (1:3:6) in bed	2	6.40	0.91	0.15	1.78
	Total					1.78
4	Stone Apron	4	6.40	3.05	0.23	17.84
	Stone Apron in cutoff wall	4	6.40	0.30	0.46	3.57
	Total					21.40
7	Steel					
S.No	Description	Dia	No	Length	T.Length	W.kg
1	Main Bar @228mm C/C	12	18.33	6.40	234.68	0.89
2	Distribution Bar @300mm C/C	12	22.00	3.96	174.34	0.89
3	Side wall V/ Bar @200mm C/C	12	5.55	3.96	87.89	0.89
4	Side wall H/ Bar @300mm C/C	12	20.70	0.91	75.70	0.89
	Total Length				572.61	
	Total Weight in Tonne				0.50848	



SHAH KALEEM DAM

Culvert (4 Nos)

S.No	Description	No	Length	width	Height	Quantity
1	Excavation For Culvert	4	7	1.80	1.00	50.40
	Excavation For Wing wall	16	1.2	1.05	1.00	20.16
					Total	70.56
2	Pcc (1:4:8) in Bed	4	7	1.80	0.15	7.56
	Pcc (1:4:8) in Wing wall Bed	16	1.2	1.05	0.15	3.02
					Total	10.58
3	RRM in Side wall Step -1	8	7	0.30	1.00	16.80
	RRM (1:6) in Parapet wall	8	1.80	0.30	0.45	1.94
	RRM (1:6) in Wing wall Step -1	16	1.2	0.75	0.40	5.76
	RRM (1:6) in wall Step -2	16	1.2	0.60	0.40	4.61
	RRM (1:6) in wall Step -3	16	1.2	0.46	0.30	2.65
					Total	31.76
4	Pointing For Side wall	8	7		1.00	56.00
	Pointing For Side wall	16	1.2		1.10	21.12
					Total	77.12
5	Rcc (1:2:4) in slab (Top & Bottom)	8	7	1.60	0.23	20.16
					Total	20.16
6	Steel					
S.No	Description	Dia	No	Length	T.Length	W.kg
1	Main Bar @100mm C/C	12	10.33	1.60	132.27	0.89
2	Distribution Bar @150mm C/C	12	2.60	7.00	145.60	0.89
				Total Length	277.9	
				Total Weight in Tonne	0.277867	



SHAH KALEEM DAM

Detailed Quantity of Aqueduct length m 60.00

S. No	Description	Unit	Nos.	Length(m)	Width(m)	Height (m)	Quantity
1	Excavation for Pedestal Foundation	m ³	2	3.60	3.60	2.23	57.67
	Excavation for column foundation (center)	m ³	5	3.30	3.30	3.13	170.16
	Total						227.8
2	Pcc (1:4:8) In Pedestal bed	m ³	2	2.40	2.40	0.75	8.64
	Pcc (1:4:8) In column bed	m ³	5	2.10	2.10	0.75	16.54
	Total						25.18
	Rcc (1:2:4) in Pedestal footing	m ³	2	2.10	2.10	0.60	5.29
	Rcc (1:2:4) in column footing	m ³	5	1.80	1.80	0.60	9.72
	Total						15.01
	Rcc (1:2:4) in Pedestal	m ³	2	0.60	0.60	3.75	2.70
	Rcc (1:2:4) in Column (center)	m ³	5		0.28	4.82	6.81
3	Rcc (1:2:4) in Column Transom (Trapezoidal Portion)	m ³	5	0.90	0.60	0.65	1.76
	Rcc (1:2:4) in Slab	m ³	1	60.00	1.20	0.20	14.40
	Rcc (1:2:4) in side wall	m ³	2	60.00	0.23	0.60	16.20
	Total						41.87
4	Steel @ 1% kg per CUM	Tonne					4.46
5	Stone Pitching On level	m ³	5	3.30	3.30	0.30	
	Deduction of column	m ³	5	0.28	-	0.30	-
	Total						-
6	Back filling (for Pedestal)	m ³	2	3.60	3.60	0.57	14.78
	Back filling (for column)	m ³	5	3.30	2.10	1.78	61.50
	Total						76.28

Detailed Quantity of Aqueduct length m 38.00

S. No	Description	Unit	Nos.	Length(m)	Width(m)	Height (m)	Quantity
1	Excavation for Pedestal Foundation	m ³	2	3.60	3.60	2.23	57.67
	Excavation for column foundation (center)	m ³	3	3.30	3.30	3.13	102.09
	Total						159.8
2	Pcc (1:4:8) In Pedestal bed	m ³	2	2.40	2.40	0.75	8.64
	Pcc (1:4:8) In column bed	m ³	3	2.10	2.10	0.75	9.92
	Total						18.56
	Rcc (1:2:4) in Pedestal footing	m ³	2	2.10	2.10	0.60	5.29
	Rcc (1:2:4) in column footing	m ³	3	1.80	1.80	0.60	5.83
	Total						11.12
	Rcc (1:2:4) in Pedestal	m ³	2	0.60	0.60	2.65	1.91
	Rcc (1:2:4) in Column (center)	m ³	3		0.28	4.75	4.03
3	Rcc (1:2:4) in Column Transom (Trapezoidal Portion)	m ³	3	0.90	0.60	0.65	1.05
	Rcc (1:2:4) in Slab	m ³	1	38.00	1.20	0.20	9.12
	Rcc (1:2:4) in side wall	m ³	2	38.00	0.23	0.60	10.26
	Total						26.37
4	Steel @ 1% kg per CUM	Tonne					2.94
5	Stone Pitching On level	m ³	3	3.30	3.30	0.30	
	Deduction of column	m ³	3	0.28	-	0.30	-
	Total						-
6	Back filling (for Pedestal)	m ³	2	3.60	3.60	0.57	14.78
	Back filling (for column)	m ³	3	3.30	2.10	1.78	36.90
	Total						51.68

SHAH KALEEM DAM
Detailed Quantity of Aqueduct length m 36.00

S. No	Description	Unit	Nos.	Length(m)	Width(m)	Height (m)	Quantity
1	Excavation for Pedestal Foundation	m ³	2	3.60	3.60	2.23	57.67
	Excavation for column foundation (center)	m ³	3	3.30	3.30	3.75	122.51
	Total						180.2
2	Pcc (1:4:8) In Pedestal bed	m ³	2	2.40	2.40	0.75	8.64
	Pcc (1:4:8) In column bed	m ³	3	2.10	2.10	0.75	9.92
	Total						18.56
	Rcc (1:2:4) in Pedestal footing	m ³	2	2.10	2.10	0.60	5.29
	Rcc (1:2:4) in column footing	m ³	3	1.80	1.80	0.60	5.83
	Total						11.12
	Rcc (1:2:4) in Pedestal	m ³	2	0.60	0.60	3.25	2.34
	Rcc (1:2:4) in Column (center)	m ³	3		0.28	4.30	3.65
3	Rcc (1:2:4) in Column Transom (Trapezoidal Portion)	m ³	3	0.90	0.60	0.65	1.05
	Rcc (1:2:4) in Slab	m ³	1	36.00	1.20	0.20	8.64
	Rcc (1:2:4) in side wall	m ³	2	36.00	0.23	0.60	9.72
	Total						25.40
4	Steel @ 1% kg per CUM	Tonne					2.87
5	Stone Pitching On level	m ³	3	3.30	3.30	0.30	
	Deduction of column	m ³	3	0.28	-	0.30	-
	Total						-
6	Back filling (for Pedestal)	m ³	2	3.60	3.60	0.57	14.78
	Back filling (for column)	m ³	3	3.30	2.10	2.40	49.90
	Total						64.68



Buttom

SHAH KALEEM DAM

Chokidar Hut/Building Detail					
1. Excavation in foundation					
Description	No	Length (ft)	Depth (ft)	Width (ft)	Quantity (cft)
Lounge Long Wall	4	21.00	2.25	2	378.00
Lounge Short Wall	4	17.00	2.25	2	306.00
Servant Long wall-1	2	13.25	2.25	2	119.25
Servant Long wall-2	2	3.66	2.25	2	32.94
Servant Short wall	4	8.50	2.25	2	153.00
Servant Toilet Long wall	2	6.75	2.25	2	60.75
Servant Toilet Short wall	2	2.50	2.25	2	22.50
Bath Long wall -1	4	13.00	2.25	2	234.00
Bath Long wall -2	2	4.66	2.25	2	41.94
Bath Short wall	2	4.50	2.25	2	40.50
Bed Center wall	1	17.00	2.25	2	76.50
Bed Back side wall	1	23.25	2.25	2	104.63
Bed Front side wall	1	20.50	2.25	2	92.25
Lobby Front wall	1	7.16	2.25	2	32.22
Total (1):					1694.48 cft 47.99 m3
2. PCC (1:4:8) in foundation					
Description	No	Length (ft)	Depth (ft)	Width (ft)	Quantity (cft)
Lounge Long Wall	4	21.00	2.25	0.5	94.50
Lounge Short Wall	4	17.00	2.25	0.5	76.50
Servant Long wall-1	2	13.25	2.25	0.5	29.81
Servant Long wall-2	2	3.66	2.25	0.5	8.24
Servant Short wall	4	8.50	2.25	0.5	38.25
Servant Toilet Long wall	2	6.75	2.25	0.5	15.19
Servant Toilet Short wall	2	2.50	2.25	0.5	5.63
Bath Long wall -1	4	13.00	2.25	0.5	58.50
Bath Long wall -2	2	4.66	2.25	0.5	10.49
Bath Short wall	2	4.50	2.25	0.5	10.13
Bed Center wall	1	17.00	2.25	0.5	19.13
Bed Back side wall	1	23.25	2.25	0.5	26.16
Bed Front side wall	1	20.50	2.25	0.5	23.06
Lobby Front wall	1	7.16	2.25	0.5	8.06
Podim footing	1	19.00	3.25	0.33	20.38
Total (2):					444.00 cft 12.57 m3



Chokidar Hut/Building Detail					
3. BB work in CSM (1:6) in Plinth					
Description	No	Length (ft)	Depth (ft)	Width (ft)	Quantity (cft)
Lounge Long Wall step-1	4	20.25	1.50	0.5	60.75
Lounge Long Wall step-2	4	19.88	1.13	0.5	44.72
Lounge Long Wall step-3	4	19.50	0.75	0.5	29.25
Lounge Short Wall Step-1	4	16.25	1.50	0.5	48.75
Lounge Short Wall Step-2	4	15.88	1.13	0.5	35.72
Lounge Short Wall Step-3	4	15.50	0.75	0.5	23.25
Servant Long wall-1 step-1	2	12.50	1.50	0.5	18.75
Servant Long wall-1 step-2	2	12.13	1.13	0.5	13.64
Servant Long wall-1 step-3	2	11.75	0.75	0.5	8.81
Servant Long wall-2 step-1	2	3.66	1.50	0.5	5.49
Servant Long wall-2 step-2	2	3.66	1.13	0.5	4.12
Servant Long wall-2 step-3	2	3.66	0.75	0.5	2.75
Servant Short wall step-1	4	9.25	1.50	0.5	27.75
Servant Short wall step-2	4	9.63	1.13	0.5	21.66
Servant Short wall step-3	4	10.00	0.75	0.5	15.00
Servant Toilet Long wall step-1	2	6.75	1.50	0.5	10.13
Servant Toilet Long wall step-2	2	6.75	1.13	0.5	7.59
Servant Toilet Long wall step-3	2	6.75	0.75	0.5	5.06
Servant Toilet Short wall step-1	2	3.25	1.50	0.5	4.88
Servant Toilet Short wall step-2	2	3.63	1.13	0.5	4.08
Servant Toilet Short wall step-3	2	4.00	0.75	0.5	3.00
Bath Long wall -1 step-1	4	12.25	1.50	0.5	36.75
Bath Long wall -1 step-2	4	11.88	1.13	0.5	26.72
Bath Long wall -1 step-3	4	11.50	0.75	0.5	17.25
Bath Long wall -2 step-1	2	4.66	1.50	0.5	6.99
Bath Long wall -2 step-2	2	4.66	1.13	0.5	5.24
Bath Long wall -2 step-3	2	4.66	0.75	0.5	3.50
Bath Short wall step-1	2	5.25	1.50	0.5	7.88
Bath Short wall step-2	2	5.63	1.13	0.5	6.33
Bath Short wall step-3	2	6.00	0.75	0.5	4.50
Bed Center wall step-1	1	16.25	1.50	0.5	12.19
Bed Center wall step-2	1	15.88	1.13	0.5	8.93
Bed Center wall step-3	1	15.50	0.75	0.5	5.81
Bed Back side wall step-1	1	24.00	1.50	0.5	18.00
Bed Back side wall step-2	1	24.38	1.13	0.5	13.71
Bed Back side wall step-3	1	24.75	0.75	0.5	9.28
Bed Front side wall step-1	1	21.25	1.50	0.5	15.94
Bed Front side wall step-2	1	21.63	1.13	0.5	12.16
Bed Front side wall step-3	1	22.00	0.75	0.5	8.25
Lobby Front wall step-1	1	7.91	1.50	0.5	5.93
Lobby Front wall step-2	1	8.29	1.13	0.5	4.66
Lobby Front wall step-3	1	8.66	0.75	0.5	3.25
Podim footing step-1	1	19.00	2.75	1	52.25
Podim footing step-2	1	19.00	1.75	0.5	16.63
Podim footing step-3	1	19.00	0.75	0.5	7.13
S.Total:					704.40 cft
Total (3):					19.95 m3

SHAH KALEEM DAM

Chokidar Hut/Building Detail					
4. 2" thick DPC of PCC (1:2:4)					
Description	No	Length (ft)		Width (ft)	Quantity (sft)
Lounge Long Wall step-3	4	19.50		0.75	58.50
Lounge Short Wall Step-3	4	15.50		0.75	46.50
Servant Long wall-1 step-3	2	11.75		0.75	17.62
Servant Long wall-2 step-3	2	3.66		0.75	5.49
Servant Short wall step-3	4	10.00		0.75	30.00
Servant Toilet Long wall step-3	2	6.75		0.75	10.13
Servant Toilet Short wall step-3	2	4.00		0.75	6.00
Bath Long wall -1 step-3	4	11.50		0.75	34.50
Bath Short wall step-3	2	6.00		0.75	9.00
Bed Center wall step-3	1	15.50		0.75	11.63
Bed Back side wall step-3	1	24.75		0.75	18.56
Bed Front side wall step-3	1	22.00		0.75	16.50
Lobby Front wall step-3	1	8.66		0.75	6.50
Podim footing step-3	1	19.00		0.75	14.25
Total (4):					285.17 sft
					26.50 m2
3. BB work in CSM (1:4) in Ground Floor					
Description	No	Length (ft)	Depth (ft)	Width (ft)	Quantity (cft)
Lounge Long Wall	4	19.50	0.750	11	643.50
Lounge Short Wall	4	15.50	0.750	11	511.50
Servant Long wall-1	2	11.75	0.750	11	193.88
Servant Long wall-2	2	3.66	0.750	11	60.39
Servant Short wall	4	10.00	0.750	11	330.00
Servant Toilet Long wall	2	6.75	0.750	11	111.38
Servant Toilet Short wall	2	4.00	0.750	11	66.00
Bath Long wall -1	4	11.50	0.750	11	379.50
Bath Short wall	2	6.00	0.750	11	99.00
Bed Center wall	1	15.50	0.750	11	127.88
Bed Back side wall	1	24.75	0.750	11	204.19
Bed Front side wall	1	22.00	0.750	11	181.50
Lobby Front wall	1	8.66	0.750	11	71.45
Podim footing	1	19.00	0.750	11	156.75
S.Total:					3136.90 cft



SHAH KALEEM DAM

Chokidar Hut/Building Detail

Deduction					
D-1	2	4	0.75	7	42.00
D-2	2	3.5	0.75	7	36.75
D-3	2	3.25	0.75	7	34.13
D-4	2	3	0.75	7	31.50
D-5	4	2.5	0.75	7	52.50
DW1	1	7	0.75	7	36.75
W1	2	8	0.75	6	72.00
W-2	4	6	0.75	6	108.00
W-3	1	6	0.75	3.5	15.75
W-4	4	4	0.75	4.5	54.00
W-5	4	2.5	0.75	4.5	33.75
Lintels D-1	2	5	0.75	0.75	5.63
D-2	2	4.5	0.75	0.75	5.06
D-3	2	4.25	0.75	0.75	4.78
D-4	2	4	0.75	0.75	4.50
D-5	4	3.5	0.75	0.75	7.88
DW1	1	8.75	1	0.75	6.56
W1	2	9	1.5	0.75	20.25
W-2	4	7	0.75	0.75	15.75
W-3	1	4.5	0.75	0.75	2.53
W-4	4	5	0.75	0.75	11.25
W-5	4	3.5	0.75	0.75	7.88

S.Total: 609.19 cft

Total (3): 2527.71 cft
71.59 m3

3. RCC (1:2:4)

Description	No	Length (ft)	Depth (ft)	Width (ft)	Quantity (cft)
Slab	1	2153.50		0.42	904.47
car porch	1	330.51		0.42	138.82
Prapet wall	1	218.00	1.7	0.25	90.47
Lintels D-1	2	5	0.75	0.75	5.63
D-2	2	4.5	0.75	0.75	5.06
D-3	2	4.25	0.75	0.75	4.78
D-4	2	4	0.75	0.75	4.50
D-5	4	3.5	0.75	0.75	7.88
DW1	1	8.75	1	0.75	6.56
W1	2	9	1.5	0.75	20.25
W-2	4	7	0.75	0.75	15.75
W-3	1	5	0.75	0.75	2.81
W-4	4	5	0.75	0.75	11.25
W-5	4	3.5	0.75	0.75	7.88
B-1	1	16.83	1.16	1	19.52
B-2	2	19.83	1.16	1	46.01
B-3	1	24.83	2.58	0.75	48.11
B-4	1	16.83	1.16	1	19.52

Total (3): 1359.26 cft
38.49 m3

SHAH KALEEM DAM

Chokidar Hut/Building Detail

6. First class deodar wood wrought joinery in doors and windows etc. complete : 1.5" thick

Description	No.	Width (ft)	Height (ft)	Quantity (sft)
D-1	2	4	7	56
D-2	2	3.5	7	49
D-3	2	3.25	7	45.5
D-4	2	3	7	42
D-5	4	2.5	7	70
DW1	1	7	7	49
Total (6):				311.50 sft
				28.95 m2

7. P/Fwood Windows

Description	No.	Width (ft)	Height (ft)	Quantity (sft)
W1	2	8	6	96.00
W-2	4	6	6	144.00
W-3	1	4	3.5	14.00
W-4	4	4	4.5	72.00
W-5	4	2.5	3	30.00
Total (7):				356.00 sft
				33.09 m2

8. Provide & fix chowkat for doors, windows & CS windows, including holdfast etc : Deodar wood

Description (10"2.5")	No.	Length (ft)	Width (ft)	Quantity (ft)
D-1	2	22		44
D-2	2	21		42
D-3	2	20.5		41
D-4	2	20		40
D-5	4	19		76
DW1	1	28		28
W1	2	28		56
W-2	4	24		96
W-3	1	15		15
W-4	4	17		68
W-5	4	11		44
Total (8): ft				550.00 ft
Total (8): m				167.63 m



Chokidar Hut/Building Detail					
9 11. PCC (1:4:8) under Floor					
Description	No	Length (ft)	Width (ft)	Depth (ft)	Quantity (cft)
Lunch/Din	2	252		0.33	166.32
servent/Kth	2	149		0.33	98.34
Bed	2	178		0.33	117.48
Bath	2	58		0.33	38.28
Lobby	1	230		0.33	75.90
Podium	1	59		0.33	19.47
Lobby	1	41	6	0.33	81.18
Total (11):					596.97 cft 16.91 m3
10. Supplying and filling sand under floor or plugging in wells					
Description	No	area (sft)	Depth (ft)	Quantity (sft)	
Lunch/Din	2	252	0.25	126.00	
servent/Kth	2	149	0.25	74.50	
Bed	2	178	0.25	89.00	
Bath	2	58	0.25	29.00	
Lobby	1	230	0.25	57.50	
Podium	1	59	0.25	14.75	
Total (10):					390.75 cft 11.07 m3
11. Earth filling under floor					
Description	No	area sft	Depth (ft)	Quantity (cft)	
Lunch/Din	2	252	1.25	630.00	
servent/Kth	2	149	1.25	372.50	
Bed	2	178	1.25	445.00	
Bath	2	58	1.25	145.00	
Lobby	1	230	1.25	287.50	
Podium	1	59	1.25	73.75	
Total (11):					1953.75 cft 55.32 m3
12. Topping Concret PCC (1:2:4)					
Description	No	Length (ft)	Width (ft)	Depth (ft)	Quantity (cft)
Lunch/Din	2	252			504.00
servent/Kth	2	149			298.00
Bed	2	178			356.00
Bath	2	58			116.00
Lobby	1	230			230.00
Podium	1	59			59.00
Total (12):					1563.00sft 145.26 m2
Providing and Fixing marble strip 1.5 inch wide 3/8 inch thick for dividing the floor into panels					
Description	No	Length (ft)	Width (ft)	Depth (ft)	Quantity (cft)
Bath	2	63			126.00
servent/Kth	2	116			232.00
Bed	2	142			284.00
Lunch/Din	2	220			440.00
Lobby	1	17.33			182.50
Podium	1	59.25			59.25
Total (13):					1323.75 ft 403.46 m

SHAH KALEEM DAM

Chokidar Hut/Building Detail					
14. Plaster in CS mortar (1:4) 1/2 " thick					
Description	Side	No.	Length (ft)	Height (ft)	Quantity (sft)
Lounge Long Wall	2	4	19.50	11	1716
Lounge Short Wall	2	4	15.50	11	1364
Servant Long wall-1	2	2	11.75	11	517
Servant Long wall-2	2	2	3.66	11	161
Servant Short wall	2	2	10.00	11	440
Servant Toilet Long wall	2	2	6.75	11	297
Servant Toilet Short wall	2	2	4.00	11	176
Bath Long wall -1	2	2	11.50	11	506
Bath Short wall	2	2	6.00	11	264
Bed Center wall	2	1	15.50	11	341
Bed Back side wall	2	1	24.75	11	545
Bed Front side wall	2	1	22.00	11	484
Lobby Front wall	2	1	8.66	11	191
Total (17):					7001.06 sft
Deduction					
D-1	2	2	4	7	112
D-2	2	2	3.5	7	98
D-3	2	2	3.25	7	91
D-4	1	2	3	7	42
D-5	4	2	2.5	7	140
DW1	2	1	7	7	98
W1	2	2	8	6	192
W-2	4	2	6	6	288
W-3	1	1	4	3.5	14
W-4	4	2	4	4.5	144
W-5	4	2	2.5	4.5	90
S.Total:					1309.00 sft
For one Floor Total (26):					5692.06 sft
					529.00 m2
Seeling	1	2493			2493.00
For one Floor Total (29):					2493.00 sft
					231.69 m2



SHAH KALEEM DAM

Chokidar Hut/Building Detail					
16. Whit Washing or Distmpring					
As per item No.15		8185.06		8185.06	
				8185.06 m2	
S.Total:					760.69 m2
17. Cement Pointing struck joints in 1:2 CSM					
Description	Side	No.	Length (ft)	Height (ft)	Quantity (sft)
External length	1	1	193	11	2123
S.Total:					2123.00 sft
Deduction					
W1	1	2	8	6	96
W-2	1	4	6	6	144
W-4	1	4	4	4.5	72
W-5	1	4	2.5	4.5	45
					357.00 sft
For one floor Total (24):					1766.00 sft
					164.13 m2
For Ground,1st & 2nd Floor					
18. Painting of new surfaces (Doors & Windows)					
As per item No.10	3	311.50		934.50	
As per item No.8	3	356.00		1,068.00	
					2002.50 sft
S.Total:					186.11 m2



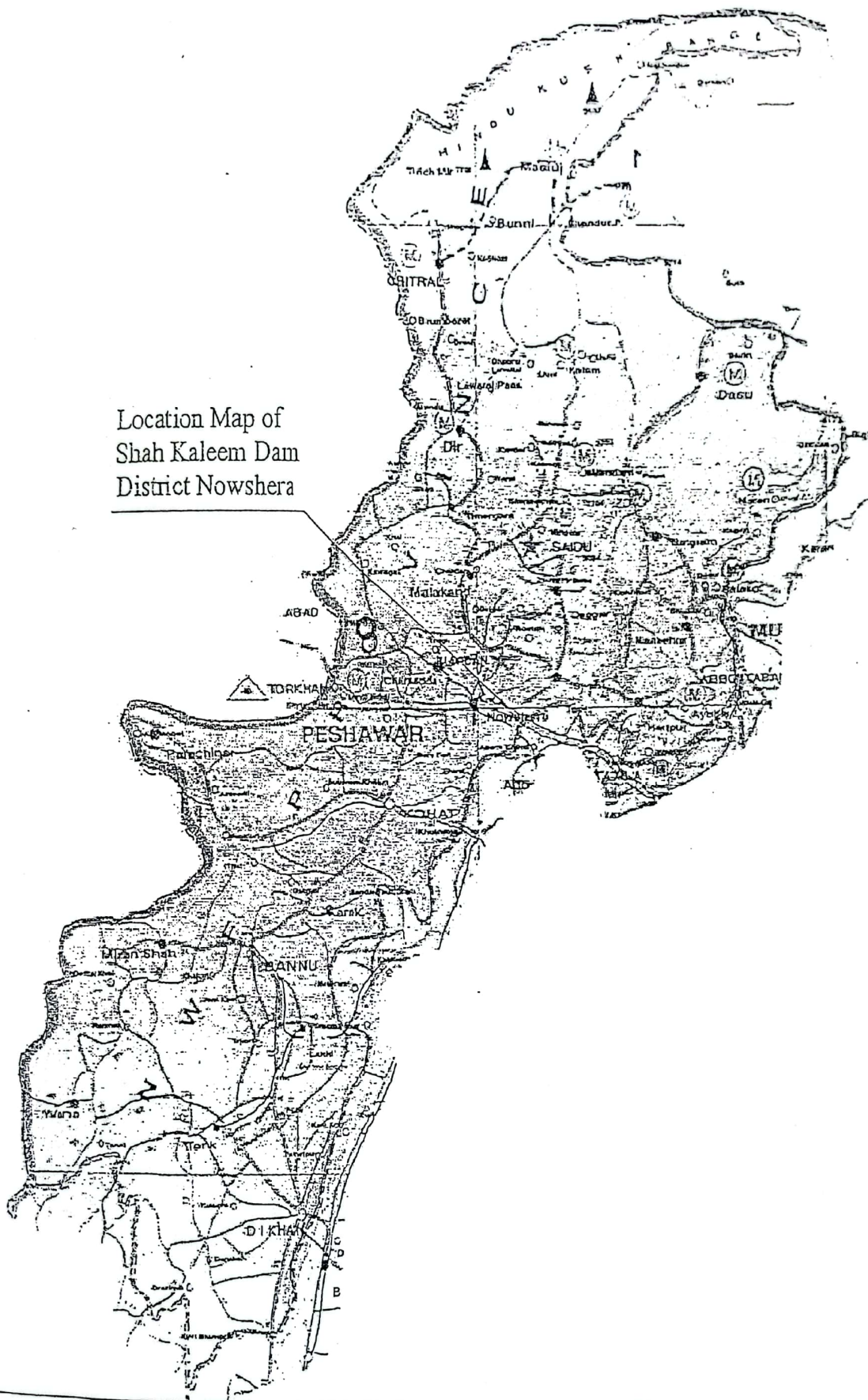
All Drawings' sheets should be
on A3-size paper.

[Signature]
09/11/2018

DRAWINGS

GENERAL DRAWINGS

Location Map of
Shah Kaleem Dam
District Nowshera



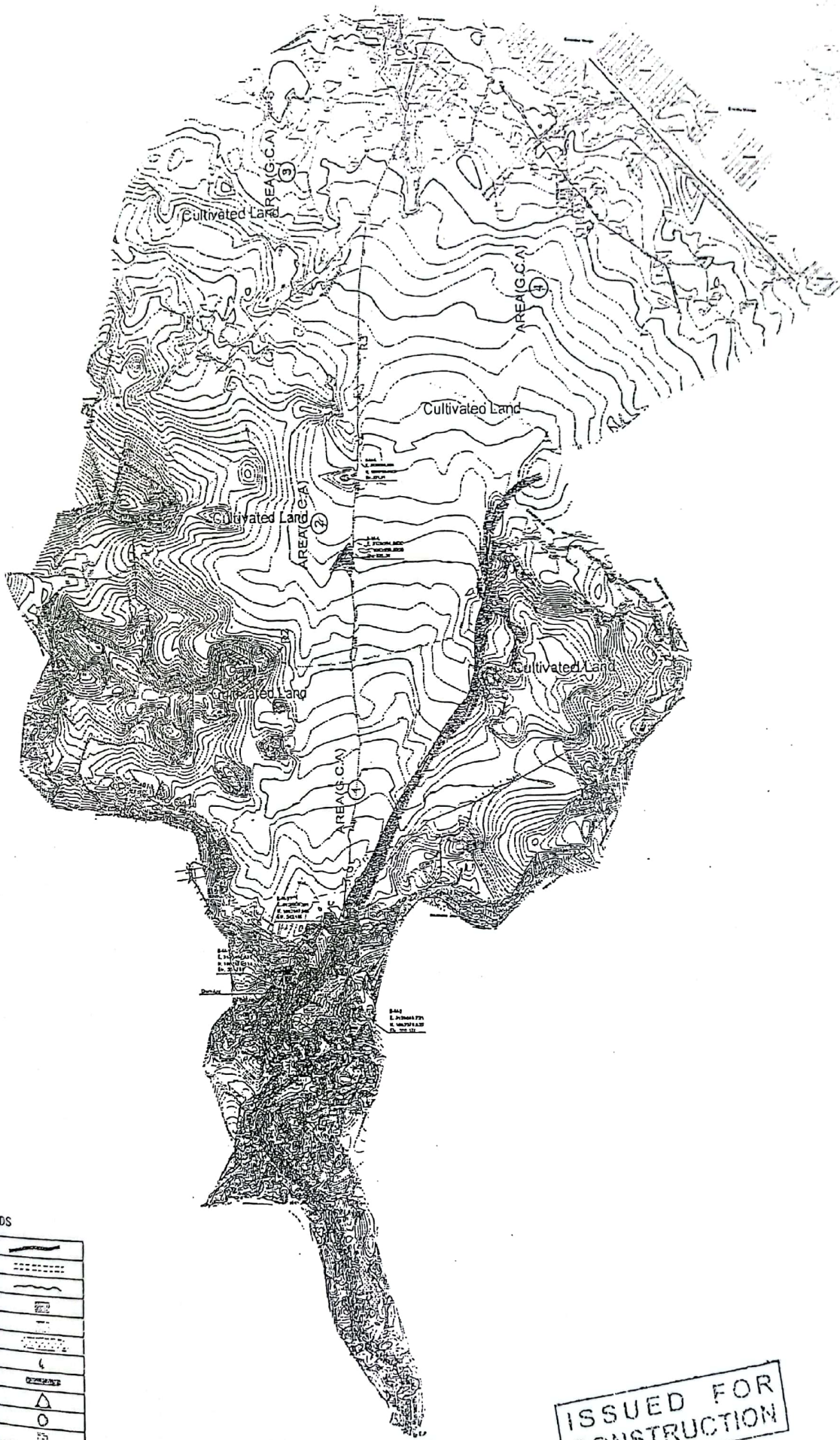
General Small Dams
Department
of EPK Peshawar

Consultants:-
Consulting Associates
Peshawar

Project:-
Detail Design &
Construction Supervision of Package - F

Job:-
Shah Kaleem Dam

LOCATION MAP



LEGENDS

—	Contour Line
—	Water Course
—	Boundary Line
—	Settlement
—	Highway
—	Railway
—	Power Line
—	Telegraph Line
—	Telephone Line
—	Electricity Line
—	Gas Line
—	Drainage Line
—	Canal
—	Stream
—	Well
—	Spring
—	Waterfall
—	Bridge
—	Tunnel
—	Dam
—	Reservoir
—	Harbour
—	Port
—	Shipyard
—	Wharf
—	Dock
—	Quay
—	Pier
—	Breakwater
—	Jetty
—	Marina
—	Harbour
—	Port
—	Shipyard
—	Wharf
—	Dock
—	Quay
—	Pier
—	Breakwater
—	Jetty
—	Marina

ISSUED FOR
CONSTRUCTION
Autem

GOVERNMENT OF
PUNJAB
SECRETARY GENERAL
ALL DMS, IRRIGATION

CONSULTING ASSOCIATES
SHAH KALEEM DAM PROJECT
DESIGNED BY: SHAH KALEEM
DRAWN BY: SHAH KALEEM
CHECKED BY: SHAH KALEEM
DATE: 10/10/2017

SHAH KALEEM
DAM PROJECT

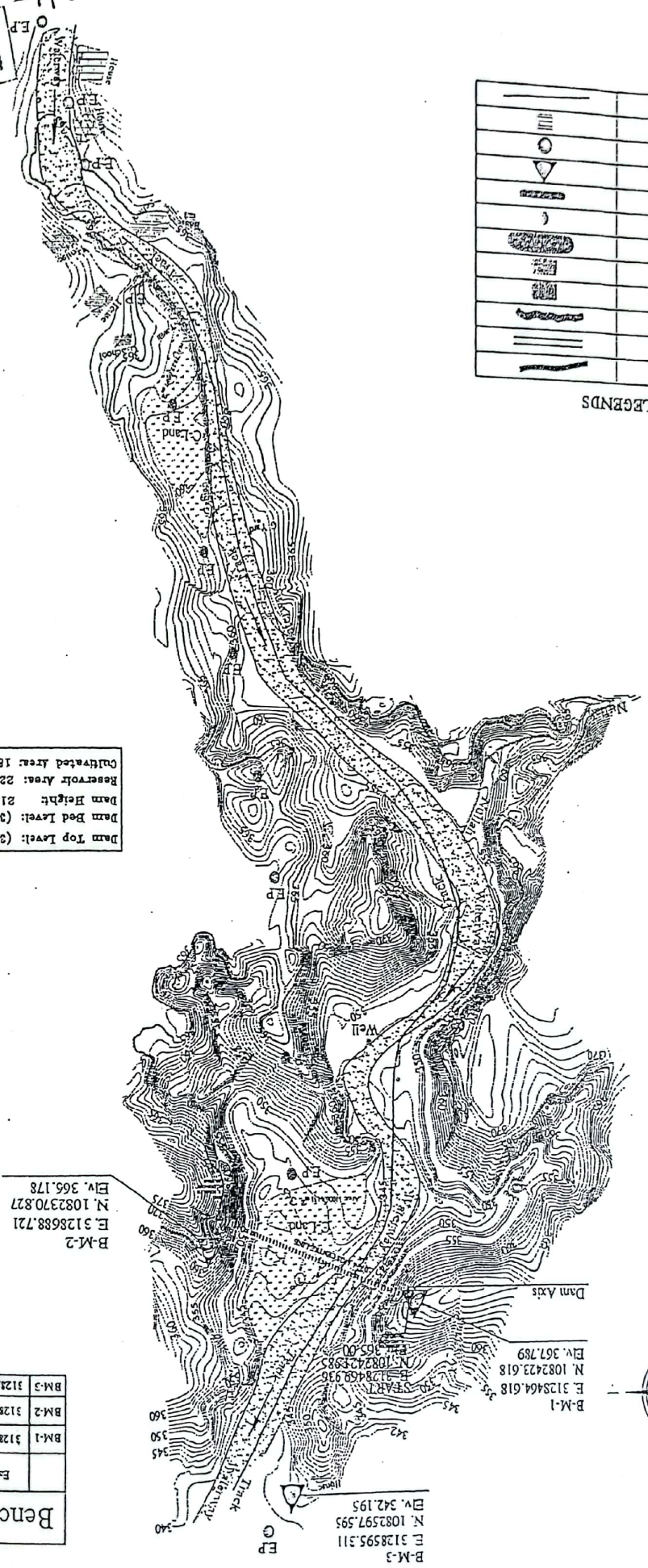
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
1	10/10/2017	ISSUED FOR CONSTRUCTION	SHAH KALEEM	SHAH KALEEM

GENERAL LAYOUT PLAN

TOPO-GRAPHIC SURVEY

Waterway	
Tyack	
Nullab	
Zone	
School	
Cultivated Land	
Well	
Cableon Wall	
Bench Mark	
Electric pole	
Tube Well	
Spill Way	

LEGENDS



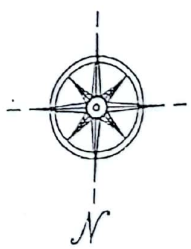
Dam Top Level:	(364.00)
Dam Bed Level:	(343.00)
Dam Height:	21 M
Reservoir Area:	222424.881 m ² (54.97 Acre)
Cultivated Area:	18858.1048 m ² (4.66 Acre)

Bench Mark	
Esting	BM-1
Nothing	BM-2
Elv	BM-3

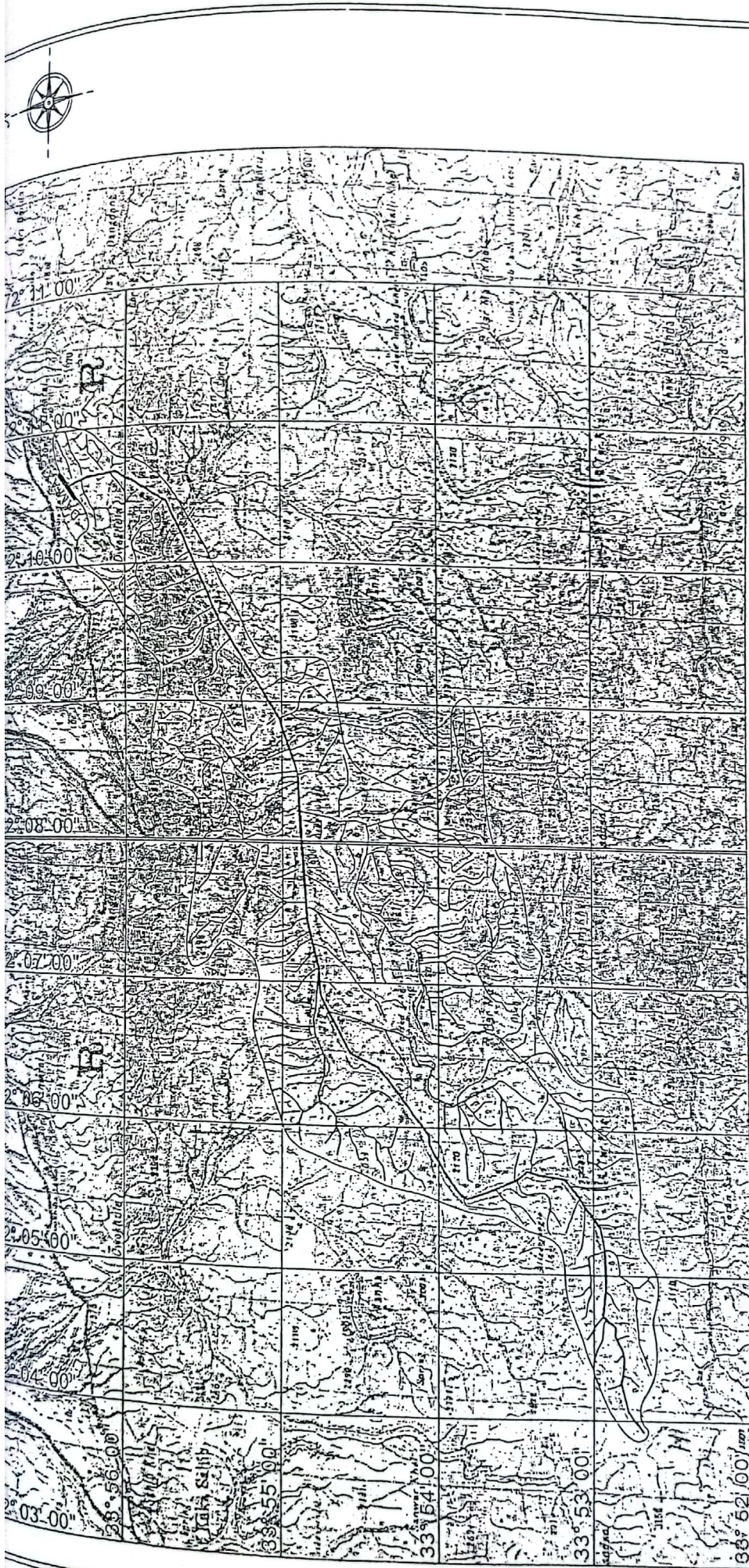
B-M-2
E. 3128688.721
N. 1082370.827
Elv. 366.178

B-M-3
E 5128595.511
N. 1082597.595
E v. 342.195

B-M-1
E. 3128464.618
N. 1082423.618
Elev. 367.789



HYDROLOGY



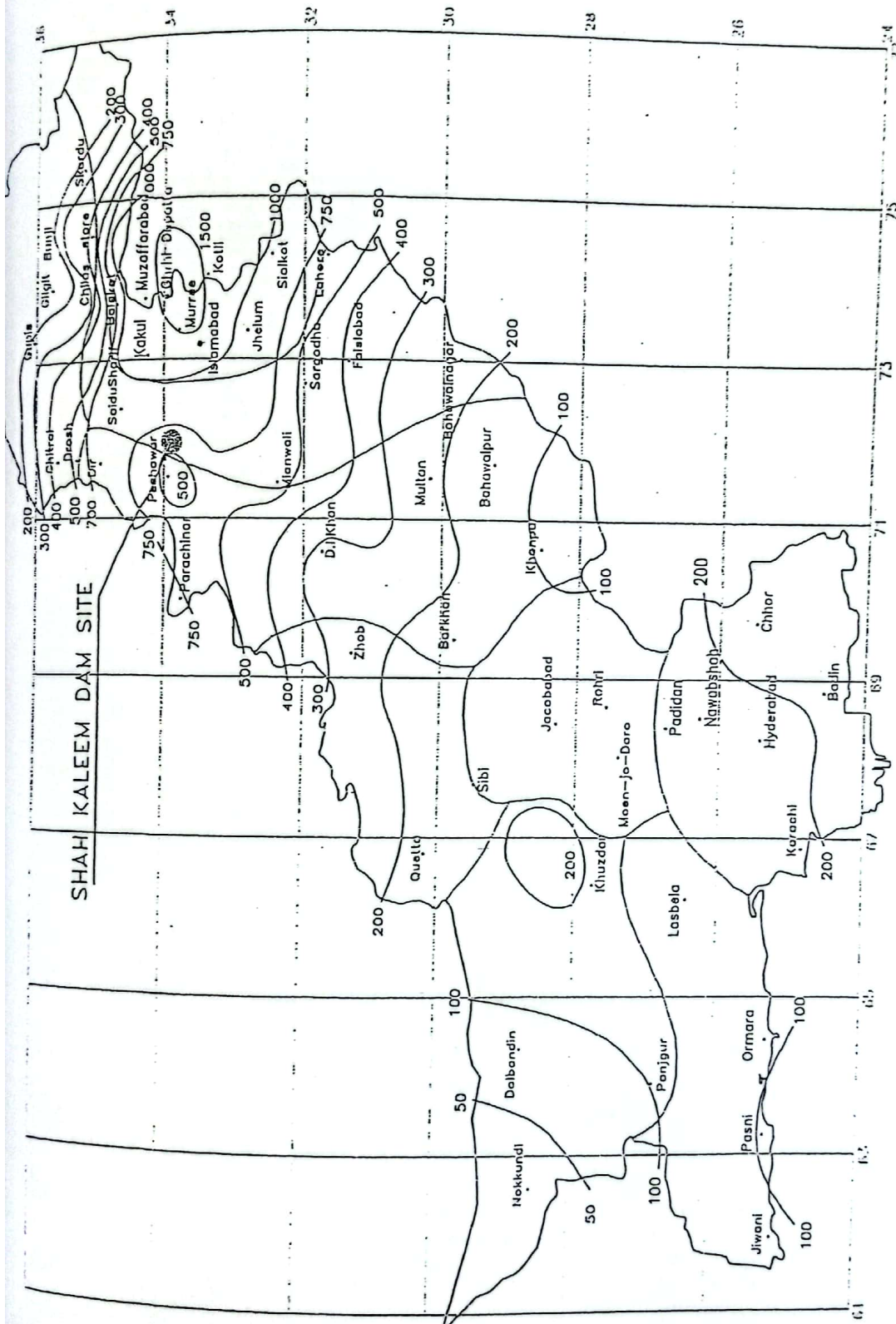
CHARACTERISTICS

Catchment Area	9.96 Square Miles
Main Stream Length	8.96 Miles
Outlet Level	343 m (1125.3 ft) a.m.s.l.
Inlet Level	905.3 m (2970.0 ft) a.m.s.l.
Slope	206 ft/mile

LEGEND

Catchment Boundary	
Main Stream	
Tributaries	

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR	CONSULTING ASSOCIATES HQA B-10/1, COOPERATIVE APARTMENTS, BEHIND BUL BUL, PESHAWAR, PAKISTAN P.O. BOX 1001, PESHAWAR - 25100 @ 091-991-1881/1774 and fax - 991-991-0178 @ 091-991-1881/1774 and fax - 991-991-0178	SILAH KALEEM DAM PROJECT NOWSHERA		REV.	DATE	DESCRIPTION	DRAWN BY	SOHAIL AHMAD	CATCHMENT AREA
		CHECKED SUBMITTED BY							

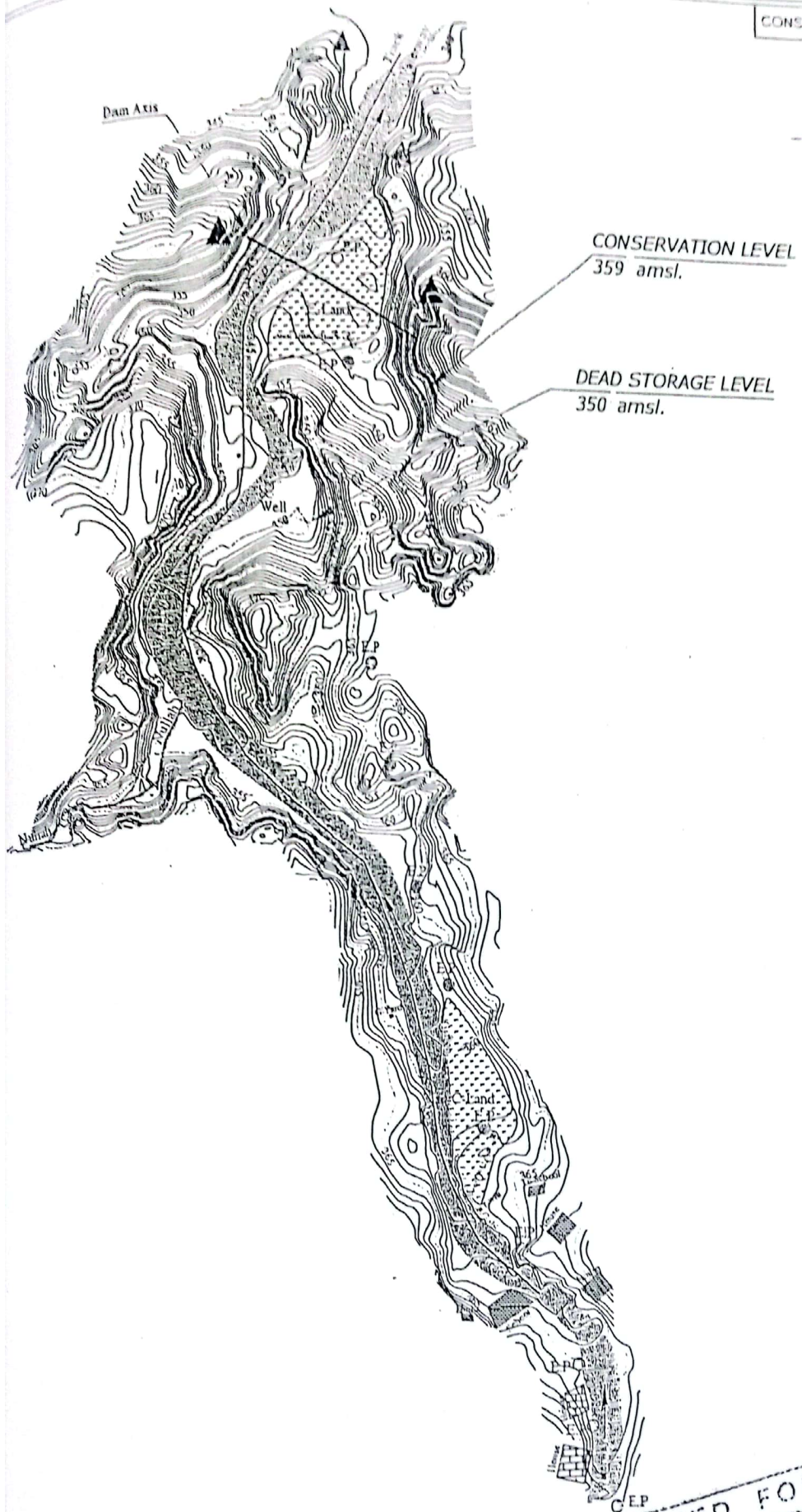
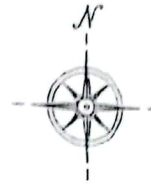


SOURCE:
PAKISTAN METEOROLOGICAL DEPARTMENT
REGIONAL METEOROLOGICAL CENTRE, LAHORE

NOTE : ISOHYTES IN MM

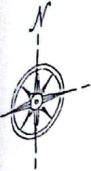


 GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR	 CONSULTING ASSOCIATES 10-A, PHASE II, INDUSTRIAL AREA GUL SHAN, KARACHI-75200 PAKISTAN Ph: +92-21-7261771-45 Fax: +92-21-7261775 E-mail: csa@consultingassociates.com.pk	REV.	DATE	DESCRIPTION	DRAWN BY	SAJIKIL AHMAD
SHAH KALEEM DAM PROJECT NOWSHERA					CHECKED SUBMITTED BY	SAJIKIL AHMAD
					ISOHYETAL MAP 1977 TO 2006	
					DRAWING NO.	SKD-I-YD-02



ISSUED FOR CONSTRUCTION

GEOLOGY



Legend

-  Over Burden
-  Phyllite
-  Cultivated Land
-  Stream
-  Strike / Dip of Bed

ISSUED FOR
CONSTRUCTION
Stallan

GOVERNMENT OF
WYOMING

CONSULTING ASSOCIATES

SHAH KALEEM

REV.	DATE	DESCRIPTION	ISSUED BY	REVIEWED BY

RIGHT ABUTMENT

380
375
370
365
360
355
350
345
340
335
330
325
320
315
310
305
300

ELEVATION (METER)

STREAM

Phyllite

ELEVATION (METER)

380
375
370
365
360
355
350
345
340
335
330
325
320
315
310
305
300

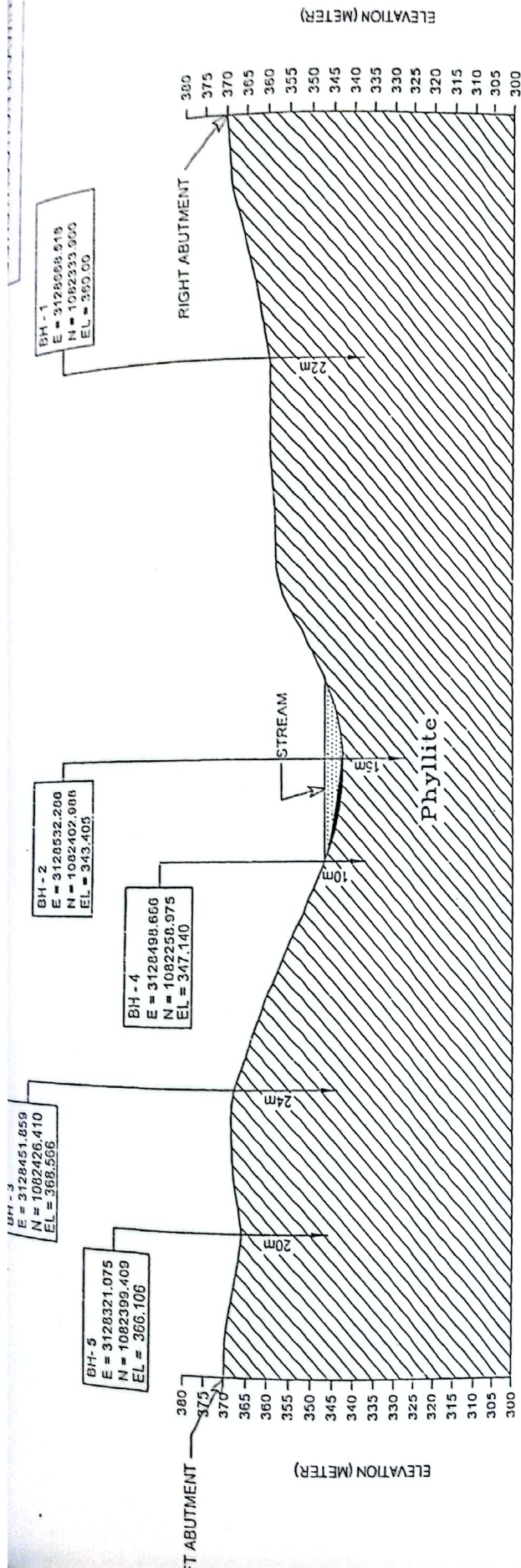
RIGHT ABUTMENT

END

- Phyllite
- Alluvial Deposits (RSRD)
- Stream

ISSUED FOR
CONSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR	 CONSULTING ASSOCIATES HEAR BEANS COMPLEX, PESHAWAR QUL CHD SOHAG WALAYAH JAMUNA ROAD, PESHAWAR E-MAIL: gearideas@peshawar17744@gmail.com	SIYAH KALEEM DAM PROJECT NOWSHERA			REV.	DATE	DESCRIPTION	DRAWN BY	SOHAIL AHMAD						
		CHECKED SUBMITTED BY							HAEM ULLAI JAN						
					GEOLOGICAL CROSS SECTION ALONG DAM AXIS										
					DRAWING NO. 1										SKD-GEO-02



TENTATIVE SUBSURFACE INVESTIGATION PROGRAM

LENGEND				
Bore Hole				
S.NO	B.H. N.O	Location	BORE LENGTH (m)	ROCK LENGTH (m)
1	SKD-1	BH-1 Right Abutment	22	22
2	SKD-2	BH-2 Nallah Bed	3	15
3	SKD-3	BH-3 Left Abutment	23	24
4	SKD-4	BH-4 Upstream Nallah Bed	6	10
5	SKD-5	BH-5 LHS Spillway	18	20

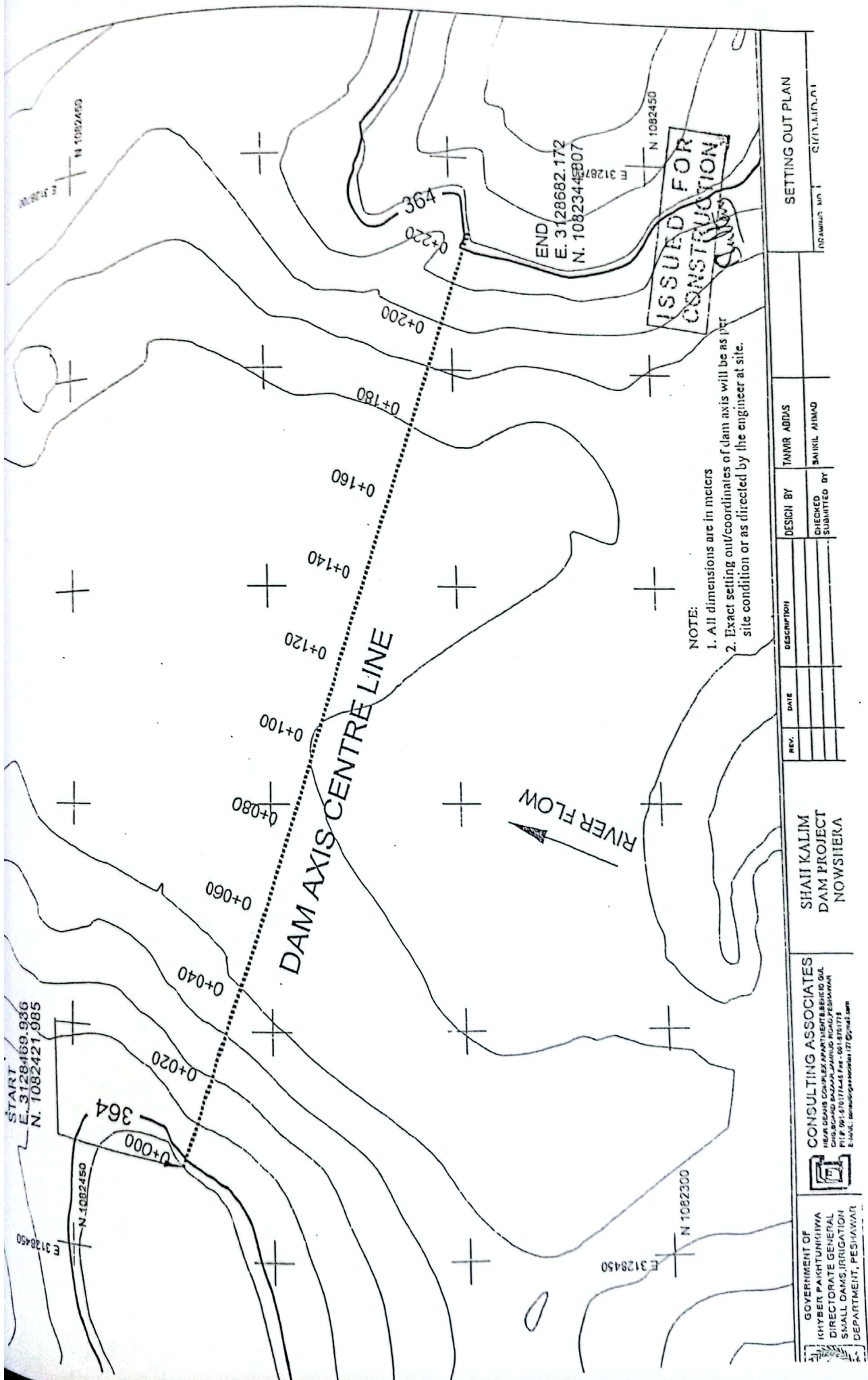
END

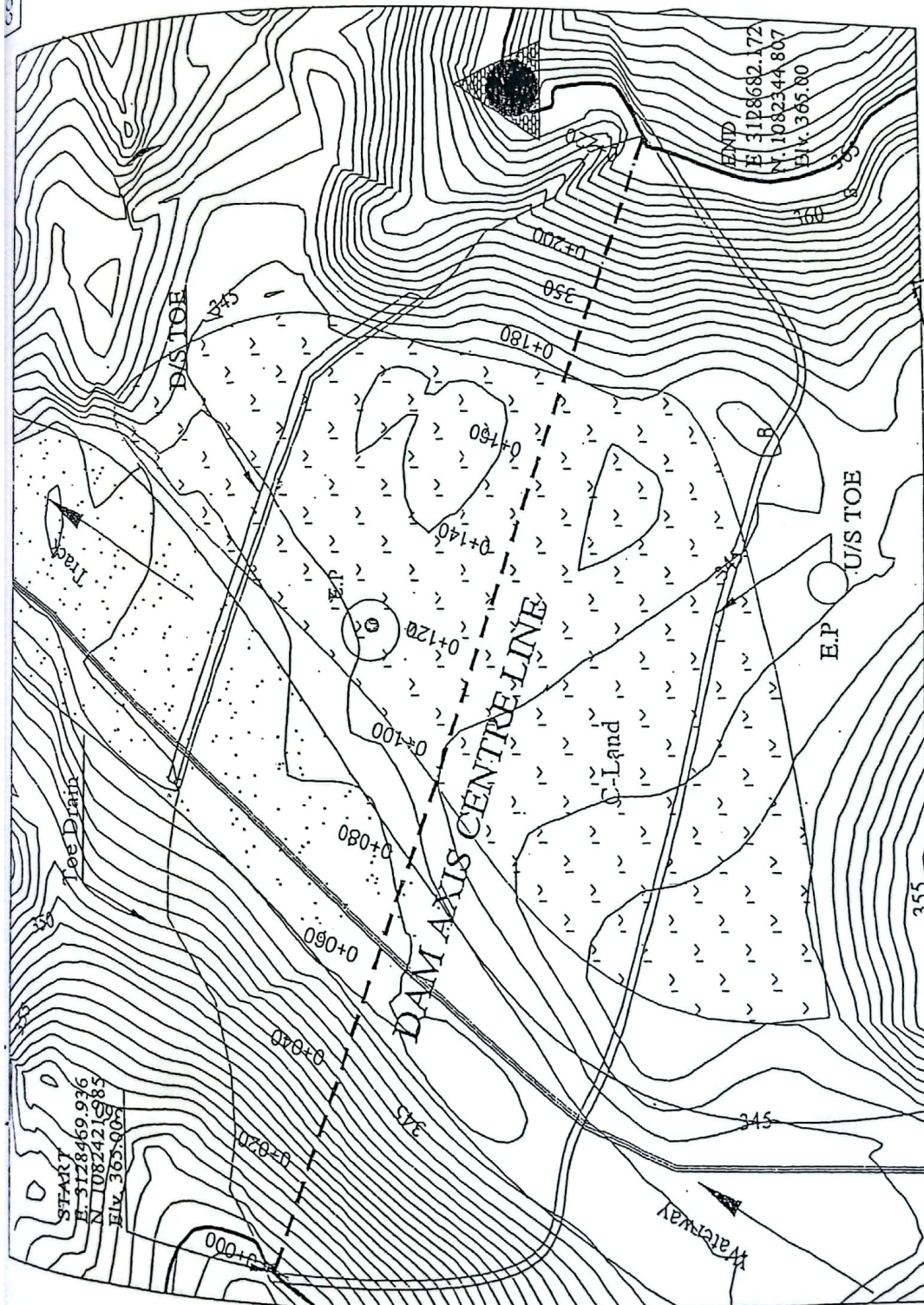
- Phyllite
- Alluvial Deposits (RSRD)
- Stream

ISSUED FOR
CONSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR	CONSULTING ASSOCIATES HEAT DEANS CONSULTANTS, PESHAWAR C/O BOARD BAZAAR, JAMRUD ROAD, PESHAWAR P.O. BOX 171-145 Pesh - 25100 E-Mail: consultingassociates12@gmail.com	SHAH KALEEM DAM PROJECT NOWSHERA	ORIGIN BY SOHAIL AHMAD	CHECKED SUBMITTED BY NAEEM ULHAI JAN	GEOLOGICAL CROSS SECTION ALONG DAM AXIS	DRAWING NO. SKD-GEO-03
--	---	--	---------------------------	--	--	--------------------------

DAM EMBANKMENT



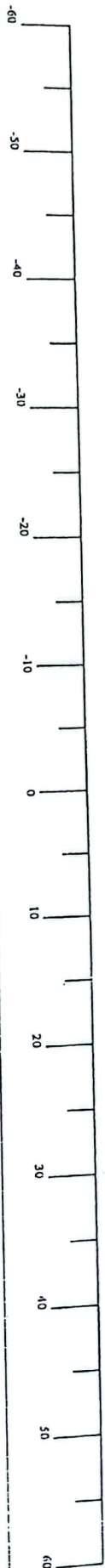
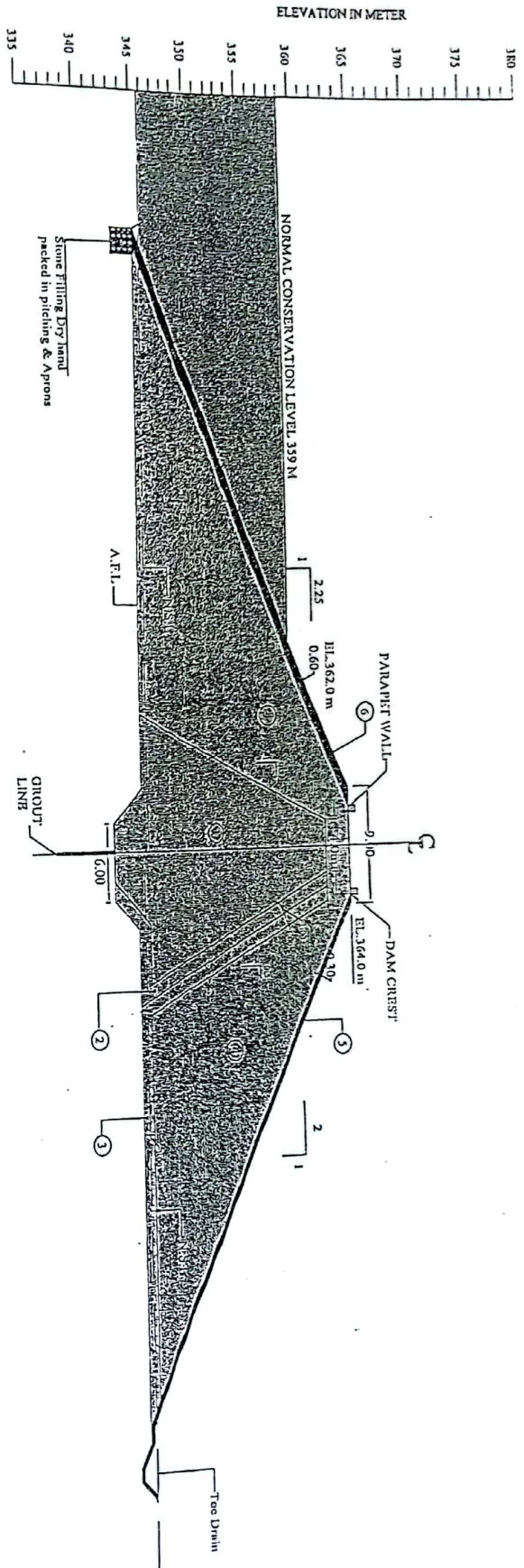


NOTE:

1. All dimensions are in meters
2. For setting out detail refer Dwg. No. SKD-MD-01
3. For cross sections refer Dwg. No. SKD-MD-07 to 28
4. Drains shall be provided as directed by the engineer.
5. Invert level of core trench is 332.50m, if rock is encountered earlier, the trench may be terminated at least 1m in rock.

ISSUED FOR
CONSTRUCTION

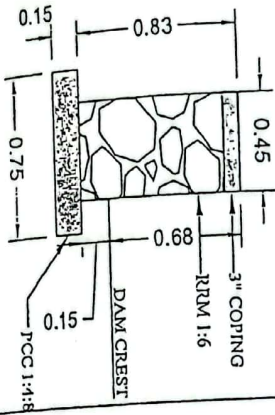
[illegible]



EMBANKMENT MATERIALS

- ONE MATERIAL.**
- 1 CLAYEY SILT
 - 2 FINE FILTER
 - 3 COARSE FILTER
 - 4 SANDY GRAVEL
 - 5 COBBLES & BOULDER PROTECTION BEDDING
 - 6 RIP RAP

PARAPET WALL DETAILS



GOVERNMENT OF
KARNATAKA
DIRECTORATE GENERAL
DEPARTMENT OF WATER
RESOURCES

CONSULTING ASSOCIATES
SIVAK KALBEM
DAM PROJECT
MOWSHIVA

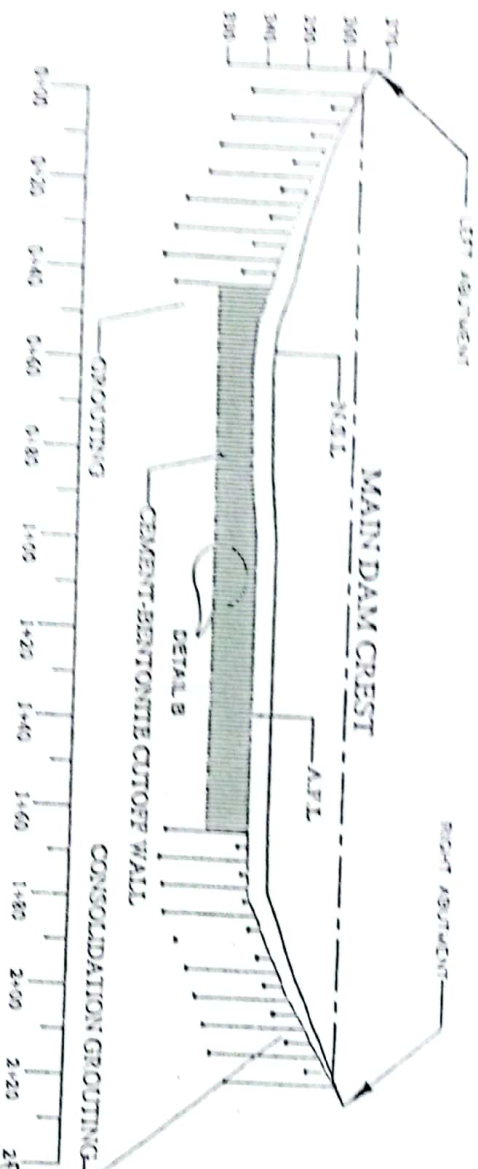
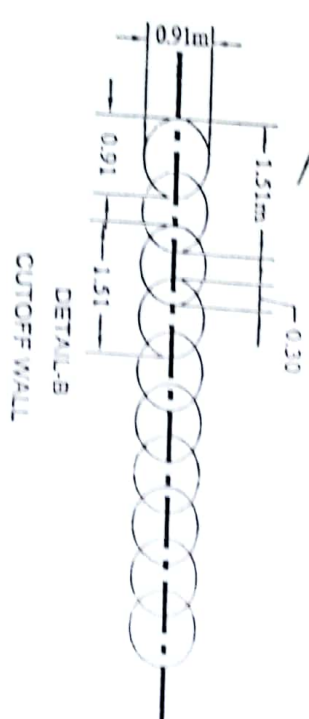
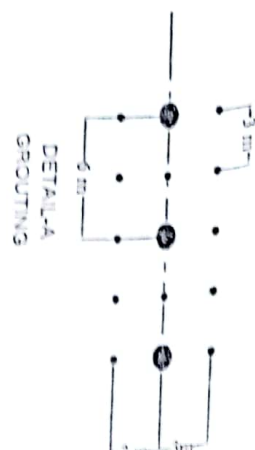
REV. DATE DESCRIPTION

DESIGN BY TANNIR ABHAS
CHECKED BY SAKIL AHMAD
SUBMITTED BY

DAM TYPICAL CROSS SECTION
DRAWING NO. 1 C.A. 5105-799

ISSUED FOR CONSTRUCTION

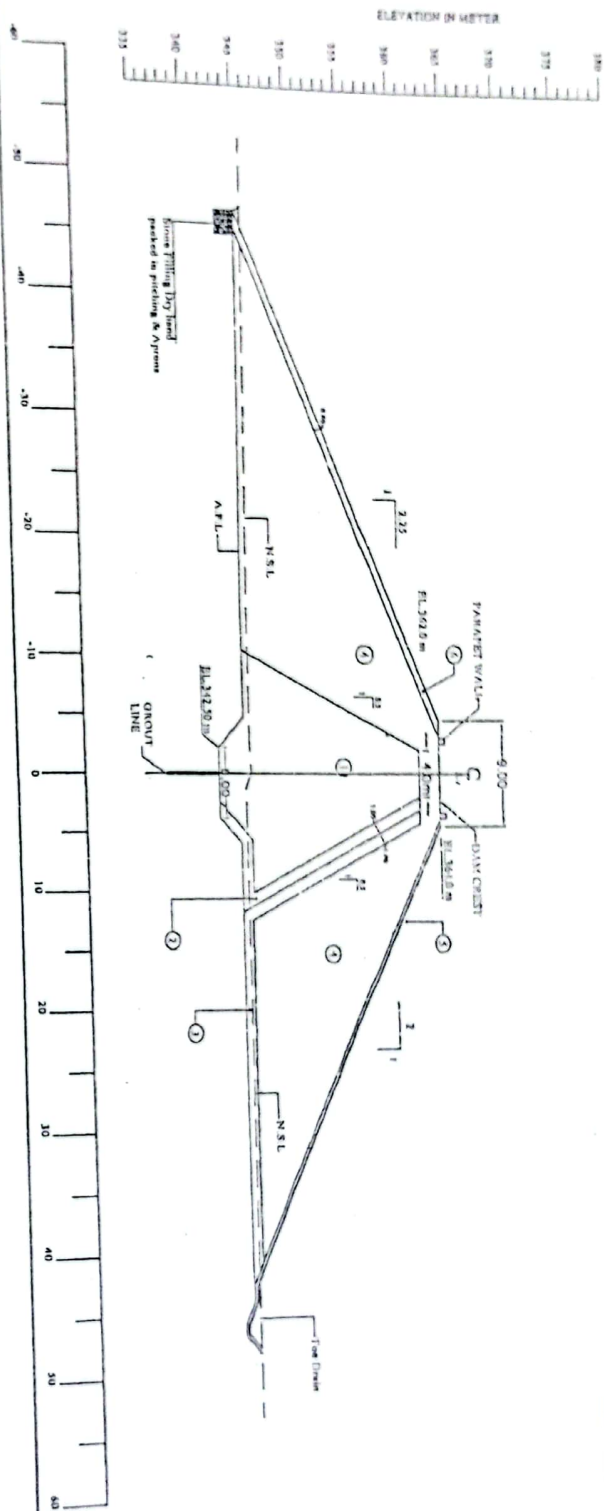
NOTE:
1. All dimensions are in meters



1. All double-blind and randomized studies must include a placebo control group.
2. The authors must not be involved in any way in the design or conduct of the study.
3. The authors must not be involved in the analysis or interpretation of the results.

ISSUED FOR
CONSTRUCTION

Roll	Date	Description	Station by	Water Level	Vertical Movement	MAIN DAM ROUTING	Drawing No.	SHEET NO.
			Corrected					
			Station by					



EMBANKMENT MATERIALS

- ONE MATERIAL
- 1 CLAYEY SILT
 - 2 FINE FILTER
 - 3 COARSE FILTER
 - 4 SANDY GRAVEL
 - 5 COBBLES & BOLLDER PROTECTION BEDDING
 - 6 RIP RAP

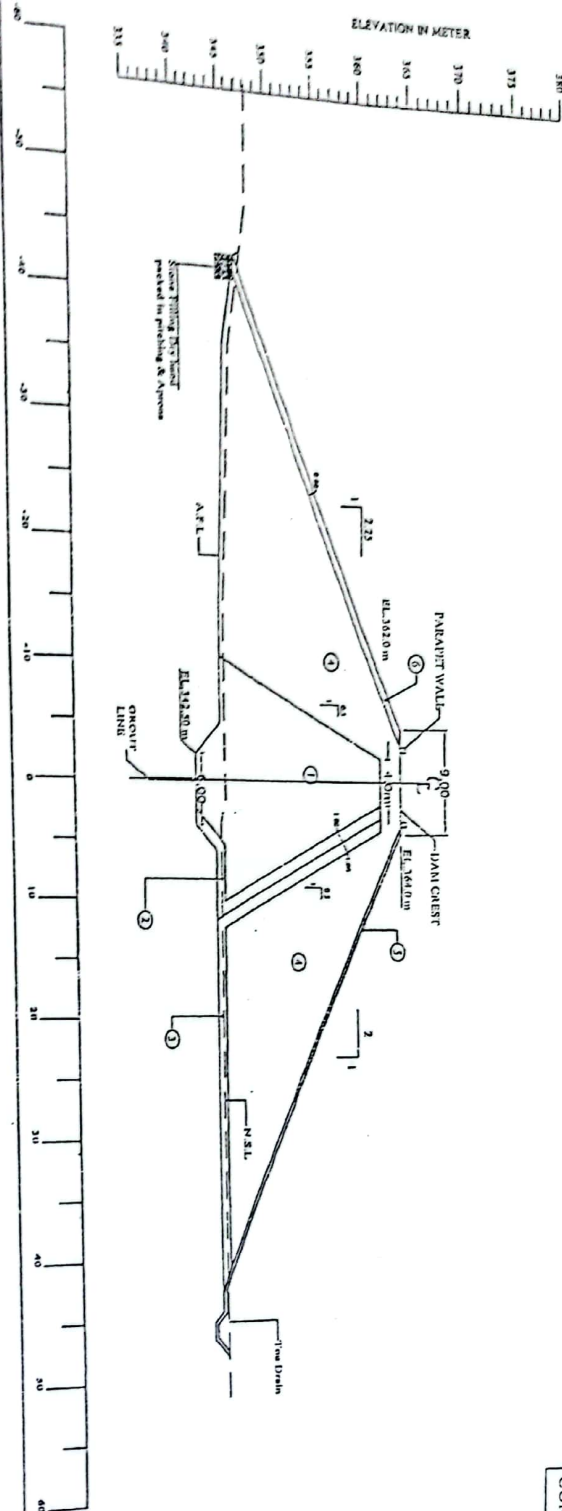
NOTE:

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

NOT FOR CONSTRUCTION

Redden

GOVERNMENT OF PUNJAB DEPARTMENT OF WATER RESOURCES PUNJAB ENGINEERING DEPARTMENT PUNJAB	CONSULTANTS & ASSOCIATES SHAH KATHEA DAM PROJECT PUNJAB	REV	DATE	DESCRIPTION	DESIGN BY	DESIGNED BY	SCALE	DATE	CROSS SECTION RD 0+140 SKD-MD-17



SEALMENT MATERIALS

1. CLAYEY SILT
2. FINE FILTER
3. COARSE FILTER
4. SANDY GRAVEL
5. CONCRETE & BOULDER PROTECTION BEDDING
6. RIP RAP

NOTE:

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

CONSTRUCTION
ISSUED FOR

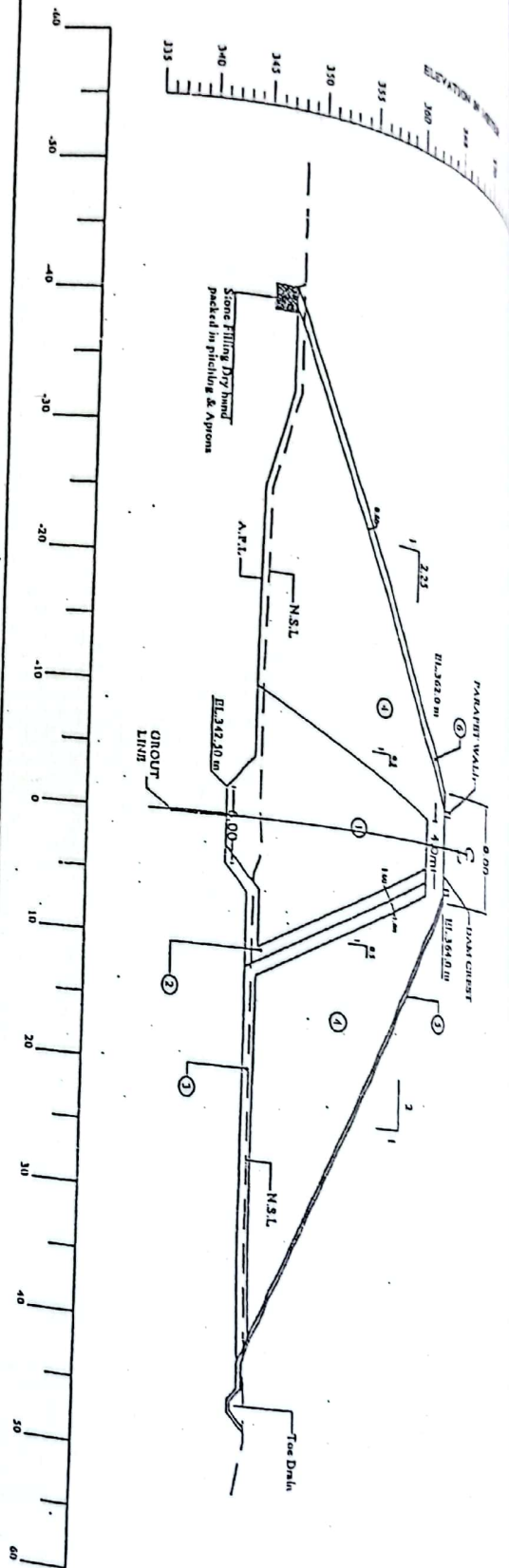
Q. Khan

GOVERNMENT OF
KHYBER PAKHTUNKHWA
NORTH WEST FRONTIER PROVINCE
ISLAMABAD
CONSULTING ASSOCIATES
ENGINEERING AND ARCHITECTURE
PVT. LTD.
ISLAMABAD

SHAH KALEEM
DAM PROJECT
NOWSHERA

REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED BY	DESIGNED BY	TAMIR ADMS	SARIR AHMAD

CROSS SECTION
RD 0+120
SKD-MD-13



MENT MATERIALS

- TERIAL
- KEY SILT
- FILTER
- COARSE FILTER
- COY GRAVEL
- BBLES & BOULDER PROTECTION BEDDING
- P RAP

GOVERNMENT OF
UNIVERSITY OF KENYA
SMALL DAMS & CATCHMENT
DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
SHAH KALEEM
DAM PROJECT
NOWSHIERA

REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED BY	DATE	DESIGN NO.	CROSS SECTION
1			SHAH KALEEM	SHAH KALEEM		SKD-MD-14	RD 0+710

ISSUED FOR
CONSTRUCTION

NOTE:
1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

ELEVATION IN METER

355
354
353
352
351
350



- 1 CLAYEY SILT
- 2 FINE FILTER
- 3 COARSE FILTER
- 4 SANDY GRAVEL
- 5 CORRUG. & BOLLDER PROTECTION BEDDING
- 6 TRIP ROAD

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

Don't

CROSS SECTION
RD 0+100
SKD-RD-13

NEARBY MATERIALS

MATERIAL
CLAYEY SILT
FINE FILTER
COARSE FILTER
SANDY GRAVEL
CORBELS & BULLERS FROM CORN DEPEND
RIP RAP

DESIGNED BY
CHECKED BY
APPROVED BY
DATE



ENGINEERING ASSOCIATES
INCORPORATED
1000 N. 10th St., Suite 100
Tulsa, Oklahoma 74103
Phone: (918) 438-1111
Fax: (918) 438-1112

SHAW-KATZ
DAM PROJECT
HOWARD

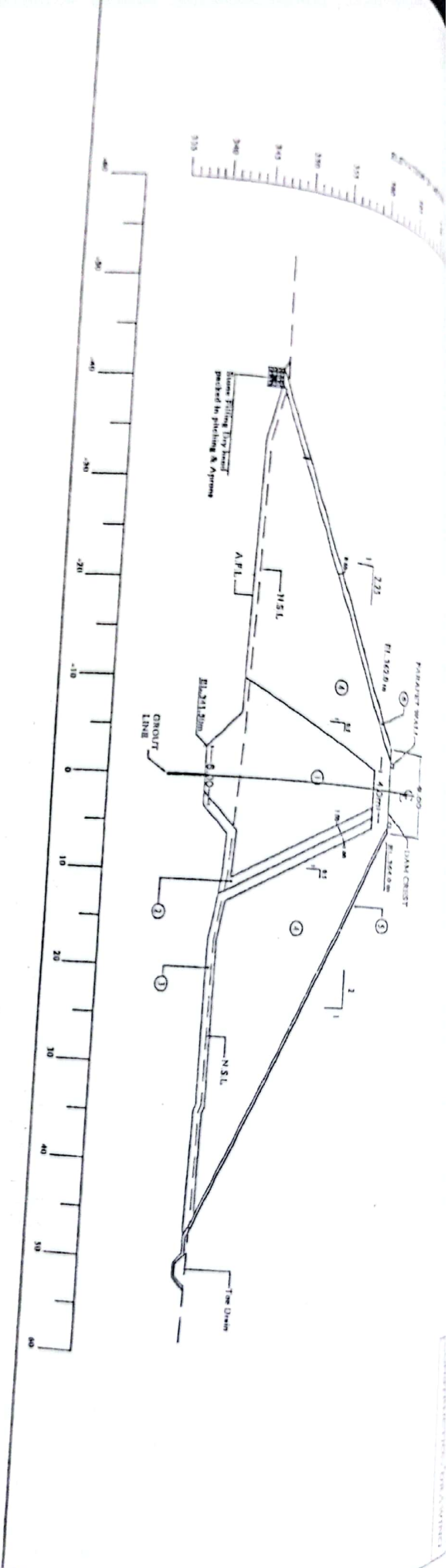
NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APPROVED BY

**ISSUED FOR
CONSTRUCTION**

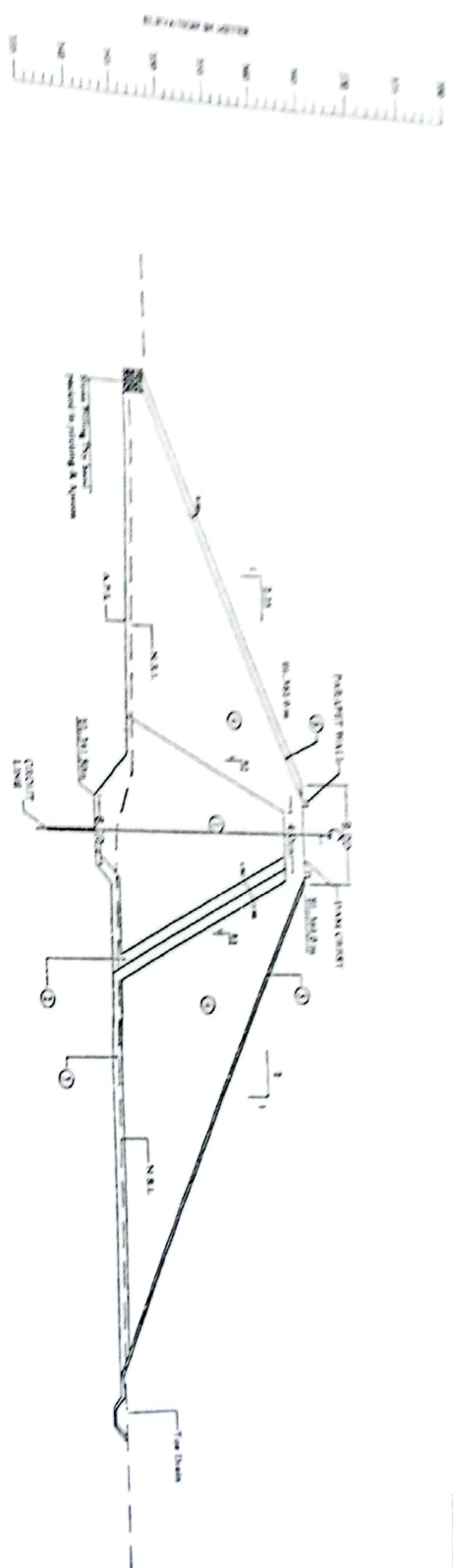
G. M. May

NOTE:
1. All dimensions are in meters
2. For location of sections refer Draw No. SKD-MID-02

CROSS SECTION
RD 0+000
STABILITY



CONSTRUCTION DRAWING



REINFORCEMENT MATERIALS

NO.	MATERIAL
1	CLAYEY SILT
2	FINE FILTER
3	COARSE FILTER
4	SANDY GRAVEL
5	COBBLES & BOULDER PROTECTION BEDDING
6	RIP RAP

GOVERNMENT OF KERALA DEPARTMENT OF WATER RESOURCES PROJECT OFFICE, KERALA WATER RESOURCES DEPARTMENT KERALA TRIVANDRUM		CONSULTING ASSOCIATES SHAIK KALEEM DAM PROJECT NOWSHERA		REV. DATE DESCRIPTION DESIGN BY CHECKED SUBMITTED BY TAYYIB ABBAS SAKIL AHMED	CROSS SECTION RD 0+000 SKD-MD-11
---	--	---	--	--	--

NOTE:
 1. All dimensions are in meters
 2. For location of section refer Dwg. No. SKD-MD-02

ISSUED FOR CONSTRUCTION

ShaiK

[illegible]

MATERIALS.

- 1 CLAYEY SILT
- 2 FINE FILTER
- 3 COARSE FILTER
- 4 SANDY GRAVEL
- 5 COBBLES & BOULDER PROTECTION BEDDING
- 6 RIP RAP

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKID-MD-02

ISSUED FOR
CONSTRUCTION

 GOVERNMENT OF MYANMAR MINISTER'S OFFICE DIRECTORATE GENERAL OF CONSTRUCTION DEPARTMENT OF HIGHWAYS	 CONSULTING ASSOCIATES GENERAL INVESTIGATION AND DESIGN AND CONSULTING ENGINEERS No. 10, South Bridge Road, Singapore.	SHAH KALEEM DAM PROJECT NOWSHEBA			
		REV.	DATE	DESCRIPTION	DRAWN BY
					TUNM / ABAS
CHECKED BY			SUBMITTED BY	CROSS SECTION RD 01040	
			SAIKIL ALIHO	51CD-MD-07	
DRAWING NO. 1					

MATERIAL.
CLAYEY SILT
FINE FILTER
COARSE FILTER
SANDY GRAVEL
COBBLES & BOULDER PROTECTION BEDDING
RIP RAP

同

CONSULTING ASSOCIATES
NEAR DRAWS COMPLEX APARTMENTS, BEDFORD GUL
CH. 9011 BAZAAR JAMRUD ROAD, PESILAWAR,
P. 0. 9011-3703714-45 Fax - 661-3101739
B. BILAL: consultingassociates217@gmail.com

SHAH KALEEM
DAM PROJECT
NOWSHERA

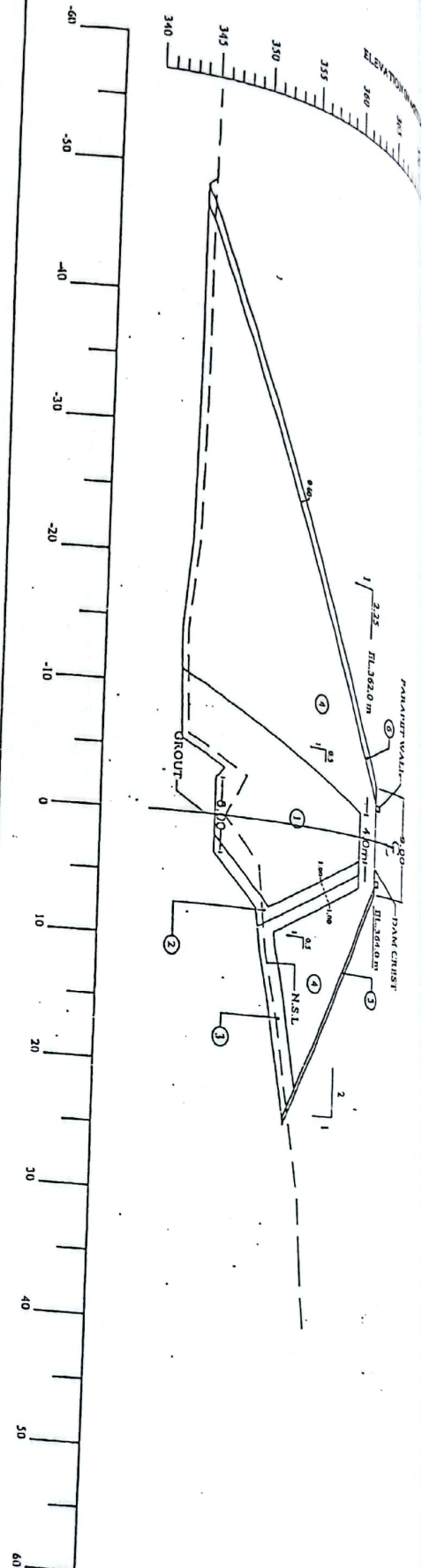
REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED SUBMITTED BY
			TAMMIR ABBAS	SAJIKUL ALIYAD

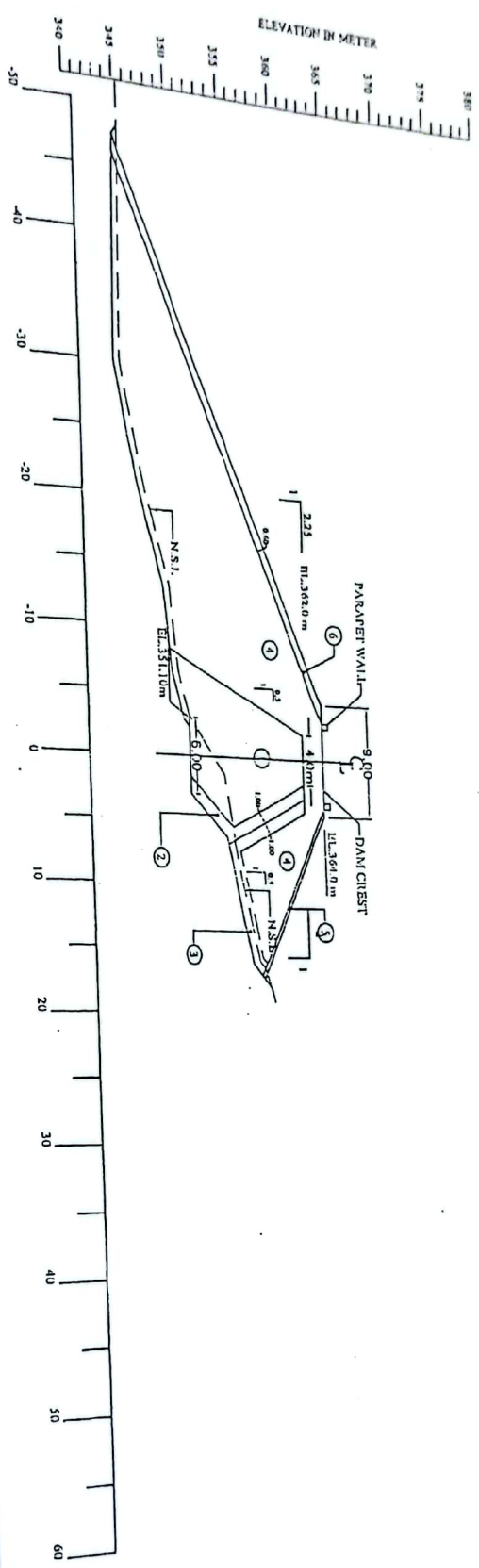
CROSS SECTION
RD 0+030
DRAWING NO. 1 • SKD-MD-06

ISSUED FOR
CONSTRUCTION

NOTE:

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-A1D-02



BANKMENT MATERIALS

- | | MATERIAL |
|---|--------------------------------------|
| 1 | CLAYEY SILT |
| 2 | FINE FILTER |
| 3 | COARSE FILTER |
| 4 | SANDY GRAVEL |
| 5 | COBBLES & BOULDER PROTECTION BEDDING |
| 6 | RIP RAP |

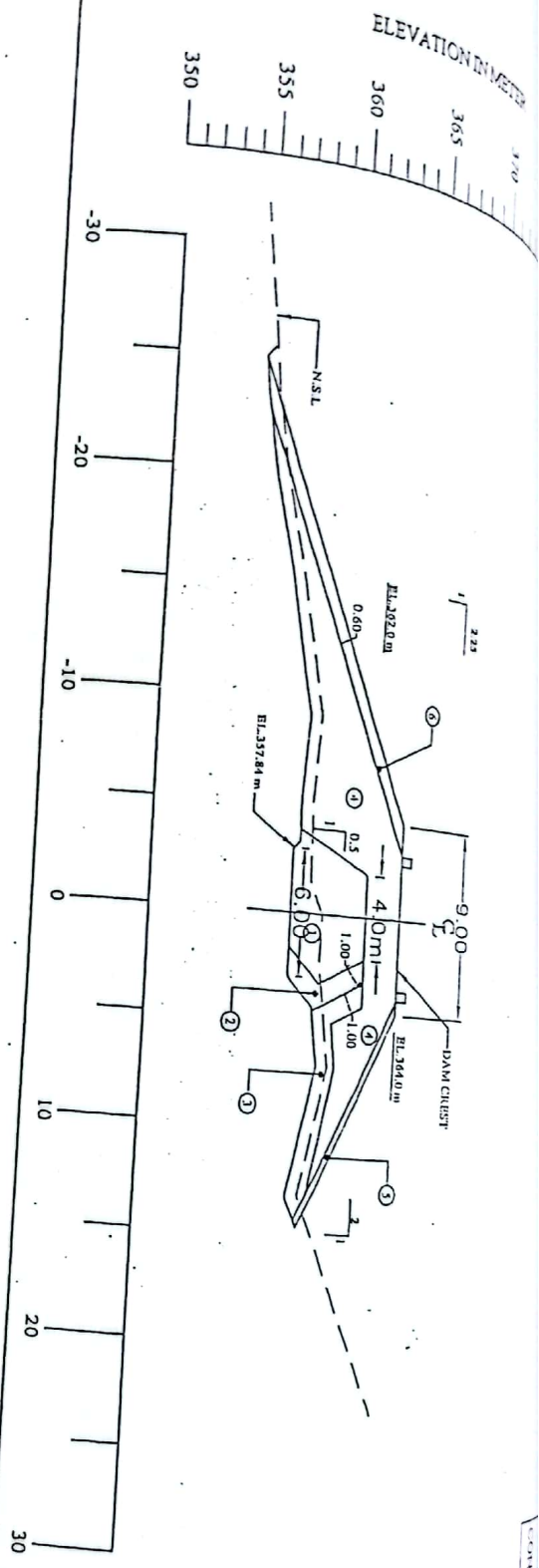
NOTE:

1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

ISSUED FOR CONSTRUCTION

 CONSULTING ASSOCIATES, INC. 10000 WEST 10TH AVENUE, SUITE 100 DENVER, COLORADO 80231 (303) 751-1000		GOVERNMENT OF KENYA MINISTRY OF WATER DEVELOPMENT AND IRRIGATION NAIROBI, KENYA	
SHAIKAT EEM SHAI PROJECT KOWSHIKA		CROSS SECTION RD 0+020 STD-MD-75	
REV.	DATE	DESCRIPTION	DESIGN BY
			TAMAR ABRAO
			SARIEL ANAD
			CHECKED BY
		DRAWING NO. /	

SCALE: 1:1000



INLET MATERIALS

- MATERIAL:
- CLAYEY SILT
- FINE FILTER
- COARSE FILTER
- SANDY GRAVEL
- COBBLES & BOULDER PROTECTION BEDDING
- RIP RAP

GOVERNMENT OF
KHARBER PAKHTUNKHWA
SECRETARIATE GENERAL
DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
SHAH KALEEM
DAM PROJECT
NOWSHERA

REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED BY	SUBMITTED BY

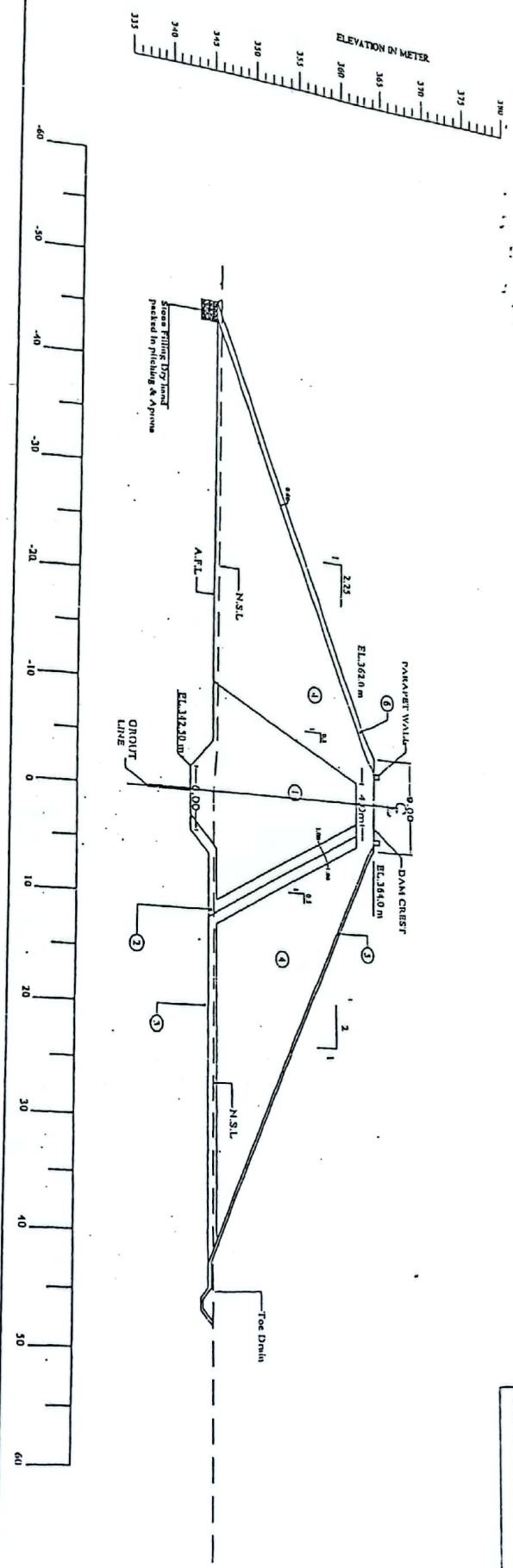
**ISSUED FOR
CONSTRUCTION**

S. Khan

NOTE:
1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

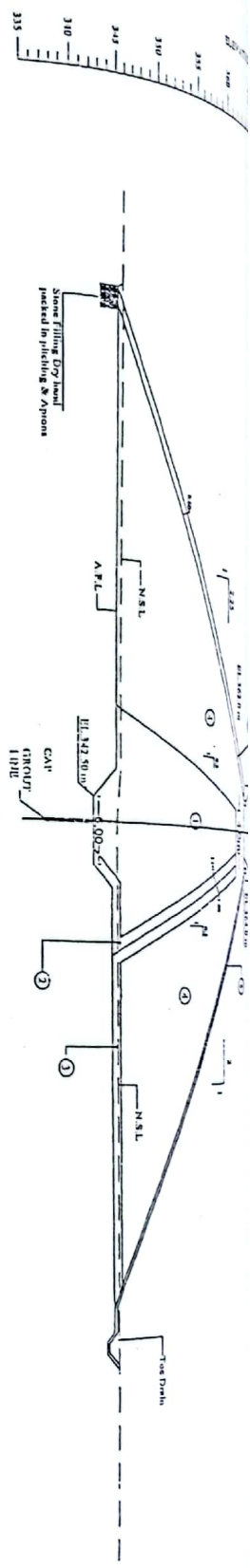
CROSS SECTION
RD 0+010
DRAWING NO. SKD-MD-04

CONSTRUCTION DRAWING



MENT MATERIALS
 ALTRAL.
 AVEY SILT
 NE FILTER
 COARSE FILTER
 SANDY GRAVEL
 COBBLES & BOULDER PROTECTION BEDDING
 RIP RAP

NOTE:
 1. All dimensions are in meters
 2. For location of section refer Page No. SKD-MD-02
 ISSUED FOR
 CONSTRUCTION/



EMBANKMENT MATERIALS

- ONE MATERIAL.**
- 1 CLAYEY SILT
 - 2 FINE FILTER
 - 3 COARSE FILTER
 - 4 SANDY GRAVEL
 - 5 COBBLES & BOULDER PROTECTION BEDDING
 - 6 RIP RAP

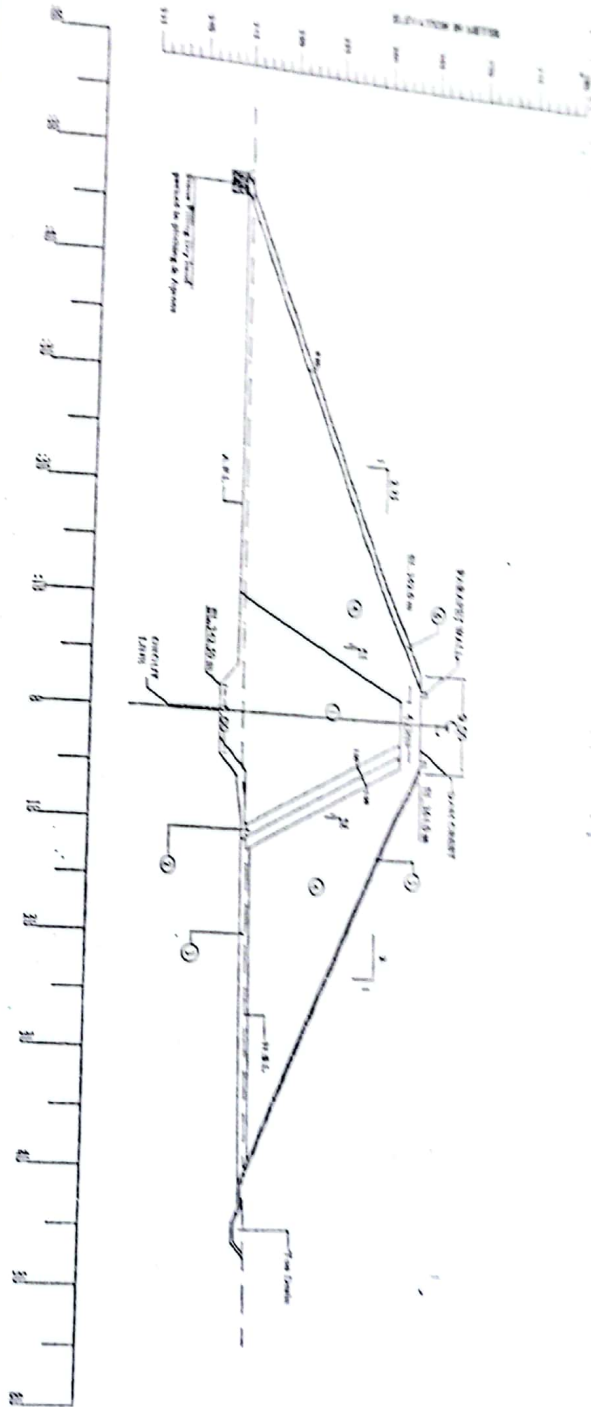
NOTE:
 1. All dimensions are in meters
 2. For location of section refer Dwg. No. SKD-MID-02

**NOTATION FOR
 CONSTRUCTION
 OF DAM**

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR		CONSULTING ASSOCIATES SHAH KALBEM DAM PROJECT NOWSHERA		REV. DATE DESCRIPTION		DESIGN BY TAWAR AGGAS CHECKED SUBMITTED BY SAHIL AHMAD		CROSS SECTION RD 0+760 SRD-MD-73	
---	--	---	--	---------------------------------	--	--	--	--	--

ANALYTICAL MATERIALS

MATERIAL:
CLAYEY SOIL
FINE FILTER
COARSE FILTER
SANDY GRAVEL
GRAVELS & SANDS
TOP SOIL

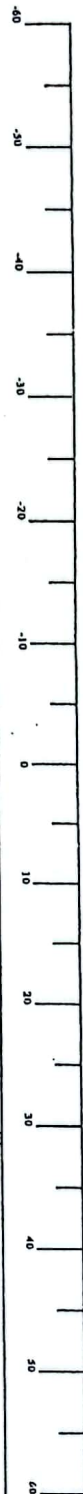
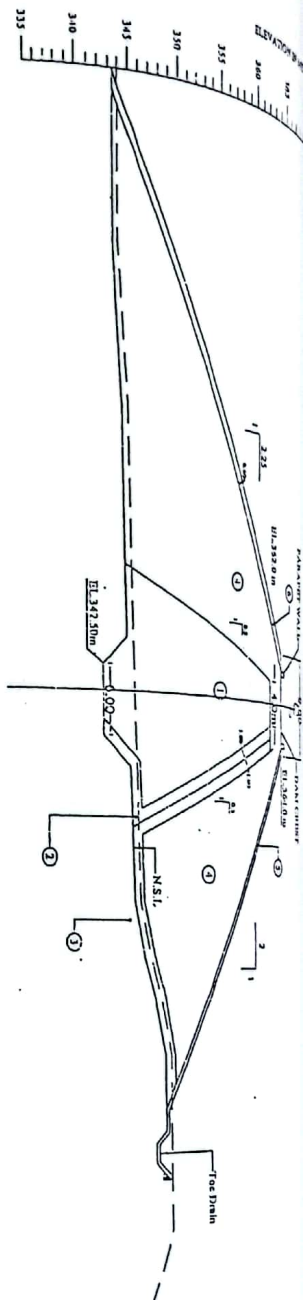


CONSTRUCTION

NOTE:

1. All dimensions are in meters
2. For location of section refer Dwg No. SKD-AID-02

ISSUED FOR
CONSTRUCTION



EMBANKMENT MATERIALS

DNE MATERIAL

- 1 CLAYEY SILT
- 2 FINE FILTER
- 3 COARSE FILTER
- 4 SANDY GRAVEL
- 5 COBBLES & BOULDER PROTECTION BEDDING
- 6 RIP RAP

NOTE:
1. All dimensions are in meters
2. For location of section refer Dwg. No. SKD-MD-02

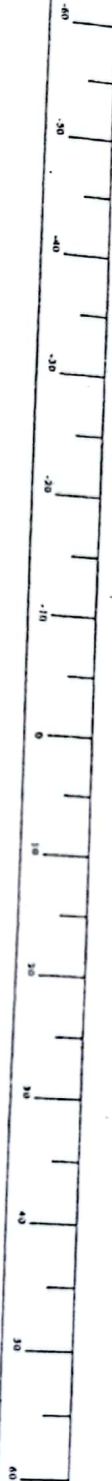
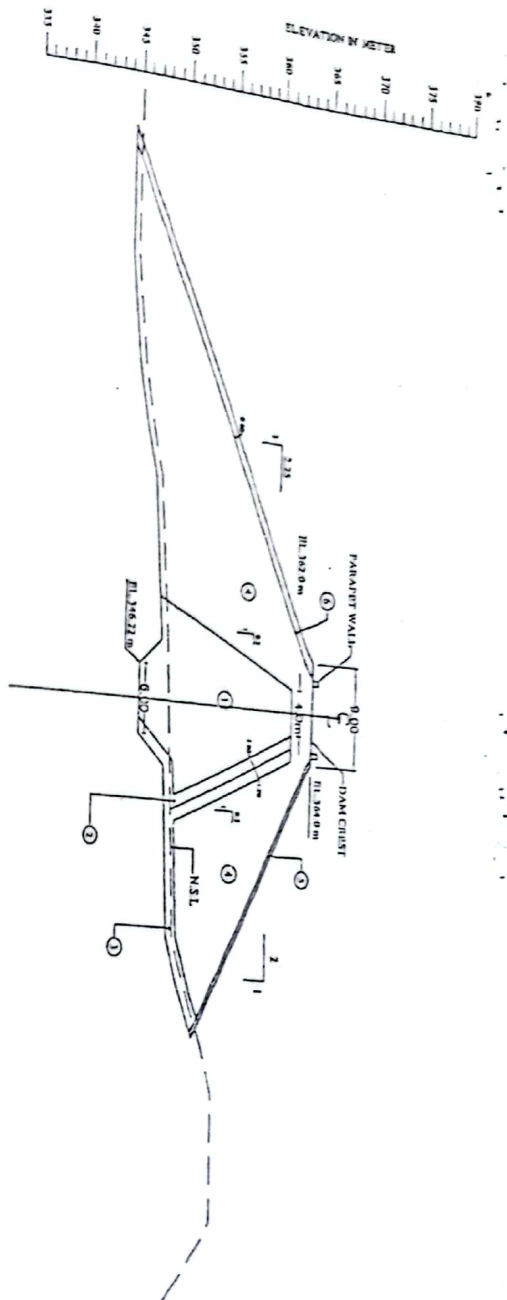
ISSUED FOR
CONSTRUCTION

Qadim

GOVERNMENT OF KHYBER PAKHTUNKHWA DEPARTMENT OF IRRIGATION SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR	CONSULTING ASSOCIATES PRADEEP CONSULTANTS & ENGINEERS CHAKRAHAR, PESHAWAR B-11/11, Phase II, Peshawar, 25100	SHAH KALIDEM		REV.	DATE	DESCRIPTION	DESIGN BY	THANIR AHMAD	CROSS SECTION RD 0+780 SIFTMAT-27
		DAM PROJECT NOWSHERA					DIRECTED SUBMITTED BY	SAMEEL AHMAD	

COMMON MATERIALS

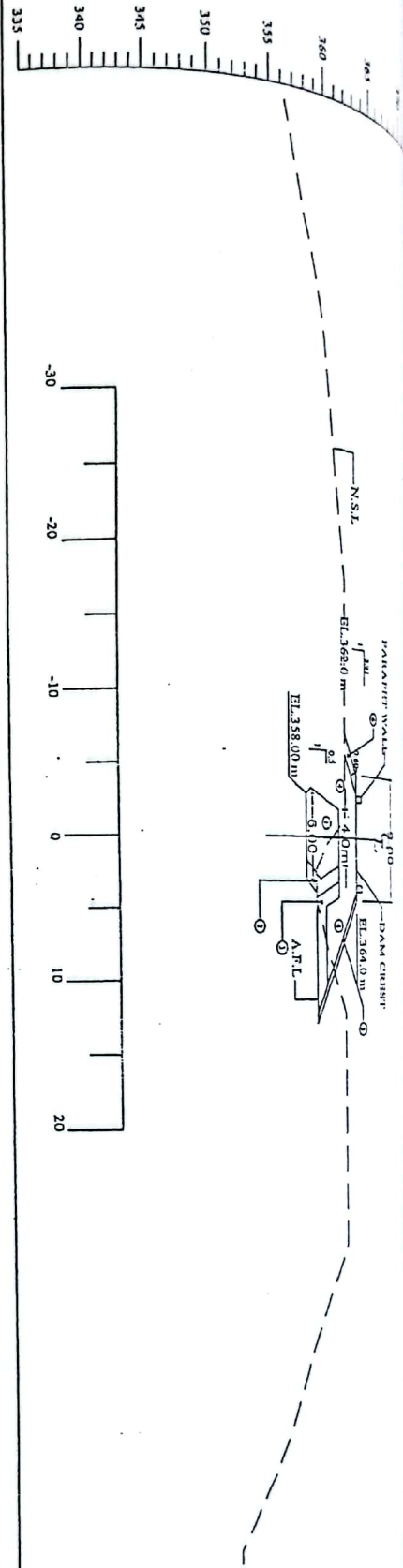
MATERIAL
 CLAYEY SILT
 FINE FILTER
 COARSE FILTER
 SANDY GRAVEL
 COBBLES & BOULDER PROTECTION BEDDING
 RIP RAP



CONSTRUCTION DRAWING

NOTE:
 1. All dimensions are in meters
 2. For location of section refer Dwg. No. SKD-MD-02

ISSUED FOR CONSTRUCTION
 21-11-2020



EMBANKMENT MATERIALS

- ONE MATERIAL**
- 1 CLAYEY SILT
 - 2 FINE FILTER
 - 3 COARSE FILTER
 - 4 SANDY GRAVEL
 - 5 COBBLES & BOULDER PROTECTION BEDDING
 - 6 RIP RAP

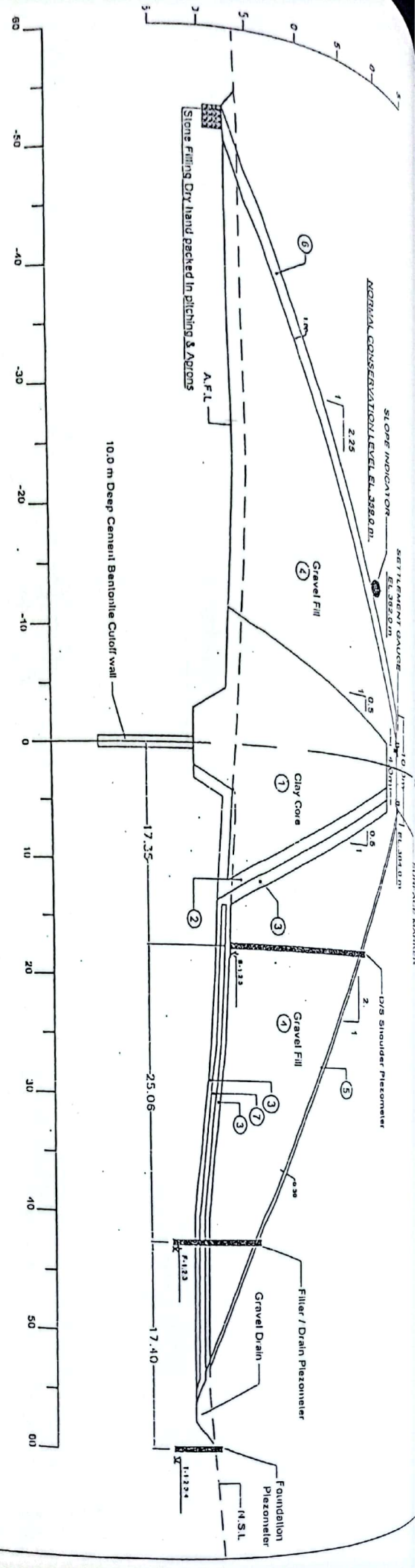
NOTE:
 1. All dimensions are in meters
 2. For location of section refer Dwg. No. SKD-MD-02

ISSUED FOR CONSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA DEPARTMENT, PESHAWAR		CONSULTING ASSOCIATES SHAH KALBEEM DAM PROJECT NOWSHERA		REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED BY	SUBMITTED BY	TAMIR ABBAS	SAHIL AHMAD	CROSS SECTION RD 0+220 SKD-MD-25



ISSUED FOR
CONSTRUCTION



MANAGEMENT MATERIALS

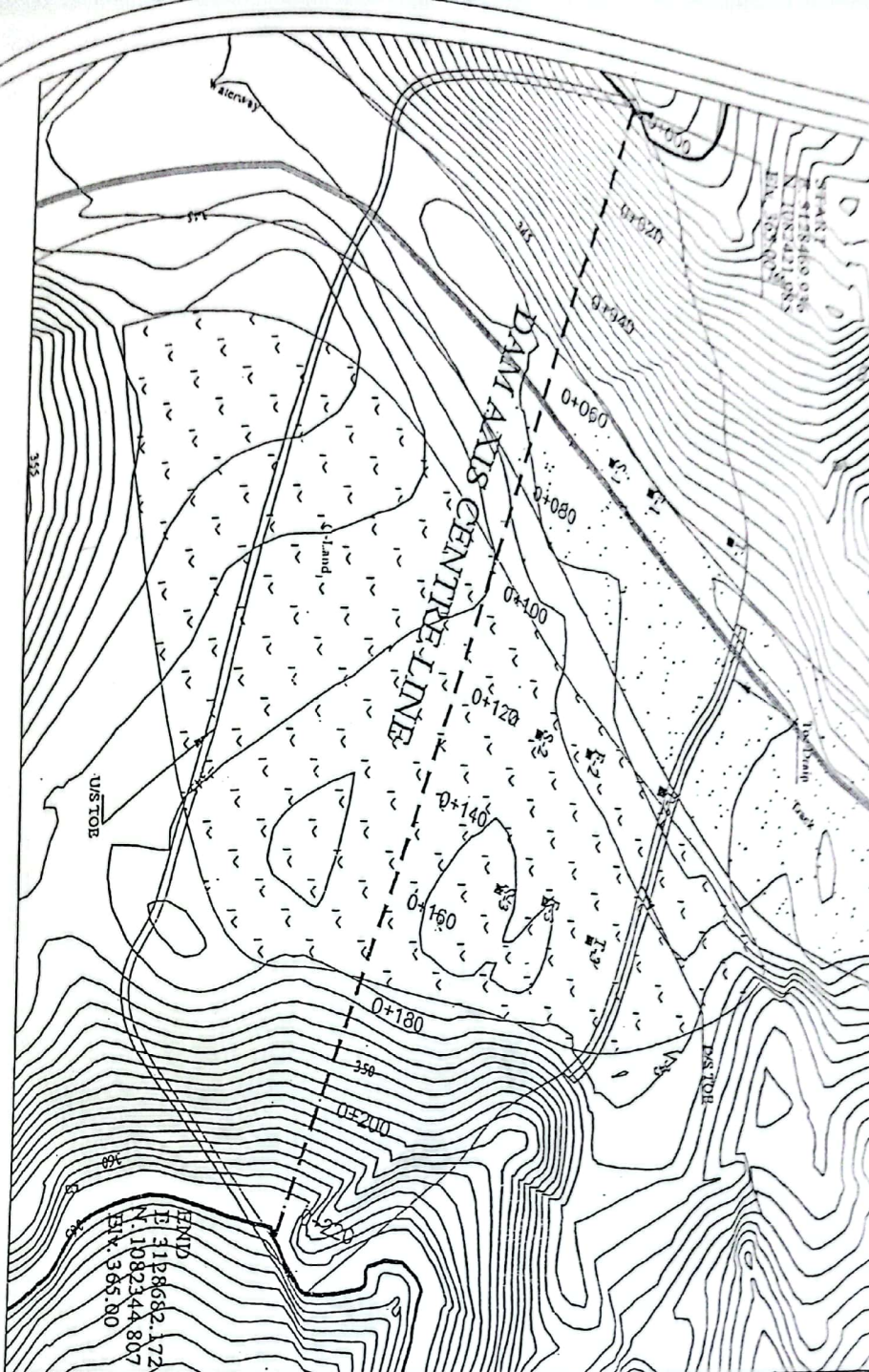
1. CLAYEY SILT
2. FINE FILTER
3. COARSE FILTER
4. SANDY GRAVEL
5. COBBLES & BOULDER PROTECTION BEDDING
6. RIP RAP
7. GRAVEL DRAINAGE BLANKET

LEGEND

Symbol	Description	Purpose
	Marker	To observe horizontal & vertical movements
	Piezometer	To observe pore water pressure
	Slope Indicator	To observe lateral movement in fill
	Settlement Gauge	To observe settlement of foundation & consolidation of fill

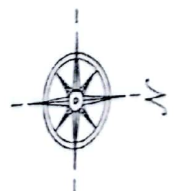
ISSUED FOR INSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR	CONSULTING ASSOCIATES SHAH KALIM DAM PROJECT NOWSHERA	REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED	SUBMITTED BY	TAMIR ABUAS	INSTRUMENTATION CROSS SECTION
									DRAWING NO. 1
									S/77.347.17



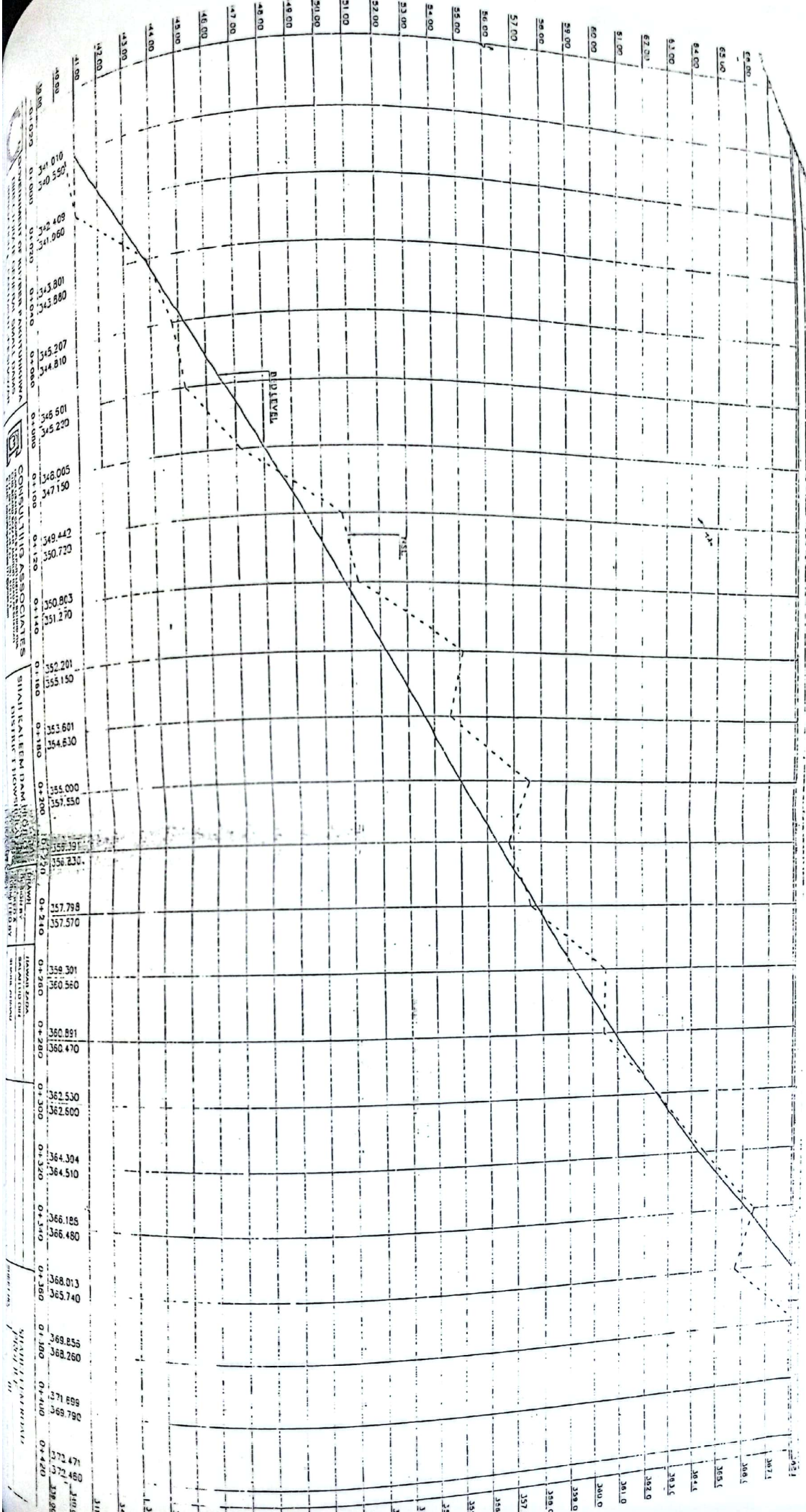
NOTE:
1. All dimensions are in meters.
2. For setting out, refer to the 'D/S TOB' and 'U/S TOB' points.

**ISSUED FOR
CONSTRUCTION**



Piezometer Location

S.N	East	North	Remarks
S-1	3128518.448	1082418.503	D/S Shoulder
S-2	3128539.864	1082402.023	D/S Shoulder
S-3	3128618.467	1082397.928	D/S Shoulder
P-1	3128544.420	1082439.100	D/S Filter
P-2	3128592.680	1082412.500	D/S Filter
P-3	3128623.288	1082416.634	D/S Filter
T-1	3128623.570	1082448.030	Toe drain
T-2	3128597.920	1082429.920	Toe drain
T-3	3128626.160	1082413.770	Toe drain



SCALE: 1:50,000
 SHEET NO. 1000000000
 1000000000

DEPARTMENT OF HIGHWAYS
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER

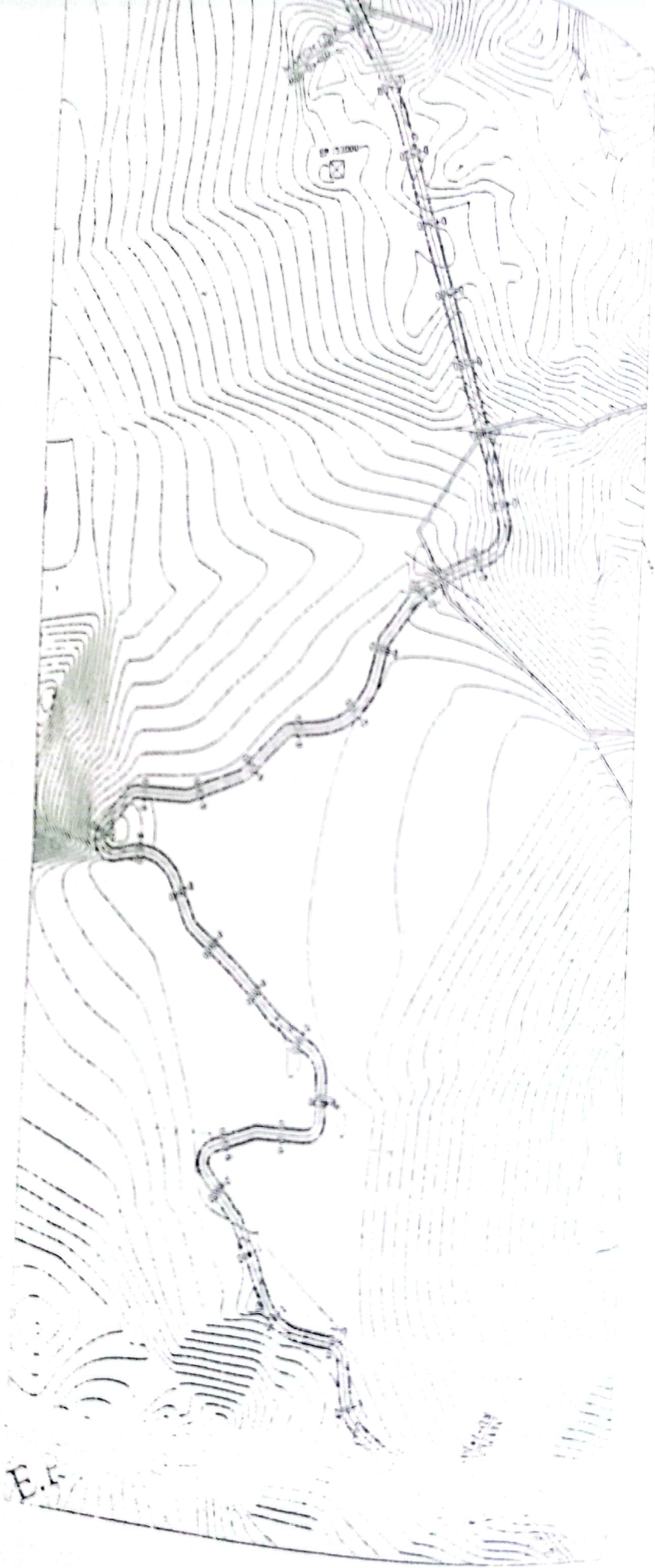


CONSULTING ASSOCIATES
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER

SILANGAT DISTRICT PROJECT
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER
 DISTRICT ENGINEER, DISTRICT ENGINEER, DISTRICT ENGINEER

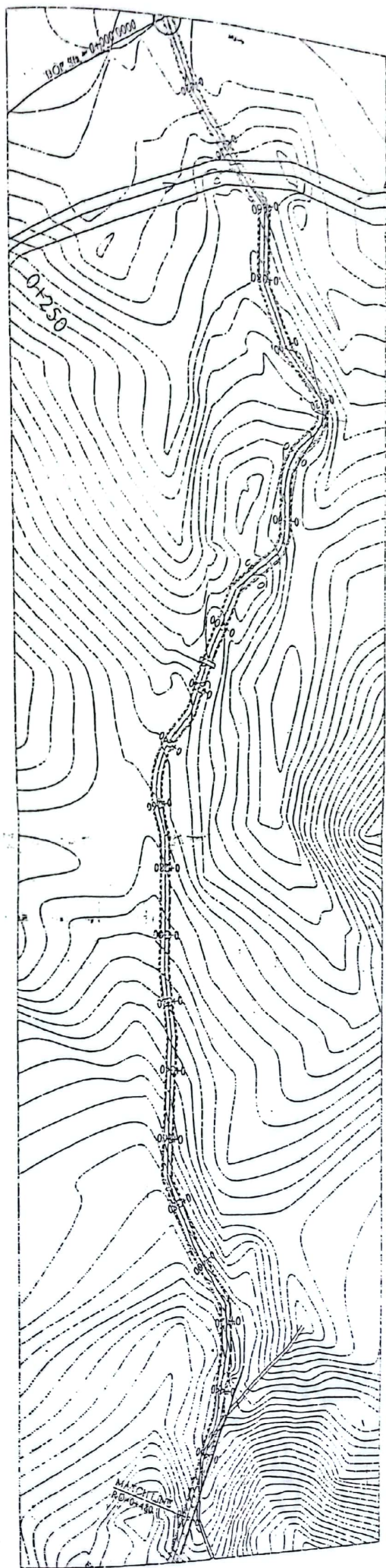
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10/10/10	1	10/10/10	10/10/10
10/10/10	2	10/10/10	10/10/10
10/10/10	3	10/10/10	10/10/10

DISTRICT ENGINEER



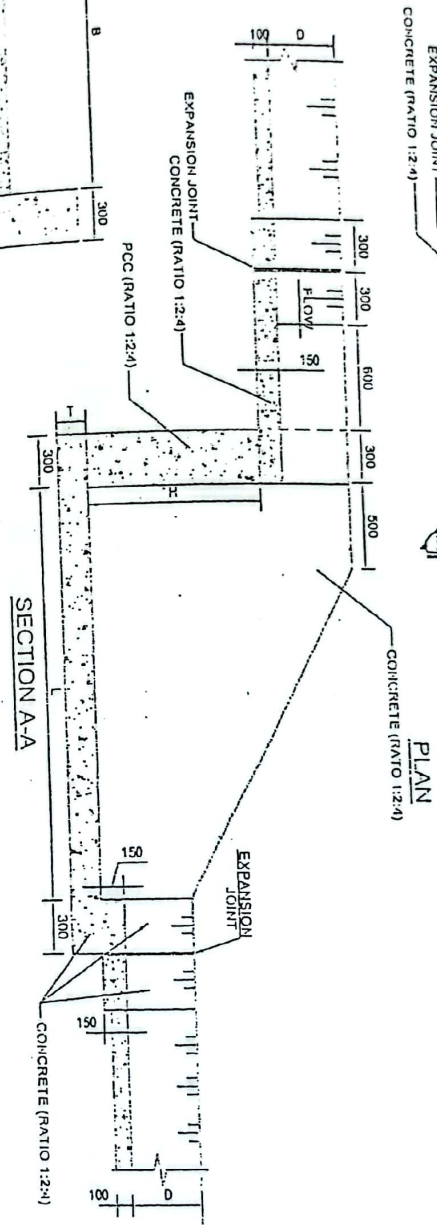
CONSULTING ASSOCIATES
 SIAI KAHM DAN KUTIP
 ENGINEERING & ARCHITECTURE
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SCALES
 1:1000 HOB
 1:1200 VER



Consultant Copy

ROAD



SECTION A-A

TYPICAL DROP FALL PLUMB
SECTION DETAILS

ISSUED FOR
CONSTRUCTION

SCALE

0 200 400 600 800 1,000

ISSUED FOR CONSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
PESHAWAR
P.O. BOX 114, PESHAWAR
TEL: 011-2511111, 2511112
FAX: 011-2511113

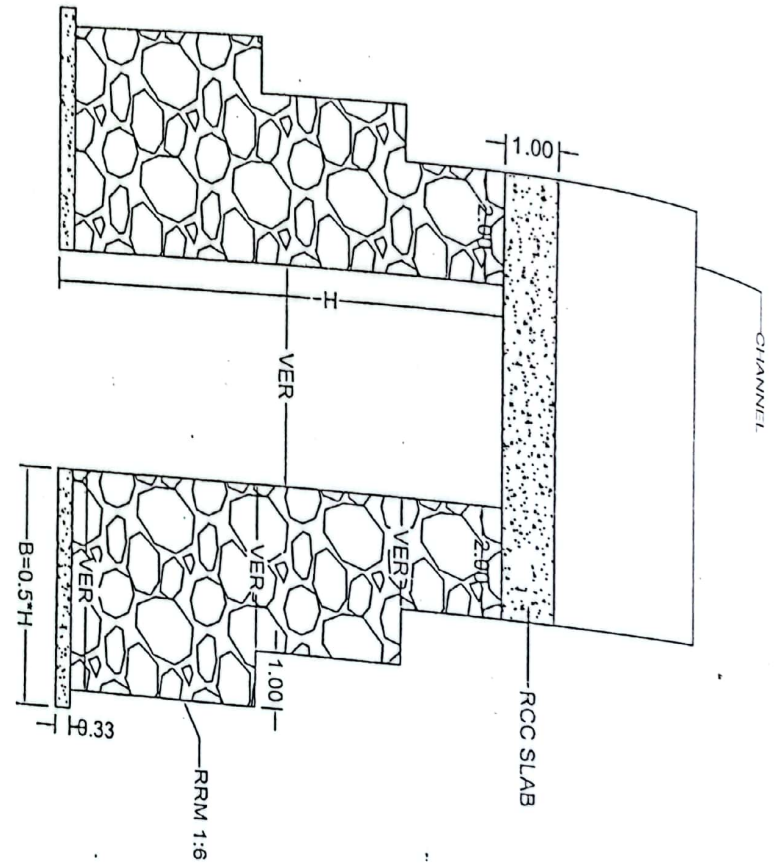
SHAH KALEEM DAM
PROJECT NOWSIRA

DESIGN BY	SALAH UD DIN
CHECKED BY	SHAH KALEEM
SUBMITTED BY	SALAH UD DIN

ALL DIMENSIONS IN FEET
DRAINAGE NO.

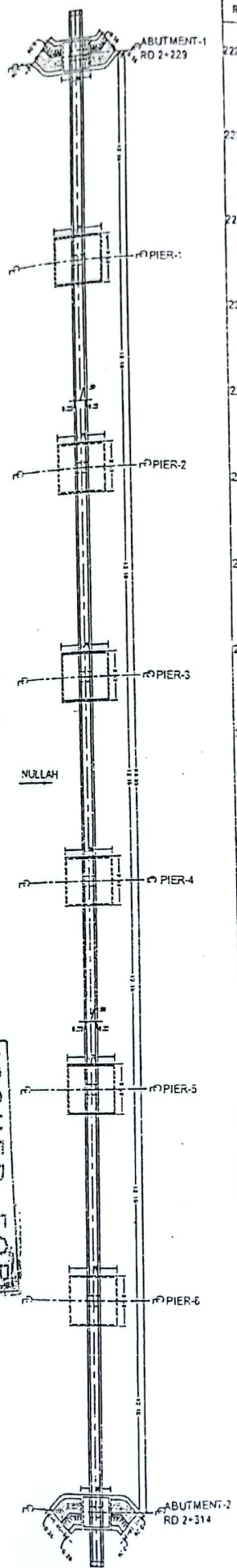
ISSUED FOR
CONSTRUCTION

CROSS SECTION OF CULVERT



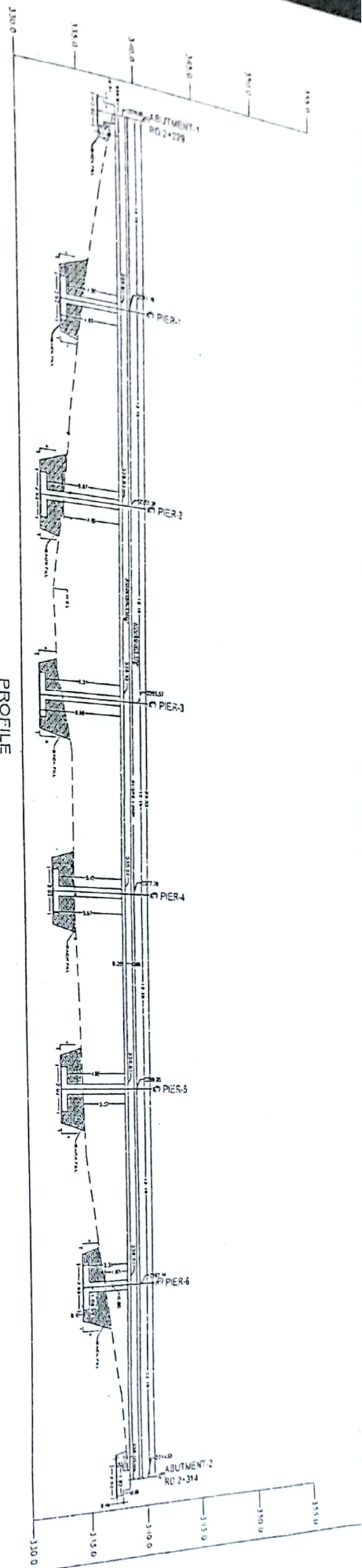
CONSULTING ASSOCIATES
 SHAUKAR BEM DAM
 PROJECT NONGSHIRA
 DESIGNED BY: SHAUKAR BEM
 CHECKED BY: SHAUKAR BEM
 APPROVED BY: SHAUKAR BEM
 AQUEDUCT NO. 1 PLAN & PROFILE

PLAN



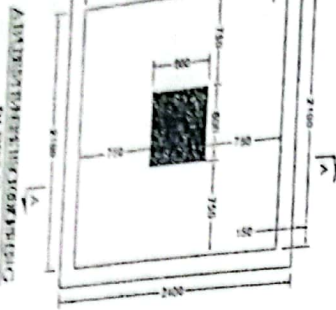
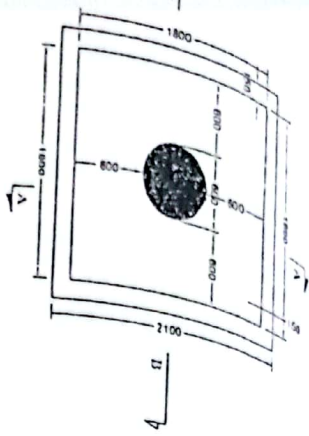
NSL	
RD	ELV.
2229.000	336.070
2234.000	336.790
2239.000	335.700
2244.000	334.830
2249.000	334.070
2254.000	333.450
2259.000	332.610
2264.000	332.930
2269.000	334.100
2274.000	334.110
2279.000	334.200
2284.000	334.430
2289.000	334.600
2294.000	334.800
2299.000	335.670
2304.000	336.630
2309.000	337.630
2313.730	337.980

PROFILE

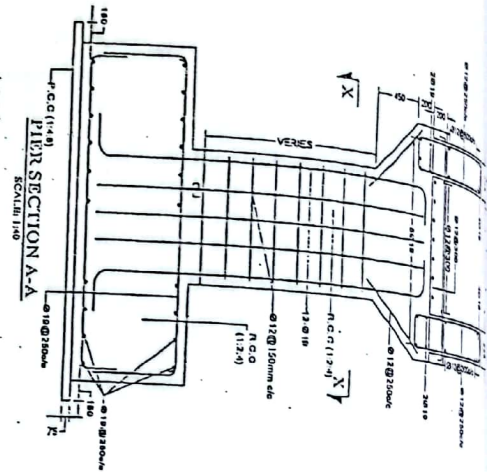


PIER FOOTING PLAN

SCALE: 1/20

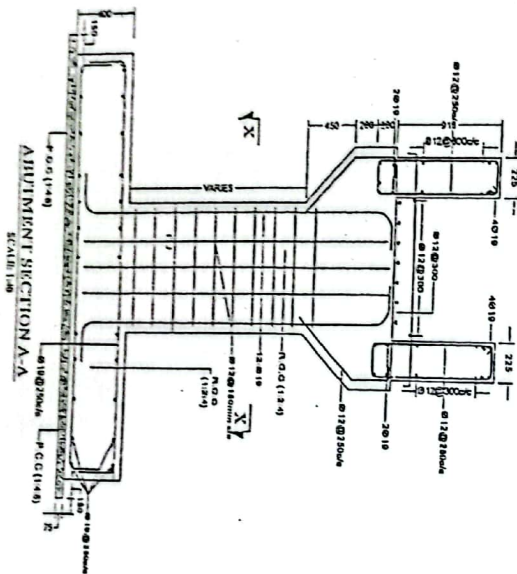
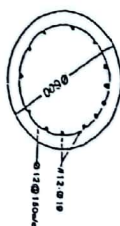


ABSTRACT VIEW OF PIER
SCALE: 1/20



PIER SECTION A-A
SCALE: 1/20

PIER SECTION X-X
SCALE: 1/20



ALIGNMENT SECTION A-A
SCALE: 1/20

ALIGNMENT SECTION X-X
SCALE: 1/20
FOR CONSTRUCTION



GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES AND ELECTRICITY
CENTRAL BOARD OF WATER RESOURCES
NEW DELHI

ZAKIR GUL DAM PROJECT
KOHAT

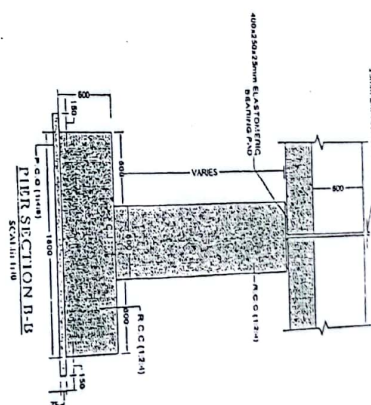
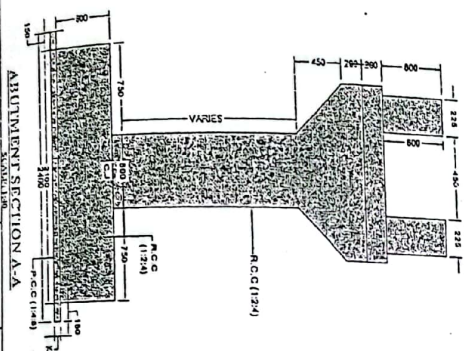
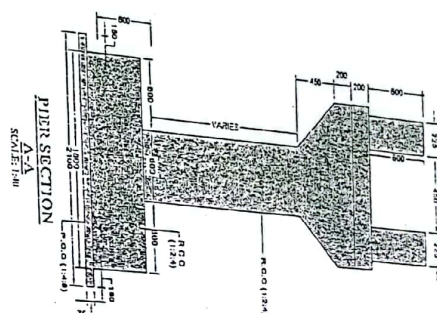
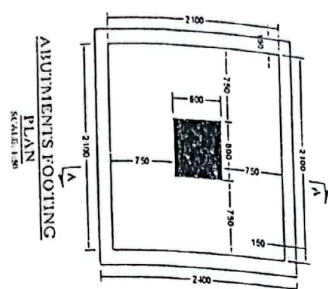
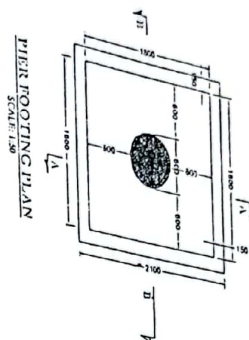
DESIGNED BY
ENGINEER BY
BIOHAI AHMAD

CHECKED BY
BIOHAI AHMAD

APPROVED BY
BIOHAI AHMAD

CONSTRUCTION DRAWING
REVISIONS AND DATE

DRAWING NO.



ISSUED FOR
CONSTRUCTION

1. *Chrysomelidae* (Colorado potato beetle) - This pest is a common problem for potato growers. It feeds on the leaves of the plant, causing damage and discoloration.

CONSULTING ASSOCIATES
 SPECIALIZING IN THE DESIGN AND CONSTRUCTION OF
 HIGH-LEVEL, HIGH-TRAFFIC, AND HIGH-LOAD BRIDGES
 AND STRUCTURES
 10000 W. 10th Ave., Suite 100, Denver, CO 80202
 (303) 751-1111

ZAMIR GUL DAW
KOLIK

PROJECT

GAIDED BY
EVALUATED BY
OBTAINED BY
NOT REPRODUCED BY

BOYAL, ALFRED
WALSH, W. G.
WALSH, ALFRED

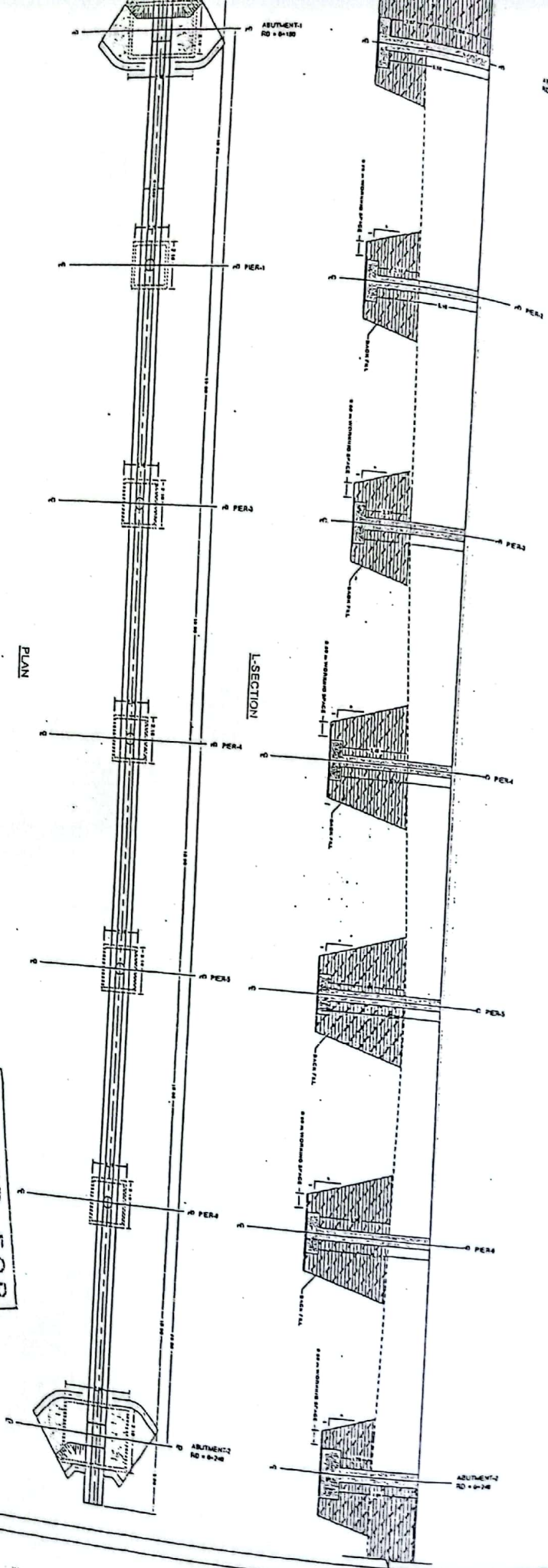
[illegible]

ALBANY

8 APR 1968

222

FIGURE 1
RD = 8-100



APPROVED FOR
CONSTRUCTION

Signature

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR



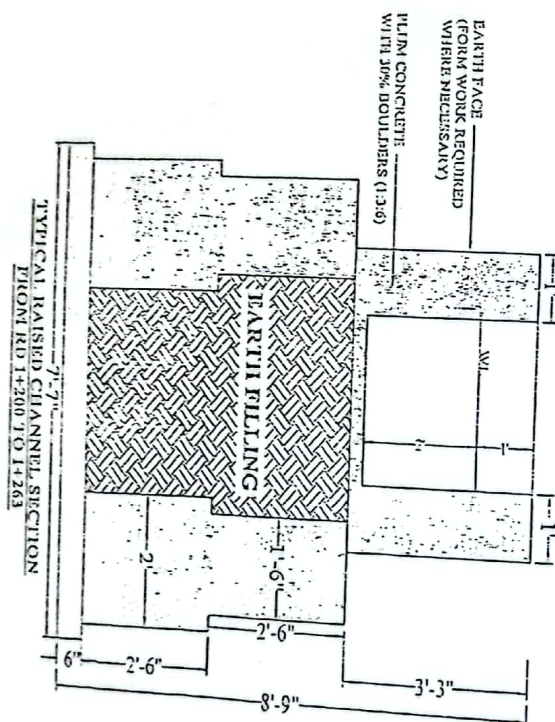
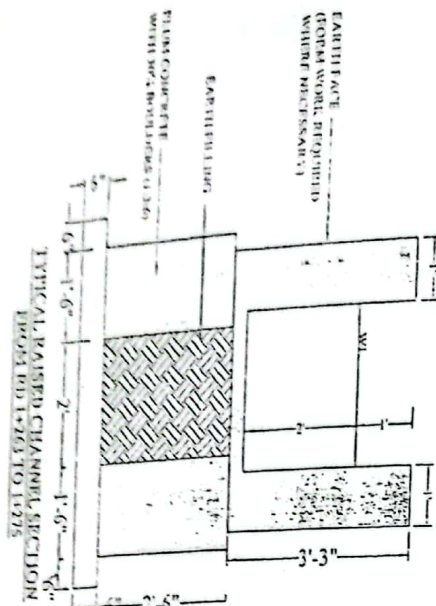
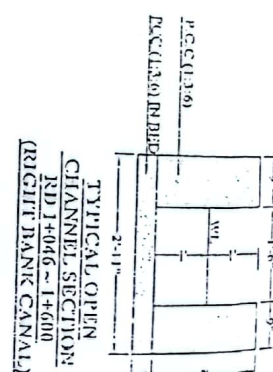
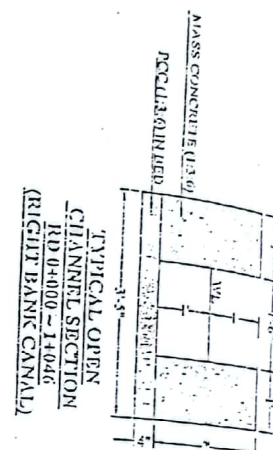
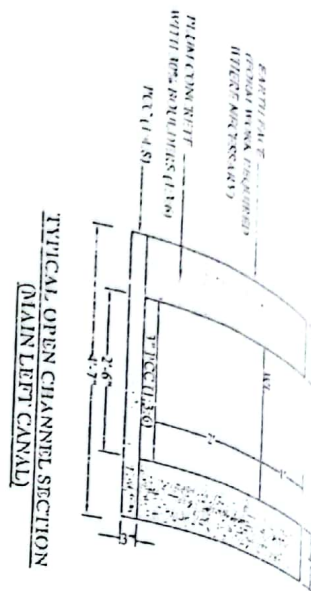
CONSULTING ASSOCIATES
HUMAN DEVELOPMENT CONSULTANTS
P.O. BOX 100, PESHAWAR
TEL: 011-2777445
FAX: 011-2777446
E-MAIL: consulting@peshawar.com

SHAHKALEEM DAM PROJECT
NOWSHERA

DESIGNED BY	SOHAIL AHMAD
DESIGNED BY	SALAH UD DIN
SUBMITTED BY	SHAHIL AHMAD

AQUEDUCT PLAN & PROFILE

DRAWING NO. (01 OF 01)



GOVERNMENT OF KENYA
CONCRETE GENERAL SMALL DAMS
RECONSTRUCTION PROJECT, PUNJAB



CONSULTING ASSOCIATES
MILWAUKEE CONSULTING ASSOCIATES
P.O. BOX 10000, MILWAUKEE, WISCONSIN 53210
Phone: (414) 333-1100

HAIR ALLEN DAM PROJECT
HOWSHILA

COORD. BY
DESIGN BY
SUBMITTED BY
SOLID ARCAD
SARAH AN DUB
SARAH AN DUB

9.1.14

TYPICAL CROSS SECTION OF
CHANNEL

DRAWING NO.

REVISION

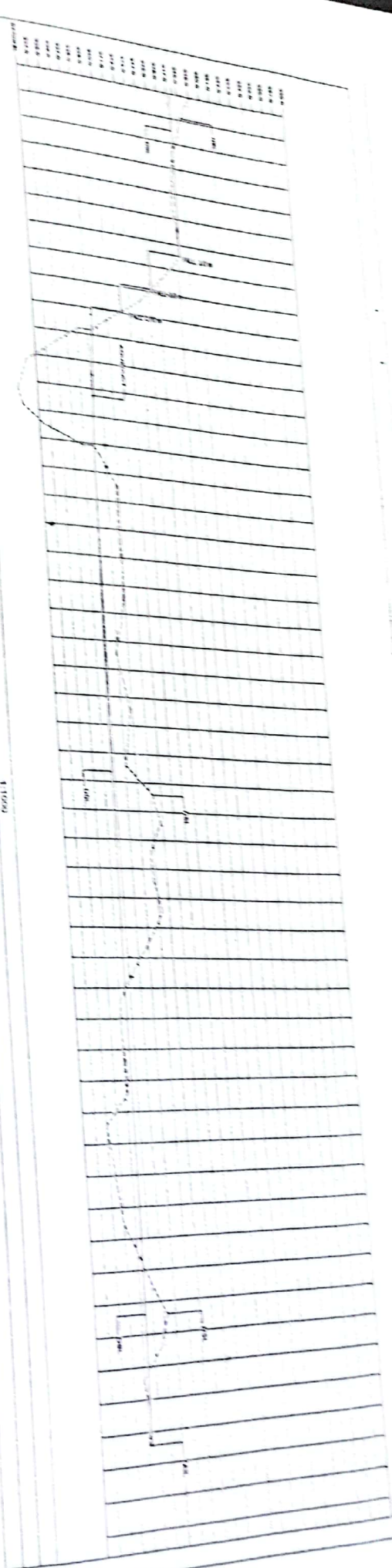
STATION	N.B.L. E.L.	S.B.L. E.L.
2000.000	348.803	347.310
2020.000	347.823	347.300
2040.000	347.265	347.290
2060.000	346.883	347.280
2080.000	346.833	347.270
2100.000	347.133	347.260
2120.000	347.273	347.250
2140.000	345.343	344.250
2160.000	345.113	341.250
2180.000	338.613	341.250
2200.000	337.110	338.405
2220.000	332.810	338.292
2240.000	331.480	338.179
2260.000	331.710	338.066
2280.000	333.390	337.843
2300.000	336.840	337.853
2320.000	338.443	
2340.000	338.793	337.825
2360.000	338.743	337.805
2380.000	338.693	337.865
2400.000	338.923	337.805
2420.000	339.603	337.845
2440.000	338.493	337.825
2460.000	338.863	337.805
2480.000	339.363	337.785
2500.000	339.743	337.785
2520.000	339.453	337.745
2540.000	339.123	337.725
2560.000	341.223	337.705
2580.000	341.783	337.685
2600.000	340.683	337.665
2620.000	340.743	337.645
2640.000	341.423	337.625
2660.000	340.133	337.605
2680.000	338.503	337.585
2700.000	337.053	337.565
2720.000	336.973	337.545
2740.000	337.193	337.525
2760.000	337.173	337.505
2780.000	335.013	337.485
2800.000	335.306	337.465
2820.000	335.613	337.445
2840.000	335.923	337.425
2860.000	336.993	337.405
2880.000	338.043	337.385
2900.000	339.331	337.365
2920.000	338.683	337.345
2940.000	336.903	337.325
2960.000	337.313	337.305
2980.000	337.083	337.285

ISSUED FOR
CONSTRUCTION

2/1/20

IRRIGATION CHANNEL PROFILE
DATE: 1/03/2019

STATION	1:2000	1:1000
2000.000	348.803	347.310
2020.000	347.823	347.300
2040.000	347.265	347.290
2060.000	346.883	347.280
2080.000	346.833	347.270
2100.000	347.133	347.260
2120.000	347.273	347.250
2140.000	345.343	344.250
2160.000	345.113	341.250
2180.000	338.613	341.250
2200.000	337.110	338.405
2220.000	332.810	338.292
2240.000	331.480	338.179
2260.000	331.710	338.066
2280.000	333.390	337.843
2300.000	336.840	337.853
2320.000	338.443	
2340.000	338.793	337.825
2360.000	338.743	337.805
2380.000	338.693	337.865
2400.000	338.923	337.805
2420.000	339.603	337.845
2440.000	338.493	337.825
2460.000	338.863	337.805
2480.000	339.363	337.785
2500.000	339.743	337.785
2520.000	339.453	337.745
2540.000	339.123	337.725
2560.000	341.223	337.705
2580.000	341.783	337.685
2600.000	340.683	337.665
2620.000	340.743	337.645
2640.000	341.423	337.625
2660.000	340.133	337.605
2680.000	338.503	337.585
2700.000	337.053	337.565
2720.000	336.973	337.545
2740.000	337.193	337.525
2760.000	337.173	337.505
2780.000	335.013	337.485
2800.000	335.306	337.465
2820.000	335.613	337.445
2840.000	335.923	337.425
2860.000	336.993	337.405
2880.000	338.043	337.385
2900.000	339.331	337.365
2920.000	338.683	337.345
2940.000	336.903	337.325
2960.000	337.313	337.305
2980.000	337.083	337.285



GOVERNMENT OF KENYA
MINISTRY OF WATER, LAND AND AIR
NATIONAL WATER RESOURCES AUTHORITY
NATIONAL WATER RESOURCES AUTHORITY
NATIONAL WATER RESOURCES AUTHORITY

CONSULTING ASSOCIATES
SHAHKALEEM DAM PROJECT
HOWSHIYA

DESIGNED BY
SUBMITTED BY
SOLIL AHMAD
SAJID ULLAH
SOLIL AHMAD

DESIGNED BY
SUBMITTED BY
SOLIL AHMAD
SAJID ULLAH
SOLIL AHMAD

DESIGNED BY
SUBMITTED BY
SOLIL AHMAD
SAJID ULLAH
SOLIL AHMAD

DESIGNED BY
SUBMITTED BY
SOLIL AHMAD
SAJID ULLAH
SOLIL AHMAD

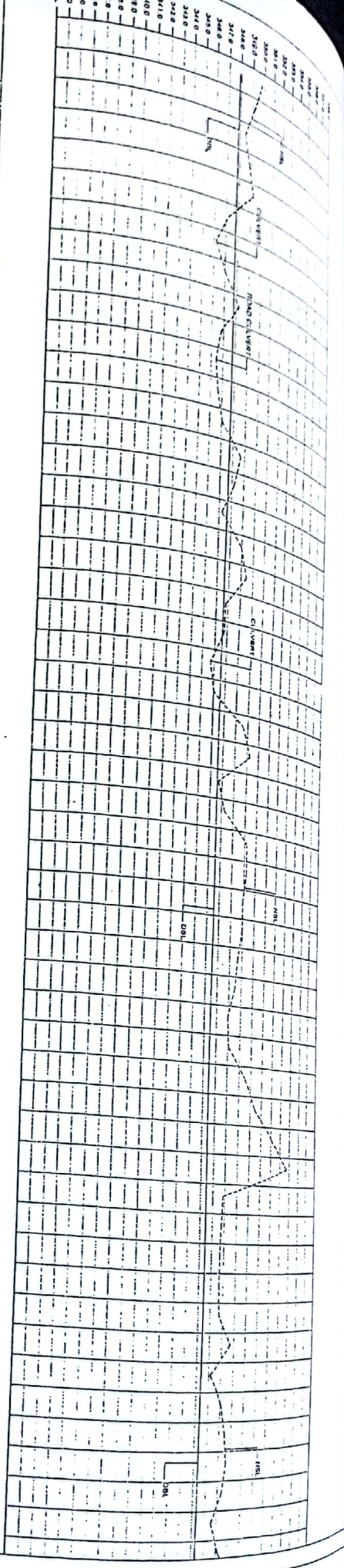
DESIGNED BY
SUBMITTED BY
SOLIL AHMAD
SAJID ULLAH
SOLIL AHMAD

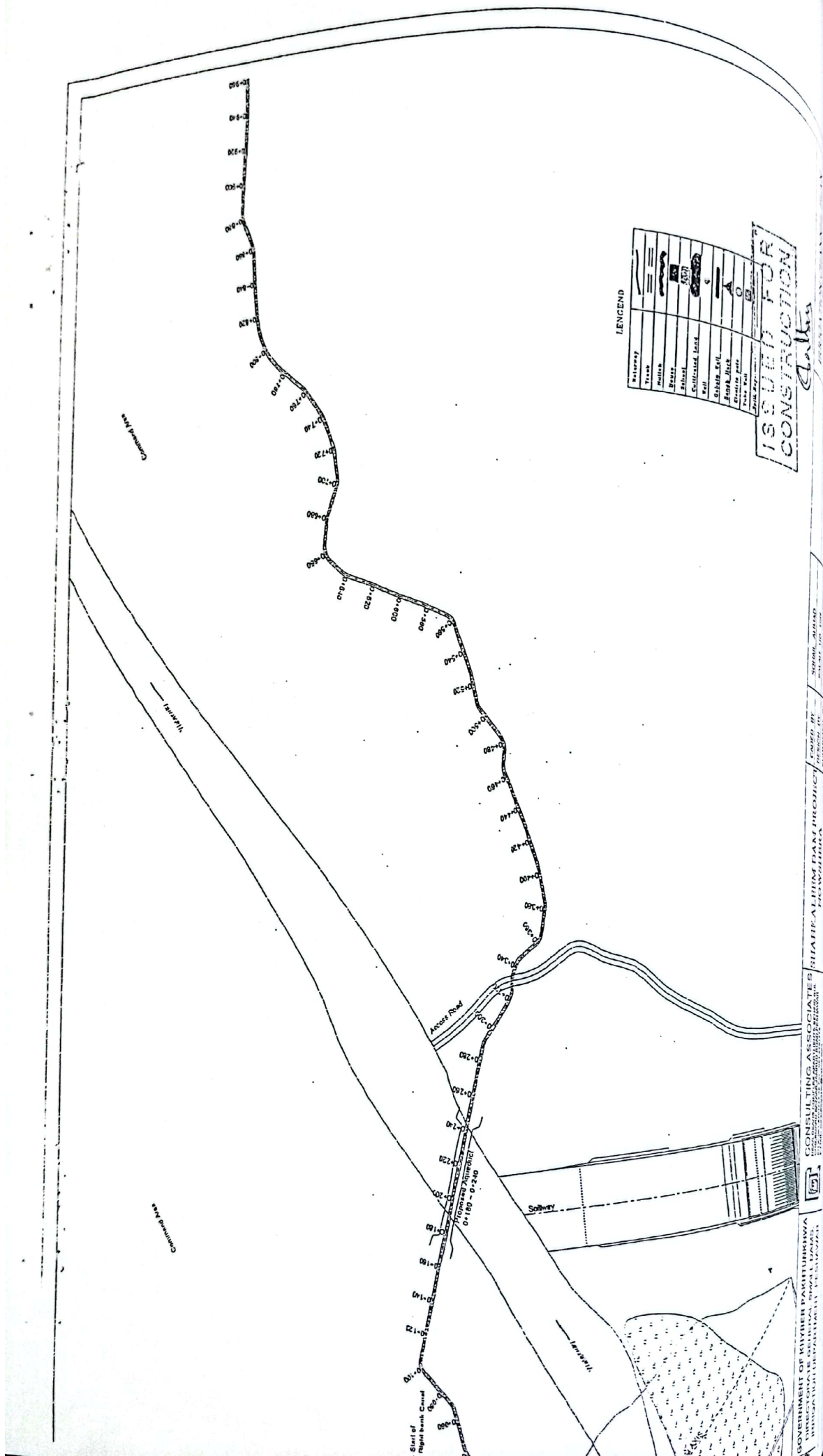
ISSUED FOR
CONSTRUCTION

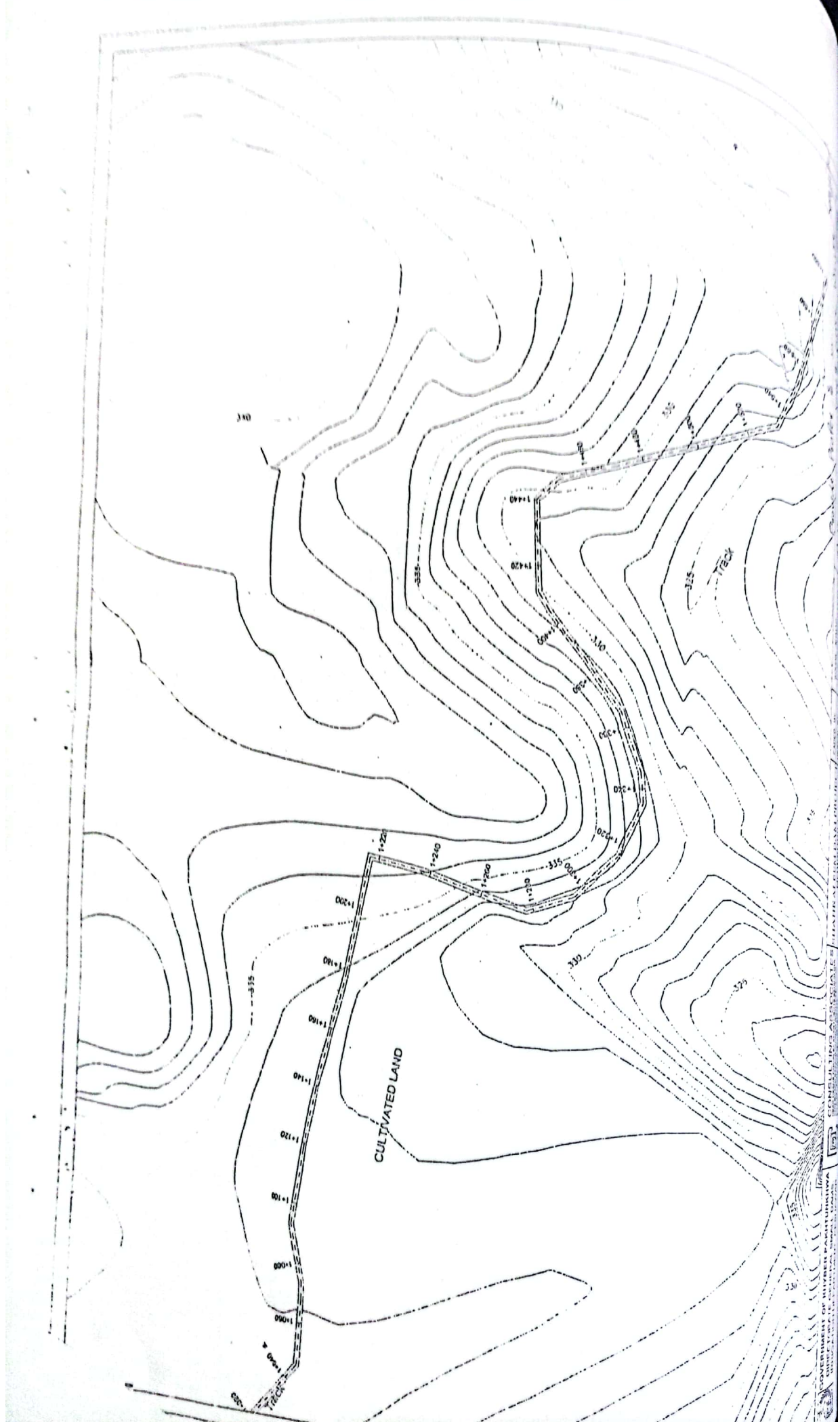
QJL

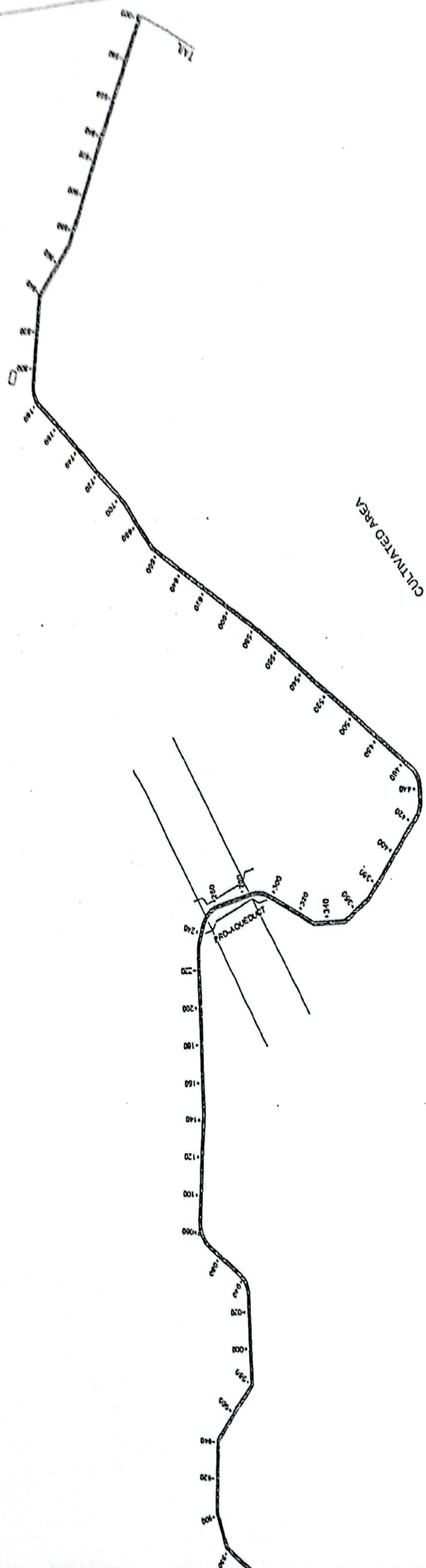
STATION	CHANNEL FLOW	CHANNEL FLOW	CHANNEL FLOW
1040.000	349.133	347.820	
1060.000	348.423	347.810	
1080.000	348.813	347.800	
1100.000	349.223	347.790	
1120.000	347.243	347.780	
1140.000	346.173	347.770	
1160.000	347.083	347.760	
1180.000	348.233	347.750	
1200.000	346.793	347.740	
1220.000	346.383	347.730	
1240.000	346.623	347.720	
1260.000	347.063	347.710	
1280.000	348.673	347.700	
1300.000	348.223	347.690	
1320.000	347.283	347.680	
1340.000	348.973	347.670	
1360.000	349.453	347.660	
1380.000	347.813	347.650	
1400.000	347.763	347.640	
1420.000	346.713	347.630	
1440.000	347.036	347.620	
1460.000	349.603	347.610	
1480.000	350.263	347.600	
1500.000	347.683	347.590	
1520.000	348.283	347.580	
1540.000	350.223	347.570	
1560.000	350.243	347.560	
1580.000	349.943	347.550	
1600.000	349.943	347.540	
1620.000	349.650	347.530	
1640.000	349.463	347.520	
1660.000	348.943	347.510	
1680.000	349.103	347.500	
1700.000	350.533	347.490	
1720.000	351.393	347.480	
1740.000	353.039	347.470	
1760.000	354.683	347.460	
1780.000	348.853	347.450	
1800.000	348.743	347.440	
1820.000	348.653	347.430	
1840.000	348.643	347.420	
1860.000	348.693	347.410	
1880.000	349.743	347.400	
1900.000	348.163	347.390	
1920.000	349.083	347.380	
1940.000	349.453	347.370	
1960.000	349.643	347.360	
1980.000	349.343	347.350	
2000.000	348.543	347.340	
2020.000	349.163	347.330	
2040.000	350.133	347.320	

CHANNEL TYPE	CHANNEL TYPE	CHANNEL TYPE
RECTANGULAR	RECTANGULAR	RECTANGULAR
0.30 m	0.30 m	0.30 m
0.75 m	0.75 m	0.75 m
3.0 (ft/sec)	3.0 (ft/sec)	3.0 (ft/sec)
12000	12000	12000









ISSUED FOR
CONSTRUCTION

Santhos

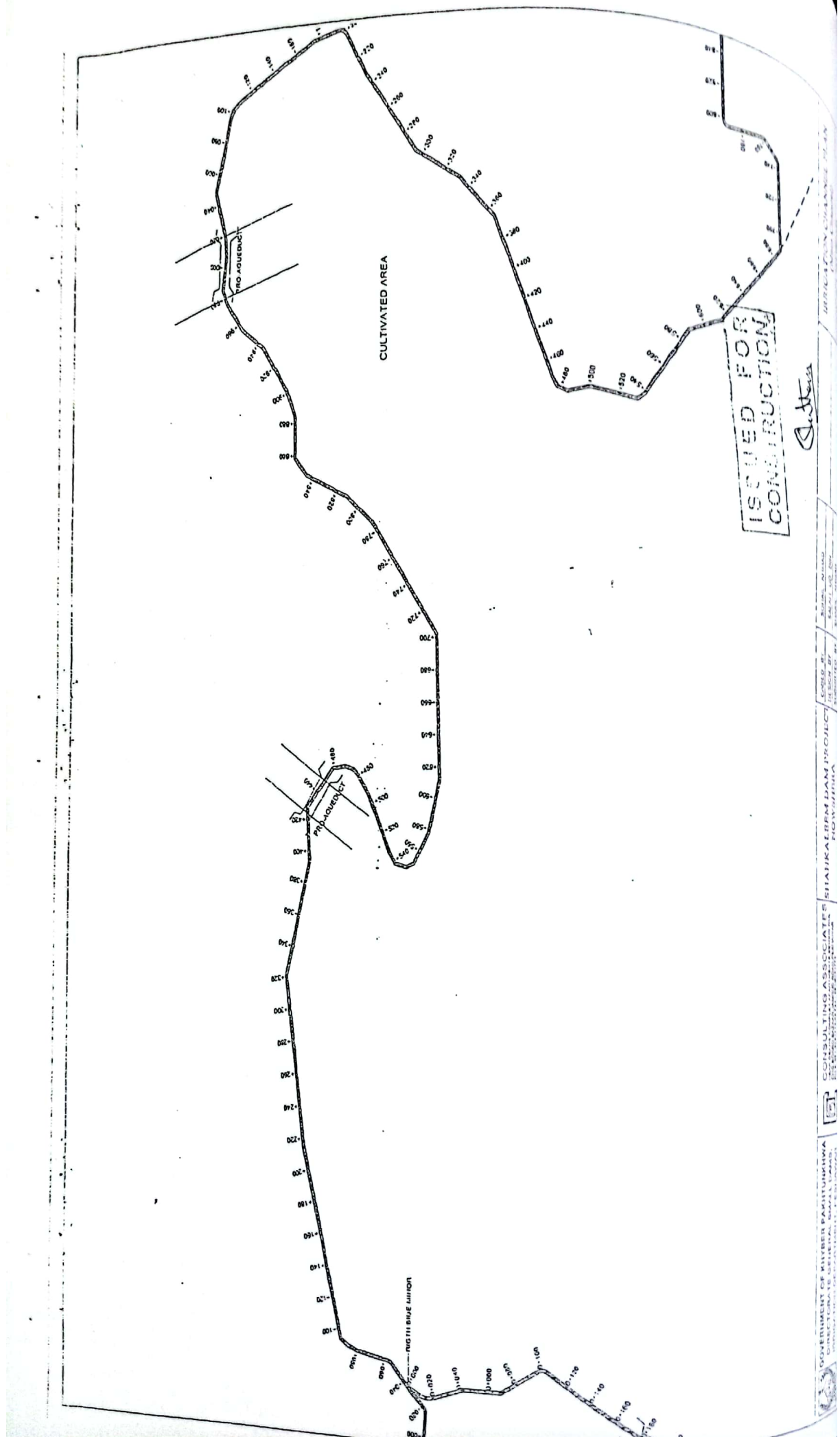
[illegible]

PHILIP KATEM DAM PROJECT NOW SILENT

CONSULTING ASSOCIATES
 10000 WILSON AVENUE, SUITE 100, WILSON, N.J. 07094
 (201) 361-1000 • FAX (201) 361-1001 • WWW.CONSULTINGASSOCIATES.COM

四

PAKISTAN
SOUTH EAST
SOUTH EAST

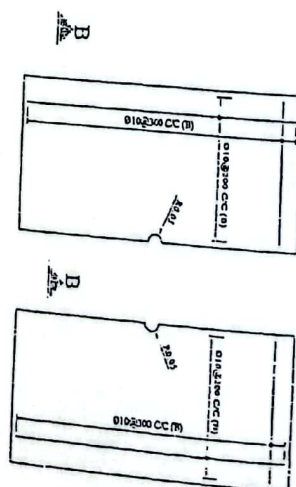


GOVERNMENT OF KENTUCKY
 DEPARTMENT OF HIGHWAYS
 DIVISION OF HIGHWAY CONSTRUCTION
 CONSULTING ASSOCIATES
 SHAKARIN, JAY PROJECT
 KENTUCKY
 10/1/1964

IRRIGATION SYSTEM



SECTION A-A



REINF. DETAIL OF PRE-CAST
COVER SLAB SLAB THICKNESS = .01m

ISSUED FOR
CONSTRUCTION



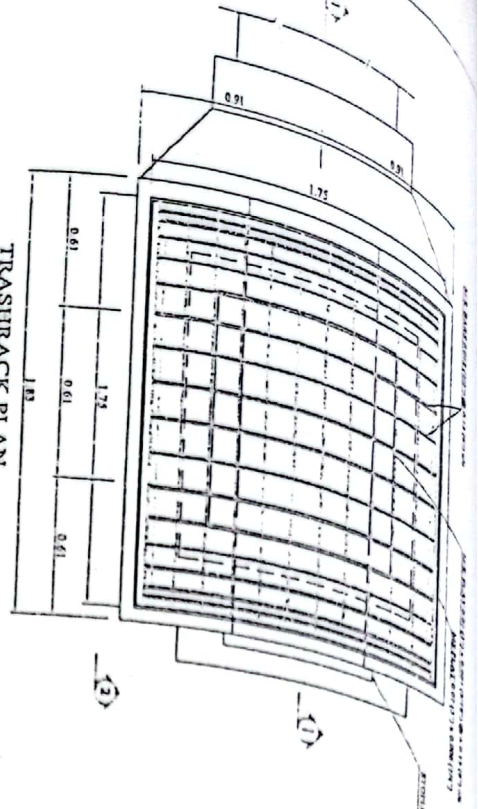
Diagram of a rectangular room with a central square area. The room is labeled "STUDIO" and the central area is labeled "STUDIO".

NTS

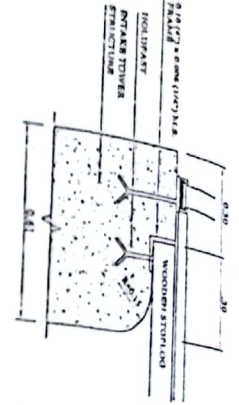
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Quilts

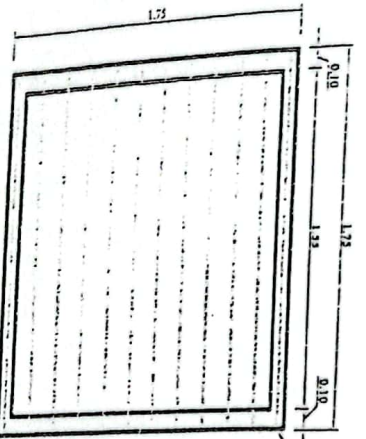
SIVAKALIBEM
DAM PROJECT
TOWNSHIP



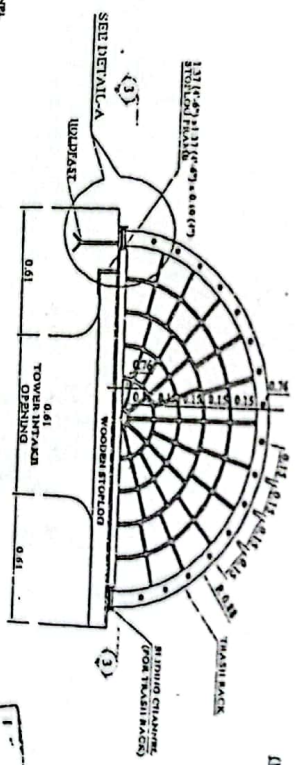
TRASHRACK PLAN
INLET STRUCTURE



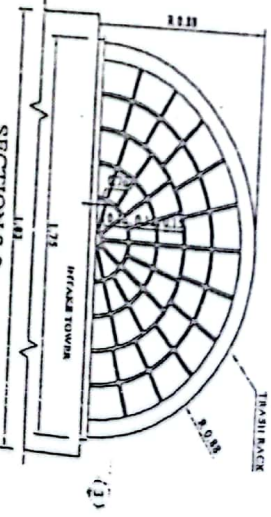
DETAIL-A



STOPLOG FRAME 3-3
PLAN



SECTION 1-1



SECTION 2-2
ELEVATION OF TRASHRACKS

NOTE
1. ALL DIMENSIONS AND LEVELS ARE IN METERS

FOR
CONSTRUCTION
Bulbow

GOVERNMENT OF
KARNATAKA
DEPARTMENT OF IRRIGATION
SMALL CANALS DEPARTMENT
BANGALORE, KARNATAKA

CONSULTING ASSOCIATES
SIVAN KALEEM
DAM PROJECT
NOWSHERA

REV.	DATE	DESCRIPTION	DESIGN BY	CHECKED	SUBMITTED BY

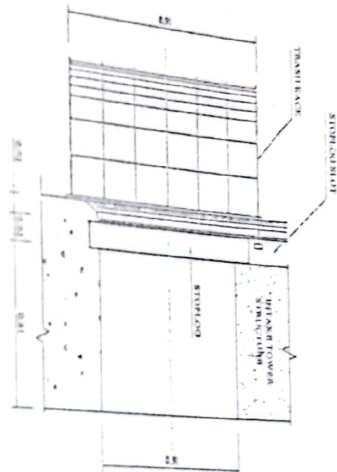
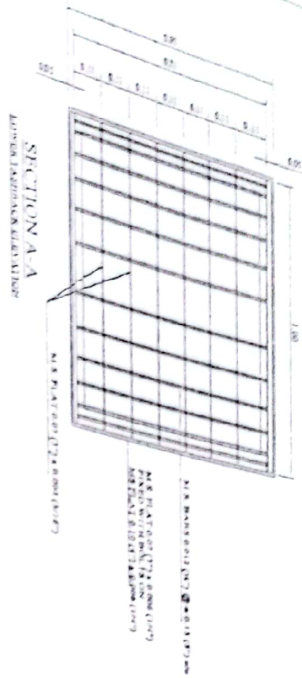
TRASHRACK AND STOPLOG DETAILS
DRAWING NO. 1 SKD-INT-07

REFERENCE DRAWINGS

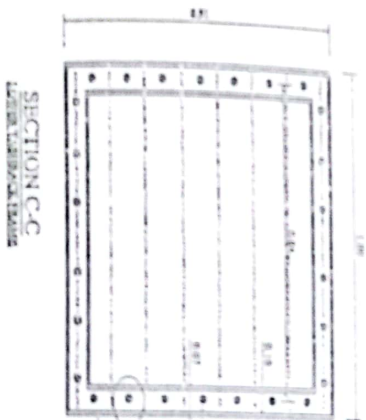
1. FOR EXISTING LAYOUT PLAN SEE DWG NO. 71
2. FOR EXISTING SECTION A-A SEE DWG NO. 71
3. FOR EXISTING SECTION B-B SEE DWG NO. 71
4. FOR EXISTING SECTION C-C SEE DWG NO. 71
5. FOR EXISTING SECTION D-D SEE DWG NO. 71
6. FOR EXISTING SECTION E-E SEE DWG NO. 71
7. FOR EXISTING SECTION F-F SEE DWG NO. 71
8. FOR EXISTING SECTION G-G SEE DWG NO. 71
9. FOR EXISTING SECTION H-H SEE DWG NO. 71
10. FOR EXISTING SECTION I-I SEE DWG NO. 71
11. FOR EXISTING SECTION J-J SEE DWG NO. 71
12. FOR EXISTING SECTION K-K SEE DWG NO. 71
13. FOR EXISTING SECTION L-L SEE DWG NO. 71
14. FOR EXISTING SECTION M-M SEE DWG NO. 71
15. FOR EXISTING SECTION N-N SEE DWG NO. 71
16. FOR EXISTING SECTION O-O SEE DWG NO. 71
17. FOR EXISTING SECTION P-P SEE DWG NO. 71
18. FOR EXISTING SECTION Q-Q SEE DWG NO. 71
19. FOR EXISTING SECTION R-R SEE DWG NO. 71
20. FOR EXISTING SECTION S-S SEE DWG NO. 71
21. FOR EXISTING SECTION T-T SEE DWG NO. 71
22. FOR EXISTING SECTION U-U SEE DWG NO. 71
23. FOR EXISTING SECTION V-V SEE DWG NO. 71
24. FOR EXISTING SECTION W-W SEE DWG NO. 71
25. FOR EXISTING SECTION X-X SEE DWG NO. 71
26. FOR EXISTING SECTION Y-Y SEE DWG NO. 71
27. FOR EXISTING SECTION Z-Z SEE DWG NO. 71

NOTE

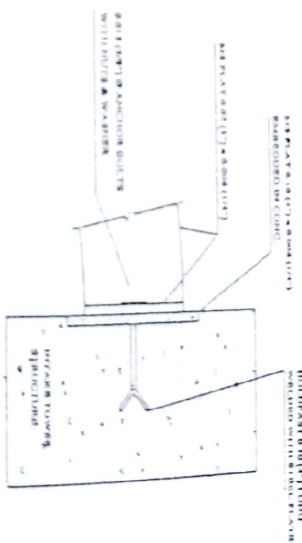
1. ALL DIMENSIONS ARE IN METERS AND MILLIMETERS.



SECTION B-B



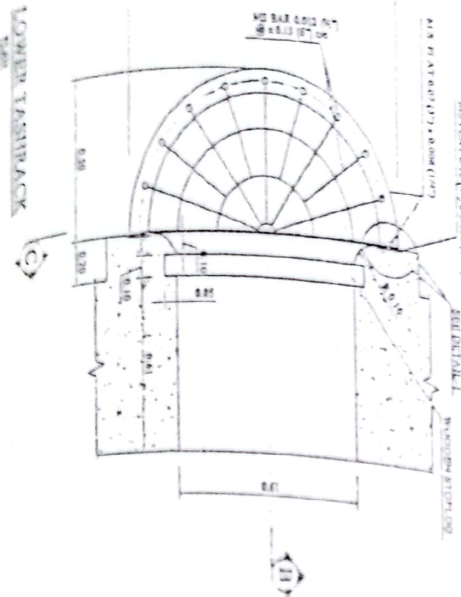
SECTION C-C



DETAIL - 1

NOTE

1. ALL DIMENSIONS ARE IN METERS AND MILLIMETERS.

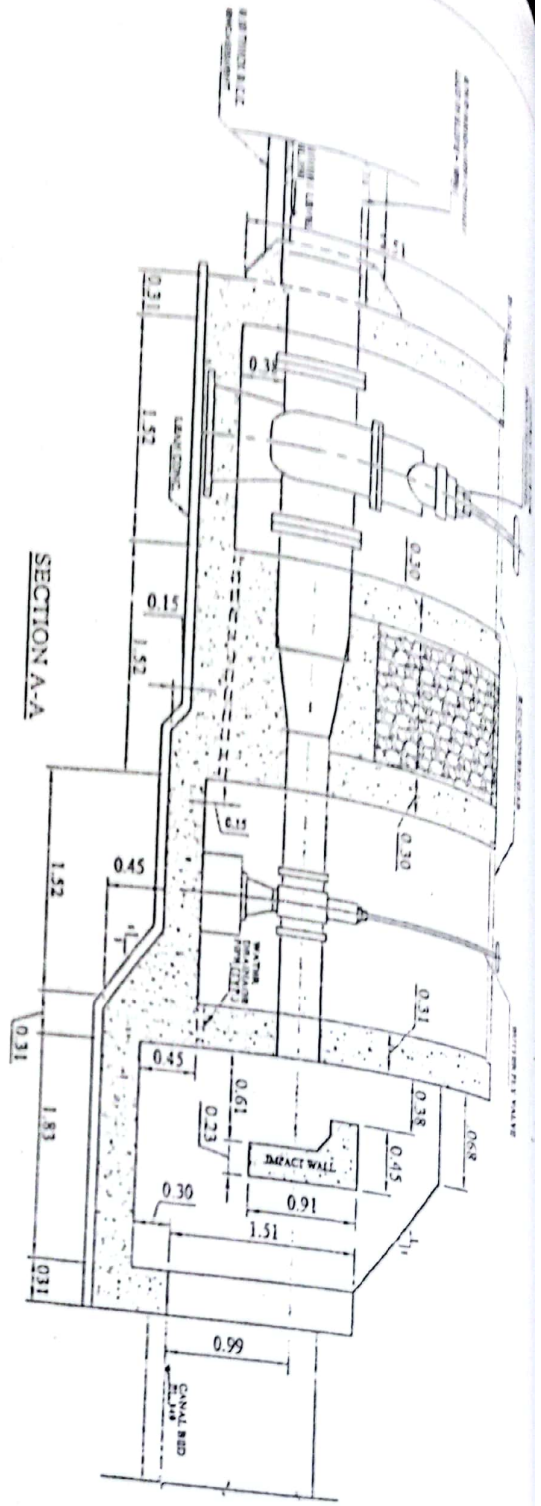


LOWER TANK BACK

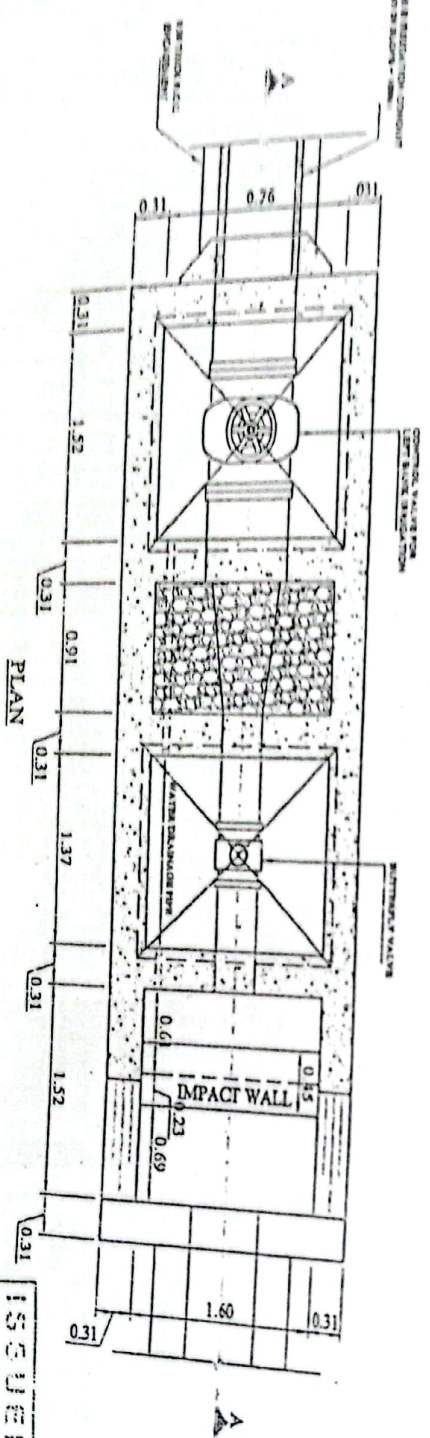
ISSUED FOR CONSTRUCTION

A. J. J.

THESE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION WITHOUT THE APPROVAL OF THE ARCHITECT.



SECTION A-A



PLAN

NOTE
1. ALL DIMENSIONS AND LEVELS ARE IN METERS.

ISSUED FOR CONSTRUCTION

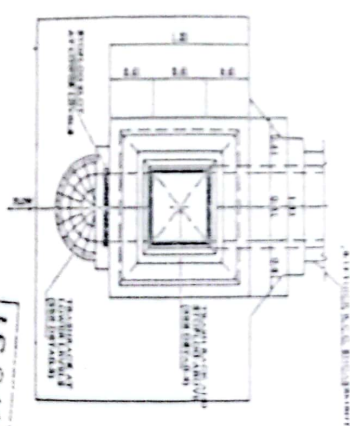
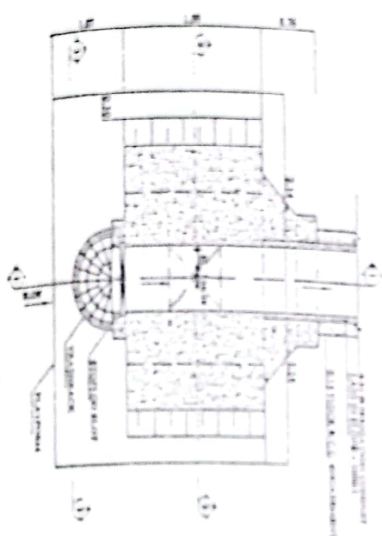
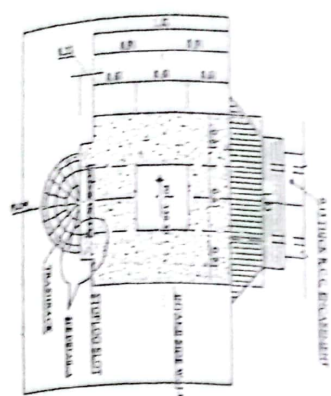
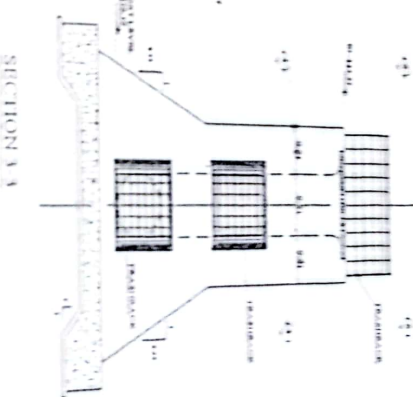
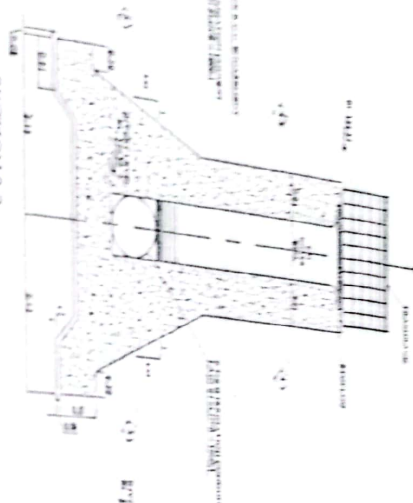
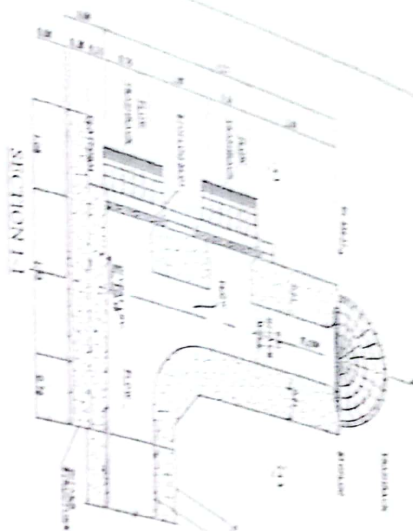


GOVERNMENT OF KARNATAKA
DEPARTMENT OF WATER RESOURCES
CONSULTING ASSOCIATES
SHAH KALEEM
DAM PROJECT
NOWSHERA

REV.	DATE	DESCRIPTION

DESIGN BY: RAJIV RAO
CHECKED BY: SHIVKUL NARAYAN

OUTLET STRUCTURE
PLAN & SECTION
DRAWING NO. 1
SIGN: JNT-05



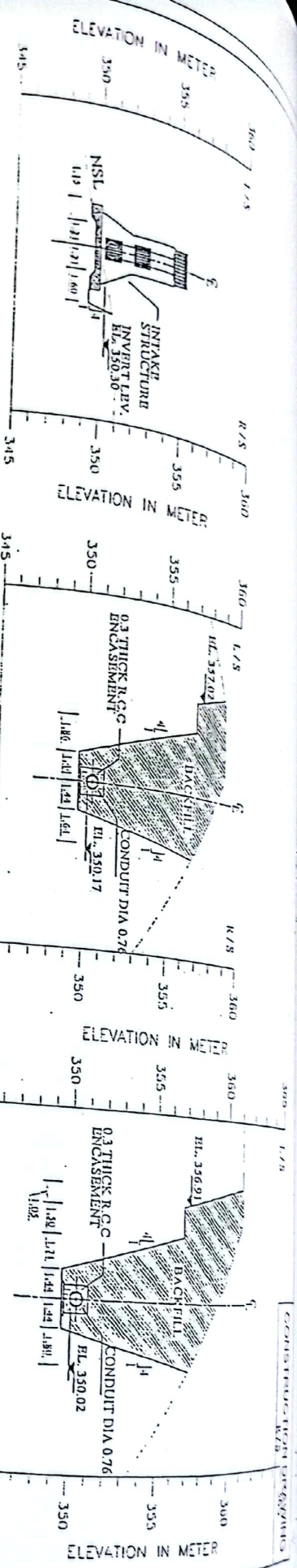
NOTES

ISSUED FOR
CONSTRUCTION
Allen

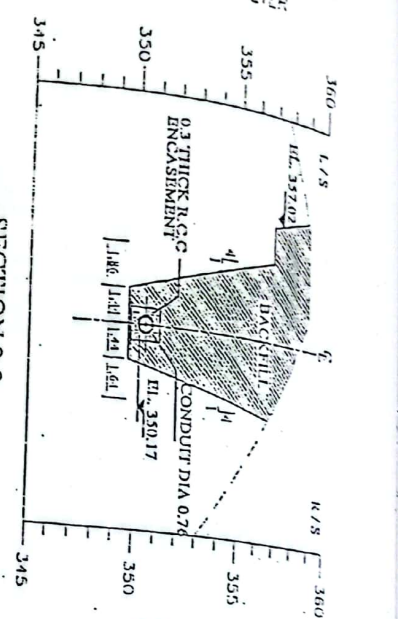


ALL DIMENSIONS ARE IN METERS.

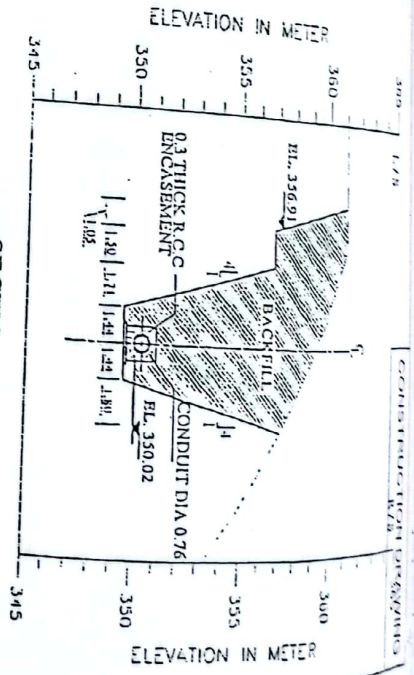
CONSULTING ASSOCIATES 10000 15th Avenue, Suite 100 Denver, Colorado 80202 Tel: (303) 751-1111 Fax: (303) 751-1112 E-mail: info@consultingassociates.com		PROJECT NO. 08-001 PROJECT NAME: IRRIGATION CONDUIT REINFORCEMENT DETAILS	
SHEET NO. 08-001-01 SHEET TITLE: IRRIGATION CONDUIT REINFORCEMENT DETAILS	DATE: 08/01/08 DRAWN BY: S/D-INT-08 CHECKED BY: S/D-INT-08 DESIGNED BY: S/D-INT-08	PROJECT NO. 08-001 PROJECT NAME: IRRIGATION CONDUIT REINFORCEMENT DETAILS	SHEET NO. 08-001-01 SHEET TITLE: IRRIGATION CONDUIT REINFORCEMENT DETAILS



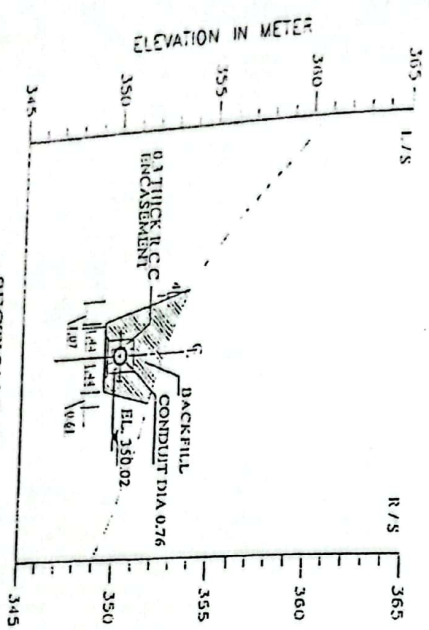
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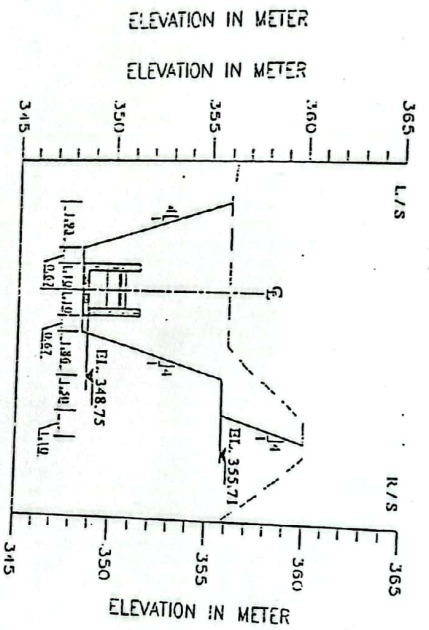
SECTION 3-3



SECTION 4-4



SECTION 5-5



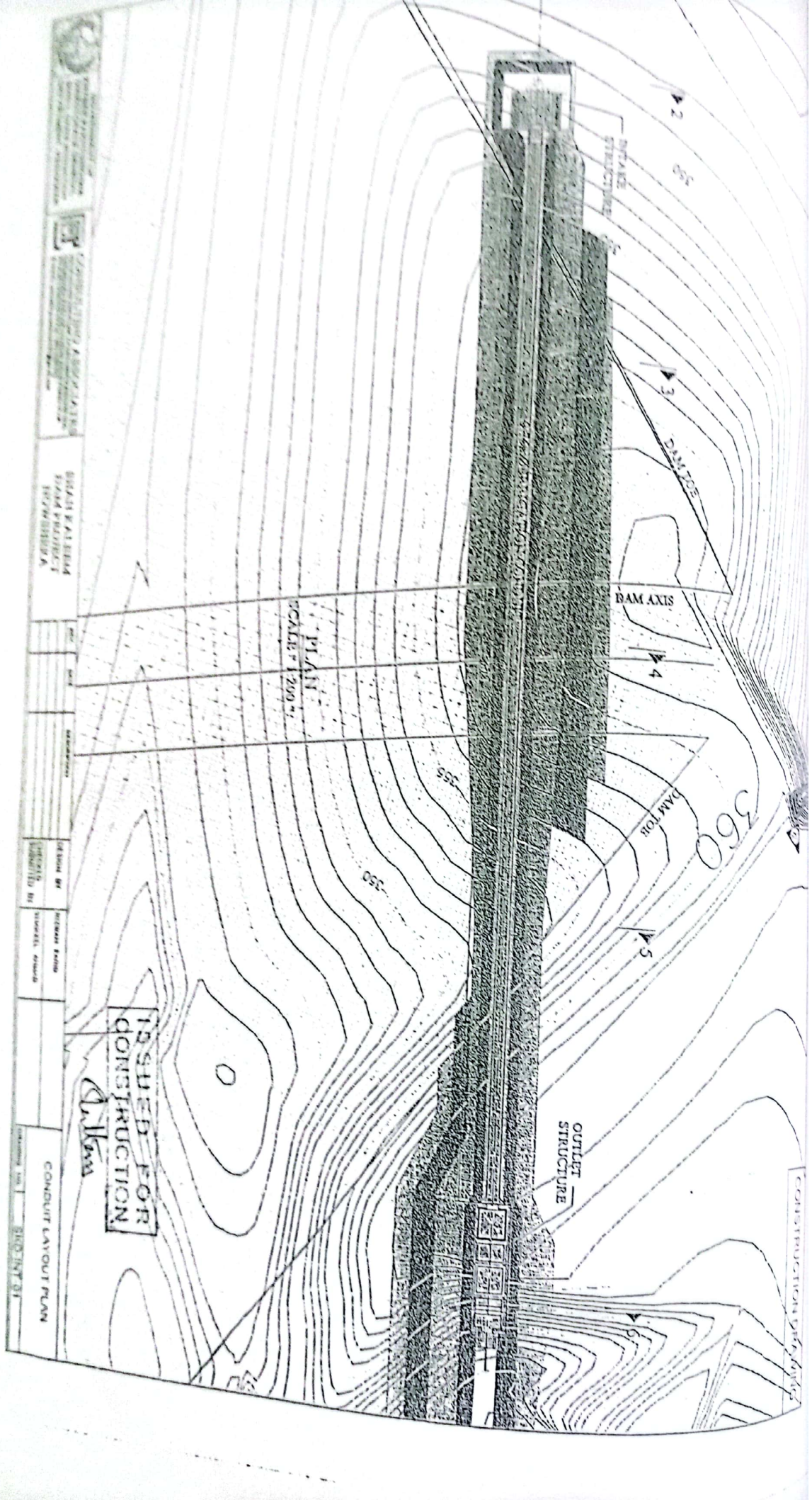
SECTION 6-6

NOTE :-
ALL DIMENSIONS ARE IN METERS.

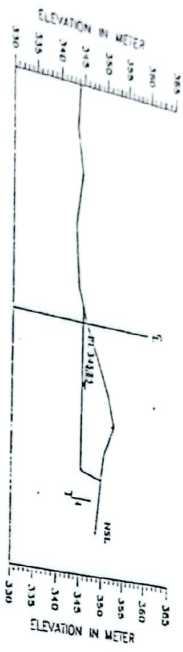
ISSUED FOR CONSTRUCTION

[Signature]

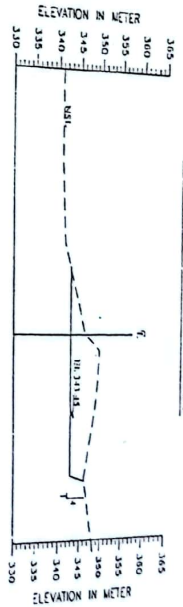
GOVERNMENT OF KARNATAKA DEPARTMENT OF WATER RESOURCES BANGALORE		CONSULTING ASSOCIATES SRI K. RAO DAM PROJECT NO. 10/10/10		NO. DATE DESCRIPTION	DESIGN BY CHECKED BY SUBMITTED BY	REVIEWED BY APPROVED BY	IRIGATION CONDUIT CROSS SECTIONS STD-INT-73
---	--	--	--	----------------------------	---	----------------------------	---



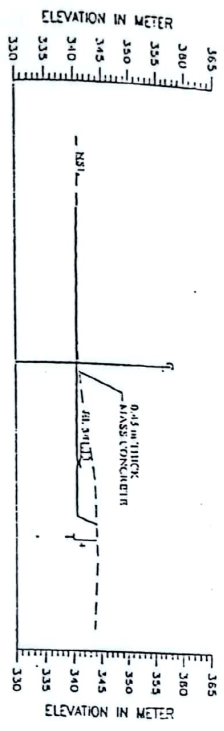
INTAKE & OUT TAKE STRUCTURES



N.S.L.		Design	
Offset	Level	Offset	Level
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21.83	343.800	0.00	345.20
17.56	344.700	0.00	345.20
14.67	343.300	0.00	345.20
11.74	344.200	0.00	345.20
8.80	346.800	0.00	345.20
10.71	338.900	0.00	345.20
13.04	337.000	0.00	345.20
15.19	335.000	0.00	345.20
17.00	333.000	0.00	345.20



N.S.L.		Design	
Offset	Level	Offset	Level
23.01	340.300	0.00	341.30
20.70	341.100	0.00	341.30
17.00	341.300	0.00	341.30
13.04	341.300	0.00	341.30
10.00	346.700	0.00	341.30
7.54	346.600	0.00	341.30
5.81	346.600	0.00	341.30
4.00	346.600	0.00	341.30
2.11	346.600	0.00	341.30
0.00	346.600	0.00	341.30

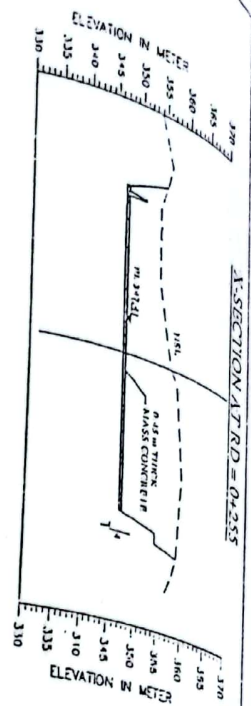


N.S.L.		Design	
Offset	Level	Offset	Level
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14.78	342.710	0.00	348.50
4.95	340.650	0.00	348.50
0.00	340.950	0.00	348.50
4.62	341.270	0.00	348.50
17.30	343.000	0.00	348.50
19.31	344.270	0.00	348.50
19.31	343.270	0.00	348.50

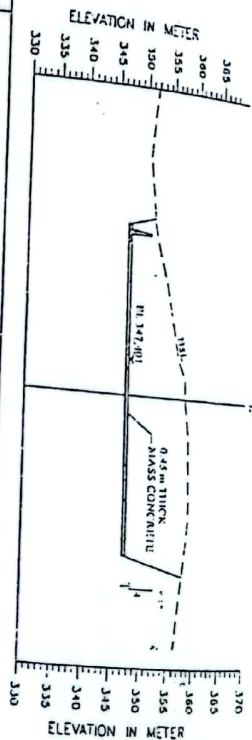
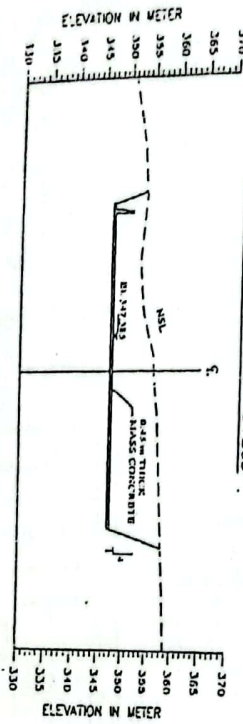
ISSUED FOR
CONSTRUCTION

Autism

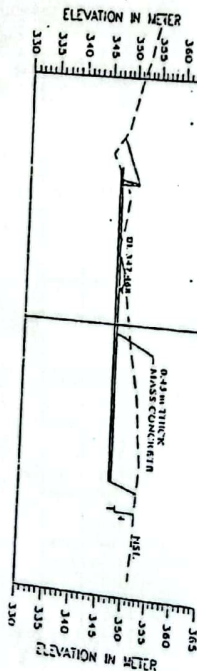
Client: - **Consultants:-** **Construction Drawings**
Project:- **Detail Design & Construction Supervision of Packages - I**
Drawn by: **NAVAB ZADA** **Checked by:** **SHARAF AHMAD**
Design by: **MUHAMMAD FAHAD** **Scale:** **AS SHOWN**



N.S.L		Design	
Offset	Level	Offset	Level
-16.672	353.860		
-29.437	356.440		
-22.926	354.100	-36.320 -23.981 -21.534 -26.500	354.934 349.999 349.999 346.193
-11.701	354.350		
-3.266	356.020		
0.000	357.090	0.000	346.193
1.353	358.290		
15.169	359.700		
		22.500 22.578 23.941 24.161 26.363 27.671	346.193 349.999 349.999 357.299 357.499 358.730
27.180	358.180		
30.039	358.010		
32.446	356.620		



N.S.L.		Design	
Offici	Level	Offici	Level
-41.954	351.210		
-34.380	350.640		
-34.287	351.200	-23.999	349.902
		-23.540	349.902
		-24.433	351.682
		-22.509	346.794
-16.094	353.910		
-14.422	354.340		
-23.229	357.630		
0.000	357.790	0.000	346.794
5.624	358.600		
16.728	358.120		
34.210	357.520	22.500	346.794
		21.540	349.902
		20.990	346.902
		21.843	357.402
35.329	356.120		

[illegible]

ISSUED FOR
CONSTRUCTION

Shawn

Client:- Directorate General Small Dams Irrigation Department Govt. of KPK Peshawar	Consultants:- Consulting Associates Peshawar
---	--

Consultants:-
Consulting Associates
Peshawar

CONSTRUCTION DRAWINGS

Project:- Detail Design & Construction Supervision of Package - F
Shah Kalleem Dam

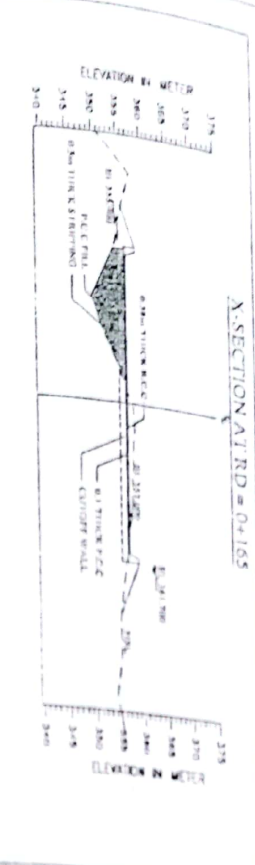
DESIGN BY	RAYMAD ZADA	SPILLWAY CROSS SECTIONS
DESIGN BY	RIZWAN FARID	
CHECKED BY	SHAKEEL AHMAD	
	DWG NO	

SPILLWAY CROSS SECTIONS

SPILLWAY
CROSS SECTIONS

Client: - **DR. ABUL KALAM AZHAR**
 Consultants: - **Consulting Engineers & Architects**
 Project: - **Design & Construction of a 1000 Sq. Ft. Residential Building**
 Drawn by: **ABUL KALAM AZHAR**
 Checked by: **ABUL KALAM AZHAR**
 Date: **10/10/2023**

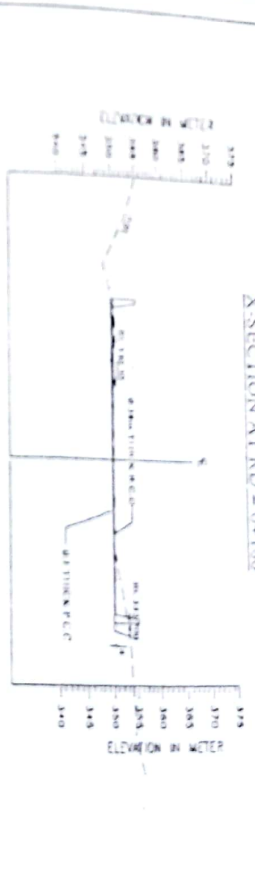
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2.00	99.98	2.00	99.98
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4.00	99.96	4.00	99.96
5.00	99.95	5.00	99.95
6.00	99.94	6.00	99.94
7.00	99.93	7.00	99.93
8.00	99.92	8.00	99.92
9.00	99.91	9.00	99.91
10.00	99.90	10.00	99.90
11.00	99.89	11.00	99.89
12.00	99.88	12.00	99.88
13.00	99.87	13.00	99.87
14.00	99.86	14.00	99.86
15.00	99.85	15.00	99.85
16.00	99.84	16.00	99.84
17.00	99.83	17.00	99.83
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20.00	99.80	20.00	99.80



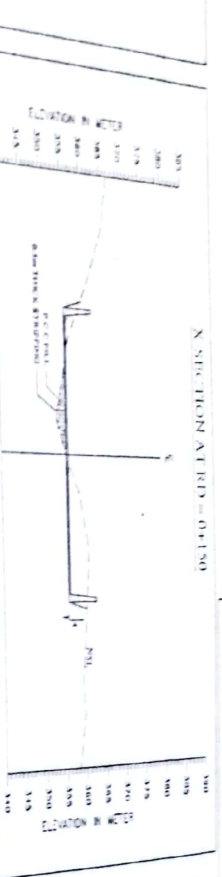
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8.00	99.92	8.00	99.92
9.00	99.91	9.00	99.91
10.00	99.90	10.00	99.90
11.00	99.89	11.00	99.89
12.00	99.88	12.00	99.88
13.00	99.87	13.00	99.87
14.00	99.86	14.00	99.86
15.00	99.85	15.00	99.85
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17.00	99.83	17.00	99.83
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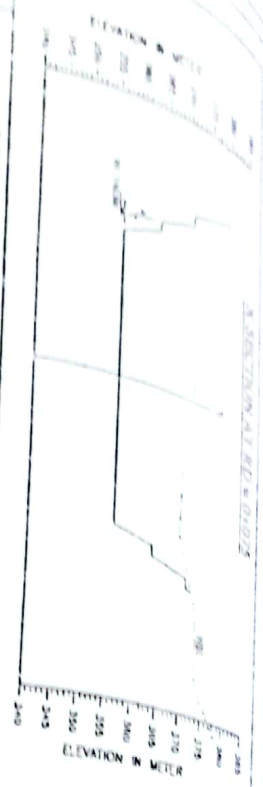
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N.E.L.		Design	
Offset	Level	Offset	Level
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NOT FOR CONSTRUCTION

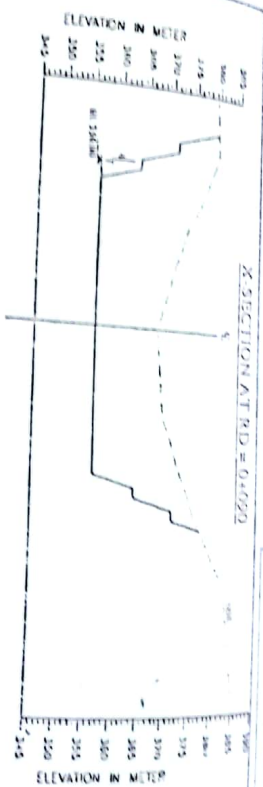


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11.00	279.10	11.00	279.10
12.00	279.20	12.00	279.20
13.00	279.30	13.00	279.30
14.00	279.40	14.00	279.40
15.00	279.50	15.00	279.50
16.00	279.60	16.00	279.60
17.00	279.70	17.00	279.70
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X-SECTION AT RD = 0+105

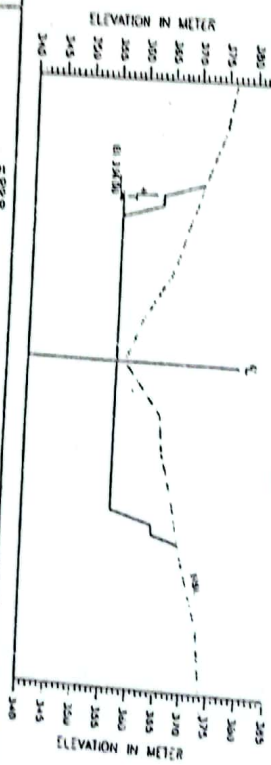


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5.00	278.50	5.00	278.50
6.00	278.60	6.00	278.60
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10.00	279.00	10.00	279.00
11.00	279.10	11.00	279.10
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13.00	279.30	13.00	279.30
14.00	279.40	14.00	279.40
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16.00	279.60	16.00	279.60
17.00	279.70	17.00	279.70
18.00	279.80	18.00	279.80
19.00	279.90	19.00	279.90
20.00	280.00	20.00	280.00



N.S.L.		Design	
Offset	Level	Offset	Level
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10.00	279.00	10.00	279.00
11.00	279.10	11.00	279.10
12.00	279.20	12.00	279.20
13.00	279.30	13.00	279.30
14.00	279.40	14.00	279.40
15.00	279.50	15.00	279.50
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19.00	279.90	19.00	279.90
20.00	280.00	20.00	280.00

X-SECTION AT RD = 0+120



N.S.L.		Design	
Offset	Level	Offset	Level
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4.00	278.40	4.00	278.40
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11.00	279.10	11.00	279.10
12.00	279.20	12.00	279.20
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14.00	279.40	14.00	279.40
15.00	279.50	15.00	279.50
16.00	279.60	16.00	279.60
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18.00	279.80	18.00	279.80
19.00	279.90	19.00	279.90
20.00	280.00	20.00	280.00

SEAL FOR CONSTRUCTION

Director General Small Dams
Irrigation Department
Govt. of Khyber Pakhtunkhwa

Consultants:-
Consulting Associates
Peshawar

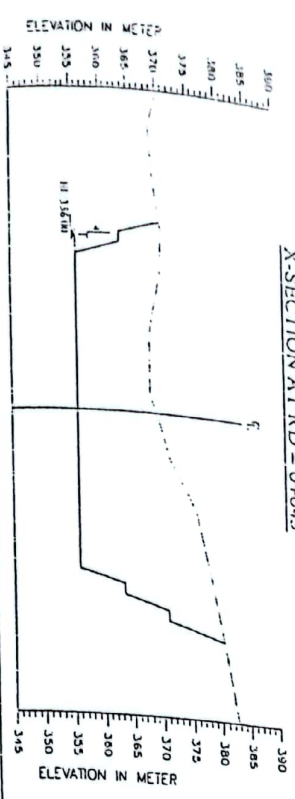
Project:- Detail Design &
Construction Supervision of Package - F
Shah Kaleem Dam

DRAWN BY: NAWAB ZADA
DESIGN BY: RIZWAN PARID
CHECKED BY: SHAKEEL AHMAD
DGS NO: _____

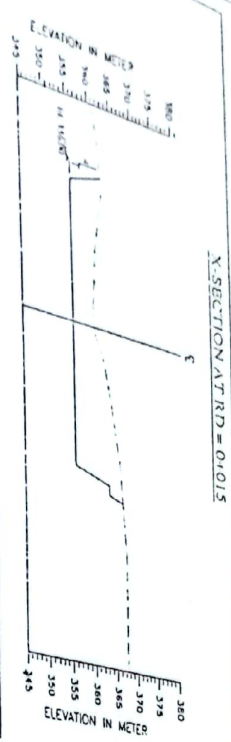
STANDARD
GROUND SECTIONS

CLIENT:-
 CONSULTANTS:-
 PROJECT:-
 DRAWN BY:
 CHECKED BY:
 DESIGNED BY:
 APPROVED BY:

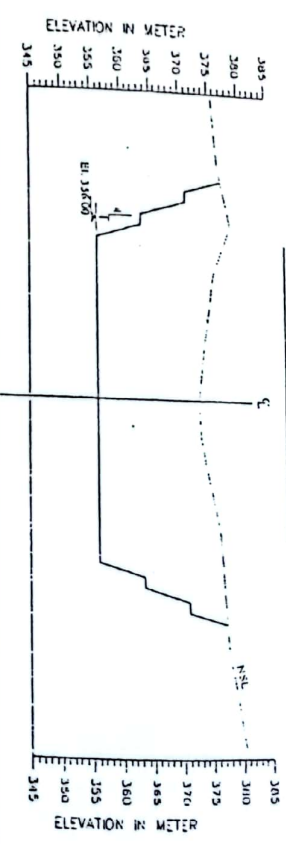
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41.112	368.570	167.500	356.000
33.879	369.470	167.500	356.000
26.357	370.670	167.500	356.000
19.992	370.400	167.500	356.000
11.229	368.510	167.500	356.000
2.806	368.370	167.500	356.000
0.000	369.500	167.500	356.000
16.434	371.640	167.500	356.000
15.239	375.850	167.500	356.000
22.099	378.190	167.500	356.000
28.972	379.800	167.500	356.000
43.076	382.740	167.500	356.000



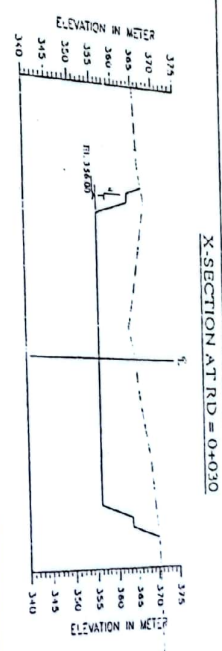
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12.191	361.200	167.500	356.000
8.000	360.150	167.500	356.000
4.443	362.370	167.500	356.000
14.142	364.820	167.500	356.000
20.299	366.070	167.500	356.000
35.303	367.380	167.500	356.000
51.036	367.470	167.500	356.000



N.S.L.		Design	
Office	Level	Office	Level
46.055	375.720	167.500	356.000
35.557	376.720	167.500	356.000
31.237	378.730	167.500	356.000
19.994	375.740	167.500	356.000
10.588	374.260	167.500	356.000
2.700	373.060	167.500	356.000
7.611	373.390	167.500	356.000
15.465	376.490	167.500	356.000
32.125	377.660	167.500	356.000
50.918	379.780	167.500	356.000
68.335	380.940	167.500	356.000



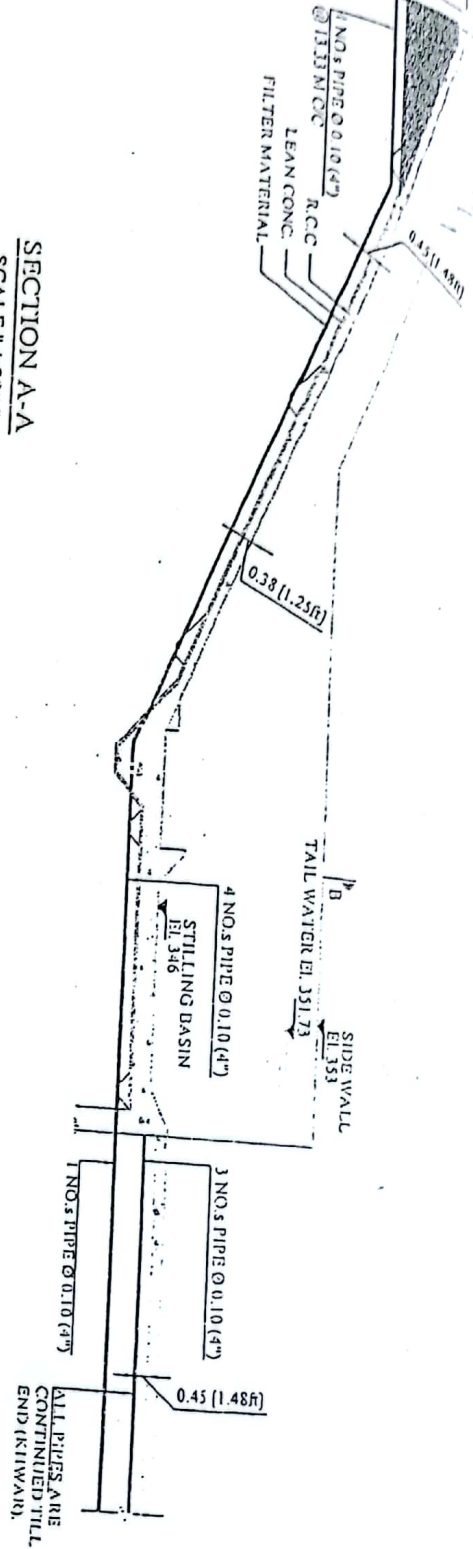
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Office	Level	Office	Level
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16.654	366.210	167.500	356.000
10.040	364.730	167.500	356.000
5.103	363.400	167.500	356.000
0.000	364.990	167.500	356.000
3.061	363.810	167.500	356.000
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62.895	371.540	167.500	356.000



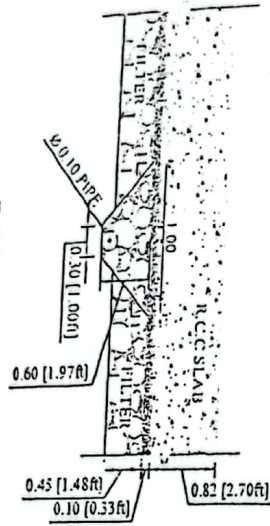
CONSTRUCTION DRAWING

ISSUED FOR CONSTRUCTION

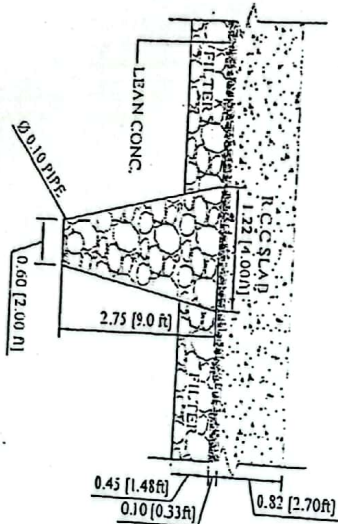
SECTION A-A
SCALE " 1:200 "



DETAIL A
SCALE " 1:50 "



DETAIL B
SCALE " 1:50 "

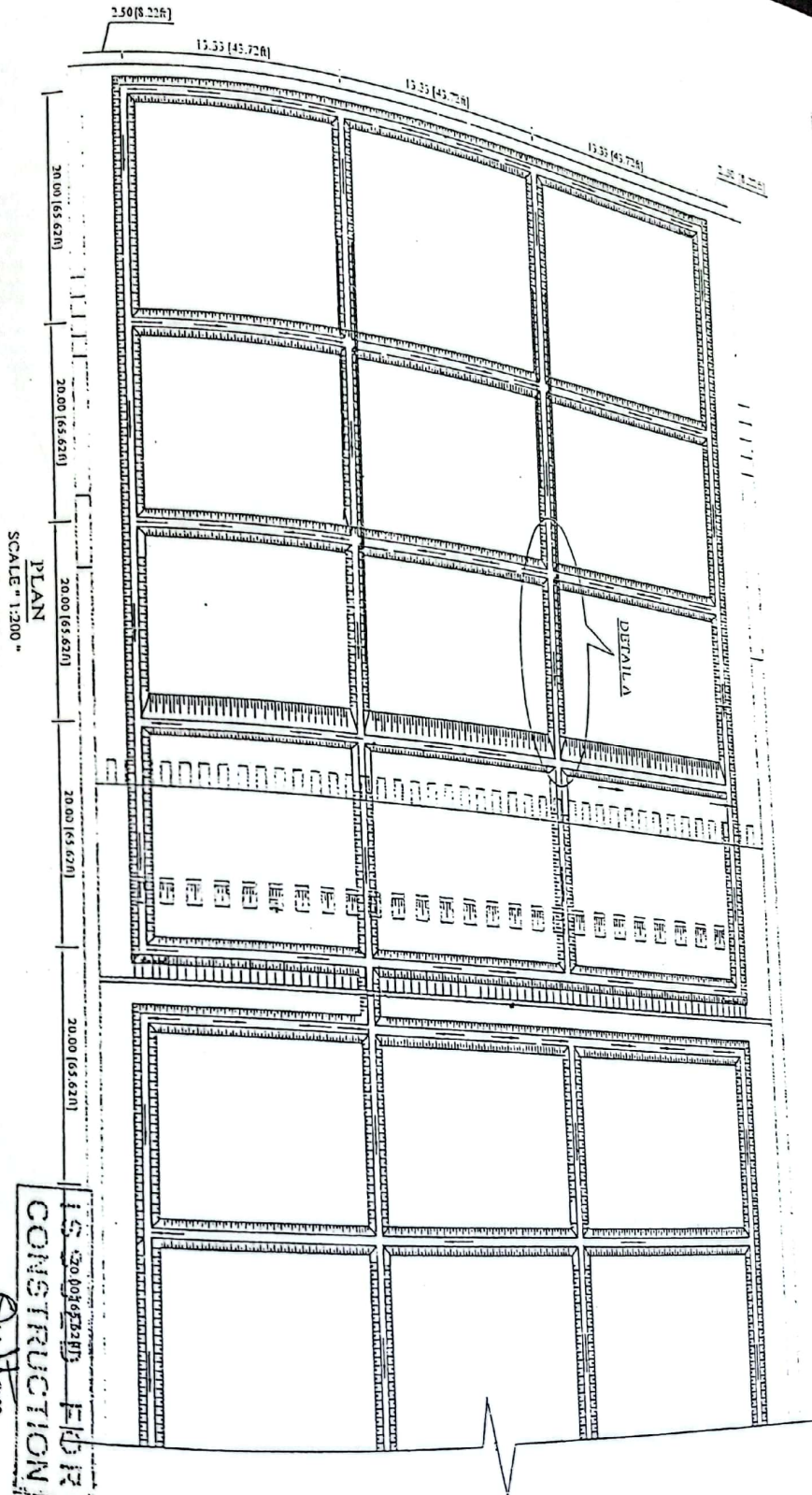


ISSUED FOR
CONSTRUCTION

Signature

State General Small Dams Irrigation Department Govt. of KPK Peshawar	Consultants:- Consulting Associates Peshawar	CONSTRUCTION DRAWINGS Project:- Detail Design & Construction Supervision of Package - P Shah Kaloosa Dam	DRAWN BY NAVAB ZADA DESIGN BY RIZWAN FARID CHECKED BY SHAKEEL AHMAD	STILLING BASIN SECTION A-A & DETAILS
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CONSTRUCTION DRAWING



15-30-2023
CONSTRUCTION

Edhem

ent.-
ectorate General Small Dams
Investigation Department
Government of Khyber Pakhtunkhwa

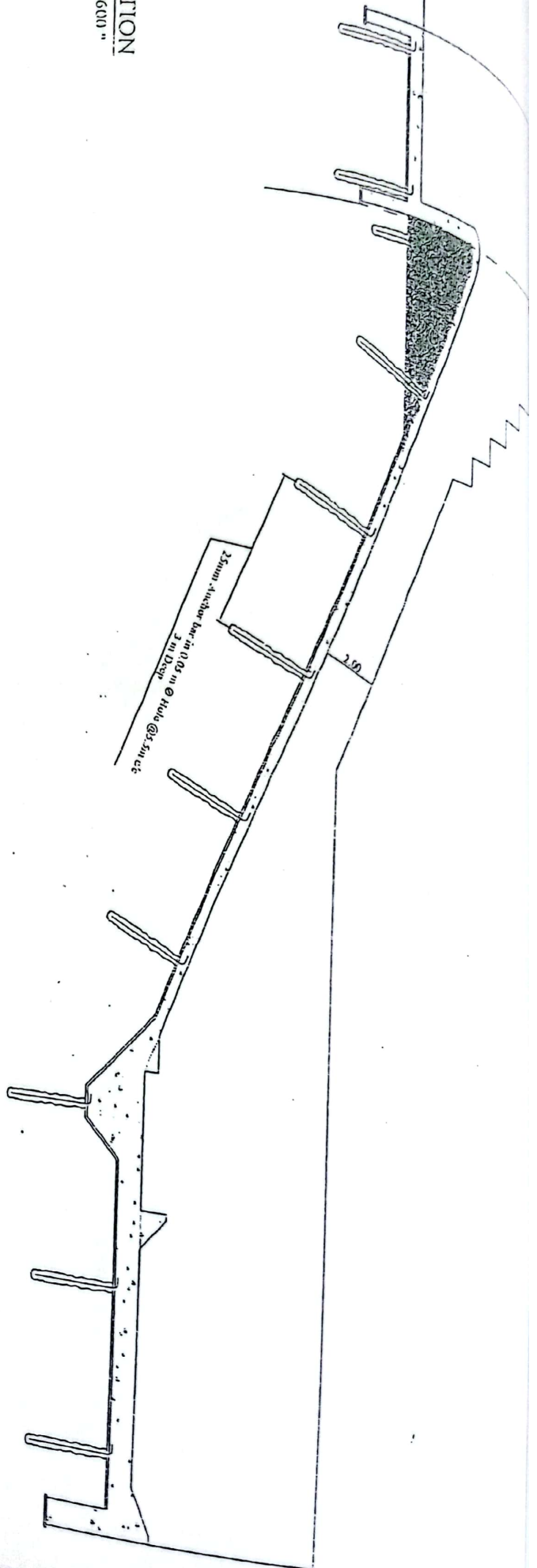
Consultants:-
Consulting Associates
Peshawar

CONSTRUCTION DRAWINGS
Project:- Detail Design &
Construction Supervision of Package - I
Shah Kaleem Dam

DRAWN BY NAWAB ZADA
DESIGN BY RIZWAN FARID
CHECKED BY SHAKEEL AHMAD

SHAH KALEEM DAM
PLAN & DETAILS
DWG NO 1

- SECTION
SCALE "1:600"



6.00

1.00

29.72

16.42

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11.21

1.72

ISSUED FOR
CONSTRUCTION

Qulom

CONSTRUCTION DRAWINGS

Consultants:-

Consulting Associates
Peshawar

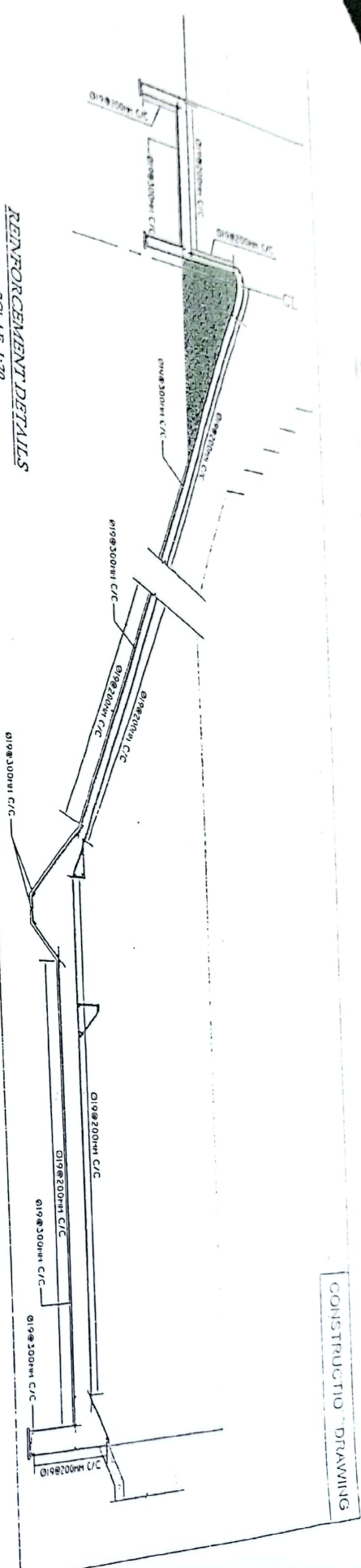
Private General Small Dams
Irrigation Department
Govt. of KPK Peshawar

Project:- Detail Design &
Construction Supervision of Package - F
Shah Kaleem Dam

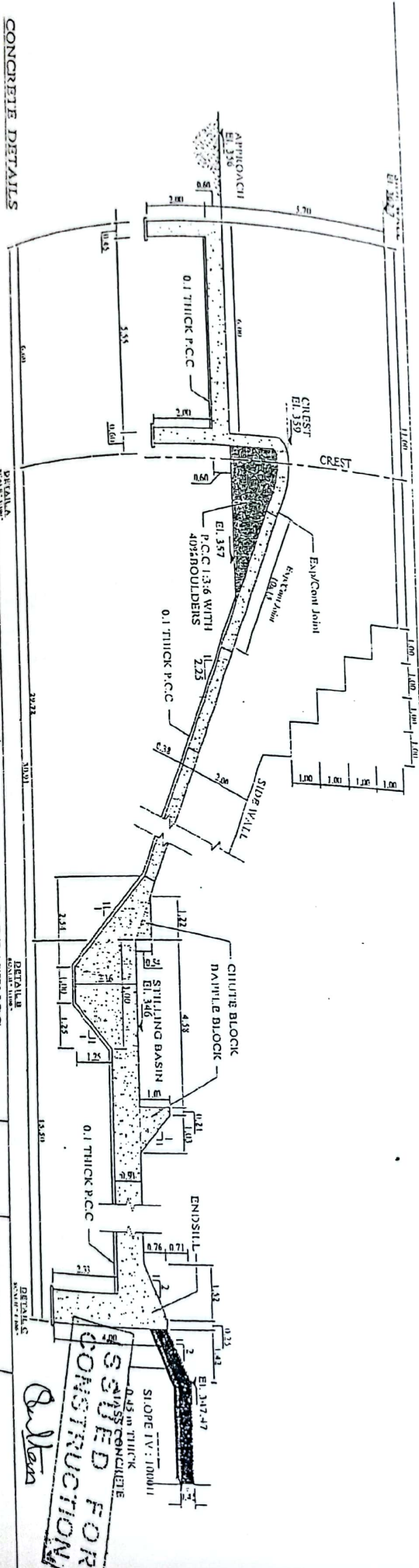
DRAWN BY NAWAB ZADA
DESIGN BY MUHAMMAD FARID
CHECKED BY SHAKEEL AHMAD

SILLIMAN ANCHOR DAMS &
DETAILS

DWG NO

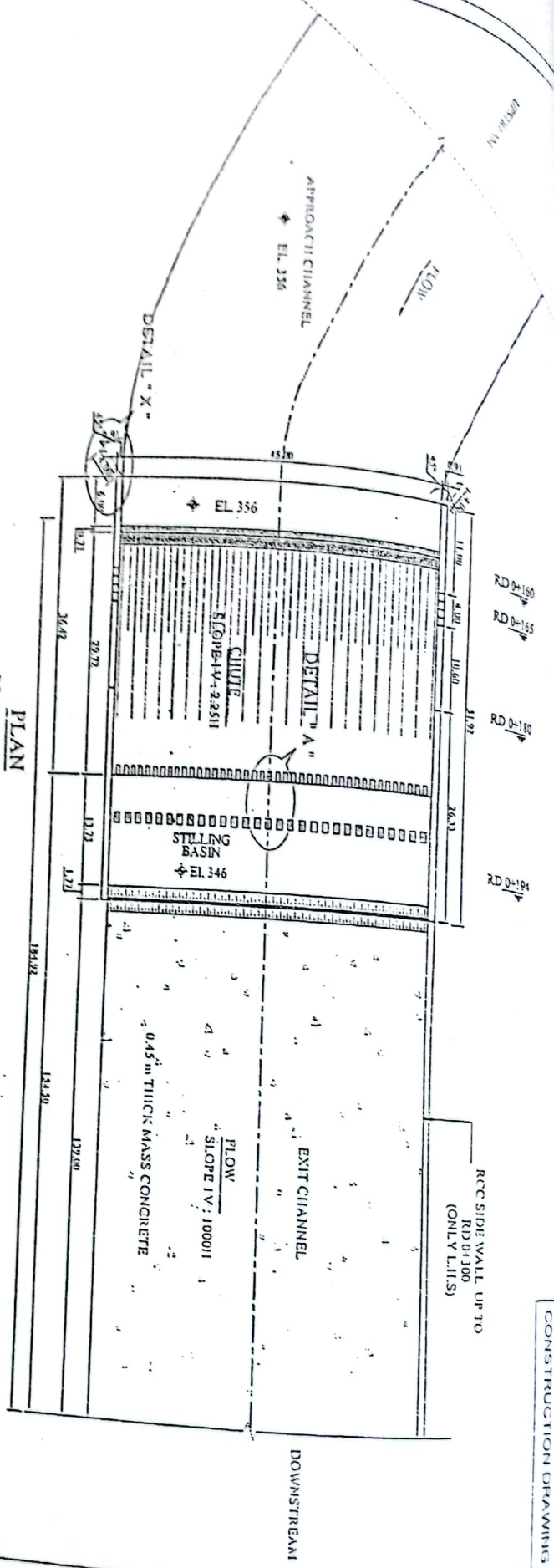


REINFORCEMENT DETAILS
SCALE 1:70

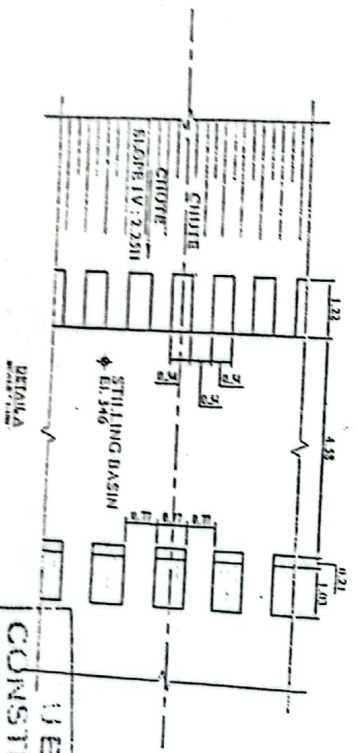
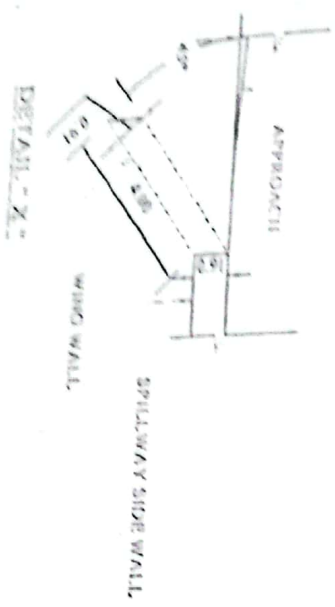


CONCRETE DETAILS	DETAILS	DETAILS	DETAILS
CLIENT: - CONSULTANT: - PROJECT: -	DETAILS CONSTRUCTION DRAWINGS DESIGN BY: NAJIB ZADA CHECKED BY: SHARAF AHMAD	DETAILS CONSTRUCTION DRAWINGS DESIGN BY: NAJIB ZADA CHECKED BY: SHARAF AHMAD	DETAILS CONSTRUCTION DRAWINGS DESIGN BY: NAJIB ZADA CHECKED BY: SHARAF AHMAD

NOTED FOR CONSTRUCTION

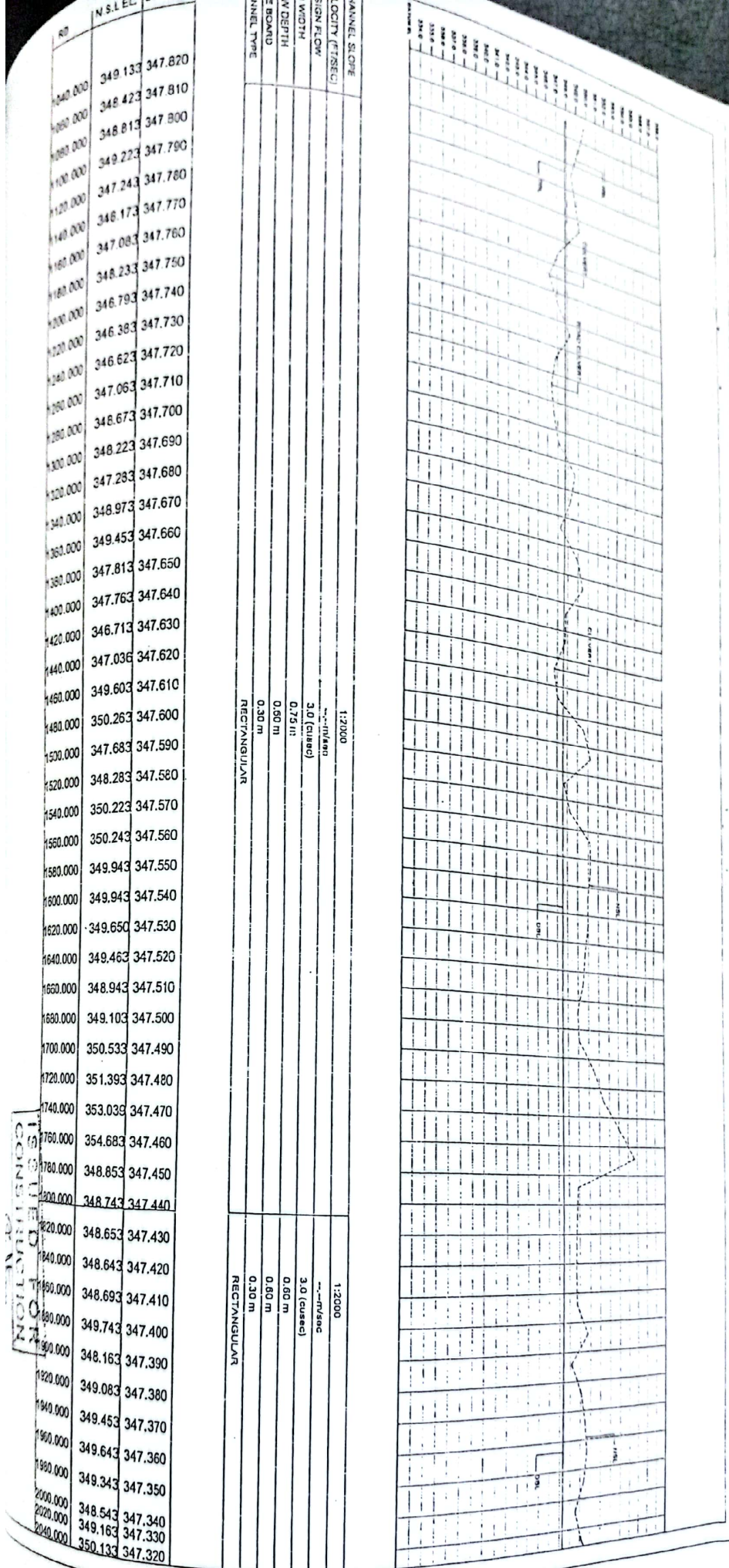


PLAN
SCALE 1:500

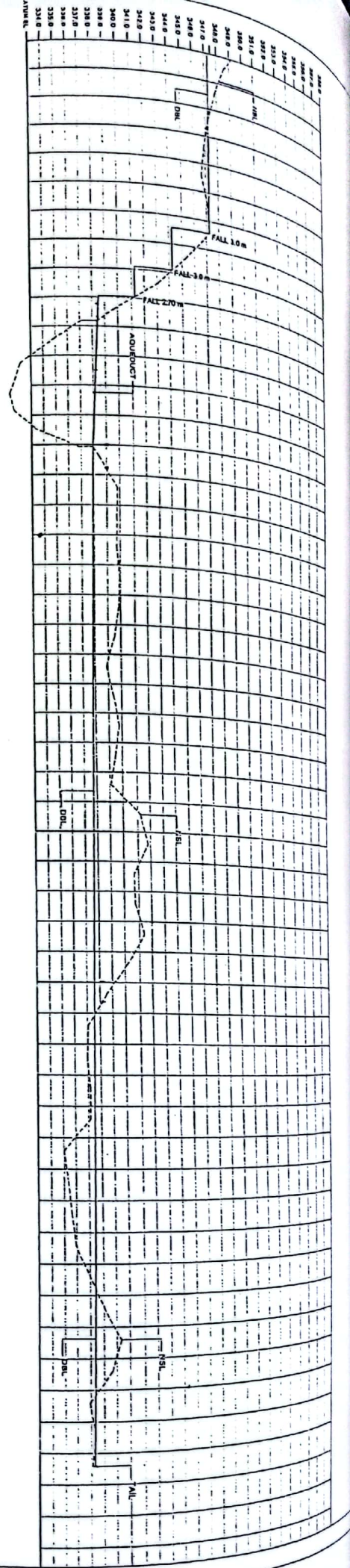


USED FOR
CONSTRUCTION

Client:- Director General Small Dams Irrigation Department Govt. of Punjab	Consultant:- Punjab Punjab Punjab	Project:- Detail Design & Construction Supervision of Pakpattan - F Spill Filling Dam	Drawn by: NARAH ZADA	Design by: RIZWAN FAHID	Checked by: SHAKEEL AHMAD	Scale: 1:500
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CONSTRUCTION



CHANNEL SLOPE	1:2000	1:1000
VELOCITY (FT/SEC)	—m/sec	—m/sec
DESIGN FLOW	3.0 (cusec)	2.0 (cusec)
BED WIDTH	0.60 m	0.60 m
FLOW DEPTH	0.60 m	0.60 m
FREE BOARD	0.30 m	0.30 m
CHANNEL TYPE	RECTANGULAR	RECTANGULAR

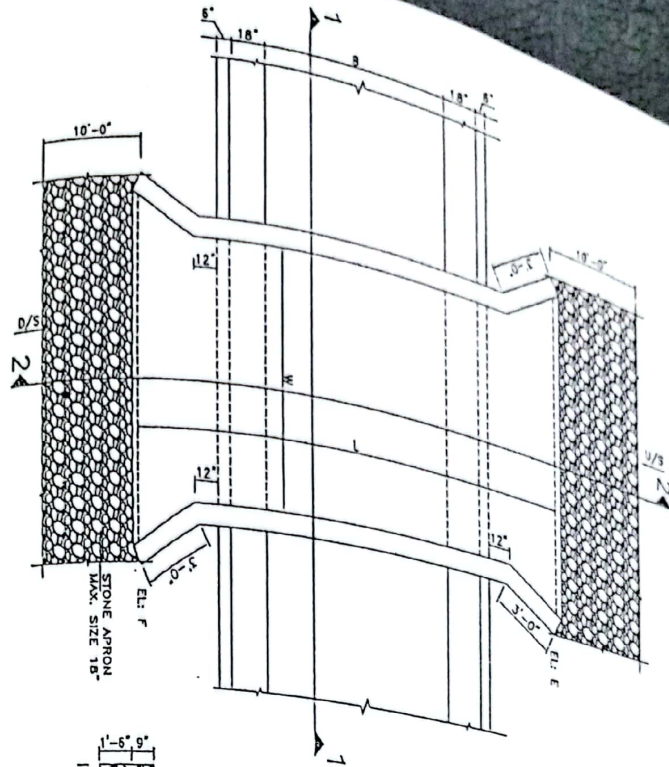
RD	N.S.I. EL.	D.B.I. EL.
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2100.000	347.263	347.290
2120.000	346.883	347.280
2140.000	346.633	347.270
2160.000	347.133	347.260
2180.000	347.273	347.250
2200.000	345.343	344.250
2220.000	343.113	341.250
2240.000	339.673	341.250
2248.000	337.113	338.405
2272.380	332.813	338.292
2296.760	331.463	338.179
2308.150	331.713	338.066
2321.140	333.393	337.943
2333.330	336.843	337.953
2340.000	338.443	
2360.000	339.793	337.925
2380.000	339.743	337.905
2400.000	339.693	337.885
2420.000	339.923	337.865
2440.000	339.803	337.845
2460.000	339.493	337.825
2480.000	338.863	337.805
2500.000	339.383	337.785
2520.000	339.743	337.765
2540.000	339.453	337.745
2580.000	339.123	337.725
2580.000	341.223	337.705
2600.000	341.783	337.685
2620.000	340.683	337.665
2640.000	340.743	337.645
2660.000	341.423	337.625
2680.000	340.133	337.605
2700.000	338.503	337.585
2720.000	337.053	337.565
2740.000	336.973	337.545
2760.000	337.193	337.525
2780.000	337.173	337.505
2800.000	335.013	337.485
2820.000	335.306	337.465
2840.000	335.613	337.445
2860.000	335.923	337.425
2880.000	336.993	337.405
2900.000	338.043	337.385
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2940.000	338.663	337.345
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3000.000	337.083	337.285

ISSUED FOR
CONSTRUCTION

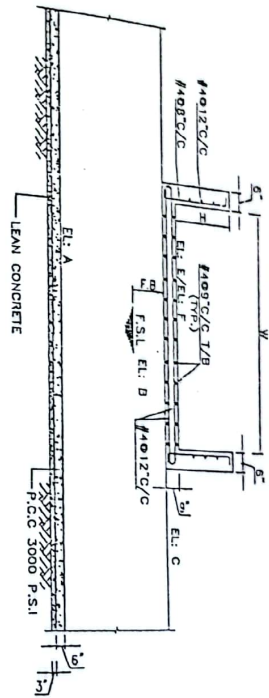
Signature

GOVERNMENT OF PUNJAB DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR		CONSULTING ASSOCIATES HUDA DARS ROAD, PESHAWAR P.O. BOX 100, PESHAWAR TEL: 0351-3333333		SIHAIKALEEM DAM PROJECT NOWSHERA		DRAWD BY: SOHAIL AHMAD DESIGN BY: SALAH UD DIN SUBMITTED BY: SHAHID AHMAD		IRRIGATION CHANNEL PROFILE (MINOR)	
DRAWING NO. (03 OF 03)									

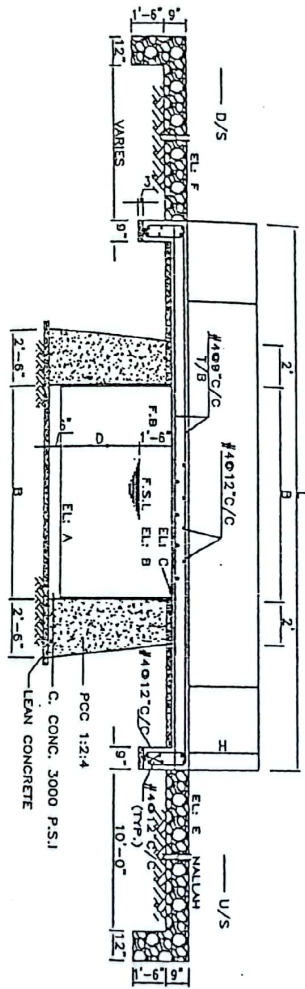
PLAN



SECTION 1-1



SECTION 2-2

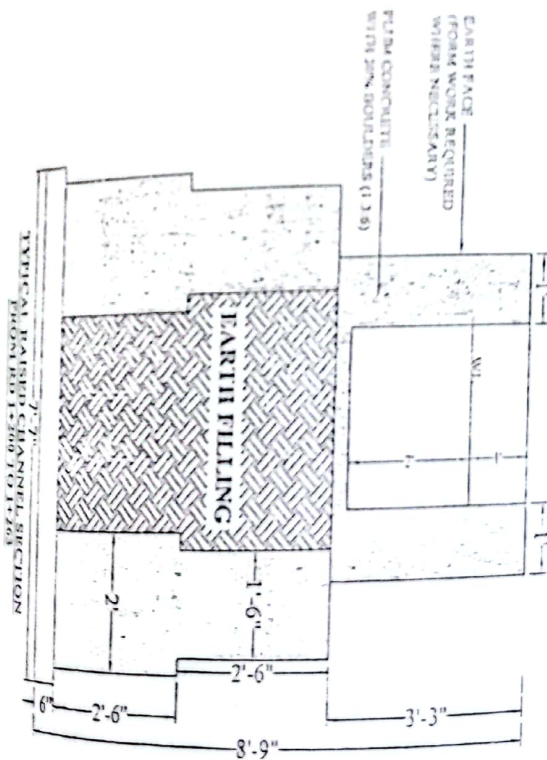
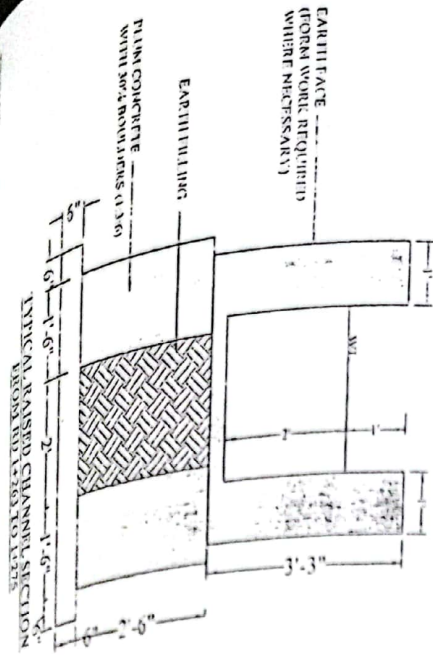
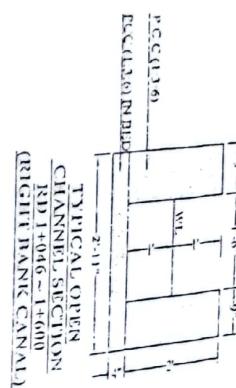
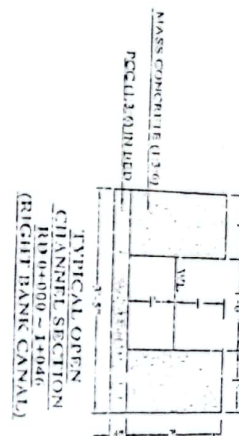
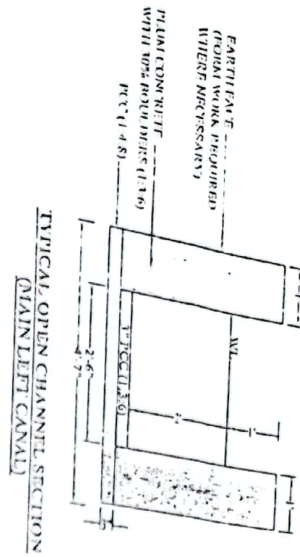


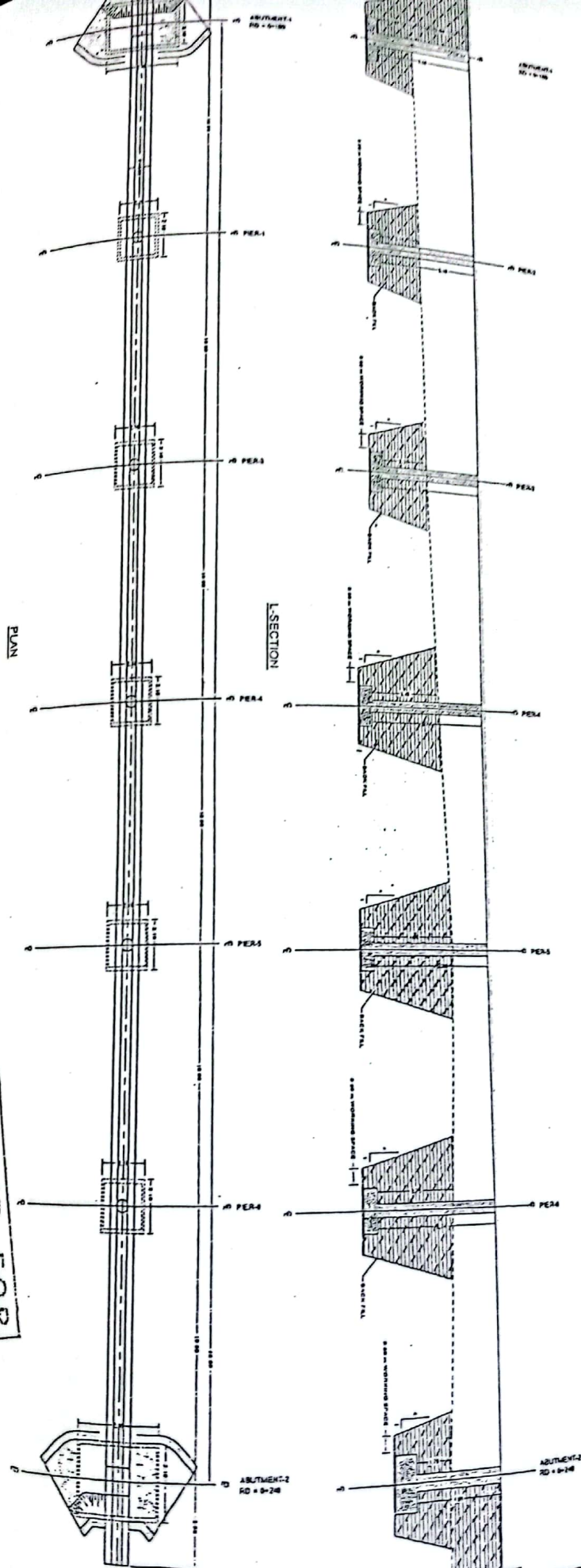
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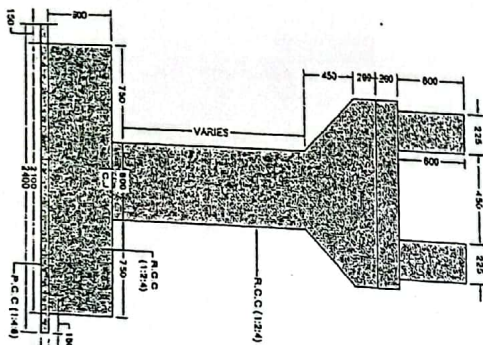
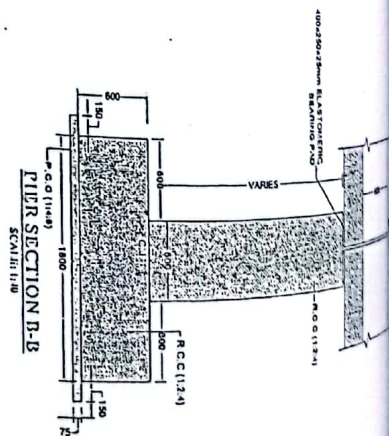
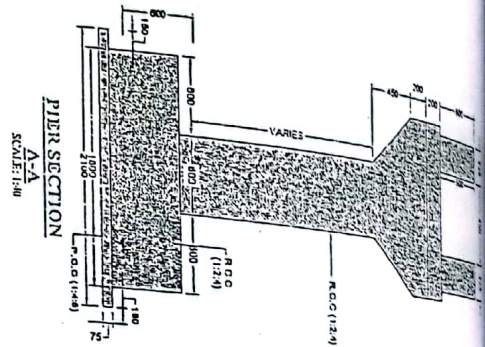
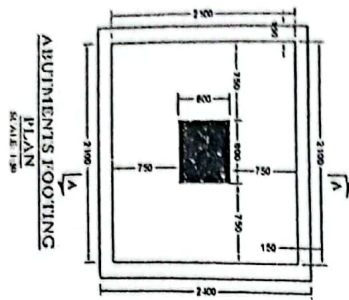
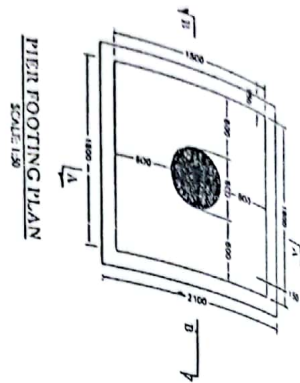
1. DIMENSIONS AND LEVELS ARE IN FEET.
2. CONCRETE LAYOUT:
3000 PSI. CONCRETE
4000 PSI. - 28 DAYS
P.C.C. 3000 PSI. - 28 DAYS
P.C.C. 3000 PSI. - 28 DAYS
3. REINFORCEMENT SHALL BE DEFORMED BARS WITHIN
TYPICAL SPACING OF 8000 PSI. OR COMPACTED BY 3/4\"/>

ISSUED FOR
CONSTRUCTION

CONSTRUCTION AND DESIGN







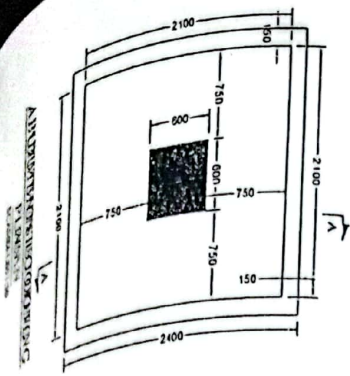
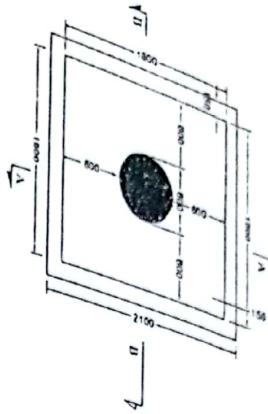
ISSUED FOR
CONSTRUCTION

02/11/20

GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR		CONSULTING ASSOCIATES ZAMIR GUL DAM PROJECT KOHAT	
DESIGNED BY ENGINEER CHECKED BY SUPERVISOR		DRAWING NO. ABUTMENTS AND PIER PLAN & DETAILS	

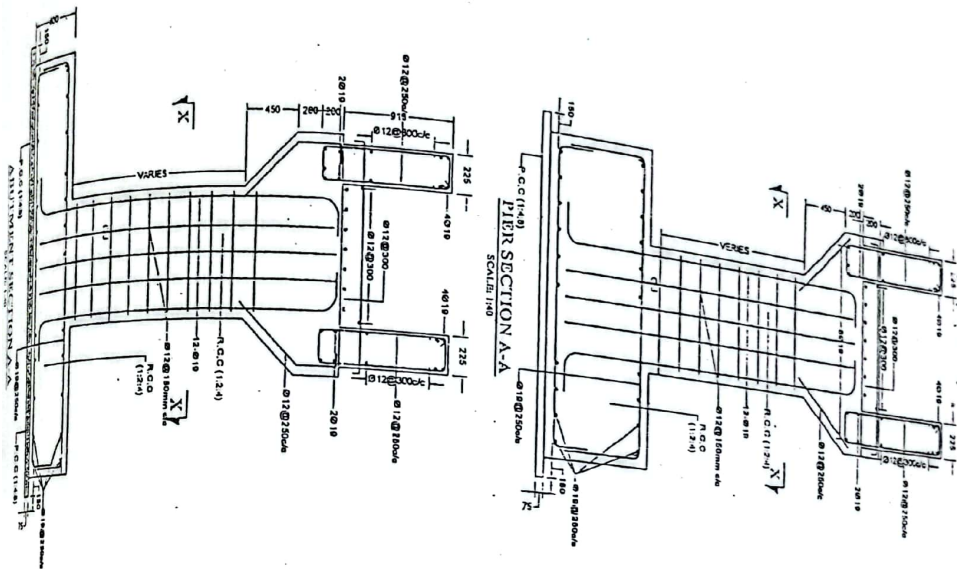
PIER FOOTING PLAN

SCALE: 1/50



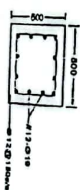
PIER SECTION A-A

SCALE: 1/40



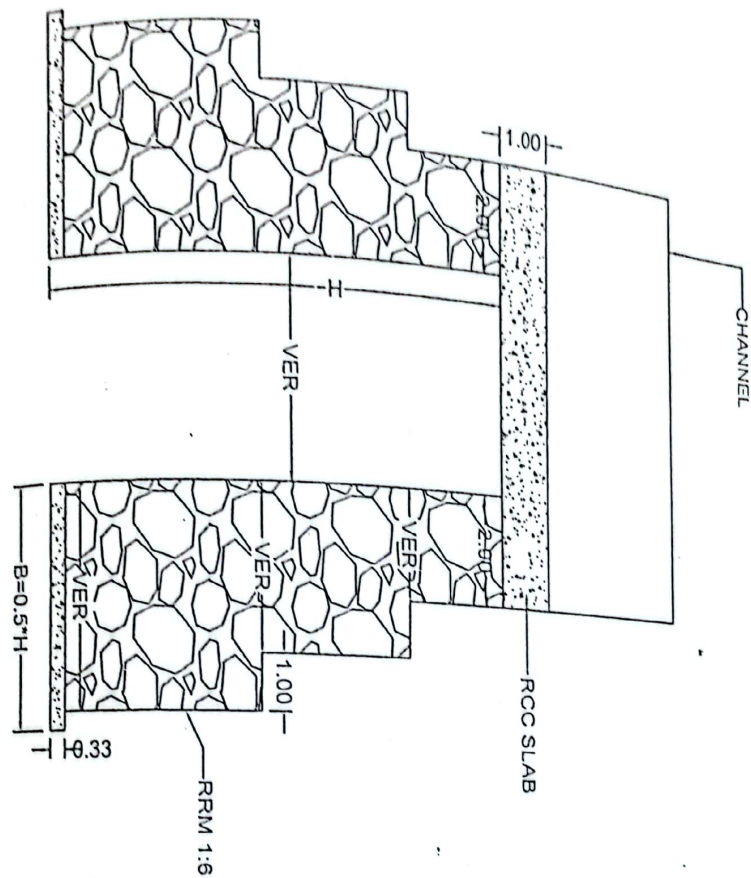
PIER SECTION X-X

SCALE: 1/40

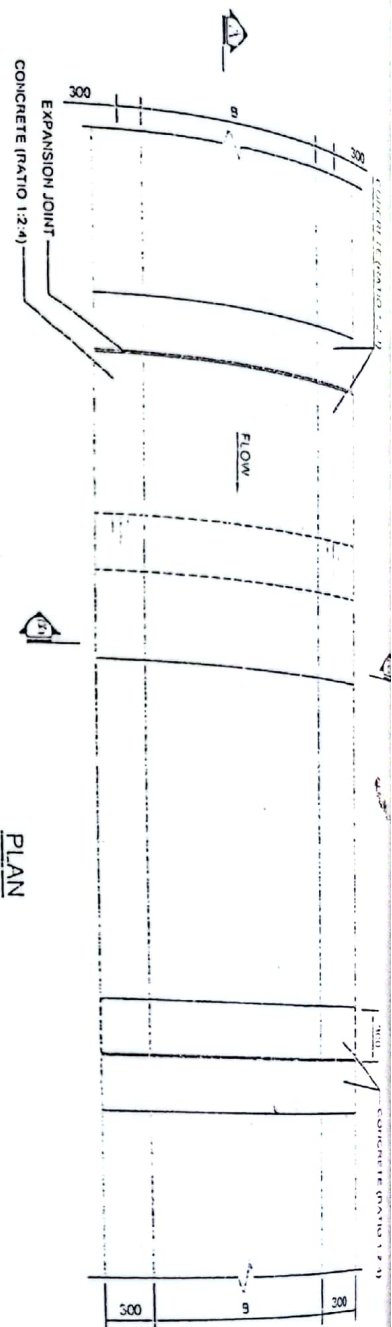


APPROXIMATE FOR
CONSTRUCTION

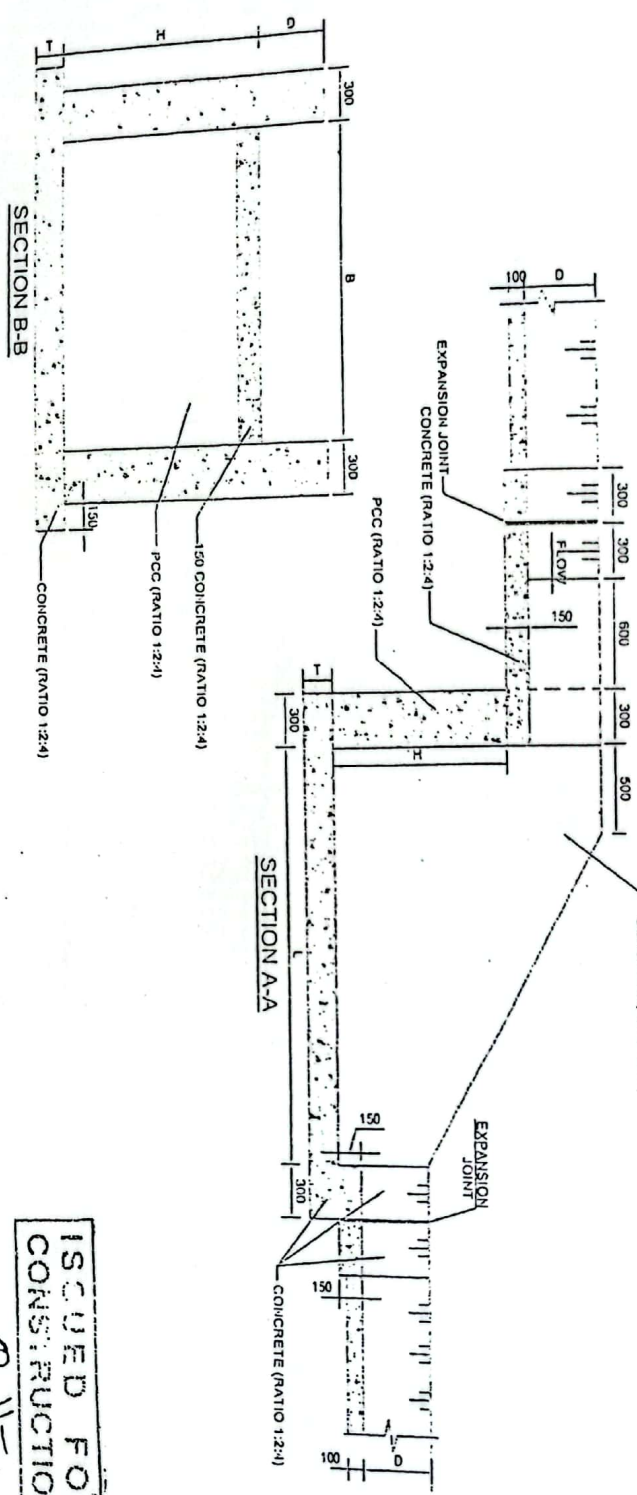
CROSS SECTION OF CULVERT



DESIGNED FOR



PLAN

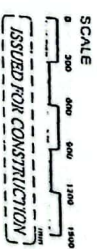


SECTION B-B

SECTION A-A

ISSUED FOR
CONSTRUCTION

Signature



- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. FINAL LOCATION OF STRUCTURE TO BE DECIDED ON SITE.

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS
IRRIGATION DEPARTMENT, PESHAWAR

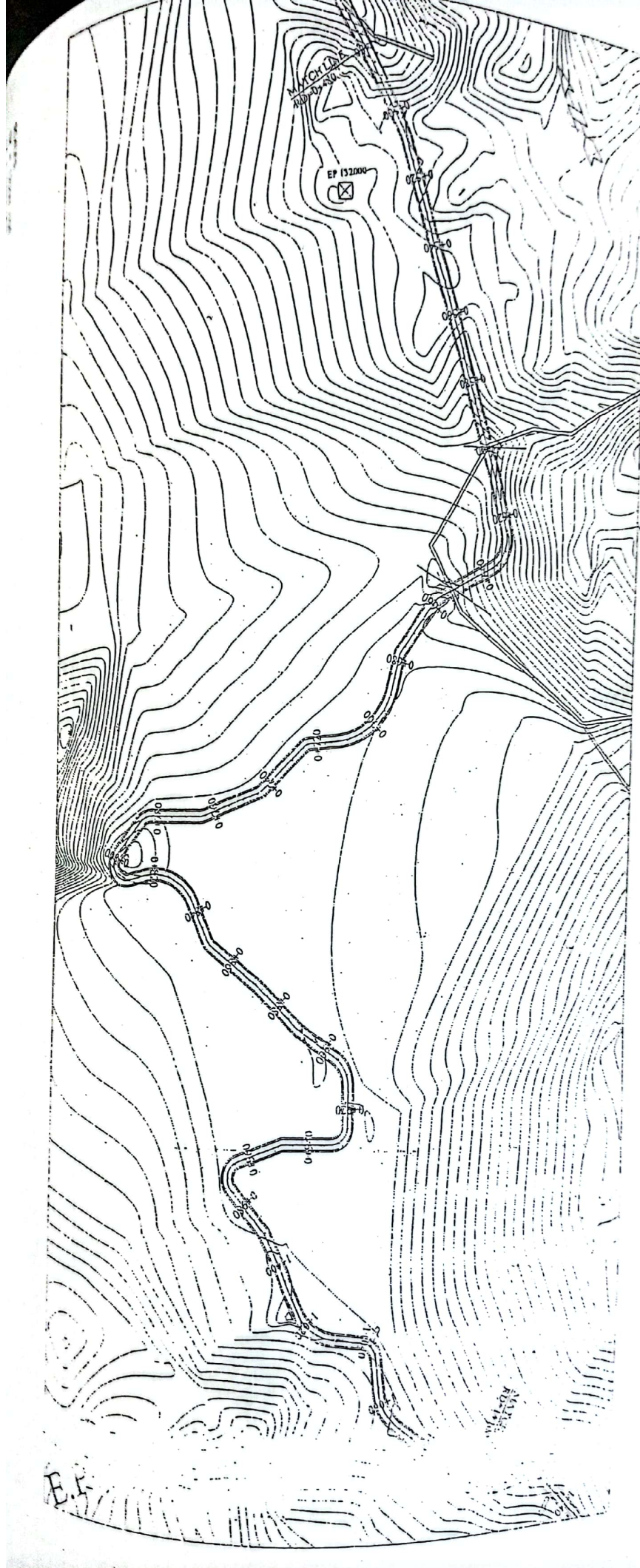
CONSULTING ASSOCIATES
CHD BOARD HOUSE, JALALI ROAD, PESHAWAR
P.O. BOX 1007/14-15 P.W. - 25100777
E-Mail: irrigation@chd.gov.pk

SILALI KALEEM DAM
PROJECT NOWSHERA

DESIGNED BY: SALALI UD DIN
CHECKED & SUBMITTED BY: SALALI AHMAD

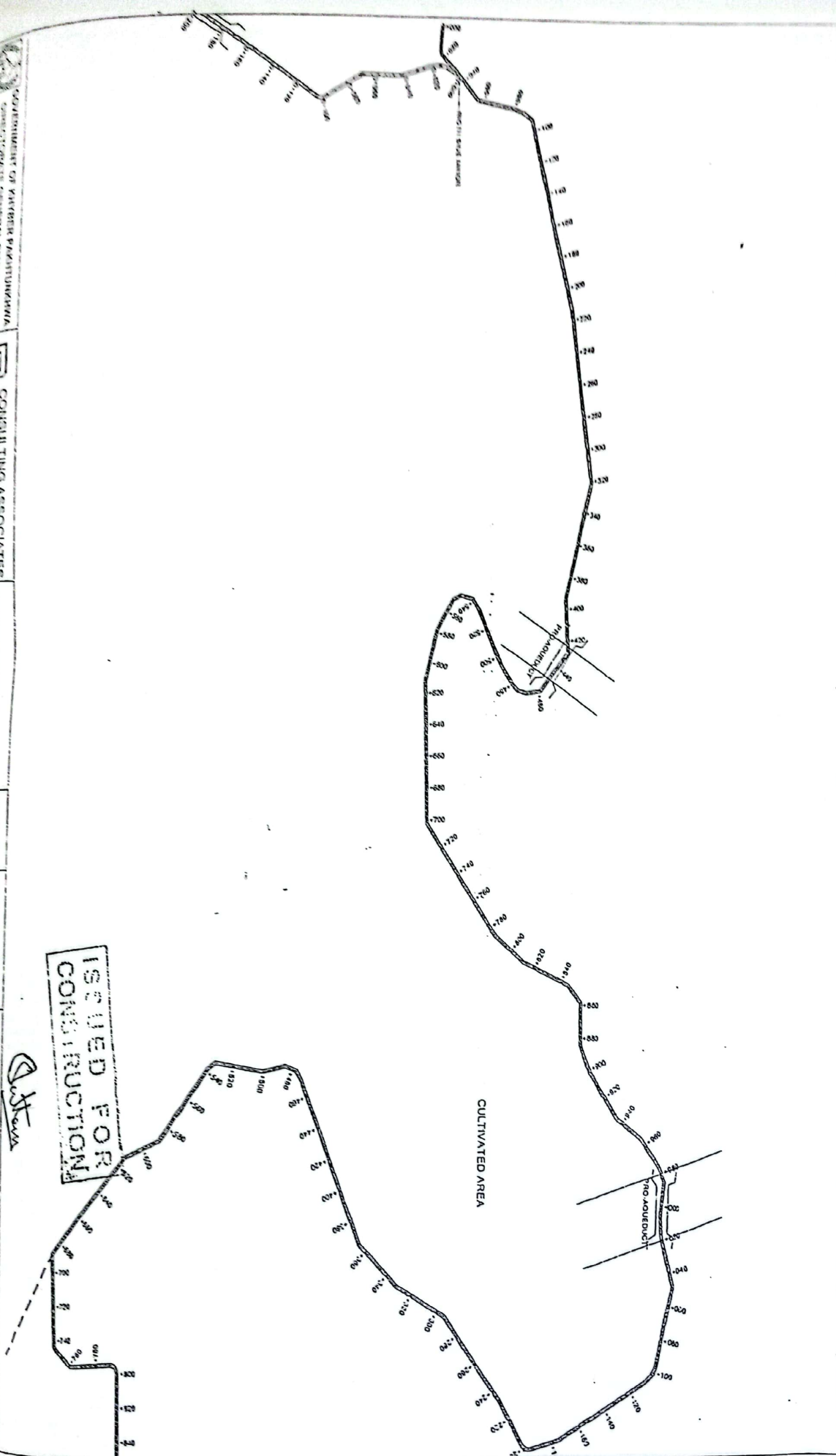
TYPICAL DAM FALL PLAN &
SECTION DETAILS

ROAD



E.F.

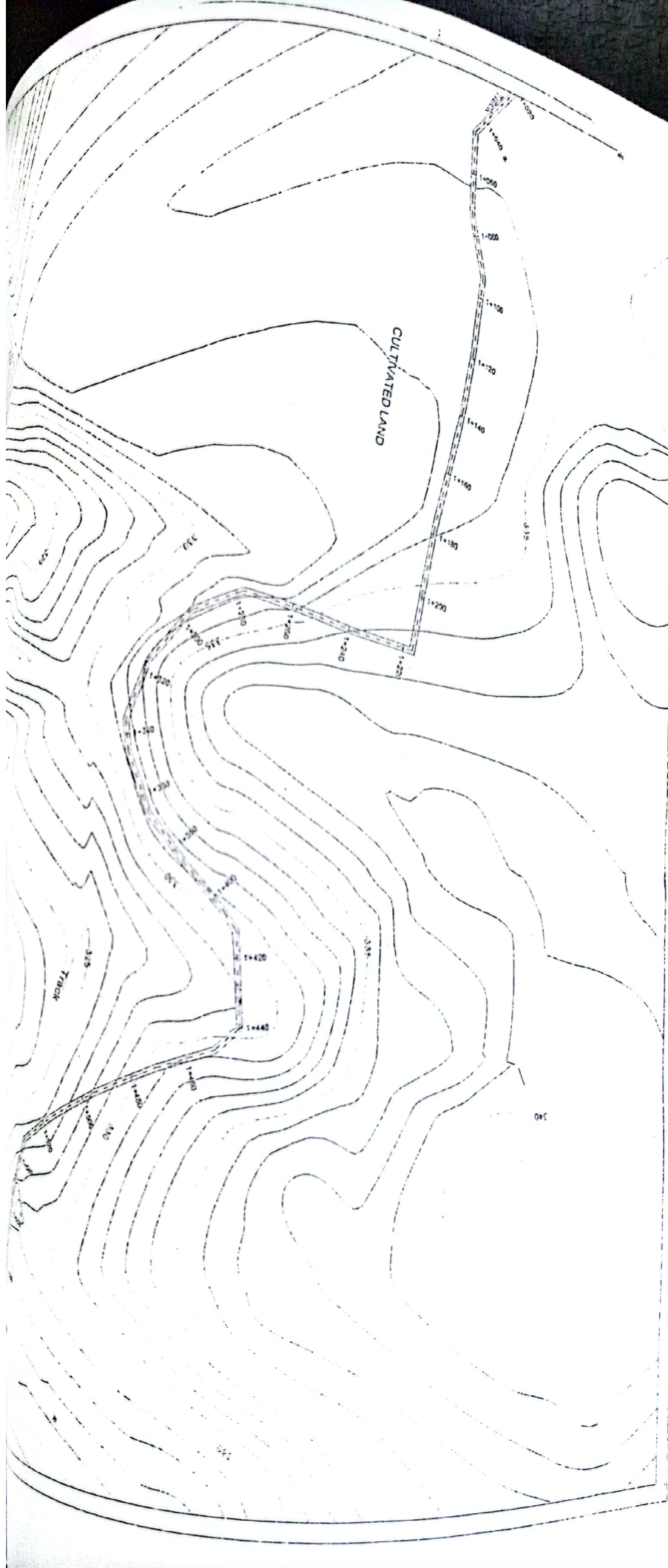
IRRIGATION SYSTEM

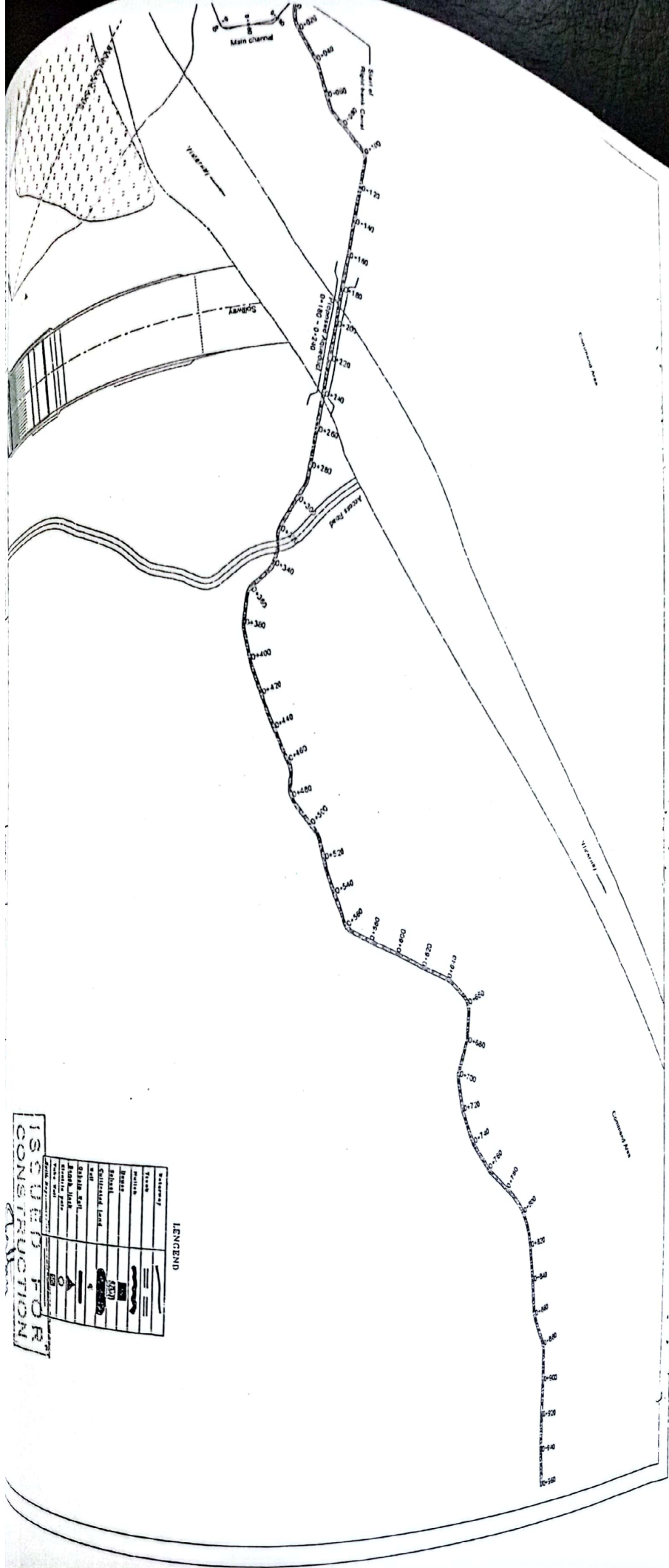




ISSUED FOR
CONSTRUCTION

Subhas



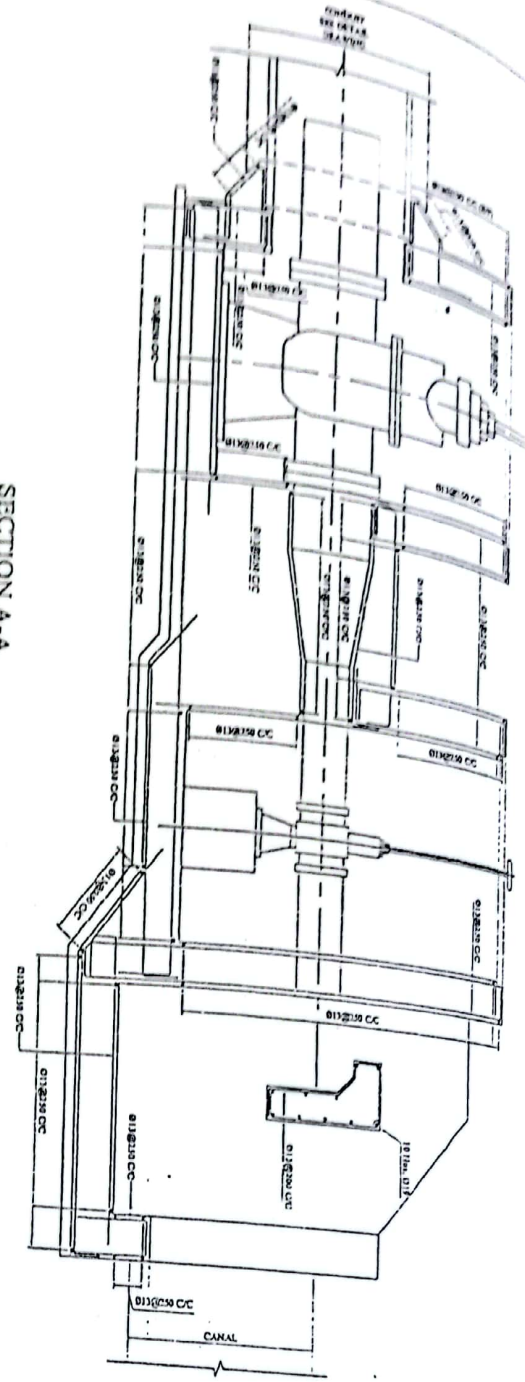


LEGEND

Symbol	Description
	Main Channel
	Subway
	Water Pond
	Proposed Road
	Stationing
	Offset

IS COPY FOR CONSTRUCTION

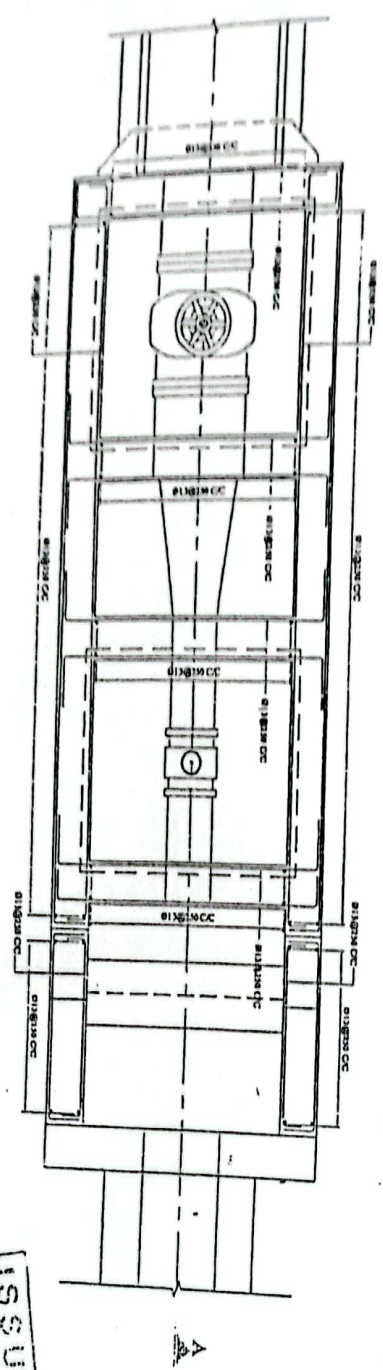
SECTION A-A



SECTION B-B

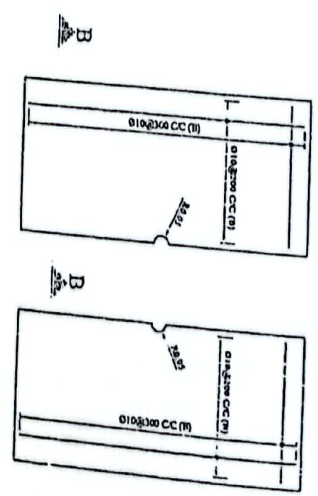


PLAIN

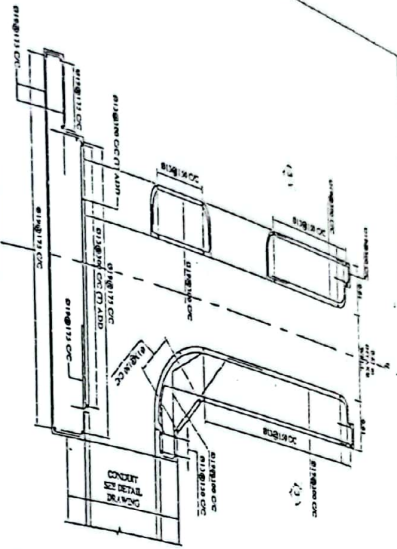


ISSUED FOR
CONSTRUCTION

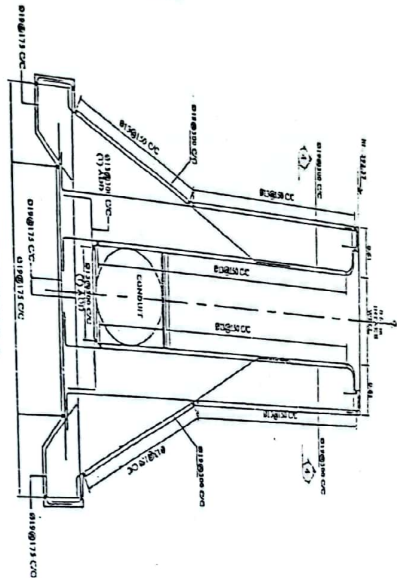
REINF. DETAIL OF PRE-CAST
COVER SLAB SLAB THICKNESS = .01m



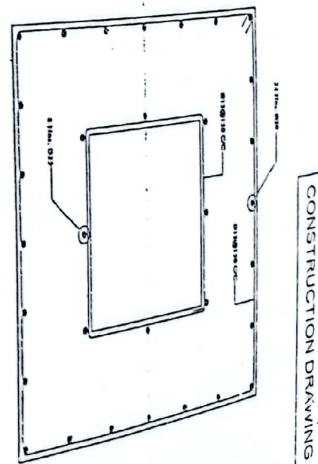
REV	DATE	DESCRIPTION	DESIGN BY	CHECKED SUBMITTED BY	REVIEW PAID	SHEET NO.
				SHWETEL ARJUN		OUTLET STRUCTURE REINFORCEMENT DETAILS
						DRAWING NO. SKD-INT-10



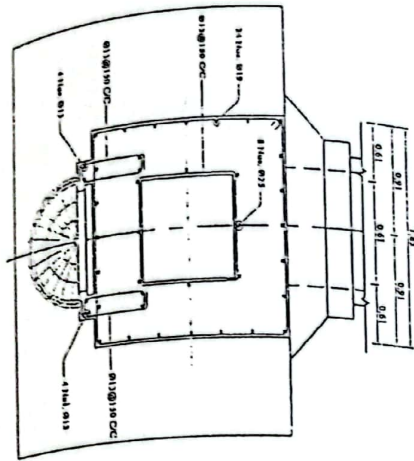
SECTION 1-1



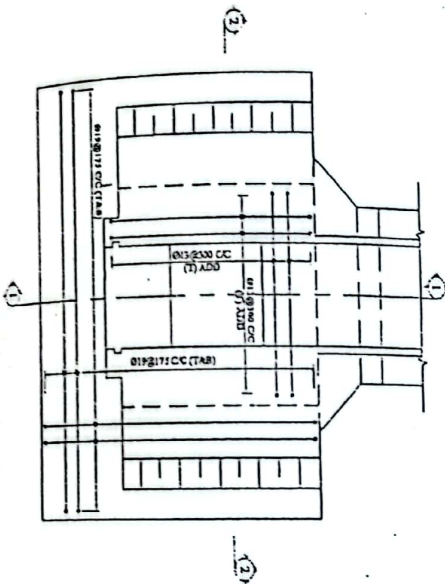
SECTION 2-2



SECTION 4-4
NTS



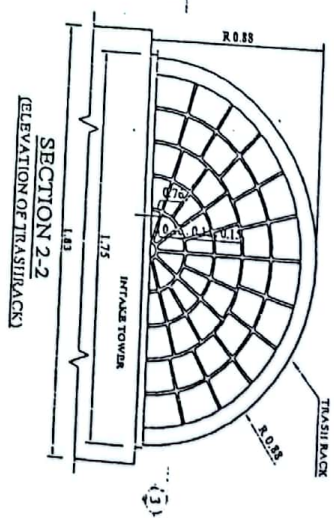
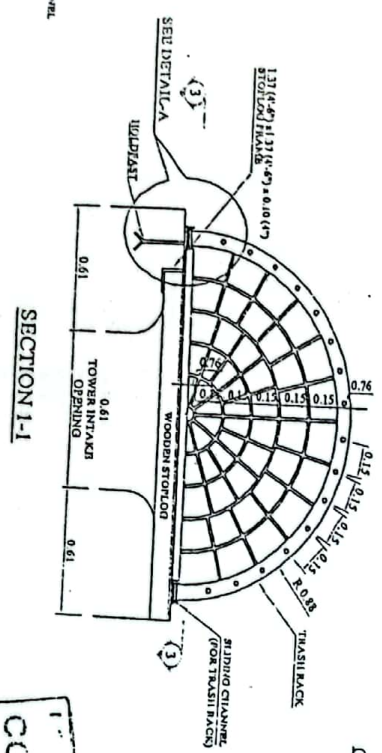
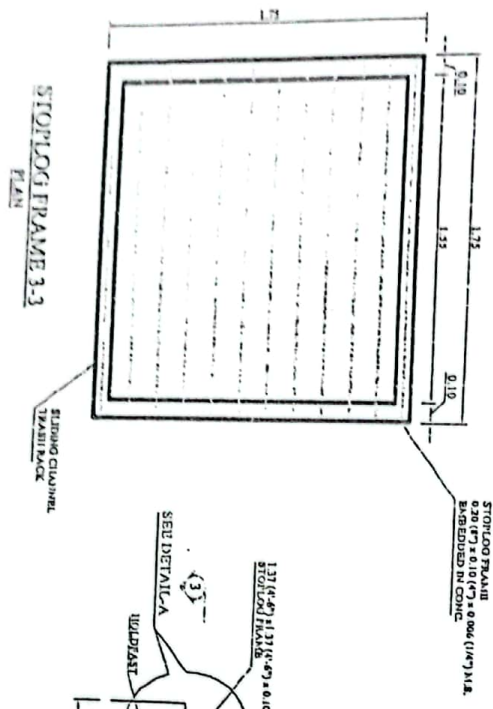
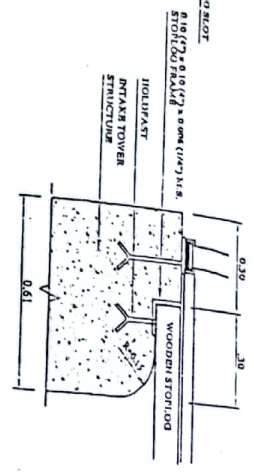
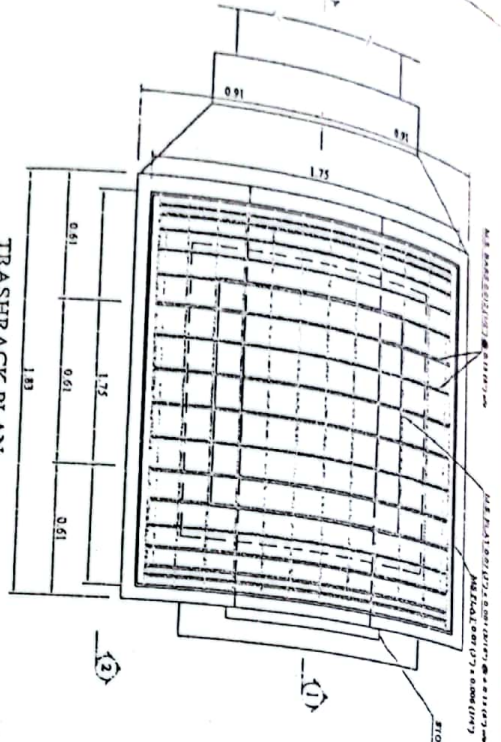
INTAKE STRUCTURE DETAIL 3-3



INTAKE STRUCTURE PLAN

ISSUED FOR
CONSTRUCTION

A. K. K.



NOTE
1. ALL DIMENSIONS AND LEVELS ARE IN METERS.

FOR CONSTRUCTION

CONSULTING ASSOCIATES		SHAH KALEEM DAM PROJECT			
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000		DESIGN BY	DESIGNED BY	CHECKED BY	DATE
RIZWAN FARID		SHAMEEL AHMED			
DRAWING NO. SKD-INF-07		TRASHRACK AND STOPLOG DETAILS			

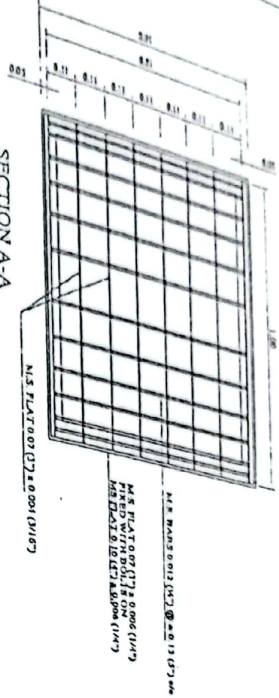
REFERENCE DRAWINGS

1. FOR CONDUIT LAYOUT PLAN SEE DWG. NO. 7
2. FOR L-SUNCTION & DRYWALL SEE DWG. NO. 7.3
3. FOR X-SECTIONS SEE DWG. NO. 7.3, 7.4
4. FOR DRYWALL STRUCTURE SEE DWG. NO. 7.5
5. FOR TRASHBACK DETAIL SEE DWG. NO. 7.8

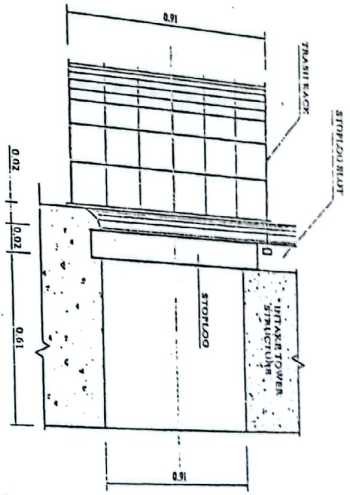
NOTE

1. ALL DIMENSIONS AND LEVELS ARE IN FEET.

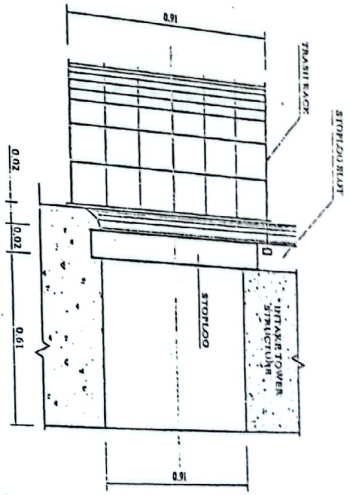
SECTION A-A



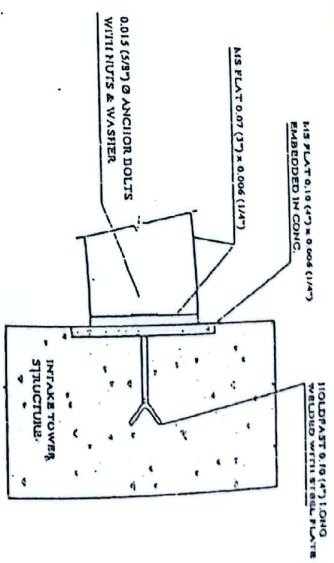
SECTION B-B



SECTION B-B



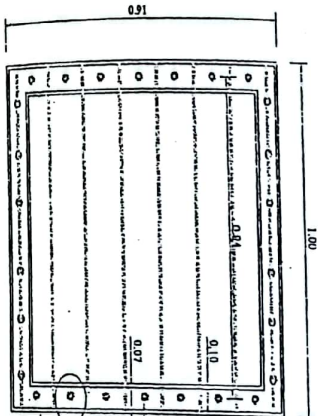
DETAIL - 1



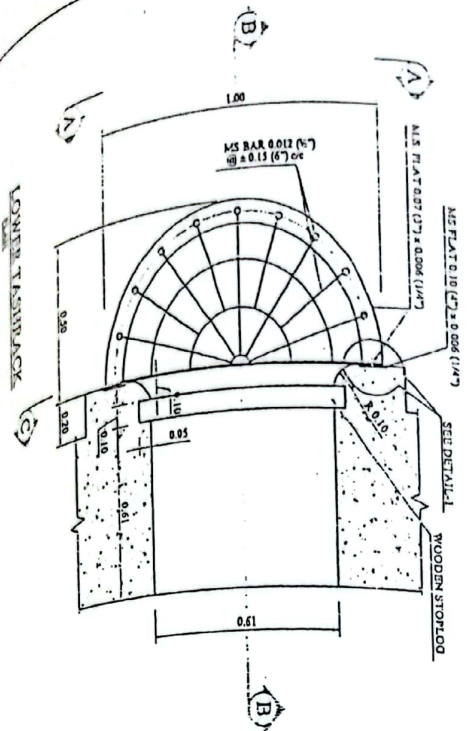
NOTE

- 1. ALL DIMENSIONS AND LEVELS ARE IN METERS.**

SECTION C-C
LOWER TAILBACK FRAME



ISSUED FOR
CONSTRUCTION

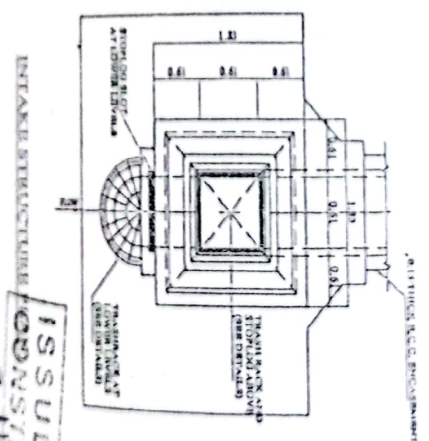
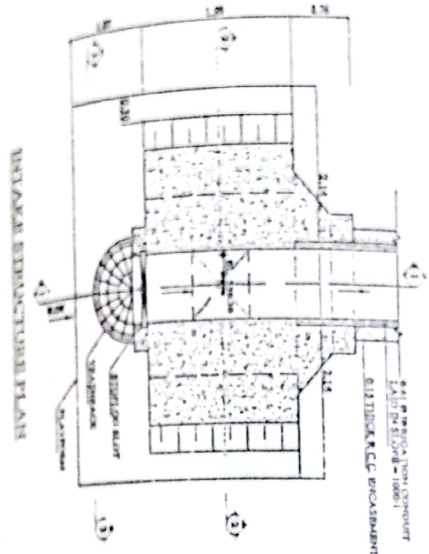
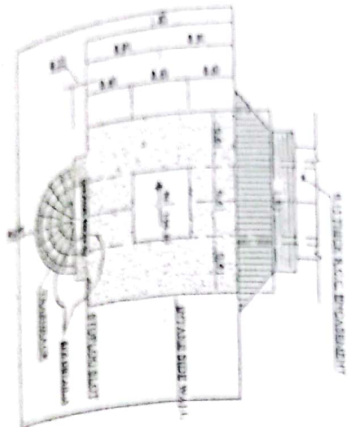
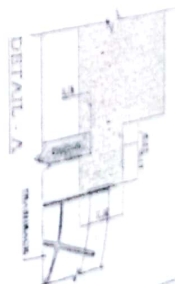
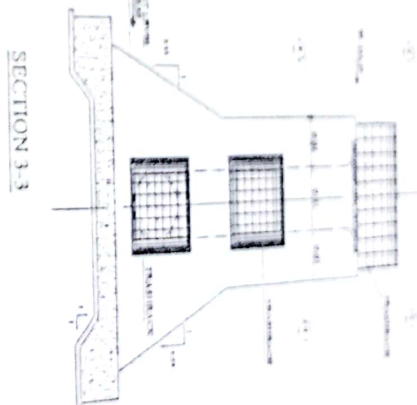
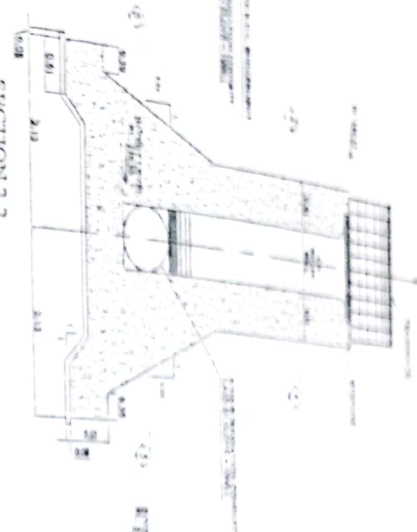
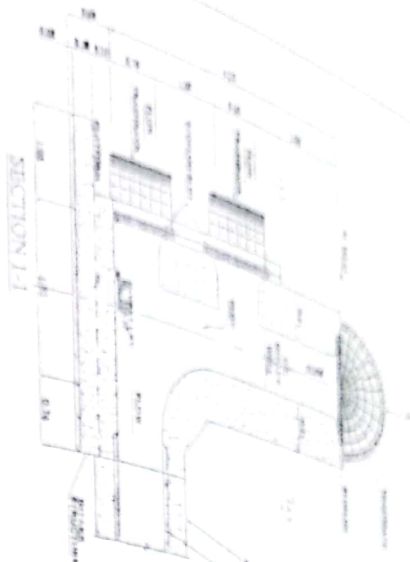




1. ALL DIMENSIONS AND LEVELS ARE IN METERS.

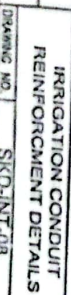
Shan

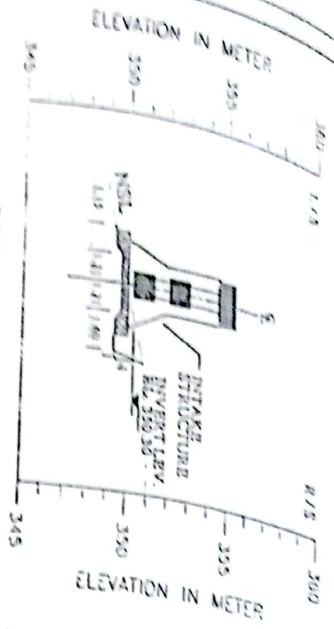
OUTLET STRUCTURE
PLAN & SECTION



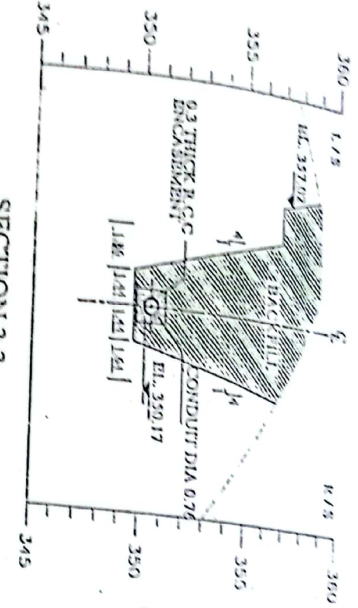
NOTE
ALL DIMENSIONS AND DETAILS ARE IN METERS

ISSUED FOR
CONSTRUCTION

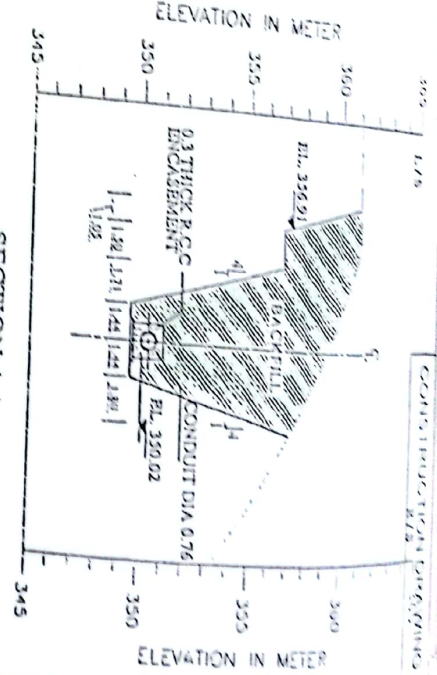




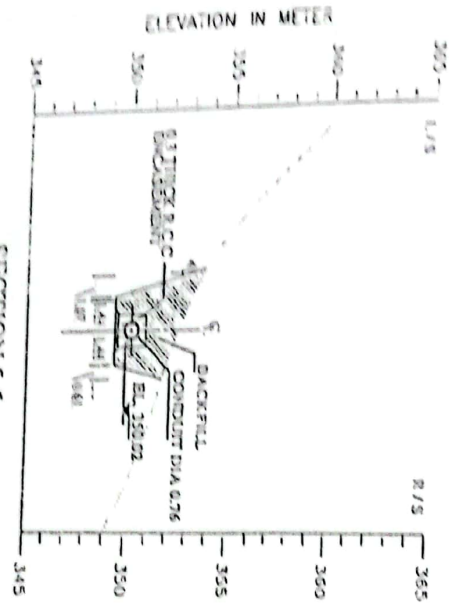
SECTION 2-2



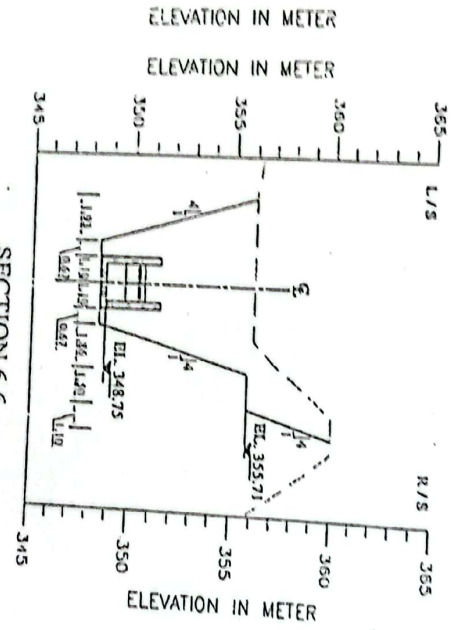
SECTION 3-3



SECTION 4-4



SECTION 5-5



SECTION 6-6

NOTE :-
ALL DIMENSIONS ARE IN METERS.

ISSUED FOR
CONSTRUCTION

GOVERNMENT OF KERALA DEPARTMENT OF WATER RESOURCES CONSULTING ASSOCIATES SIVAKALAI DAM PROJECT NO. 10/2017		REV. DATE DESCRIPTION 1 10/2017 10/2017 10/2017 2 11/2017 11/2017 11/2017 3 12/2017 12/2017 12/2017 4 01/2018 01/2018 01/2018		DESIGN BY CHECKED BY SUBMITTED BY SIVAKALAI DAM PROJECT NO. 10/2017		IRRIGATION CONDUIT CROSS SECTIONS SIVAKALAI DAM PROJECT NO. 10/2017	
---	--	---	--	--	--	---	--

Client:-
Directorate General Small Dams
Irrigation Department
Govt. of KPK Peshawar

Consultants:-
Consulting Associates
Peshawar

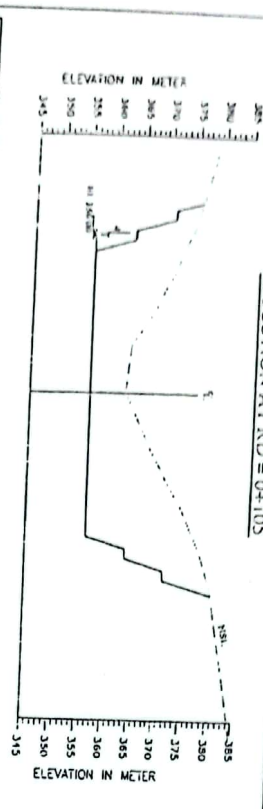
Project:-
Detail Design &
Construction Supervision of Package - F
Shah Kalem Dam

DRAWN BY: NAWAB ZADA
DESIGN BY: RIZWAN PARID
CHECKED BY: SHAKEER AHMAD

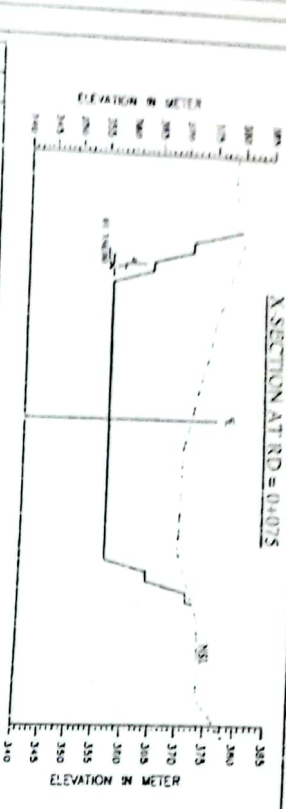
CONSTRUCTION DRAWINGS

SEAL FOR
CONSTRUCTION

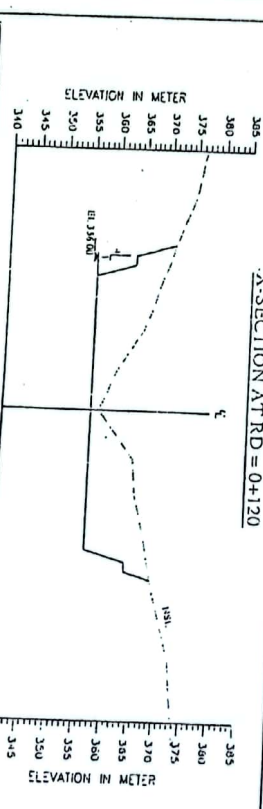
N.S.L.		Design	
Offset	Level	Offset	Level
-11.199	379.170		
-17.817	379.360		
		11.227	376.200
-17.369	376.200	18.583	372.150
		-11.227	367.580
-18.583	372.150	-7.740	364.690
		10.000	363.800
10.000	363.800	18.873	364.970
8.061	368.390		
		18.493	375.480
18.493	375.480	24.504	378.590
24.504	378.590	30.657	381.110
30.657	381.110		
		54.604	385.990



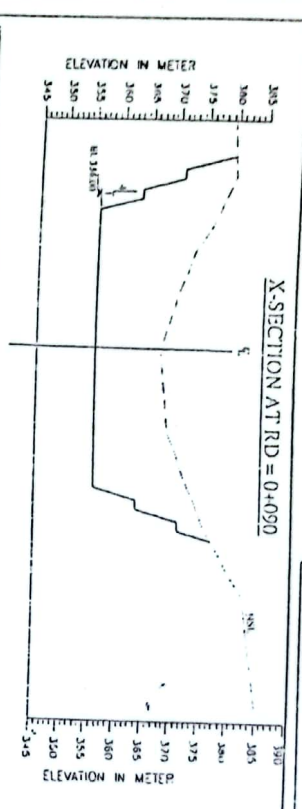
N.S.L.		Design	
Offset	Level	Offset	Level
-13.797	378.480		
-18.181	378.310		
		18.515	379.850
-18.515	379.850	16.938	375.310
		0.000	371.210
0.000	371.210	4.980	369.770
4.980	369.770		
		31.301	369.170
31.301	369.170	32.173	371.310
32.173	371.310		
		44.775	373.670
44.775	373.670	50.964	378.400



N.S.L.		Design	
Offset	Level	Offset	Level
-43.241	376.410		
-35.855	374.880		
		-27.279	371.440
-27.279	371.440	-22.244	369.360
-22.244	369.360	-13.117	365.590
-13.117	365.590	-4.402	360.350
-4.402	360.350	0.000	357.500
0.000	357.500	7.510	364.370
7.510	364.370		
		13.243	366.940
13.243	366.940	22.506	364.000
22.506	364.000	27.375	363.500
27.375	363.500	32.874	362.710
32.874	362.710		



N.S.L.		Design	
Offset	Level	Offset	Level
-37.312	379.230		
-27.993	379.750		
		-21.245	377.000
-21.245	377.000	-15.895	373.740
-15.895	373.740	-8.501	370.480
-8.501	370.480	0.000	367.530
0.000	367.530	13.672	369.080
13.672	369.080		
		28.336	375.490
28.336	375.490	31.403	377.740
31.403	377.740	39.381	382.620
39.381	382.620		
		60.046	385.440



CONSTRUCTION DRAWING

Client:- Directorate General Small Dams
Irrigation Department
Govt. of KPK Peshawar

Consultants:- Consulting Associates
Peshawar

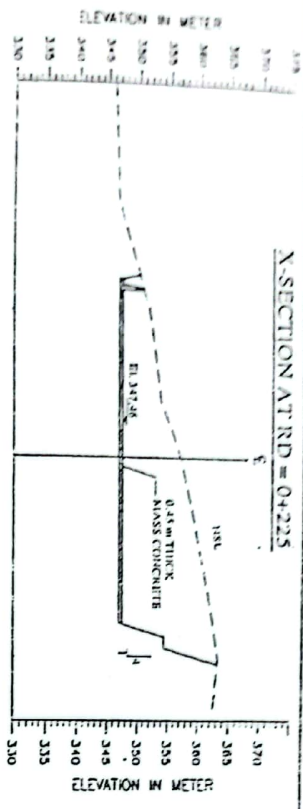
Project:- Detail Design & Construction Supervision of Package - F

CONSTRUCTION DRAWINGS

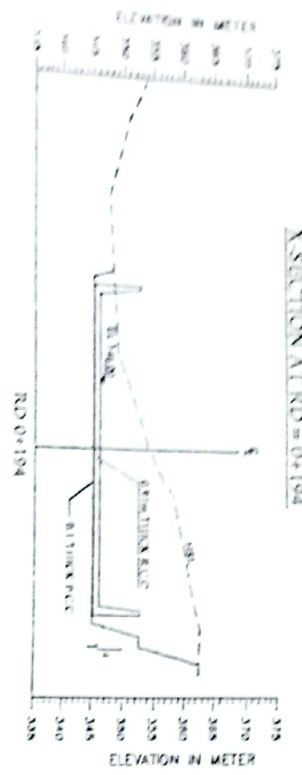
DRAWN BY: NAWAB ZADA
DESIGN BY: NIZWAN FARID

SPILLWAY CROSS SECTIONS

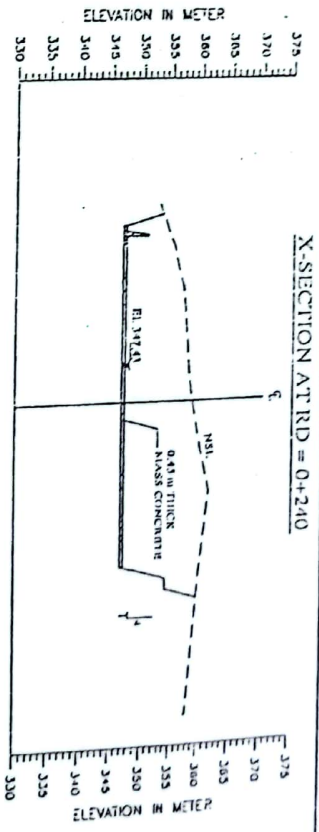
N.S.L.		Design	
Offset	Level	Offset	Level
11.187	346.030		
14.871	346.730		
		24.122	350.485
		23.881	349.549
20.330	351.820	23.574	348.808
		23.500	346.843
17.584	351.740		
0.000	357.110	0.000	346.843
15.736	361.110		
		22.500	346.843
		22.334	349.349
		22.334	349.349
27.328	363.280	22.334	357.349
		22.334	357.349
33.604	365.570	22.334	363.114



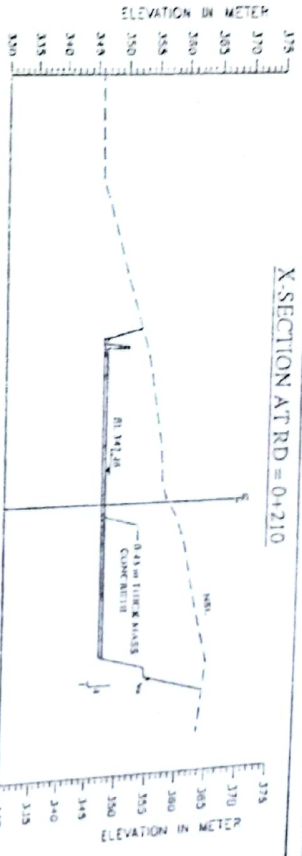
W.F.L.		Design	
Offset	Level	Offset	Level
14.401	350.875		
47.277	356.679		
34.061	357.546		
		23.418	351.876
		23.418	344.961
13.065	348.795		
4.212	355.630		
0.000	351.985	0.000	344.961
6.664	357.995		
		22.418	351.025
		22.418	344.961
22.234	362.460		
22.234	362.460		



N.S.L.		Design	
Offset	Level	Offset	Level
27.896	352.360		
21.234	355.430		
15.683	357.100		
		24.940	353.235
		23.939	349.931
		23.939	346.823
13.947	358.250		
0.000	358.810	0.000	346.823
13.433	361.590		
		24.122	346.123
		23.931	349.931
		23.931	349.931
		23.931	357.431
		23.931	357.431
		23.931	359.762



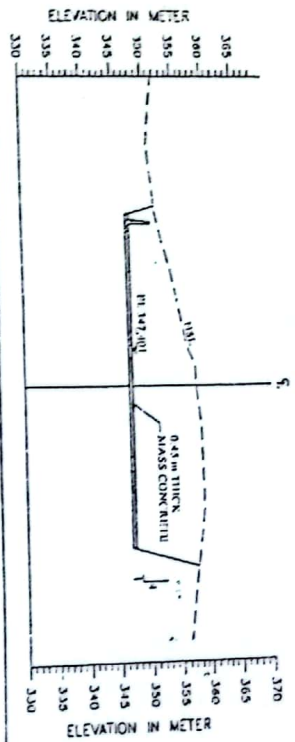
N.S.L.		Design	
Offset	Level	Offset	Level
22.281	355.076		
47.001	364.360		
		24.961	349.961
		23.931	349.961
		23.931	349.961
		23.931	349.961
		23.931	349.961
21.636	354.130		
8.624	356.440		
2.799	356.760		
0.000	357.800	0.000	346.823
1.821	359.000		
6.140	360.380		
		24.961	349.961
		23.931	349.961
		23.931	349.961
		23.931	349.961
		23.931	349.961
24.061	364.600		
34.877	363.470		



APPROVED FOR CONSTRUCTION

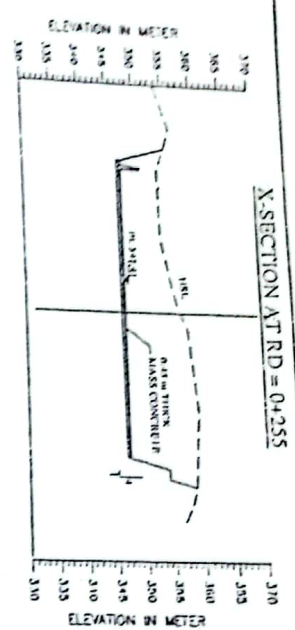
Signature

X-SECTION AT RD = 0+270



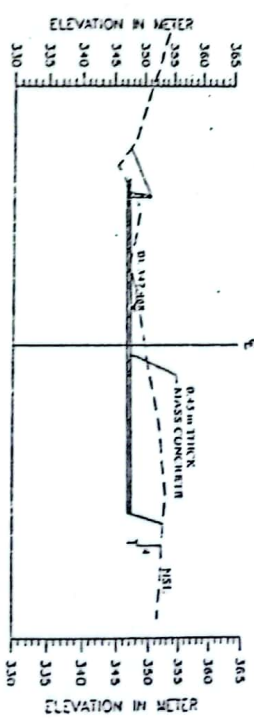
H.S.L.		Design	
Office	Level	Office	Level
42.824	351.810		
34.380	350.640		
34.267	351.700	34.905	349.805
		35.548	349.805
		34.433	351.823
		35.900	346.794
14.094	353.910		
14.432	354.340		
13.729	357.630		
0.000	357.790	0.000	346.794
5.654	358.600		
14.728	358.130	346.794	346.794
34.810	357.530	35.932	353.532
35.329	356.130	35.932	353.532

X-SECTION AT RD = 0+255



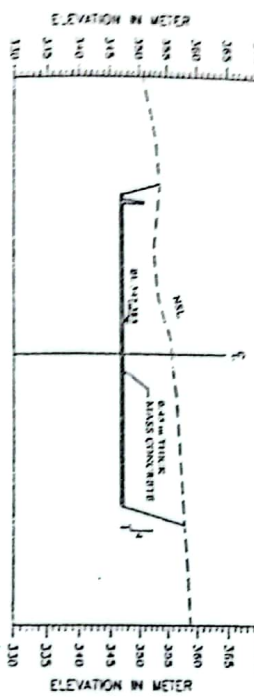
H.S.L.		Design	
Office	Level	Office	Level
36.670	353.800		
37.437	354.440		
37.976	354.100	37.270	354.974
		37.270	349.999
		37.270	349.999
		37.270	349.999
41.201	354.330		
13.266	354.830		
0.000	357.090	0.000	346.895
13.25	358.290		
15.100	359.300		
27.180	358.800	35.932	354.974
36.020	358.010	35.932	354.974
35.446	356.630	35.932	354.974

X-SECTION AT RD = 0+300



H.S.L.		Design	
Office	Level	Office	Level
35.946	351.350		
28.337	344.440		
24.636	345.430	35.217	348.950
18.709	349.030	35.900	346.741
11.232	347.400		
5.685	348.390		
0.000	349.710	0.000	346.741
5.206	350.170		
10.729	353.040		
35.110	352.920	346.741	346.741
		35.932	353.532
		35.932	353.532

X-SECTION AT RD = 0+285



H.S.L.		Design	
Office	Level	Office	Level
37.724	356.890		
37.547	353.090		
37.870	353.870	37.801	353.817
37.147	353.274	37.274	348.953
	353.138	37.274	348.953
	353.411	37.274	348.953
37.717	352.810		
13.243	353.310		
13.963	353.730		
0.000	355.740	0.000	346.778
6.165	356.600		
29.975	358.790	35.932	357.815
		35.932	357.815

ISSUED FOR CONSTRUCTION

Below

CONSTRUCTION DRAWINGS

Consultants:-

Client:-

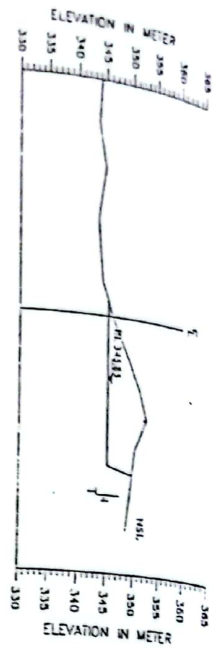
Directorate General Small Dams
Inundation Department
Govt. of KPK Peshawar

Consulting Associates
Peshawar

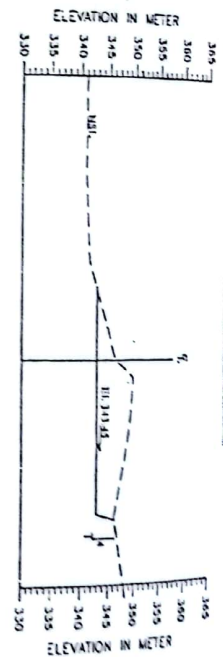
Project:- Detail Design &
Construction Supervision of Package - F
Shah Kaleem Dam

DESIGN BY
RIZWAN FARID

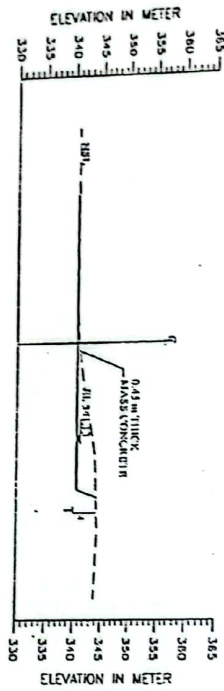
SPILLWAY
CROSS SECTIONS



K.F.L.		Deputy	
Office	Level	Office	Level
14,587	344,100		
29,871	341,820		
37,569	344,780	21,240	347,638
		22,305	345,313
114,879	347,330		
51,184	344,290		
8,800	346,830	8,000	349,247
162,791	280,930		
110,661	357,520		
19,199	330,260		
		21,208	342,500
		22,140	347,638
		22,305	345,313
		242,740	349,633
22,098	348,580		



N.S.L.		Design	
Offset	Level	Offset	Level
-0.216	340.940		
-34.170	341.132	11 11.246 11.936 11.473	341.171 341.131 341.131 341.143
-40.704	341.300		
0.000	346.268	0.000	346.245
2.584	349.660		
9.688	348.930		
22.923	348.140	11 11.246 11.936 11.473	347.843 347.843 347.843 347.843
34.854	348.220		



N.S.L.		Design	
Office	Level	Office	Level
32,629	340,630		
		23,539	340,543
		20,777	340,573
16,738	340,710		
4,951	340,650		
8,000	340,750	0.000	340,573
4,662	341,370		
17,247	343,800		
		22,577	340,573
		22,539	343,543
29,315	344,270		
39,285	343,770		

ISSUED FOR
CONSTRUCTION

Entham

Client:-

Directorate General Small Dams
Irrigation Department
Govt. of KPK Peshawar

Investigation Department
Govt. of KPK Peshawar

ent

Consultants:-

Consulting Associates
Peshawar

Peshawar

CONSTRUCTION DRAWINGS

Project:— Detail Design & Construction Supervision of Package - 1

Shah Kaleem Durrani

DRAWN BY	NATYAB ZADA
----------	-------------

NDA

DESIGN BY RIZYAN FARID

10

CLICKED BY SHAKEEL AHMAD

AD

SPILLWAY CROSS SECTIONS

INTAKE & OUT TAKE STRUCTURES

SHAH KALEM
 DAM PROJECT
 SURVEYED IN 4

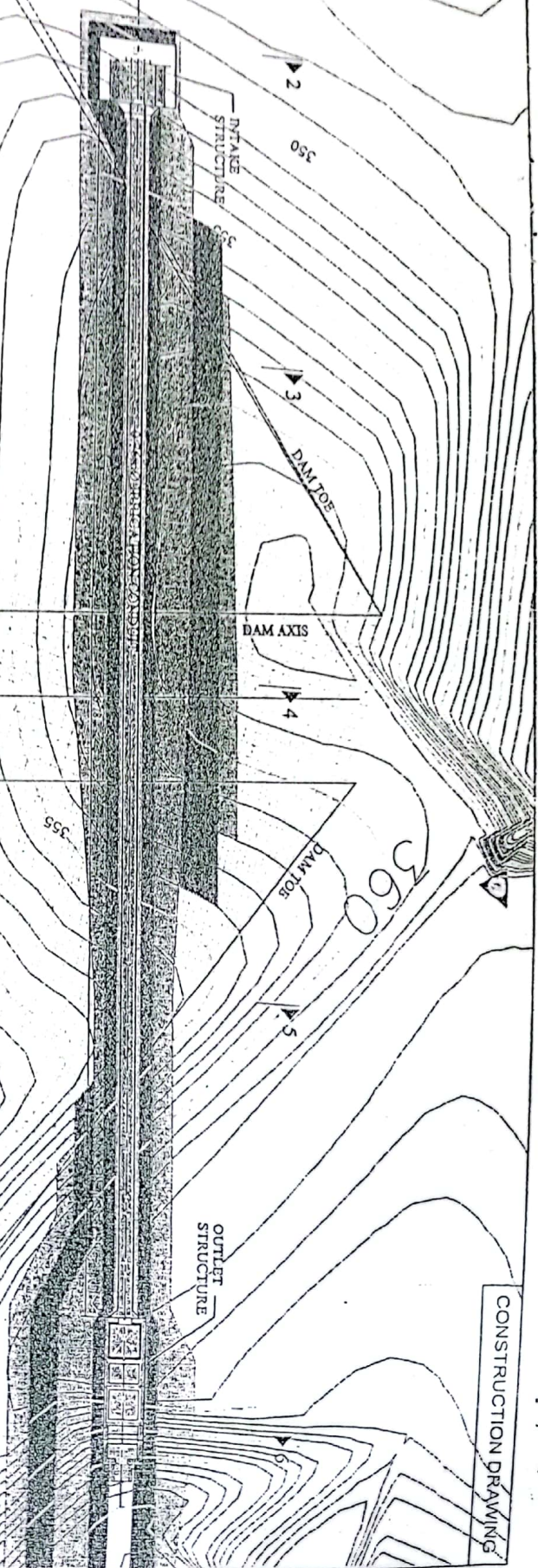
REV.	DATE	DESCRIPTION

DESIGN BY
 RIZWAN FARID

CONDUIT LAYOUT PLAN

ISSUED FOR
 CONSTRUCTION
 Shah Kalem

PLAN
 SCALE = 1:200



CONSTRUCTION DRAWING

Client:-
Directorate General Small Dams
Irrigation Department
Govt. of KPK Peshawar

Consultants:-
Consulting Associates
Peshawar

Project:-
Detail Design &
Construction Supervision of Package - F
Spah Kuleem Dam

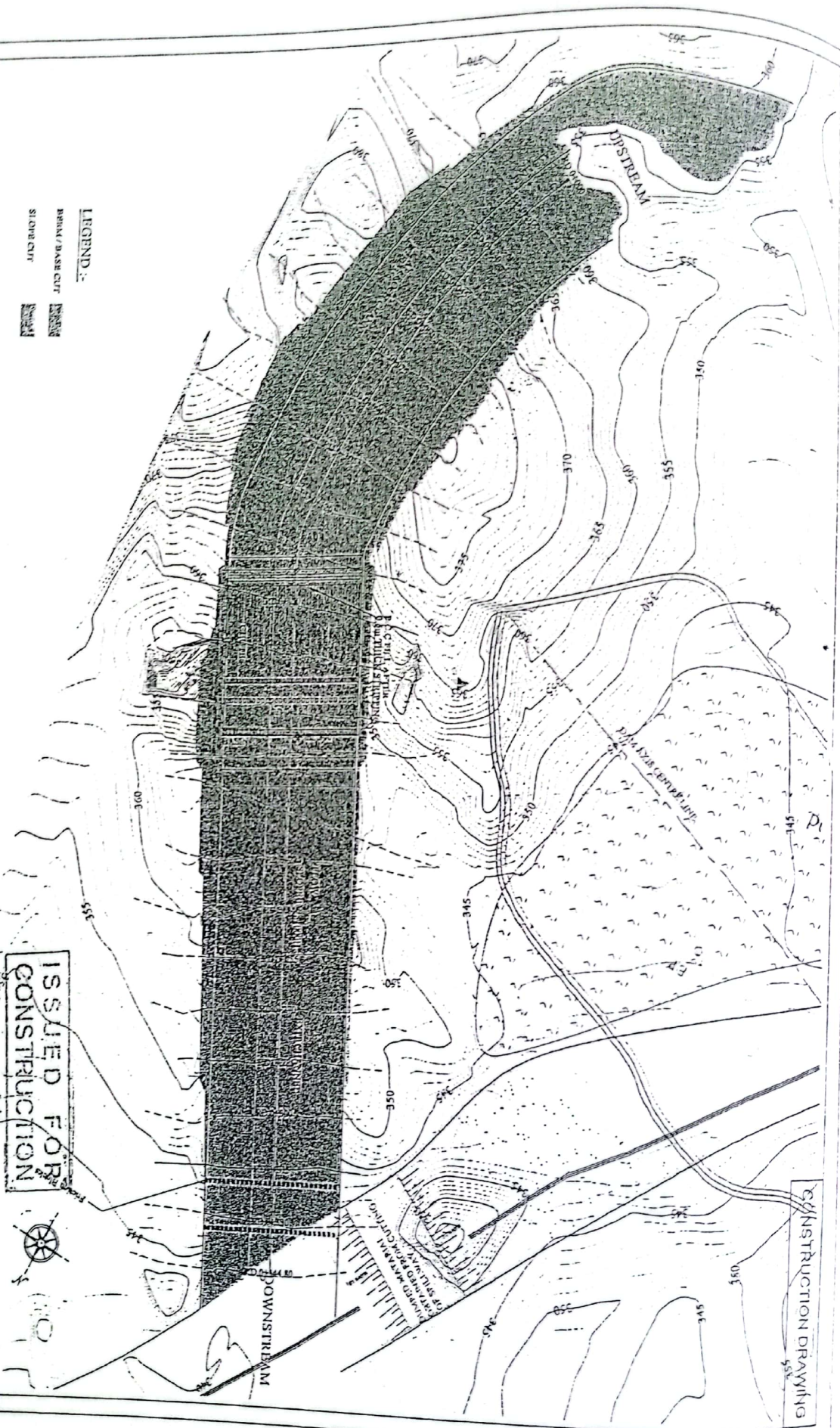
DRAWN BY: SOHAIL AHMAD
DESIGN BY: RIZWAN FARID
CHECKED BY: SHAKEEL AHMAD

SPILLWAY
LAYOUT PLAN
DWG No. 1

LEGEND:-
BRINK / BASE CUT
SLOPE CUT

ISSUED FOR
CONSTRUCTION

Sub



GOVERNMENT OF KENTRER PROVINCE
DISTRICT OF KENTRER PROVINCE
DISTRICT OF KENTRER PROVINCE

CONSULTING ASSOCIATES
KENTRER ASSOCIATES
KENTRER ASSOCIATES

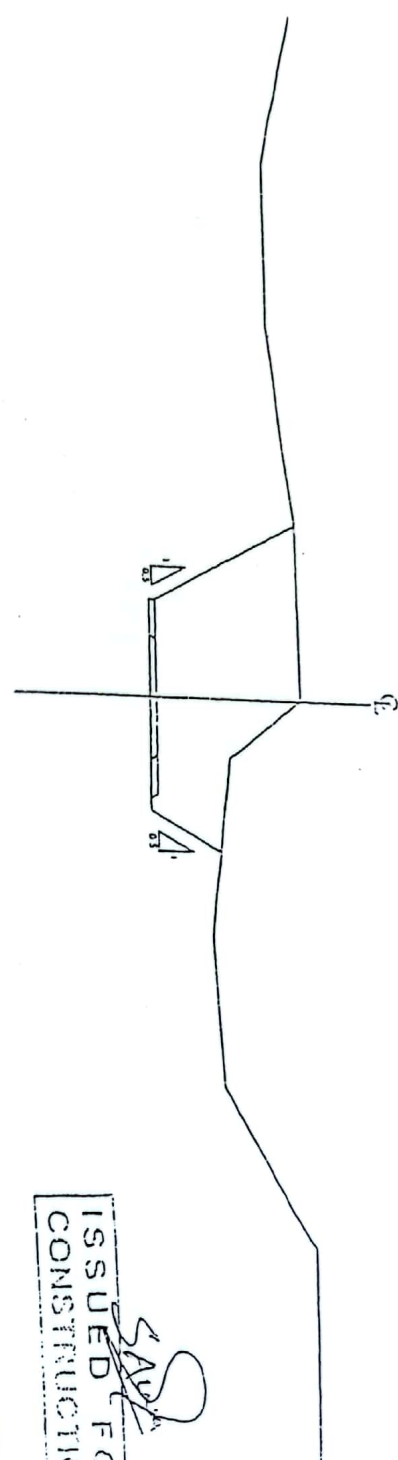
SIMAI KALIBI PANI PROJECT
DISTRICT OF KENTRER PROVINCE

DESIGN BY
SUBMITTED BY
REVIEWED BY

DESIGN NO.
SUBMITTED NO.
REVIEWED NO.

SIMAI KALIBI PANI ROAD CROSS SECTION
DRAWING NO.

N S L		Design	
Offset	Level	Offset	Level
17.840	383.650		
13.880	382.740		
9.630	382.760		
4.600	383.380	4.526 4.469	383.380 379.327
0.000	383.400	0.000	379.286
0.550	381.350	0.899 2.498 0.500 3.893	379.245 379.043 379.043 381.031
6.030	380.740		
9.690	380.950		
12.970	382.930		
13.540	383.370		
18.760	383.400		



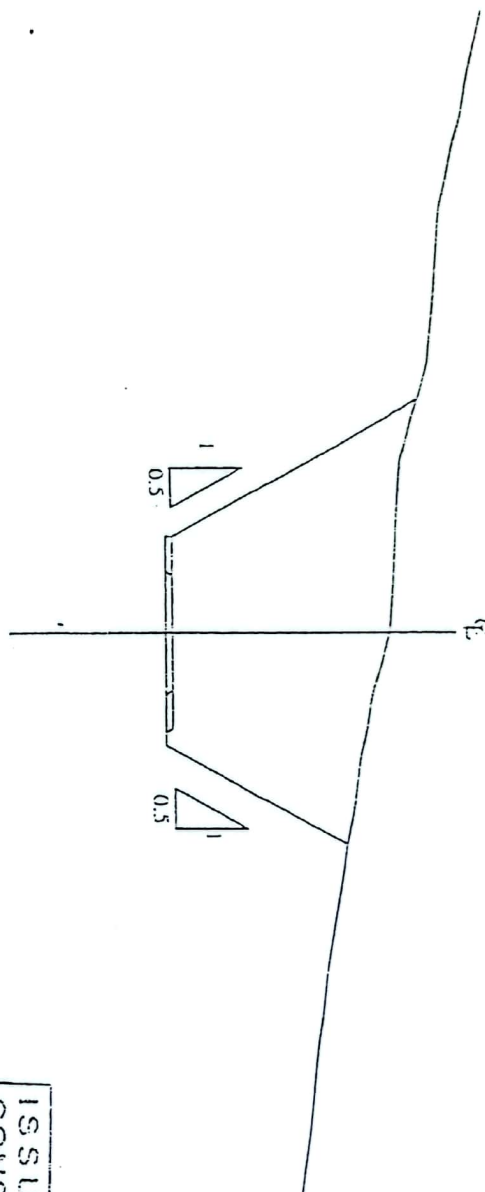
ISSUED FOR
CONSTRUCTION

X SECTION AT RD = 0+250

SUMMARY OF QUANTITIES		
S No.	Description	Area
1	Cutting	21.99
2	Filling	0.00

ISSUED FOR
CONSTRUCTION

ISSUED FOR
CONSTRUCTION



N.S.L		Design	
Offset	Level	Offset	Level
16.120	388.990		
10.860	387.720		
6.970	387.320	6.022	386.982
4.470	386.430	2.499	379.938
0.000	385.010	0.000	379.897
1.900	385.400	1.498	379.856
		1.560	379.654
		1.899	379.654
5.640	384.610	5.402	384.660
8.800	384.000		
14.280	383.230		

3141 KALEED ROAD CIRCLE NEWTON

STANDARD KEY TO	
S No	Description
1	Cutting
2	Filling

ISSUED FOR

ISSUED FOR
CONSTRUCTION

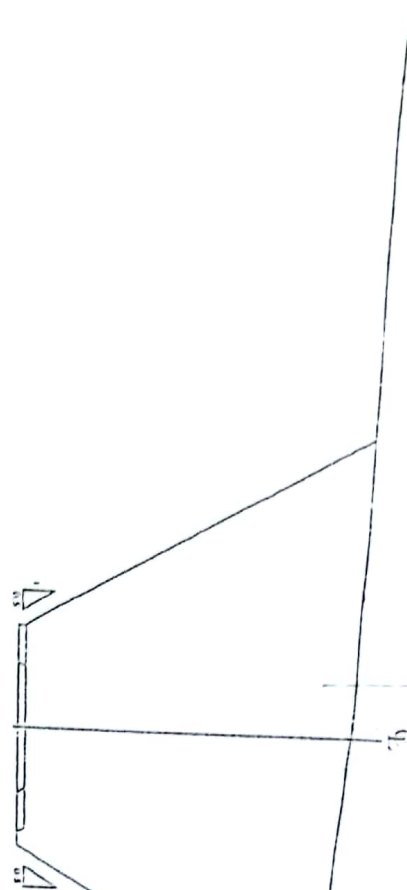
DESIGNED BY	14/04/2024
SUBMITTED BY	SALAH UD DIN SITIKUL ALIYAH

SIVIL KALEED ROAD CROSS SECTION

ISSUED FOR
CONSTRUCTION

N.S.L.		Design	
Offset	Level	Offset	Level
12.080	389.870		
12.190	389.210		
5.960	388.690	7.317	388.803
0.000	388.120	2.499 0.000	379.169 379.128
		2.498 2.599 2.899	379.087 378.885 378.885
7.260	387.030	6.991	387.070
11.370	386.780		
16.110	385.840		
22.930	385.100		

ISSUED FOR
CONSTRUCTION

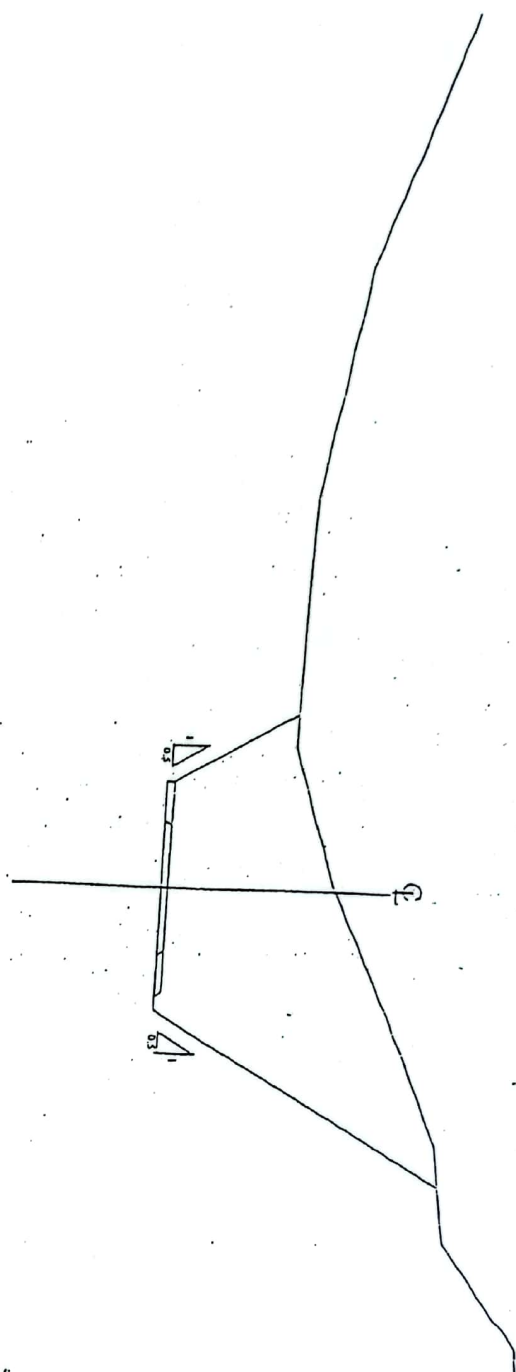
A SECTION AT RD = 0+500

SUMMARY OF ACTIVITIES		
S No	Description	Area
1	Counting	82-10
2	Filling	1000

SUMMARY OF QUANTITIES		
S No	Description	Area
1	Cutting	40.71
2	Filling	0.00

[Handwritten signature]

ISSUED FOR
CONSTRUCTION



N.S.L.		Design	
Offset	Level	Offset	Level
20.430	885.250		
14.310	882.750		
9.070	881.650		
3.570	881.440	4.099	881.467
0.000		2.499	878.268
	882.610	0.000	878.227
3.050	884.210	2.498	877.984
		2.599	877.984
		2.899	878.186
5.750	885.470		
7.970	885.820	6.718	885.623
10.260	887.760		
17.060	888.110		

DIRECTORATE GENERAL SMALL DAIRIES
INDICATION DEPARTMENT PESIMAWAR

CONSULTING ASSOCIATES
 16000 Capital Blvd., Suite 400, Northridge, CA 91324
 Tel: (818) 708-1111 Fax: (818) 708-1112

SHALAKHIN DÂN PROJECT
DISTRICT NOWSIRA

DESIGNED BY	SAFARI W/D DILL
SUBMITTED BY	SIFKAL ALIHAD

14742 ZAH
SAYAL 100 DILL
SILKIL ALHAB

SILVER KULEDA ROAD CROSS SECTION

S.No	Description	Area
1	Cutting	00
2	Filling	4.08

N.S.L.		Design	
Offset	Level	Offset	Level
-8.920	339.794		
-4.430	340.175	-4.222	340.193
0.000	340.550	-2.499	341.070
2.650	339.850	341.029	
	2.498	340.988	
	4.805	339.813	
10.300	339.720		

X-SECTION AT RD = 0+020

ISSUED FOR
CONSTRUCTION

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	00
2	Filling	8.61

N.S.L.		Design	
Offset	Level	Offset	Level
-8.220	340.525		
-3.090	341.440	-5.291	341.047
0.000	341.060	-2.499	342.469
2.540	341.025	342.428	
7.920	341.091	342.387	
		5.111	341.057

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
SHAH KALBEN DAM PROJECT
DISTRICT NOWSHERA

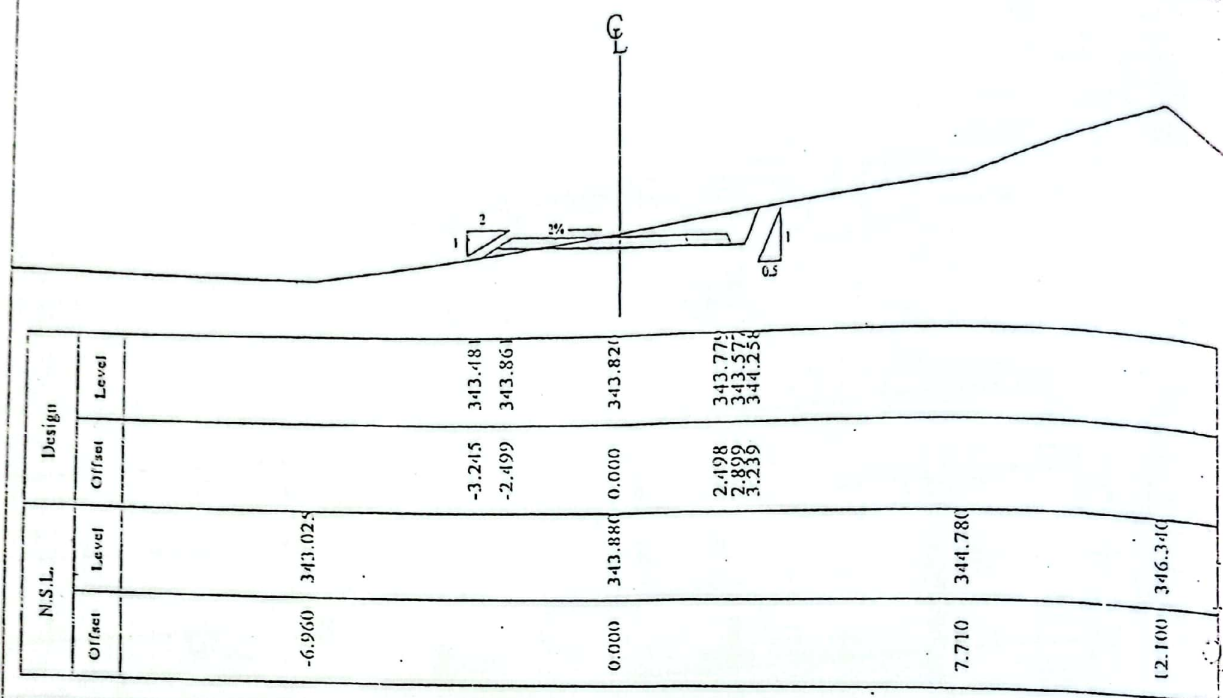
SHAH KALBEN DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY: SHAH ZAKI
DESIGN BY: SHAH US DIN
SUBMITTED BY: SHAH, AHMAD

SHAH KALBEN DAM CROSS SECTION

X-SECTION AT RD = 0+40

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	1.65
2	Filling	0.10

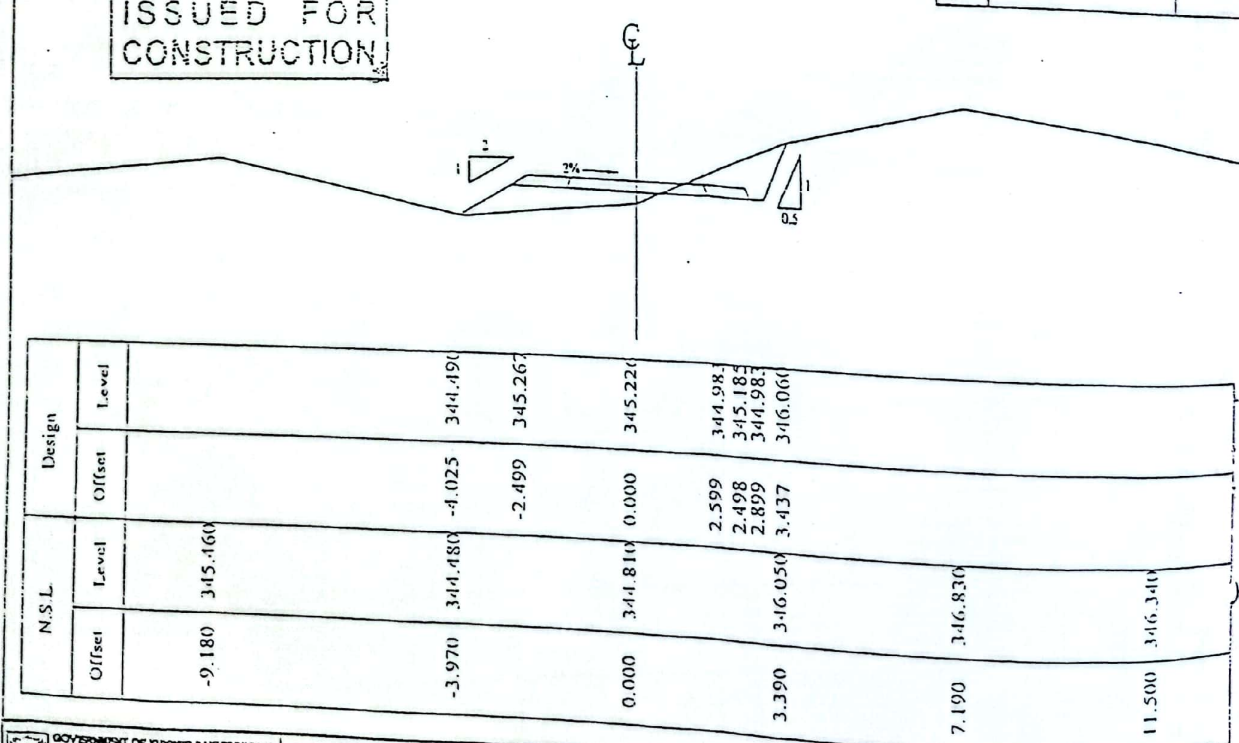


N.S.L.	Offset	Level	Design	Offset	Level
	-6.960	343.025		-3.245	343.481
				-2.499	343.861
	0.000	343.880		0.000	343.820
	7.710	344.780		2.498	343.775
				2.899	343.572
	12.100	346.340		3.239	344.238

X-SECTION AT RD = 0+60

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	1.28
2	Filling	1.34

ISSUED FOR CONSTRUCTION



N.S.L.	Offset	Level	Design	Offset	Level
	-9.180	345.160		-4.025	344.490
	-3.970	344.480		-2.499	345.262
	0.000	344.810		0.000	345.220
	3.390	346.050		2.599	344.982
				2.498	345.182
	7.190	346.830		2.899	344.982
	11.500	346.340		3.437	346.060

S.No	Description	Area
1	Cutting	0.00
2	Filling	13.8

N.S.L.		Design	
Offset	Level	Offset	Level
-12.290	342.110	-10.656	342.507
-3.810	344.170	-2.499	346.661
0.000	345.220	0.000	346.620
2.230	346.050	2.499	346.579
8.010	347.350	3.138	346.253

X-SECTION AT RD = 0+100

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.00
2	Filling	13.8

N.S.L.		Design	
Offset	Level	Offset	Level
-9.410	343.740	-11.263	343.602
-1.980	346.380	-2.499	348.065
0.000	347.150	0.000	348.024
1.820	347.866	2.499	347.983
5.830	347.640	3.138	347.657
10.350	348.311		

GOVERNMENT OF PUNJAB
DIRECTORATE GENERAL SMALL DAMS
IRRIGATION DEPARTMENT, PESHAWAR

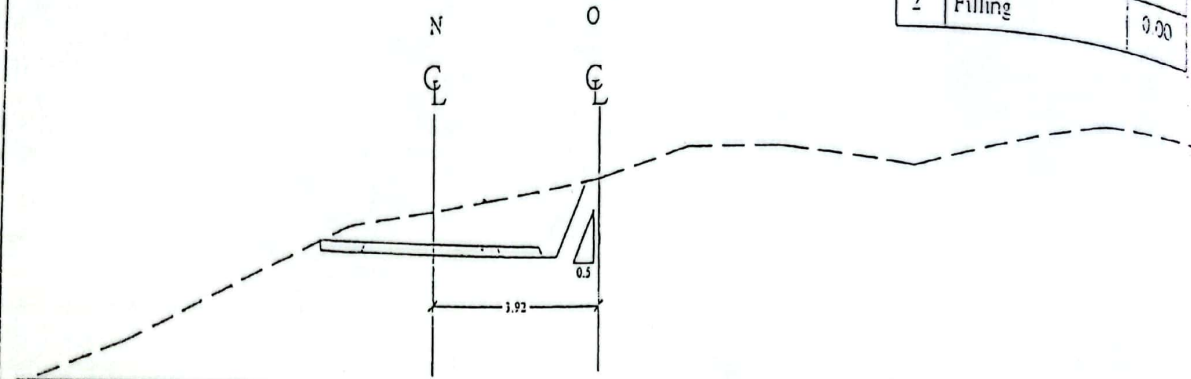
CONSULTING ASSOCIATES
SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

CHECK BY: RAHAT ZADA
DESIGN BY: SALAH UD DIN

X-SECTION AT RD = 0+120

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	5.07
2	Filling	0.00

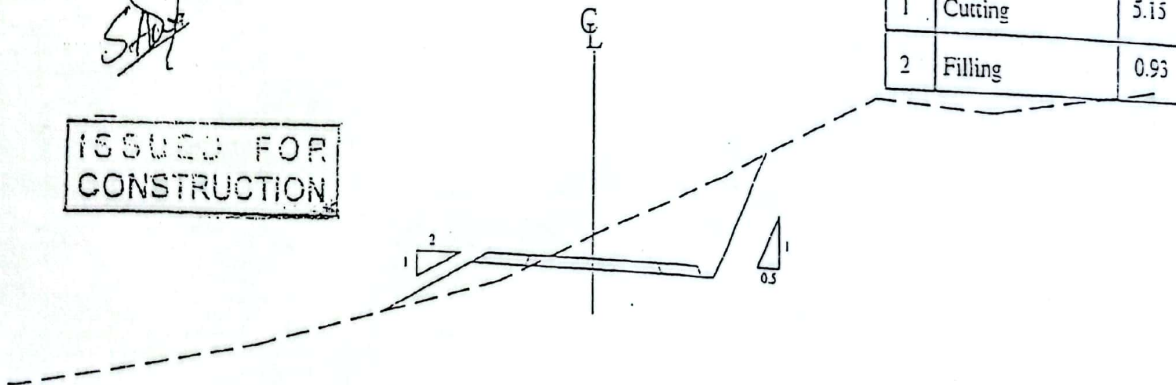


N.S.L.		Design	
Offset	Level	Offset	Level
-10.880	347.477		
-5.787	349.810		
-2.612	350.313	-2.902	350.267
		-2.499	349.461
0.000		0.000	349.420
2.097		2.599	349.379
		2.899	349.177
4.197		3.926	351.231
7.104			
11.462			

X-SECTION AT RD = 0+140

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	5.15
2	Filling	0.93

ISSUED FOR CONSTRUCTION



N.S.L.		Design	
Offset	Level	Offset	Level
-12.960	348.030		
-7.770	348.940		
-2.200	350.330	-4.839	349.671
		-2.499	350.863
0.000		0.000	350.822
1.080		2.899	350.579
		2.498	350.781
		2.599	350.579
		1.088	352.957
6.480			
9.070			
12.780			



GOVERNMENT OF KARNATAKA
DIRECTORATE GENERAL SMALL DAMS



CONSULTING ASSOCIATES
PVT. LTD.

SHAH KALEEM DAM PROJECT

CHECKED BY: NAME: DATE:

S.No	Description	Area
1	Cutting	14.56
2	Filling	0.00

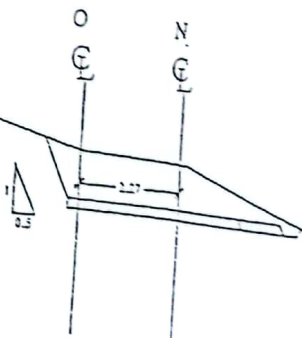
N.S.L.		Design	
Offset	Level	Offset	Level
-17.770	351.770		
-6.620	353.090		
-3.070	354.430	3.502	354.267
0.000	355.150	2.499	352.261
3.050	356.110		
7.160	356.970		
12.340	356.920		

X-SECTION AT RD = 0+180

Signature

ISSUED FOR
CONSTRUCTION

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	5.16
2	Filling	0.00



N.S.L.		Design	
Offset	Level	Offset	Level
-9.260	355.030		
-4.290	355.710	-3.414	355.489
0.000	356.630	-2.499	353.661
2.470	357.520		
6.090	358.250		

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL, SMALL DAMS
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
B-10, PHASE 1, COMPLEX, ANSAR-UL-ULUM, ISLAMABAD
P.O. BOX 1000, ISLAMABAD
Contact: 37333333-33333333

SHARI KALEEN DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY: MUHAMMAD ZAHID
DESIGN BY: SHAH IDRIS
SUBMITTED BY: SHAH IDRIS

SHARI KALEEN AND OTHER SECTIONS
Drawing No. 1

X-SECTION AT RD = 0+200

SUMMARY OF QUANTITIES		
S No	Description	Area
1	Cutting	10.81
2	Filling	0.00

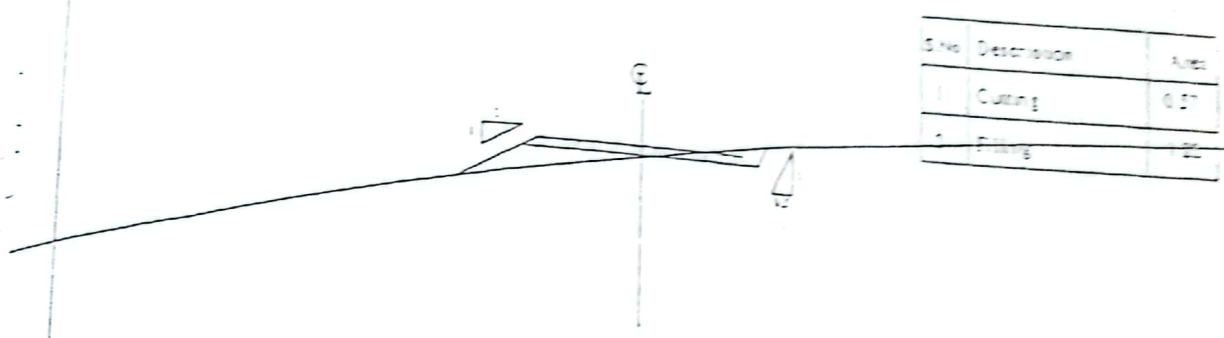
N.S.L.	Design	
	Offset	Level
-11.160		351.600
-6.810		356.210
-4.220	-3.740	357.541
	-2.499	355.060
0.000	0.000	355.019
1.500	2.498	354.776
	2.599	354.978
	2.899	354.776
6.809	3.731	356.440
		355.820

X-SECTION AT RD = 0+220

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	3.49
2	Filling	0.00

ISSUED FOR CONSTRUCTION

N.S.L.	Design	
	Offset	Level
-11.890		354.250
-8.970		355.750
-4.630	-3.740	357.541
	-2.499	355.060
0.000	0.000	355.019
3.760	2.498	354.978
	2.599	354.776
	2.899	354.776
	3.731	356.440
7.710		358.020
9.550		358.490
13.810		357.440

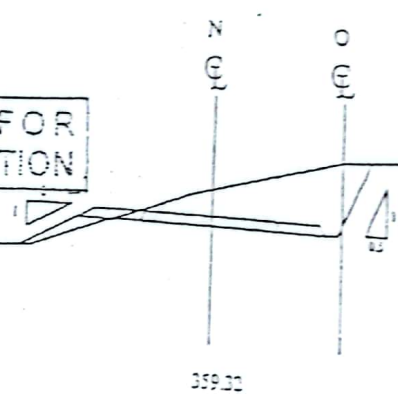


S.No	Description	Area
1	Cutting	0.27
2	Filling	1.22

N.S.L.		Design	
Offset	Level	Offset	Level
10.450	155.890	4.376	156.902
3.250	157.090	2.499	157.858
0.000	157.570	0.000	157.817
3.550	158.070	2.498	157.776
0.120	158.510	2.500	157.574
14.060	158.780	3.116	158.000

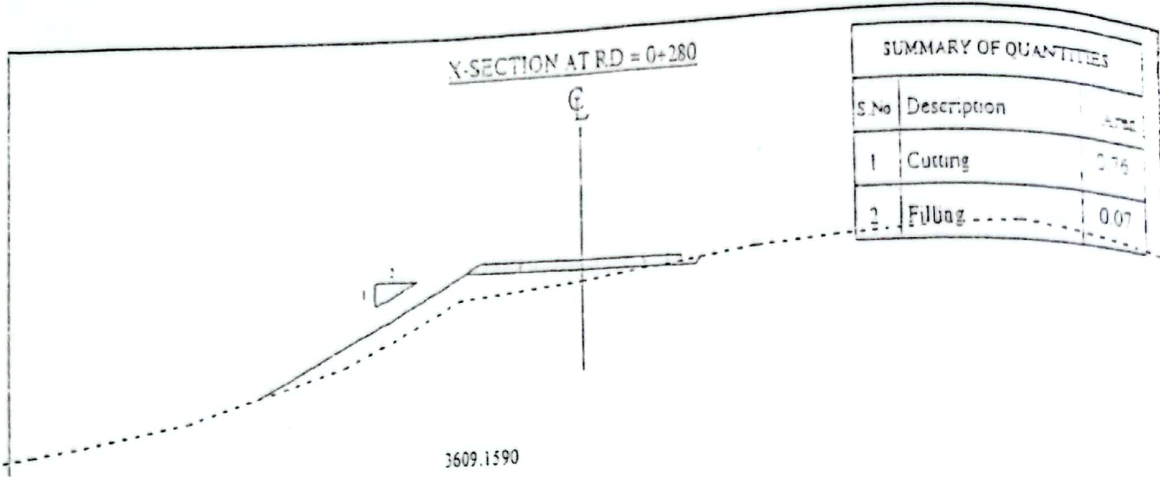
X-SECTION AT RD = 0+250

ISSUED FOR CONSTRUCTION



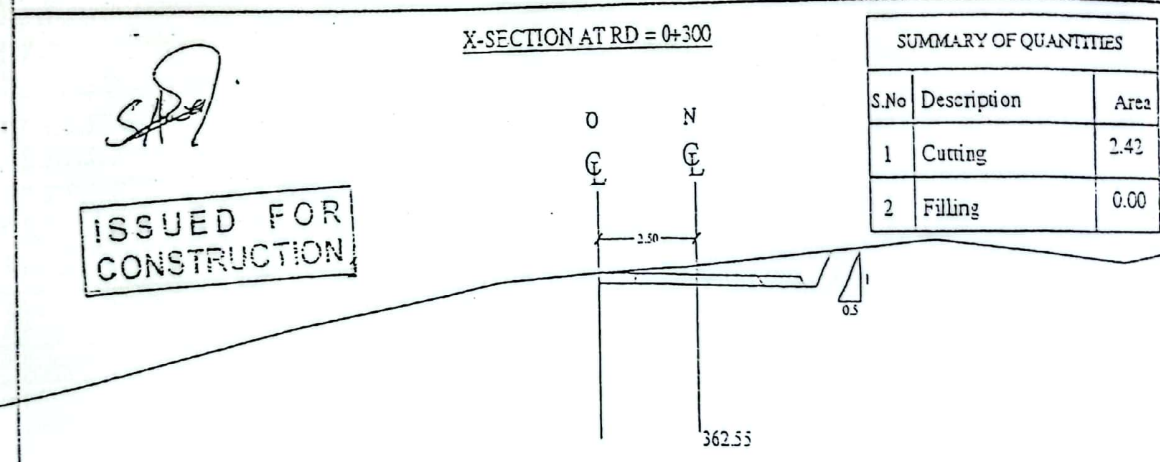
SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	4.59
2	Filling	0.46

N.S.L.		Design	
Offset	Level	Offset	Level
11.280	158.310	3.915	158.653
6.900	158.550	2.499	159.361
3.460	159.750	0.000	159.320
0.000	160.560	2.498	159.279
1.380	160.630	2.500	159.077
0.600	160.660	2.899	159.077
10.900	160.610	3.210	160.700
14.450	160.880		



SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.76
2	Filling	0.07

Design		N.S.L.	
Offset	Level	Offset	Level
7.900	358.251	-9.550	357.760
-2.499	360.951	-5.750	358.890
0.000	360.910	-3.010	360.200
2.498	360.869	0.000	360.470
2.599	360.667		
2.899	360.667		
2.965	360.800	1.310	360.950
		10.530	361.320
		15.690	360.750



SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	2.42
2	Filling	0.00

Design		N.S.L.	
Offset	Level	Offset	Level
-2.666	362.965	-13.050	360.270
-2.499	362.631	-7.320	361.550
0.000	362.590	-2.440	362.430
2.498	362.549	0.000	362.600
2.599	362.347	2.230	362.710
2.899	362.347		
3.422	363.394		
		8.200	363.250
		12.590	362.780

	GOVERNMENT OF MYANMAR DIRECTORATE GENERAL SMALL DAMS IRRIGATION DEPARTMENT, PESHAWAR		CONSULTING ASSOCIATES SHAN STATE CONSULTING ASSOCIATES, 10/11 10/11 SHAN STATE CONSULTING ASSOCIATES, 10/11 10/11 SHAN STATE CONSULTING ASSOCIATES, 10/11	DRAWN BY: NING NING	SHAN STATE ROAD CROSS SECTION DRAWING NO. 10
			SHAN KALEM DAM PROJECT DISTRICT NOWSHEKA	DESIGN BY: SALAH UD DIN	
				SUBMITTED BY: SHALAH ABAD	

S.No	Description	Area
1	Cutting	7.96
2	Filling	0.00

N.S.L.		Design	
Offset	Level	Offset	Level
13.970	362.510		
8.990	363.080		
4.750	363.520	2.743	363.451
		2.499	363.938
0.000	364.510	0.000	363.410
3.550	365.070	2.498	363.369
		2.599	363.167
9.030	365.760	2.899	363.167
12.290	366.900	3.871	365.110

X-SECTION AT RD = 0+340

ISSUED FOR
CONSTRUCTION

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	2.24
2	Filling	1.82

N.S.L.		Design	
Offset	Level	Offset	Level
10.170	363.560		
5.470	364.920	2.899	365.653
		2.499	364.853
0.000	366.480	0.000	364.812
1.080	367.450	2.498	364.771
		2.599	364.569
8.740	368.330	2.899	364.569
12.560	369.690	3.366	367.504

GOVERNMENT OF PUNJAB, PAKISTAN
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
BUREAU OF CONSULTING ENGINEERS
P.O. BOX 100, PESHAWAR
PUNJAB, PAKISTAN

SHAJI KALESH DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY: NABILA SACH
DESIGN BY: BALAJI LUD DIN
REVIEWED BY: SHAJI KALESH

SHAJI KALESH DAM CROSS SECTION

X-SECTION AT RD = 0+360

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	1.23
2	Filling	6.36

N.S.L.	Design	
	Offset	Level
-9.570	8.523	363.184
-3.810	-2.459	366.252
0.000	0.000	366.211
4.930	2.498	366.170
	2.599	365.968
	2.899	365.968
	3.509	367.187
9.760		370.200

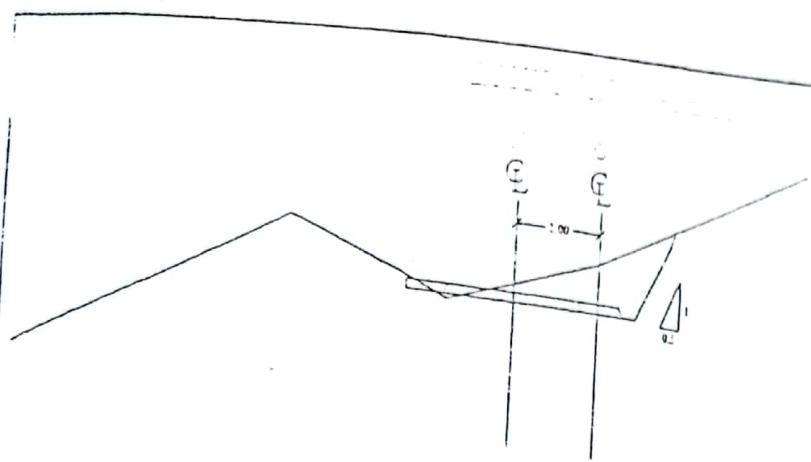
X-SECTION AT RD = 0+380

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	6.57
2	Filling	1.24

ISSUED FOR CONSTRUCTION

N.S.L.	Design	
	Offset	Level
-6.830	-7.606	365.050
-4.020	-2.499	367.651
0.000	0.000	367.610
2.300	2.498	367.569
	2.599	367.367
	2.899	367.367
	4.304	370.178
7.810		371.940
12.850		374.270

-13.810 363.690



S.No	Description	Area
1	Cutting	1.43
2	Filling	6

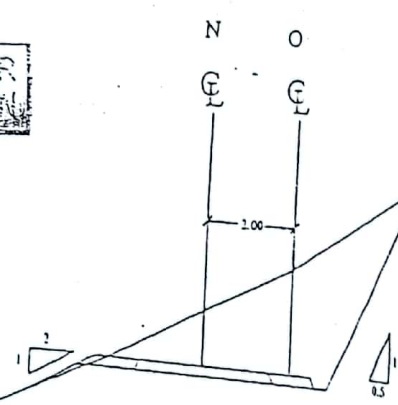
Design		Level	
Offset	Level	Offset	Level
-10.060	368.740		
-7.150	370.180		
-3.510	368.730		
0.000	369.790	0.000	369.000
		2.498	368.968
		2.599	368.766
		2.899	368.766
		1.505	371.978
1.900	372.170		
8.760	374.700		

X-SECTION AT RD = 0+420

SA

ISSUED FOR
CONSTRUCTION

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	10.62
2	Filling	0.00



Design		Level	
Offset	Level	Offset	Level
-6.340	369.540		
-4.260	370.423		
		-2.829	371.107
		-2.499	370.449
0.000	372.460	0.000	370.408
		2.498	370.367
		2.599	370.165
		2.899	370.165
		5.753	375.873
3.810	374.890		
7.900	376.960		
12.900	377.930		

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
SHAH KALEEM DAM PROJECT
DISTRICT NOWSHEIRA

SHAH KALEEM DAM PROJECT
DISTRICT NOWSHEIRA

CHECKED BY: SHAH KALEEM
DESIGNED BY: SHAH KALEEM
SUBMITTED BY: SHAH KALEEM

SHAH KALEEM DAM PROJECT
DISTRICT NOWSHEIRA

X-SECTION AT RD = 0+440

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.00
2	Filling	4.39

N.S.L.		Design	
Offset	Level	Offset	Level
-14.090	378.498		
-8.900	376.498		
-3.640	374.738		
-0.800	373.838	-3.807	374.794
0.000	374.438	-2.499	375.450
		0.000	375.410
		2.499	375.366
		2.912	375.159
5.330	376.008		
9.340	377.308		
18.110	378.220		
19.250	380.028		

X-SECTION AT RD = 0+460

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	9.49
2	Filling	0.00

N.S.L.		Design	
Offset	Level	Offset	Level
-18.320	383.945		
-10.660	380.217		
-4.670	377.310		
-1.550	377.150	-2.589	377.203
0.000	377.820	-2.499	377.024
		0.000	376.983
		2.498	376.942
		2.888	376.740
		2.859	376.740
3.147	379.601		
		4.830	380.603
9.260	383.240		
14.200	383.790		
15.070	385.180		

ISSUED FOR
CONSTRUCTION

GOVERNMENT OF PUNJAB DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT PESHAWAR	CONSULTING ASSOCIATES SHAH KALESH DAM PROJECT DISTRICT NOWSHERA	DESIGNED BY: HANNA ZAK	SHAH KALESH DAM CROSS SECTION
		DRAWN BY: SHAH US DIN	
		SUBMITTED BY: SHAH US DIN	

GOVERNMENT OF KUTUBAH PAKISTAN		CONSULTING ASSOCIATES		SIKAT KALEM DAM PROJECT		DISTRICT HOWSHERA		SHEKIN ROAD	
DIRECTORATE GENERAL, SMALL SCALE INDUSTRIES DEVELOPMENT, PESHAWAR		P. O. Box 100, Peshawar		P. O. Box 100, Peshawar		P. O. Box 100, Peshawar		P. O. Box 100, Peshawar	
0+820		0+820		0+820		0+820		0+820	
374.993		374.993		374.993		374.993		374.993	
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375.073		375.073		375.073		375.073		375.073	
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375.075		375.075		375.075		375.075		375.075	
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GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL, SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
HUMAN RESOURCES MANAGEMENT SERVICES
PVT. LTD. (HRS) 100/117-18 PAF-100 31017-8
E-Mail: consultinghrsa@hpa.com

SIHAI KALEEM DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY
SUDHAKAR D.

CHECKED BY
SIHAI KALEEM

DATE

SCALE

PROJECT NO.

SECTION NO.

DATE

SCALE

PROJECT NO.

SECTION NO.

DATE

SCALE

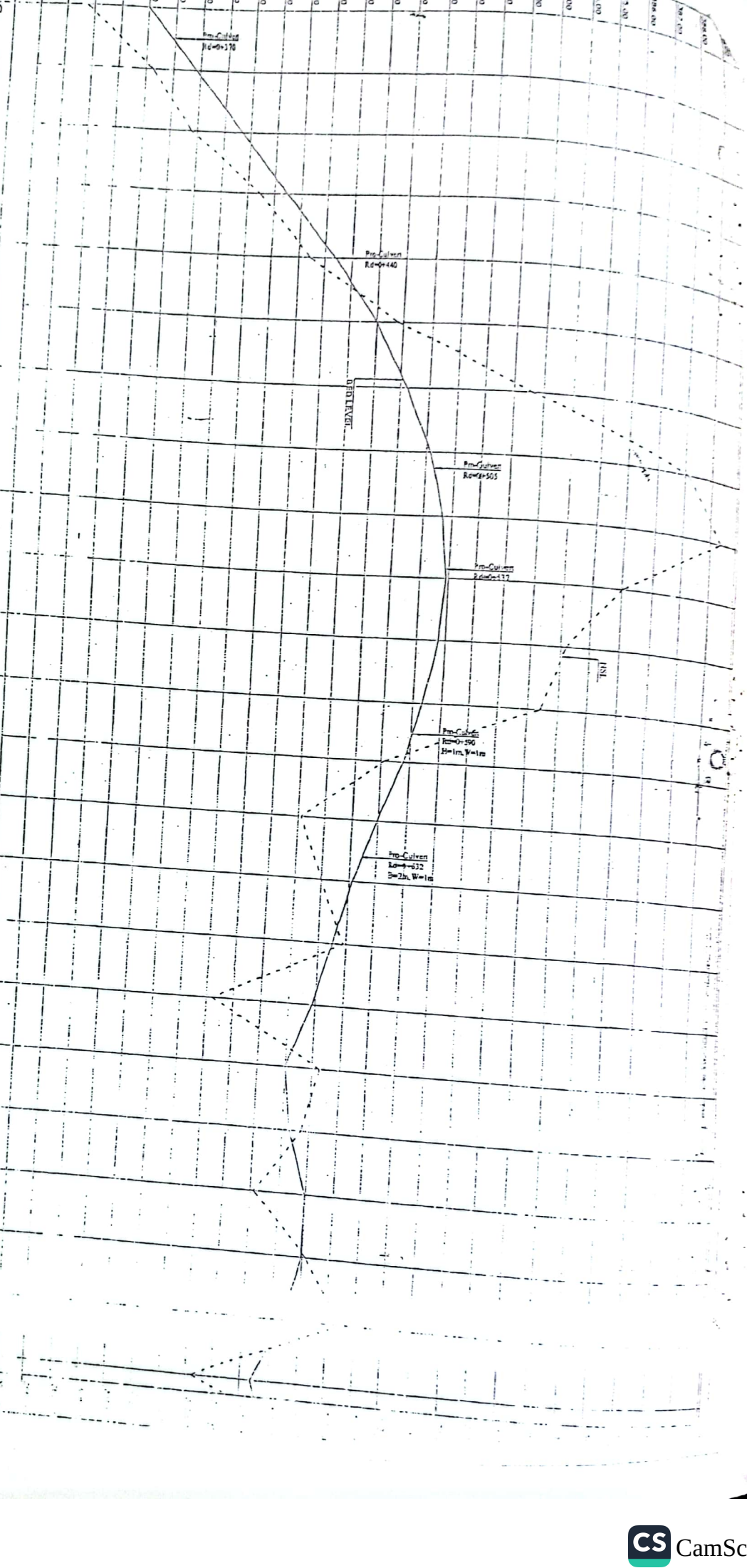
PROJECT NO.

SECTION NO.

DATE

SCALE

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0+400	371.699 369.790
0+420	373.471 372.460
0+440	375.388 374.438
0+460	377.002 377.820
0+480	378.246 382.610
0+500	379.147 388.120
0+520	379.703 389.410
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0+760	375.955 375.130
0+780	
0+800	374.374 372.200





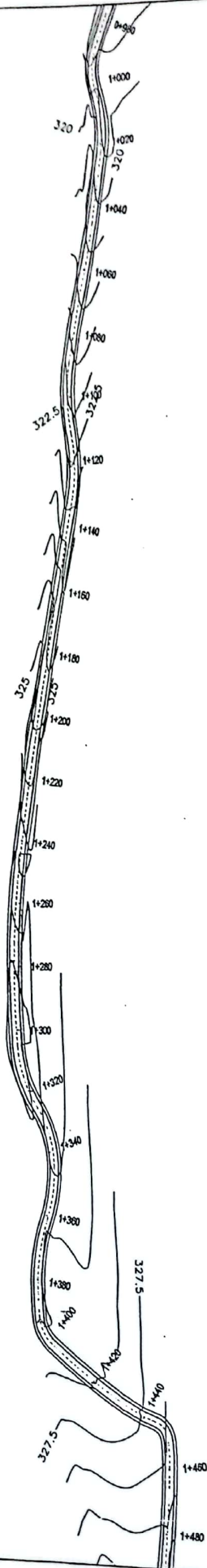
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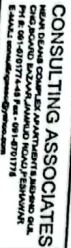
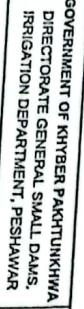
SHAIKALFEM DAM PROJECT
NOWSHERA

DESIGNED BY	SOHAIL AHMAD
DRAWN BY	SAEED KHAN
CHECKED BY	SHAKIL AHMAD

~~13-06-2013~~

ADDITIONAL ROAD PLAN	DRAWING NO. (03 OF 03)
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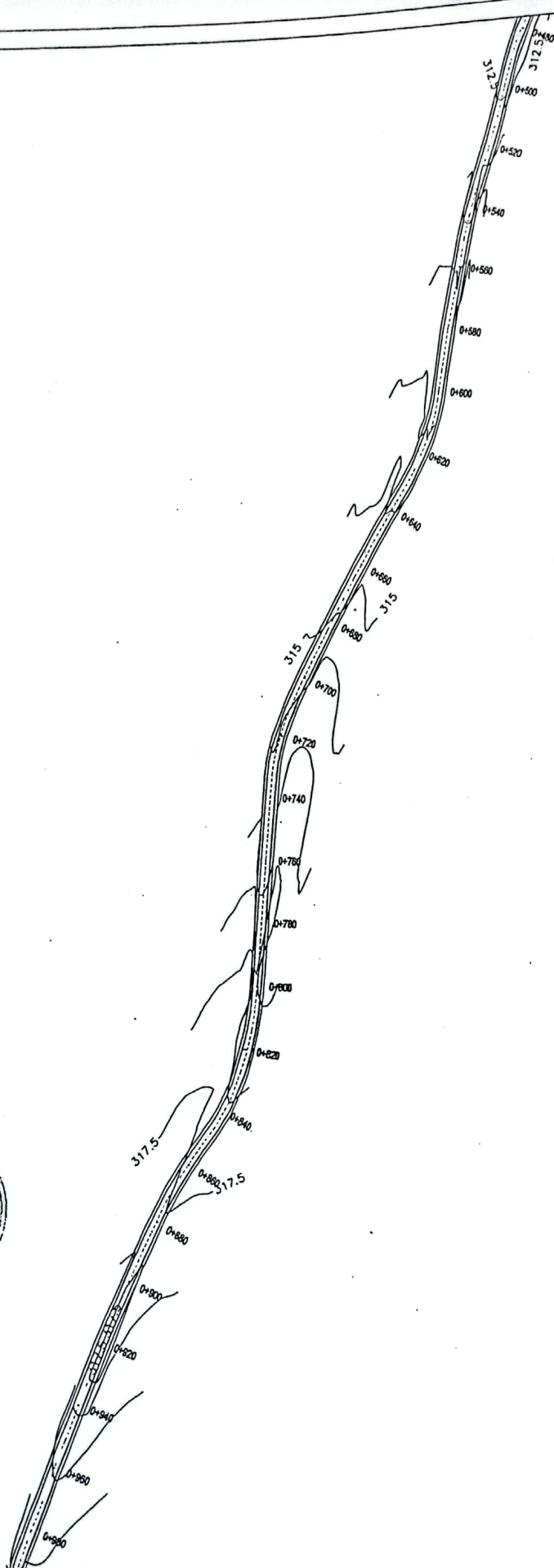


SHAHKALEEM DAM PROJECT
NOWSHERA

CADED BY	SOHAIL AHMAD
DESIGN BY	SAEED KHAN
SUBMITTED BY	SHAKIL AHMAD

2018

ADDITIONAL ROAD PLAN



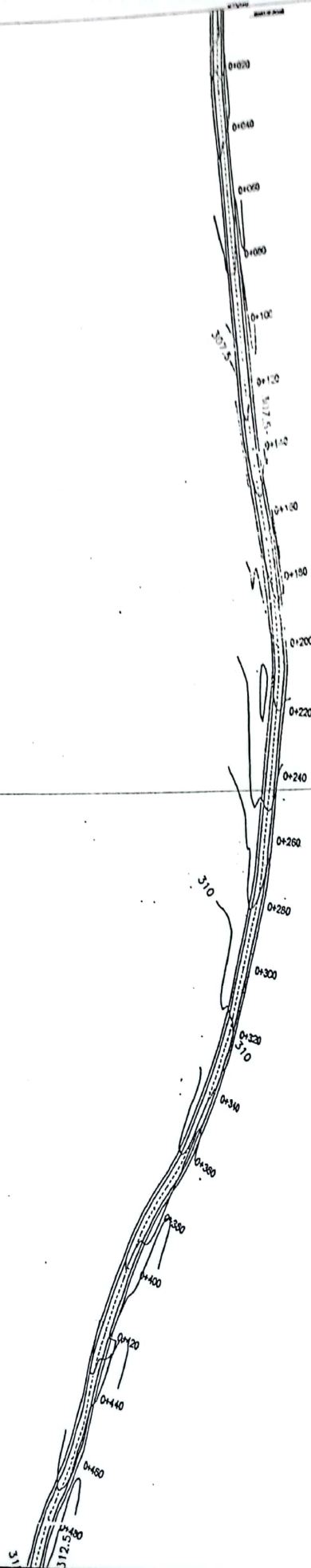
GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

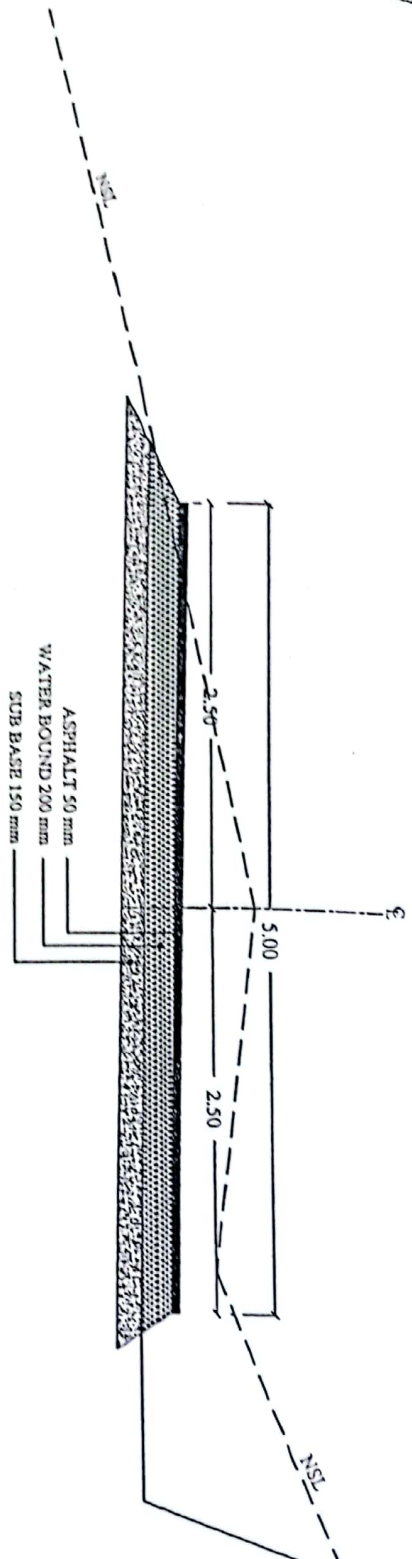
CONSULTING ASSOCIATES
NIGAM ENGINEERING & CONSTRUCTION SERVICES PVT. LTD.
P.O. BOX 1077, KARACHI-74000, PAKISTAN

SHAHKALEEM DAM PROJECT
NOWSHERA

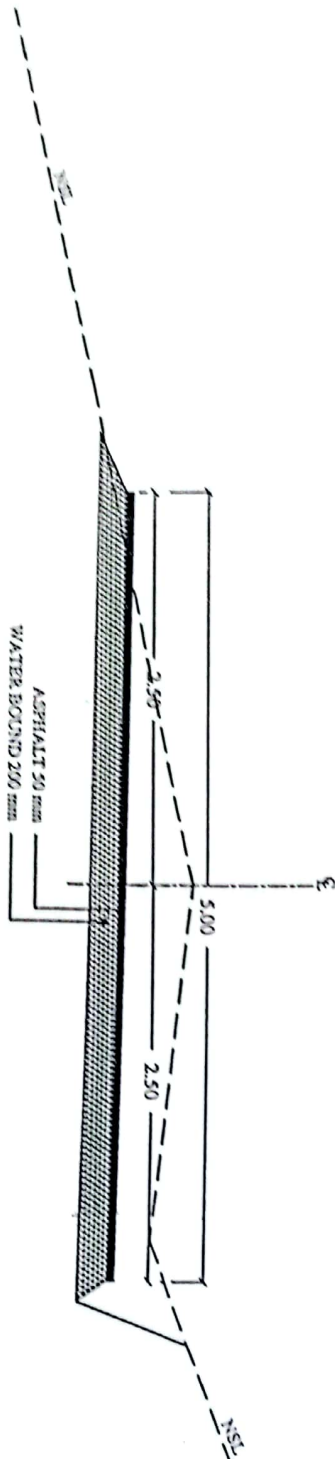
DESIGNED BY	SOHAIL AHMAD
SUBMITTED BY	SAEED KHAN SIRAJUL AHMAD

ADDITIONAL ROAD PLAN
DRAWING NO. (01 OF 05)





TYPICAL CROSS - SECTION OF NEW ROAD



TYPICAL CROSS - SECTION OF EXISTING ROAD

NOTE:
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STIPULATED
DRAIN SHALL BE PROVIDED AS PER SITE BY ENGINEER



SHAH KALEEM DAM PROJECT
GOVERNMENT OF
PUNJAB

CONSULTING ASSOCIATES
PUNJAB

SHAH KALEEM DAM PROJECT
NOWSHERA

NO.	DATE	DESCRIPTION	STATUS	APPROVED	DATE	REVISION NO.
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

ROAD TYPICAL CROSS SECTION
(ADDITIONAL ROAD)

X-SECTION AT PC = 0+600

S.No	Description	Area
1	Cutting	1.90
2	Filling	7.44

3785 6541

N.S.L.		Design	
Offset	Level	Offset	Level
-10.290	383.340		
-7.670	381.340		
-5.610	379.550		
		-2.857	378.838
		-2.698	378.521
0.000	378.100	0.000	378.565
2.610	376.290	2.499	378.606
6.480	374.860		
9.570	374.150		
13.090	373.440	10.834	374.439

X-SECTION AT RD = 0+620

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.00
2	Filling	13.53

SAW

ISSUED FOR
CONSTRUCTION

N.S.L.		Design	
Offset	Level	Offset	Level
-9.040	377.720		
-6.280	377.130		
-2.730	376.660	-1.460	376.889
0.000	375.100	-2.499	377.870
2.180	373.800	0.000	377.829
5.940	371.920	2.499	377.788
9.950	372.210		
		13.423	372.326

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

DESIGNED BY: HANNAH ZAKH
CHECKED BY: SHAH ALI DIN

X-SECTION AT RD = 0+640

H.S.L.		Design	
Offset	Level	Offset	Level
9.940	173.460	9.779	171.494
4.670	171.560	2.499	177.134
0.000	176.000	0.000	177.093
2.860	174.980	2.499	177.052
10.040	169.760	2.903	176.845
13.180	169.910	15.692	170.159

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.00
2	Filling	19.76

H.S.L.	Design	
	Offset	Level
9.940	173.460	173.404
4.670	171.560	
		377.134
3.000	176.000	377.093
2.860	174.980	377.052
		376.845
10.040	169.760	
180	169.810	370.156

X-SECTION AT RD = 0+660

376.40

SUMMARY OF QUANTITIES

S.No	Description	Area
1	Cutting	16.07
2	Filling	0.00

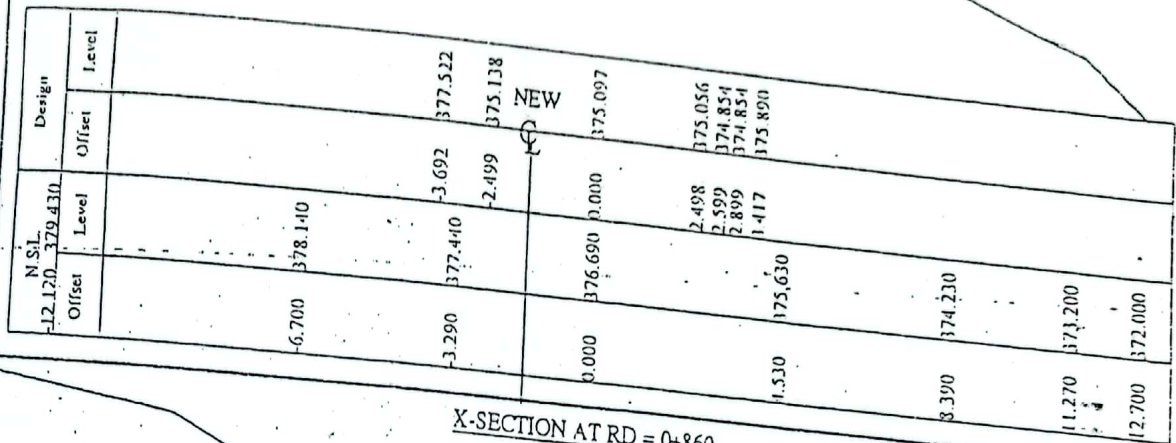
ISSUED FOR CONSTRUCTION

N.S.L.		Design	
Offset	Level	Offset	Level
10.210	381.880		
8.210	382.290		
5.610	380.740		
3.470	379.150	4.462	379.887
		2.698	376.359
0.000	376.890	0.000	376.403
3.400	374.380	2.199	376.444
9.910	369.790		
11.790	368.680		
450	368.660	16.802	369.293

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Curing	16.07
2	Filling	0.00

N.S.L.		Design	
Offset	Level	Offset	Level
10.210	381.880		
8.210	382.290		
5.610	380.740		
3.470	379.150	-4.462	379.887
		-2.698	376.359
0.000	376.890	0.000	376.403
0.400	374.380	2.199	376.444
0.910	369.790		
1.790	368.680		
		16.802	369.293

ISSUED FOR
CONSTRUCTION

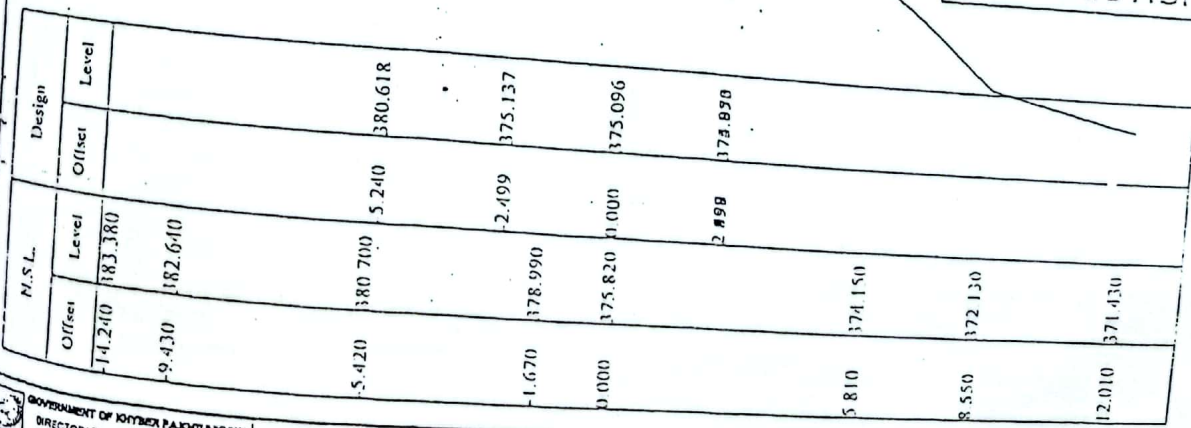


X-SECTION AT RD = 0+860

S.No	Description	Area
1	Cutting	5.19
2	Filling	0.00

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	14.00
2	Filling	0.00

ISSUED FOR
CONSTRUCTION



GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

CHECKED BY: [Signature]
DESIGN BY: [Signature]
DRAWN BY: [Signature]

SHAH KALEEM DAM CROSS SECTION

X-SECTION AT RD = 0+880

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	13.58
2	Filling	9

N.S.L.		Design	
Offset	Level	Offset	Level
-11.710	383.380		
-8.750	380.730		
-5.280	378.970	-4.261	378.177
-2.440	376.760	-2.698	375.052
0.000	375.270	0.000	375.096
1.140	374.220	2.499	375.137
5.270	373.470	5.331	373.695
8.000	372.440		
9.260	370.750		
12.420	372.300		

X-SECTION AT RD = 0+900

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.32
2	Filling	1.12

N.S.L.		Design	
Offset	Level	Offset	Level
-9.220	376.680		
-1.190	375.350	-2.499	375.937
0.000	374.350	0.000	375.096
4.780	375.870	2.498	375.055
		2.899	374.853
		3.148	374.853
			375.351
8.100	377.160		
9.990	377.970		
12.780	378.890		

ISSUED FOR CONSTRUCTION

X-SECTION AT RD = 0+920

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	9.63
2	Filling	0.00

N.S.L.	Design	
	Offset	Level
7.670	373.480	
3.850	375.010	
	2.666	375.471
	2.459	375.138
1.000	176.510	375.097
2.940	378.080	375.056
	2.599	374.851
	2.899	374.854
8.070	1.872	378.799
12.020		379.990
		380.320

X-SECTION AT RD = 0+940

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	3.06
2	Filling	0.00

ISSUED FOR CONSTRUCTION

N.S.L.	Design	
	Offset	Level
7.630	378.330	
3.410	376.850	376.848
	2.499	375.137
11.000	376.720	375.096
	2.498	375.055
	2.599	374.853
1.800	375.240	374.853
	1.872	378.798
8.240		374.830

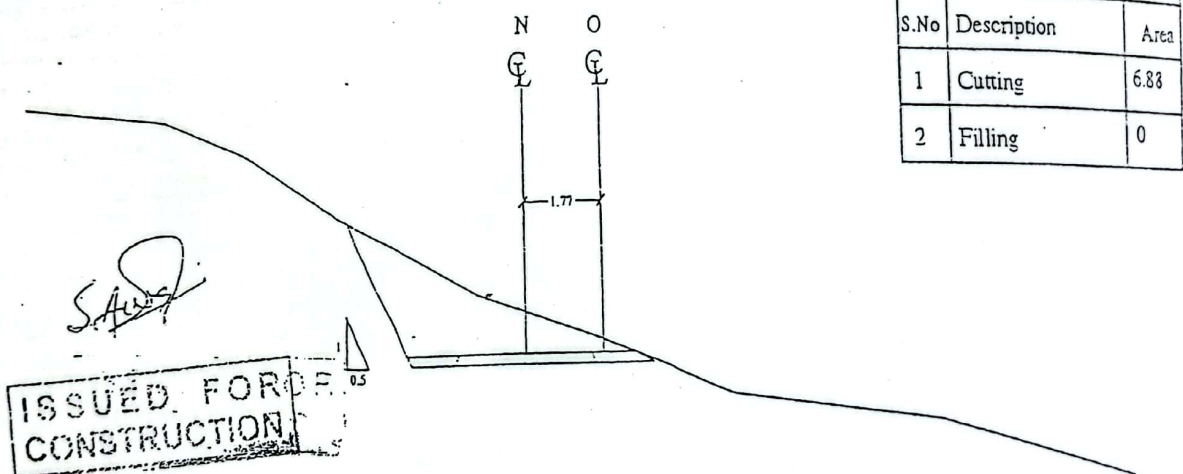
X-SECTION AT RD = 0+960

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.31
2	Filling	7.66

N.S.L.		Design	
Offset	Level	Offset	Level
-12.290	378.700		
-6.950	376.840		
		-2.786	375.226
-2.770	375.220	-2.698	375.051
0.000	374.710	0.000	375.095
1.820	374.540	2.499	375.136
5.550	371.930		
11.750	371.770	8.586	372.036

X-SECTION AT RD = 0+980

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	6.88
2	Filling	0



N.S.L.		Design	
Offset	Level	Offset	Level
-12.850	379.890		
-9.780	379.590		
-8.000	378.920		
-5.970	377.700		
		-3.396	376.446
-2.850	376.180	-2.698	375.051
0.000	375.350	0.000	375.095
3.000	374.350	2.499	375.136
7.480	373.920	4.285	374.227
12.090	372.780		

S No	Description	Area
1	Cutting	3.25
2	Filling	7.15

NSL		Design	
Offset	Level	Offset	Level
12.580	379.220		
9.660	378.500		
7.220	378.340		
5.750	377.670		
2.570	376.790	3.728	377.110
1.340	375.800	2.698	375.051
0.000	374.120	0.000	375.095
2.900	374.350	2.499	375.136
6.370	371.970		
11.810	371.520	9.169	371.740

X-SECTION AT RD = 0+1020

SUMMARY OF QUANTITIES		
S No	Description	Area
1	Cutting	0.00
2	Filling	12.70

SEAL
CONSTR

NSL		Design	
Offset	Level	Offset	Level
9.310	380.320		
4.000	376.130		
0.000	374.600	2.879	374.042
1.920	373.520	2.499	375.136
3.280	371.960	0.000	375.095
9.001	371.742	2.499	375.054
			371.747

GOVERNMENT OF PUNJAB
DIRECTORATE GENERAL SMALL DAMS
IRRIGATION DEPARTMENT PESHAWAR



CONSULTING ASSOCIATES
PUNJAB ENGINEERING SERVICES
10-A, GROUND FLOOR, MARKET CHAUNDA, PESHAWAR
TEL: 091-2511111, 2511112, 2511113

SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

CHECK BY: HANIF ZAKI
DESIGN BY: SHAH UD DIN
SUBMITTED BY: SHAH KHALID

SHAH KALEEM DAM CROSS SECTION

DATE: 10/10/2019

X-SECTION AT RD = 0+1040

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	1.35
2	Filling	0.95

N.S.L.		Design	
Offset	Level	Offset	Level
11.310	379.300		
7.600	377.840		
-4.510	376.350	-2.723	375.135
		-2.499	375.583
-2.119	375.320		
0.000	374.770	0.000	375.094
2.720	375.420	2.498	375.023
		2.599	374.822
		3.163	373.587
7.970	375.000		

X-SECTION AT RD = 0+1060

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	9.33
2	Filling	0

N.S.L.		Design	
Offset	Level	Offset	Level
-10.510	379.428		
-5.290	376.888		
-2.350	375.358	-3.029	373.711
		-2.698	375.050
0.000	374.408	0.000	375.094
3.330	373.208	2.499	375.135
6.980	372.778	7.133	372.776
11.380	372.080		

ISSUED FOR CONSTRUCTION

S.No	Description	Area
1	Cutting	13.34
2	Filling	0

N.S.L.		Design	
Offset	Level	Offset	Level
0.00	175.960	0.00	175.960
1.00	174.403	1.00	174.403
2.00	173.340	2.00	173.340
3.00	172.130	3.00	172.130
4.00	170.830	4.00	170.830
5.00	168.580	5.00	168.580
6.00	167.878	6.00	167.878
7.00	167.050	7.00	167.050
8.00	166.096	8.00	166.096
9.00	165.115	9.00	165.115
10.00	164.220	10.00	164.220
11.00	163.420	11.00	163.420
12.00	162.681	12.00	162.681
13.00	161.985	13.00	161.985

X SECTION AT RD = 1+100

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	0.00
2	Filling	12.08

N.S.L.		Design	
Offset	Level	Offset	Level
0.00	175.960	0.00	175.960
1.00	174.403	1.00	174.403
2.00	173.340	2.00	173.340
3.00	172.130	3.00	172.130
4.00	170.830	4.00	170.830
5.00	168.580	5.00	168.580
6.00	167.878	6.00	167.878
7.00	167.050	7.00	167.050
8.00	166.096	8.00	166.096
9.00	165.115	9.00	165.115
10.00	164.220	10.00	164.220
11.00	163.420	11.00	163.420
12.00	162.681	12.00	162.681
13.00	161.985	13.00	161.985

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS
IRRIGATION DEPARTMENT PESHAWAR

CONSULTING ASSOCIATES
MR. HAFIZ KHALID KHAN
MR. HAFIZ KHALID KHAN
MR. HAFIZ KHALID KHAN
MR. HAFIZ KHALID KHAN
MR. HAFIZ KHALID KHAN

SHAH KALIDAM DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY: SHAH KALIDAM
CHECKED BY: SHAH KALIDAM
DESIGNED BY: SHAH KALIDAM
SUBMITTED BY: SHAH KALIDAM

SHAH KALIDAM DAM CROSS SECTION

DRAWING NO. 31

X-SECTION AT RD = 1+120

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	10.89
2	Filling	0

N.S.L.	Design	
	Offset	Level
	12.370	381.260
	9.640	379.570
	6.550	378.100
	4.110	377.000
	0.000	374.780
	2.030	374.640
	3.630	373.510
	4.920	371.840
	5.920	371.570
	7.270	370.010
	8.980	368.410
	11.790	367.020

X-SECTION AT RD = 1+140

SUMMARY OF QUANTITIES		
S.No	Description	Area
1	Cutting	5.29
2	Filling	10.03

N.S.L.	Design	
	Offset	Level
	13.550	382.690
	8.120	380.230
	4.560	378.880
	2.220	376.860
	0.000	374.740
	1.180	374.340
	3.990	373.180
	6.540	371.470
	10.630	371.290
	14.400	371.960

ISSUED FOR CONSTRUCTION

GOVERNMENT OF KHYBER PAKHTUNKHWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR

CONSULTING ASSOCIATES
DAM DAMS CONSULTING ENGINEERS PVT. LTD.
D-10, PHASE II, INDUSTRIAL AREA, PESHAWAR
P.O. BOX 100, PESHAWAR

SHAH KALEEM DAM PROJECT
DISTRICT NOWSHERA

DRAWN BY: HANNA ZADA
CHECKED BY: SHAH UD DIN
APPROVED BY: SHAH KALEEM

SHAH KALEEM DAM CROSS SECTION
DRAWING NO. 1



GOVERNMENT OF PUNJAB
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
PESHAWAR
P.O. BOX 2017/14-43 Peshawar, PUNJAB
P.F. NO. 2017/14-43 Peshawar, PUNJAB
E-MAIL: consulting@shahid.com

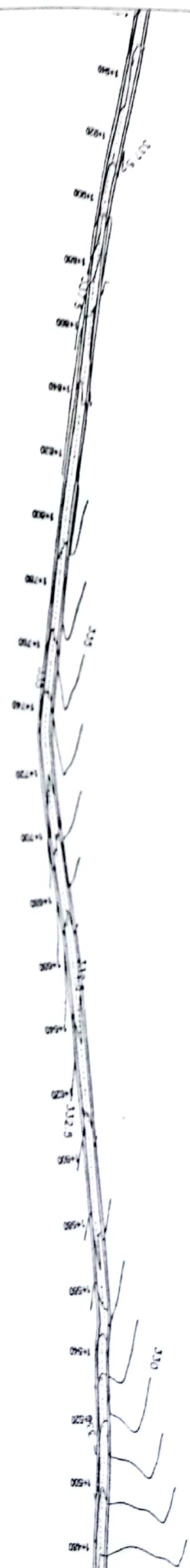
SHAIKALFEM DAM PROJECT
NOWSHERA

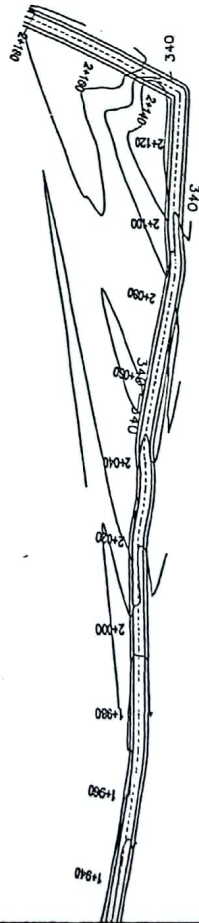
DRAWN BY
DESIGN BY
SUBMITTED BY

SHAIKALFEM
SHAIKALFEM
SHAIKALFEM

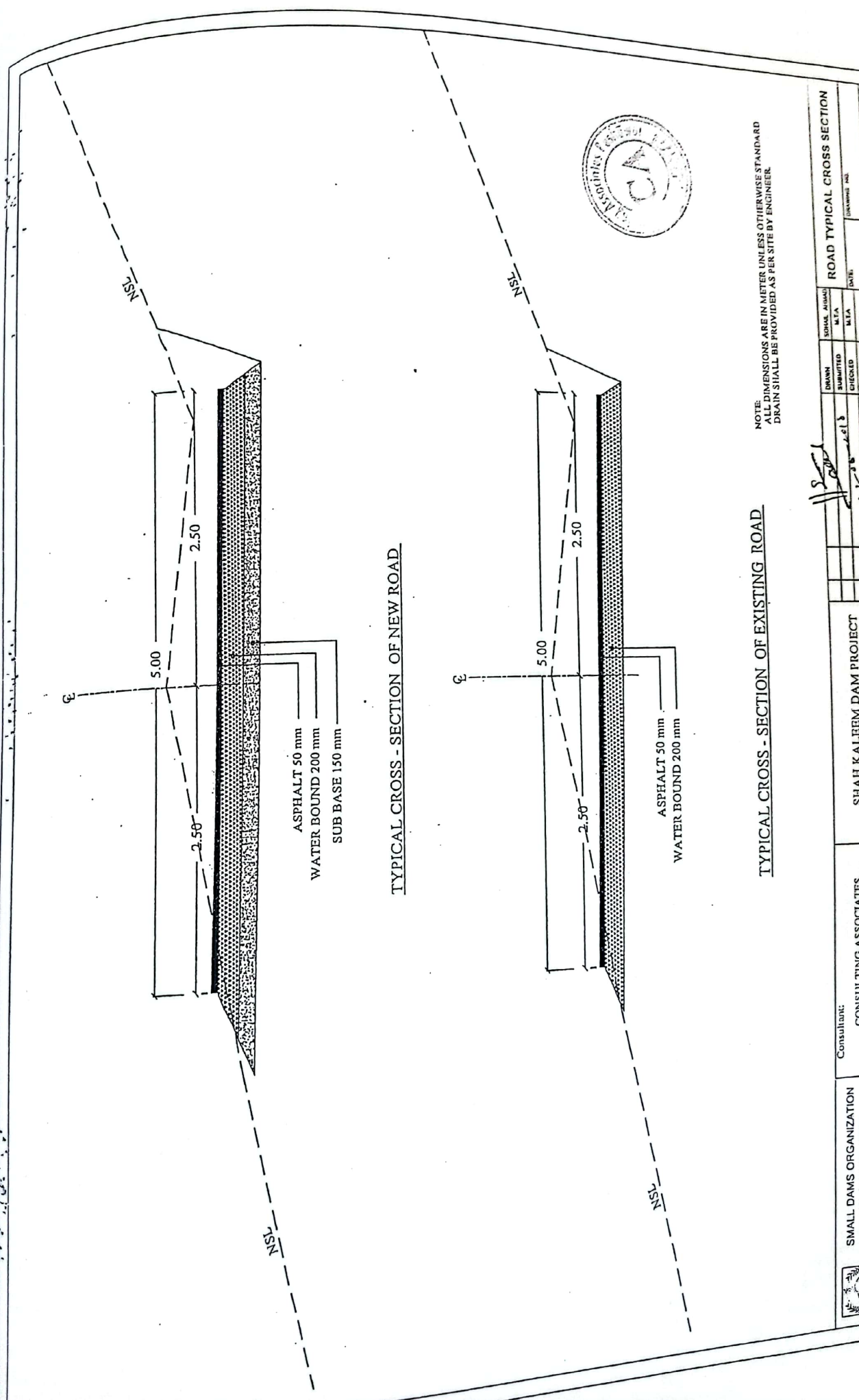
18-06-2013

ADDITIONAL ROAD PLAN
DRAWING NO. 1/04 (P.F. 15)





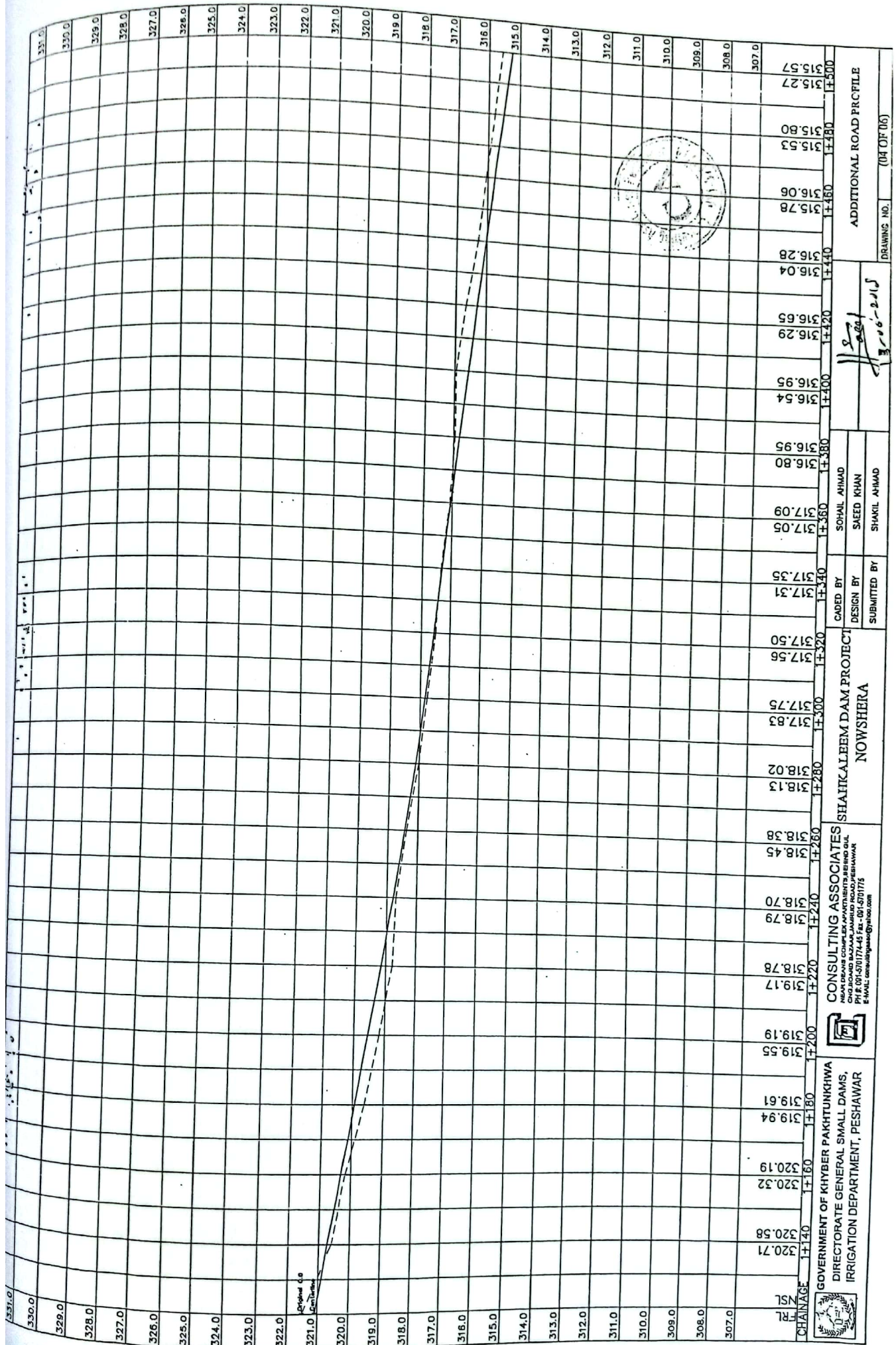
 GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR		 CONSULTING ASSOCIATES NEAR DANE COMPLEX, MAIN ROAD, PESHAWAR P.O. BOX 101, 25177-143 PAK - 25177-143 E-MAIL: consultingassoc@peshawar.com		SHAHKALEEM DAM PROJECT NOWSHERA		DATED BY DESIGN BY SUBMITTED BY	SOHAIL AHMAD SAIED KHAN SHAHEEL AHMAD	12/05/2013 06-2013	ADDITIONAL ROAD PLAN DRAWING NO. 1 OF 05
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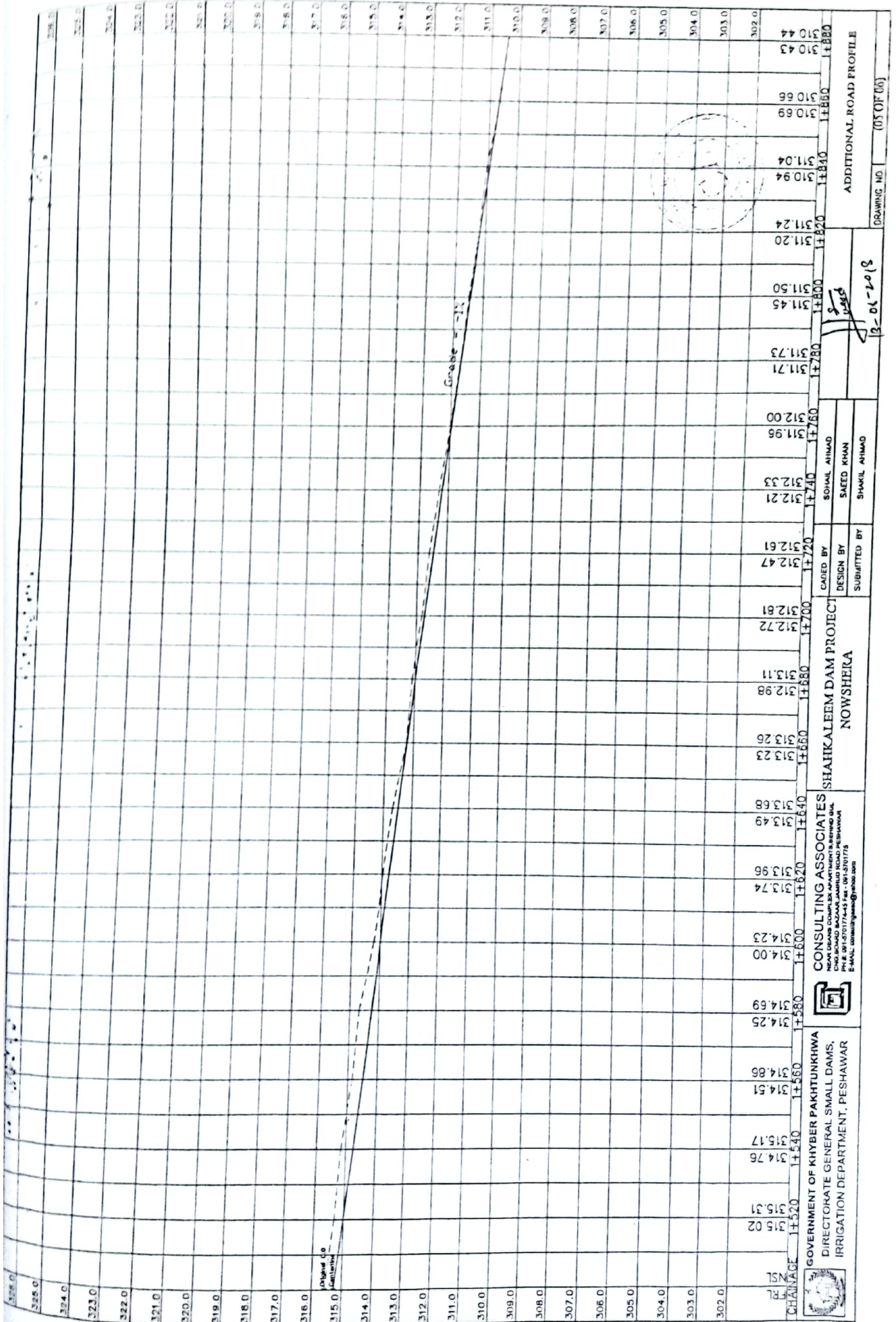
NOTE:
ALL DIMENSIONS ARE IN METER UNLESS OTHERWISE STANDARD
DRAIN SHALL BE PROVIDED AS PER SITE BY ENGINEER.

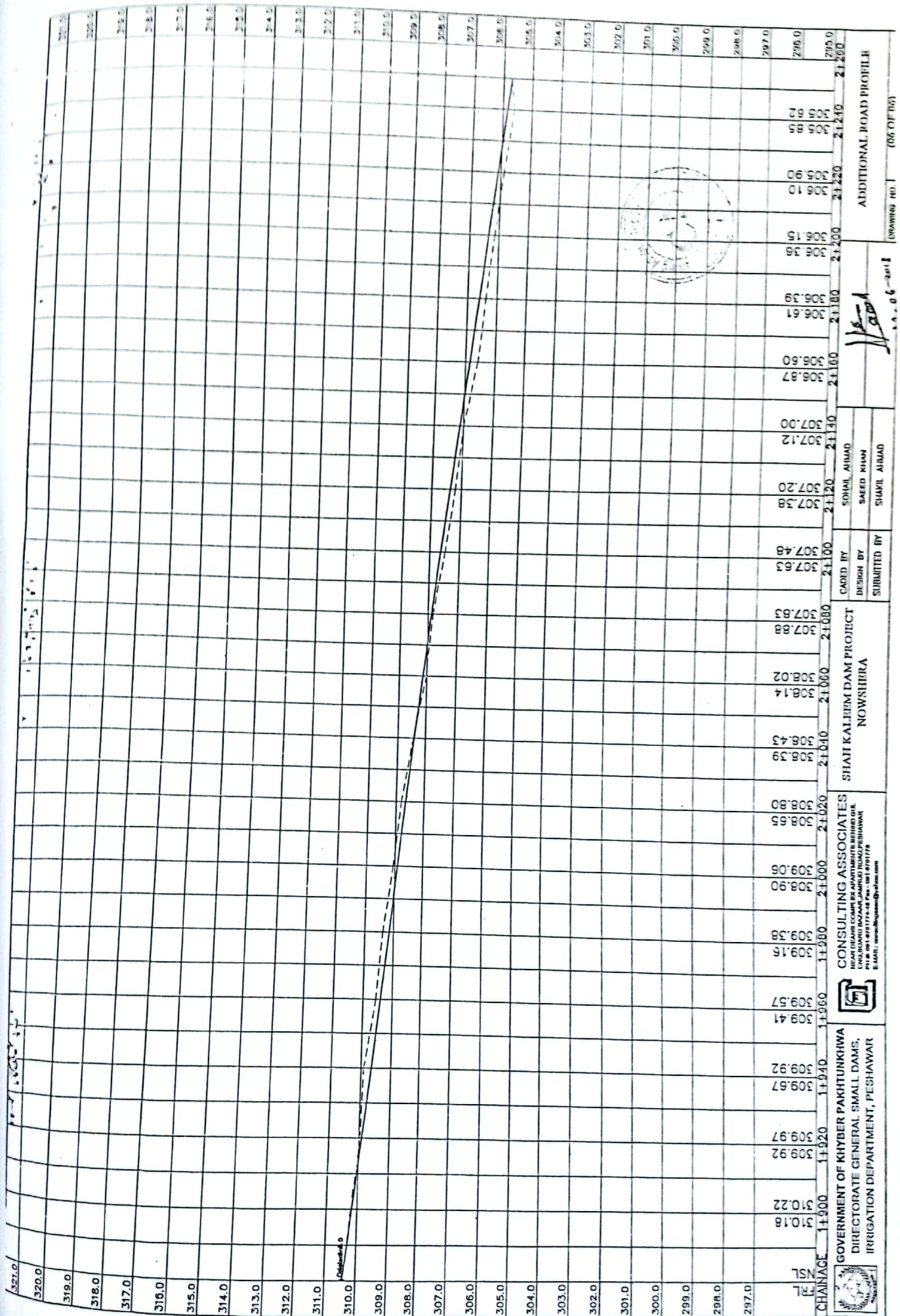
TYPICAL CROSS - SECTION OF EXISTING ROAD

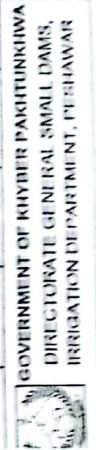
		Consultant: CONSULTING ASSOCIATES PESHAWAR		SHAH KALEEM DAM PROJECT NOWSHERA		ROAD TYPICAL CROSS SECTION					
SMALL DAMS ORGANIZATION GOVERNMENT OF KHYBER PAKHTUNKHWA		REV. DATE		DESCRIPTION		DRAWN SUBMITTED		SCALE: AS SHOWN		DATE:	
CHECKED		APPROVED		M.T.A.		M.T.A.		M.T.A.		DRAWING NO.	



 CONSULTING ASSOCIATES NEAR DEWAR COMPLEX, CHAK 1/10, DISTRICT PESHAWAR P.O. BOX 1774, PESHAWAR TEL: 011-5701774-45 FAX: 011-5701775 E-MAIL: consultingassoc@yahoo.com		SHAIKALEEM DAM PROJECT NOWSHERA		DESIGNED BY: SOHAIL AHMAD CHECKED BY: SAEED KHAN SUBMITTED BY: SHAKIL AHMAD		ADDITIONAL ROAD PROFILE DRAWING NO. 3-06-215 (04 OF 06)	
GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR							







GOVERNMENT OF RYHYER PAKITUNHIWA
DIRECTORATE GENERAL SMALL DAMS,
IRRIGATION DEPARTMENT, PESHAWAR



CONSULTING ASSOCIATES
HOUSE FOR CUMPA IN APARTMENT BUILDING
1000 BROADWAY, NEW YORK, NEW YORK 10004
TEL: (212) 677-4400 FAX: (212) 677-4401
E-MAIL: consulting@consulting.com

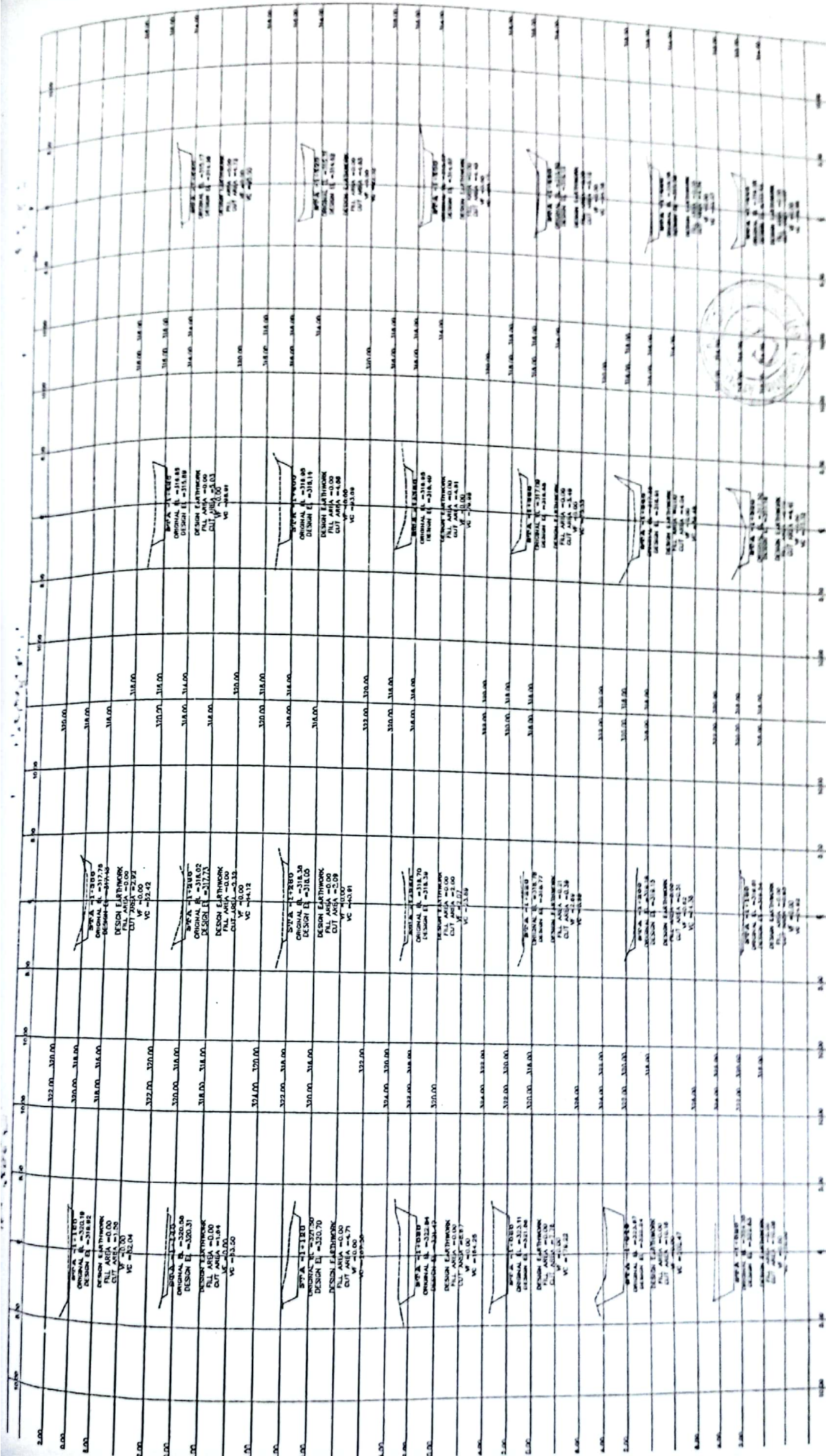
SHAHKALHEM DAM PROJECT
NOWSHERA

DRAWN BY
DESIGN BY
SUBMITTED BY

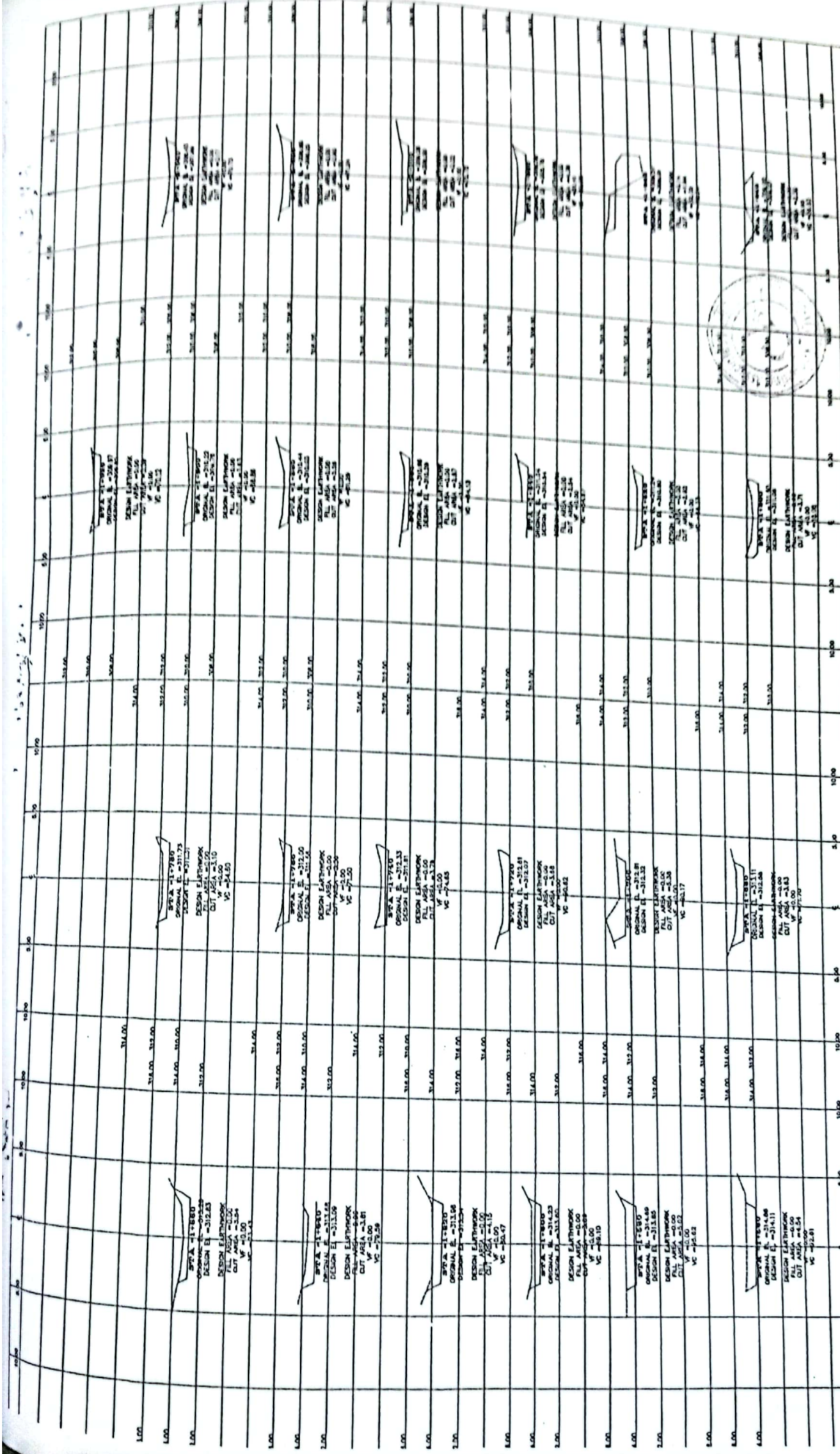
REVIEW APPROVED
SHEED KHAN
SHAHKALHEM

ADDITIONAL ROAD X-SECTIONS
DRAWING NO. 10-8-3-015
(OF 12 PAGES)

STATION	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+50	13+00	13+50	14+00	14+50	15+00	15+50	16+00	16+50	17+00	17+50	18+00	18+50	19+00	19+50	20+00	20+50	21+00	21+50	22+00	22+50	23+00	23+50	24+00	24+50	25+00	25+50	26+00	26+50	27+00	27+50	28+00	28+50	29+00	29+50	30+00	30+50	31+00	31+50	32+00	32+50	33+00	33+50	34+00	34+50	35+00	35+50	36+00	36+50	37+00	37+50	38+00	38+50	39+00	39+50	40+00	40+50	41+00	41+50	42+00	42+50	43+00	43+50	44+00	44+50	45+00	45+50	46+00	46+50	47+00	47+50	48+00	48+50	49+00	49+50	50+00	50+50	51+00	51+50	52+00	52+50	53+00	53+50	54+00	54+50	55+00	55+50	56+00	56+50	57+00	57+50	58+00	58+50	59+00	59+50	60+00	60+50	61+00	61+50	62+00	62+50	63+00	63+50	64+00	64+50	65+00	65+50	66+00	66+50	67+00	67+50	68+00	68+50	69+00	69+50	70+00	70+50	71+00	71+50	72+00	72+50	73+00	73+50	74+00	74+50	75+00	75+50	76+00	76+50	77+00	77+50	78+00	78+50	79+00	79+50	80+00	80+50	81+00	81+50	82+00	82+50	83+00	83+50	84+00	84+50	85+00	85+50	86+00	86+50	87+00	87+50	88+00	88+50	89+00	89+50	90+00	90+50	91+00	91+50	92+00	92+50	93+00	93+50	94+00	94+50	95+00	95+50	96+00	96+50	97+00	97+50	98+00	98+50	99+00	99+50	100+00	100+50	101+00	101+50	102+00	102+50	103+00	103+50	104+00	104+50	105+00	105+50	106+00	106+50	107+00	107+50	108+00	108+50	109+00	109+50	110+00	110+50	111+00	111+50	112+00	112+50	113+00	113+50	114+00	114+50	115+00	115+50	116+00	116+50	117+00	117+50	118+00	118+50	119+00	119+50	120+00	120+50	121+00	121+50	122+00	122+50	123+00	123+50	124+00	124+50	125+00	125+50	126+00	126+50	127+00	127+50	128+00	128+50	129+00	129+50	130+00	130+50	131+00	131+50	132+00	132+50	133+00	133+50	134+00	134+50	135+00	135+50	136+00	136+50	137+00	137+50	138+00	138+50	139+00	139+50	140+00	140+50	141+00	141+50	142+00	142+50	143+00	143+50	144+00	144+50	145+00	145+50	146+00	146+50	147+00	147+50	148+00	148+50	149+00	149+50	150+00	150+50	151+00	151+50	152+00	152+50	153+00	153+50	154+00	154+50	155+00	155+50	156+00	156+50	157+00	157+50	158+00	158+50	159+00	159+50	160+00	160+50	161+00	161+50	162+00	162+50	163+00	163+50	164+00	164+50	165+00	165+50	166+00	166+50	167+00	167+50	168+00	168+50	169+00	169+50	170+00	170+50	171+00	171+50	172+00	172+50	173+00	173+50	174+00	174+50	175+00	175+50	176+00	176+50	177+00	177+50	178+00	178+50	179+00	179+50	180+00	180+50	181+00	181+50	182+00	182+50	183+00	183+50	184+00	184+50	185+00	185+50	186+00	186+50	187+00	187+50	188+00	188+50	189+00	189+50	190+00	190+50	191+00	191+50	192+00	192+50	193+00	193+50	194+00	194+50	195+00	195+50	196+00	196+50	197+00	197+50	198+00	198+50	199+00	199+50	200+00	200+50	201+00	201+50	202+00	202+50	203+00	203+50	204+00	204+50	205+00	205+50	206+00	206+50	207+00	207+50	208+00	208+50	209+00	209+50	210+00	210+50	211+00	211+50	212+00	212+50	213+00	213+50	214+00	214+50	215+00	215+50	216+00	216+50	217+00	217+50	218+00	218+50	219+00	219+50	220+00	220+50	221+00	221+50	222+00	222+50	223+00	223+50	224+00	224+50	225+00	225+50	226+00	226+50	227+00	227+50	228+00	228+50	229+00	229+50	230+00	230+50	231+00	231+50	232+00	232+50	233+00	233+50	234+00	234+50	235+00	235+50	236+00	236+50	237+00	237+50	238+00	238+50	239+00	239+50	240+00	240+50	241+00	241+50	242+00	242+50	243+00	243+50	244+00	244+50	245+00	245+50	246+00	246+50	247+00	247+50	248+00	248+50	249+00	249+50	250+00	250+50	251+00	251+50	252+00	252+50	253+00	253+50	254+00	254+50	255+00	255+50	256+00	256+50	257+00	257+50	258+00	258+50	259+00	259+50	260+00	260+50	261+00	261+50	262+00	262+50	263+00	263+50	264+00	264+50	265+00	265+50	266+00	266+50	267+00	267+50	268+00	268+50	269+00	269+50	270+00	270+50	271+00	271+50	272+00	272+50	273+00	273+50	274+00	274+50	275+00	275+50	276+00	276+50	277+00	277+50	278+00	278+50	279+00	279+50	280+00	280+50	281+00	281+50	282+00	282+50	283+00	283+50	284+00	284+50	285+00	285+50	286+00	286+50	287+00	287+50	288+00	288+50	289+00	289+50	290+00	290+50	291+00	291+50	292+00	292+50	293+00	293+50	294+00	294+50	295+00	295+50	296+00	296+50	297+00	297+50	298+00	298+50	299+00	299+50	300+00	300+50	301+00	301+50	302+00	302+50	303+00	303+50	304+00	304+50	305+00	305+50	306+00	306+50	307+00	307+50	308+00	308+50	309+00	309+50	310+00	310+50	311+00	311+50	312+00	312+50	313+00	313+50	314+00	314+50	315+00	315+50	316+00	316+50	317+00	317+50	318+00	318+50	319+00	319+50	320+00	320+50	321+00	321+50	322+00	322+50	323+00	323+50	324+00	324+50	325+00	325+50	326+00	326+50	327+00	327+50	328+00	328+50	329+00	329+50	330+00	330+50	331+00	331+50	332+00	332+50	333+00	333+50	334+00	334+50	335+00	335+50	336+00	336+50	337+00	337+50	338+00	338+50	339+00	339+50	340+00	340+50	341+00	341+50	342+00	342+50	343+00	343+50	344+00	344+50	345+00	345+50	346+00	346+50	347+00	347+50	348+00	348+50	349+00	349+50	350+00	350+50	351+00	351+50	352+00	352+50	353+00	353+50	354+00	354+50	355+00	355+50	356+00	356+50	357+00	357+50	358+00	358+50	359+00	359+50	360+00	360+50	361+00	361+50	362+00	362+50	363+00	363+50	364+00	364+50	365+00	365+50	366+00	366+50	367+00	367+50	368+00	368+50	369+00	369+50	370+00	370+50	371+00	371+50	372+00	372+50	373+00	373+50	374+00	374+50	375+00	375+50	376+00	376+50	377+00	377+50	378+00	378+50	379+00	379+50	380+00	380+50	381+00	381+50	382+00	382+50	383+00	383+50	384+00	384+50	385+00	385+50	386+00	386+50	387+00	387+50	388+00	388+50	389+00	389+50	390+00	390+50	391+00	391+50	392+00	392+50	393+00	393+50	394+00	394+50	395+00	395+50	396+00	396+50	397+00	397+50	398+00	398+50	399+00	399+50	400+00	400+50	401+00	401+50	402+00	402+50	403+00	403+50	404+00	404+50	405+00	405+50	406+00	406+50	407+00	407+50	408+00	408+50	409+00	409+50	410+00	410+50	411+00	411+50	412+00	412+50	413+00	413+50	414+00	414+50	415+00	415+50	416+00	416+50	417+00	417+50	418+00	418+50	419+00	419+50	420+00	420+50	421+00	421+50	422+00	422+50	423+00	423+50	424+00	424+50	425+00	425+50	426+00	426+50	427+00	427+50	428+00	428+50	429+00	429+50	430+00	430+50	431+00	431+50	432+00	432+50	433+00	433+50	434+00	434+50	435+00	435+50	436+00	436+50	437+00	437+50	438+00	438+50	439+00	439+50	440+00	440+50	441+00	441+50	442+00	442+50	443+00	443+50	444+00	444+50	445+00	445+50	446+00	446+50	447+00	447+50	448+00	448+50	449+00	449+50	450+00	450+50	451+00	451+50	452+00	452+50	453+00	453+50	454+00	454+50	455+00	455+50	456+00	456+50	457+00	457+50	458+00	458+50	459+00	459+50	460+00	460+50	461+00	461+50	462+00	462+50	463+00	463+50	464+00	464+50	465+00	465+50	466+00	466+50	467+00	467+50	468+00	468+50	469+00	469+50	470+00	470+50	471+00	471+50	472+00	472+50	473+00	473+50	474+00	474+50	475+00	475+50	476+00	476+50	477+00	477+50	478+00	478+50	479+00	479+50	480+00	480+50	481+00	481+50	482+00
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GOVERNMENT OF KHYBER PAKHTUNKHWA		CONSULTING ASSOCIATES		SHAHKALEEM DAM PROJECT		ADDITIONAL ROAD X-SECTIONS	
DIRECTORATE GENERAL SMALL DAMS		P.O. Box 200, Peshawar		NOWSHERA		SHEET NO. 100 OF 100	
IRRIGATION DEPARTMENT, PESHAWAR		P.O. Box 200, Peshawar		SHEET NO. 100 OF 100		SHEET NO. 100 OF 100	
DESIGNED BY		DESIGNED BY		DESIGNED BY		DESIGNED BY	
CHECKED BY		CHECKED BY		CHECKED BY		CHECKED BY	
APPROVED BY		APPROVED BY		APPROVED BY		APPROVED BY	



 GOVERNMENT OF KHYBER PAKHTUNKHWA DIRECTORATE GENERAL SMALL DAMS, IRRIGATION DEPARTMENT, PESHAWAR	 CONSULTING ASSOCIATES NEAR DEANS COMPLEX APARTMENTS BEHIND GUL SHAH KHALEEM DAM PROJECT NOWSHERA	CAUSED BY DESIGN BY SUBMITTED BY	SOMAL AHMAD SAEED KHAN SHAKIL AHMAD	ADDITIONAL ROAD X-SECTIONS DRAWING NO. 13-00-11.13 104 OF 03
		13-00-11.13		
		104 OF 03		

