

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



**BIDDING DOCUMENTS**

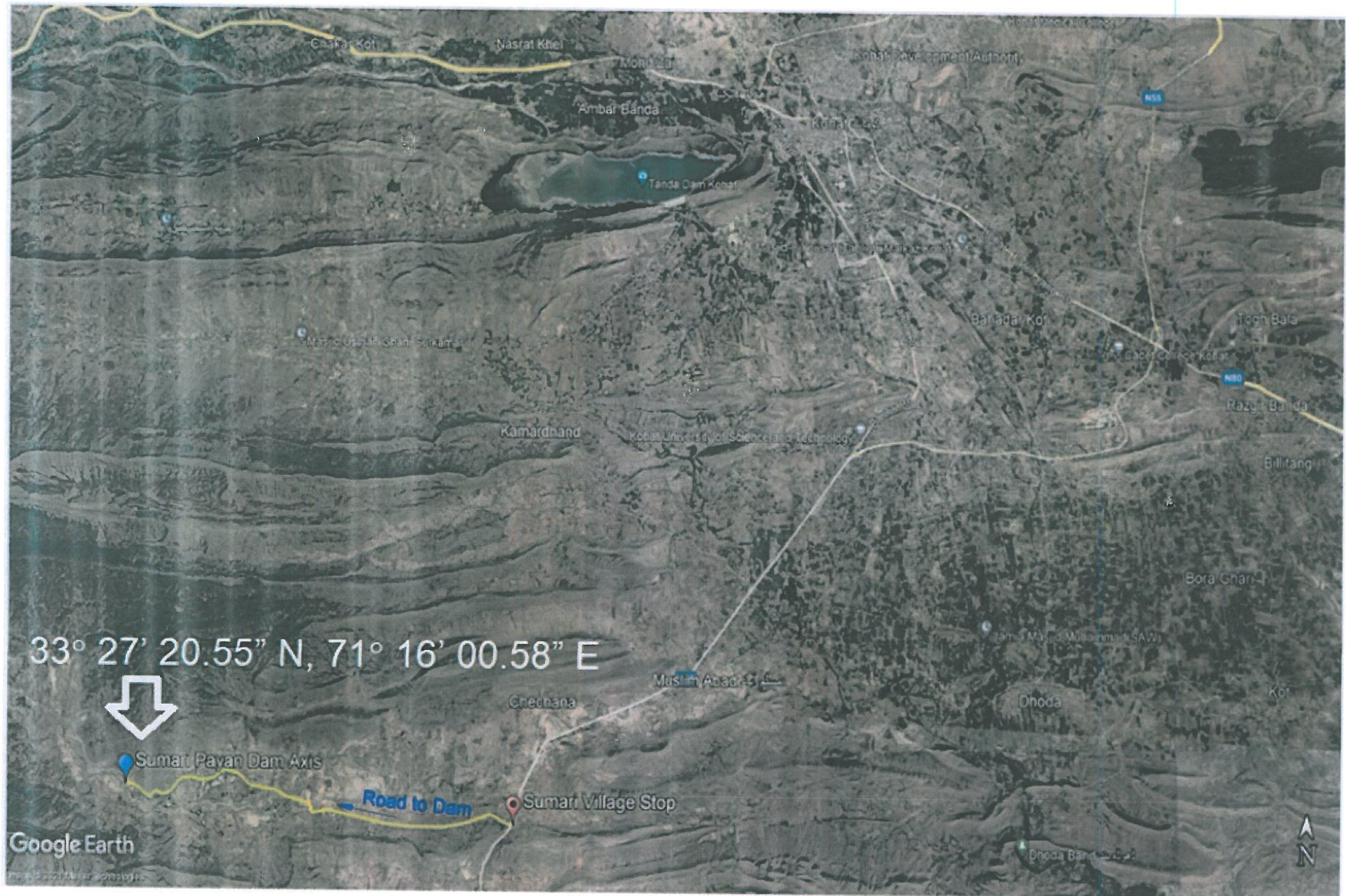
**SUMARI PAYAN DAM PROJECT  
DISTRICT KOHAT**

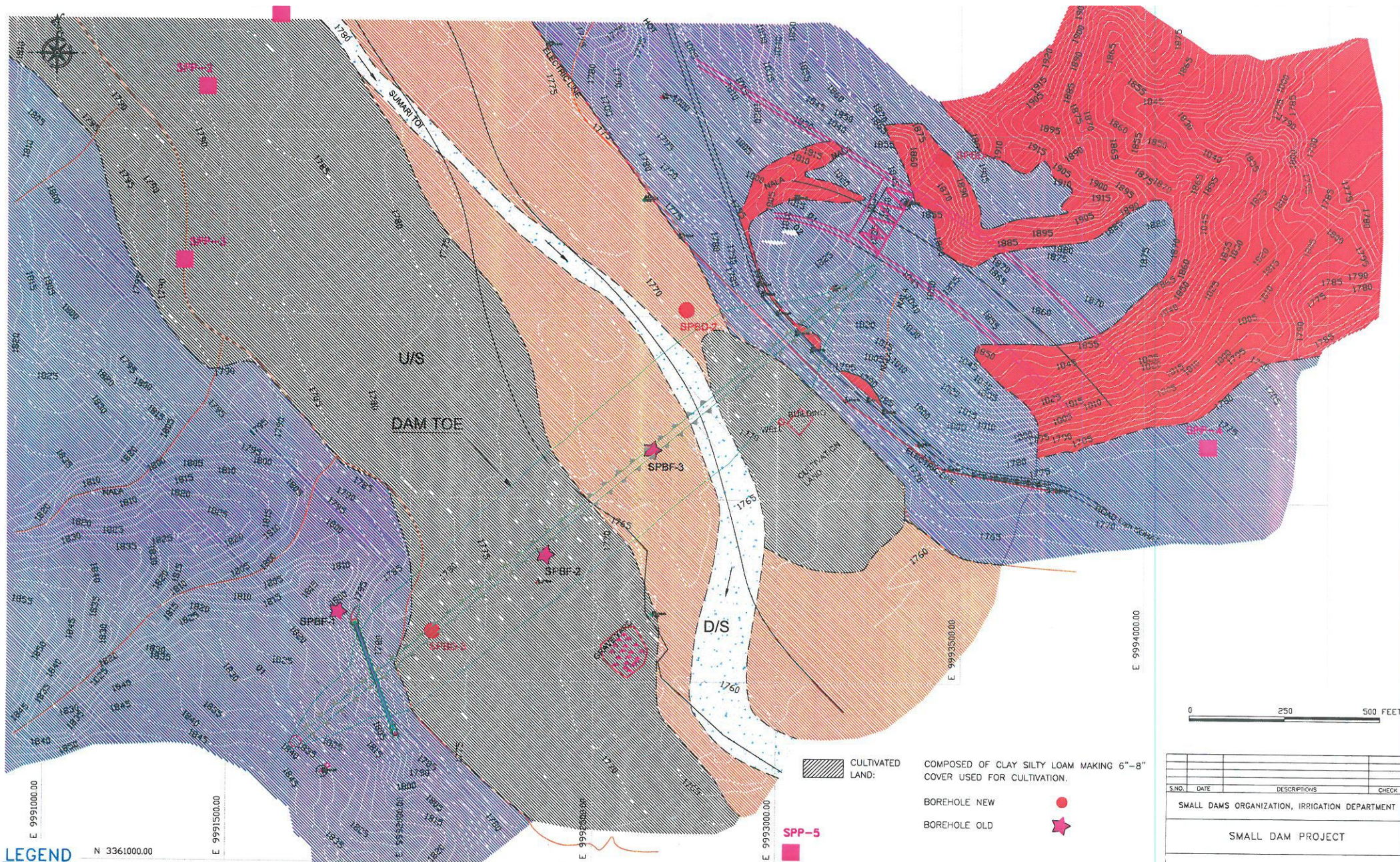
**PROJECT DRAWINGS**

**VOLUME-III**

**January 2024**







# LEGEND

- RIVER BED DEPOSIT (OB) COMPOSED OF BOULDERS, GRAVELS, SAND, SILT, BOULDER ALL OCCASIONAL AND MAKE ABOUT ± 11, GRAVELS ARE COMMON AND IS ABOUT ± 85% THE NALA BED DEPOSIT. IT IS MOSTLY SUBROUNDED AND RANGE IN SIZE UPTO 7 INCHES, THE REMAINING 30% IS SAND AND SILT.
- ALLUVIAL DEPOSIT: FLOOD PLAIN DEPOSIT, IT IS COMPARED OF GRAVELS SAND, AND SILT IN DIFFERENT PROPORTION. THE GRAVELS ARE ROUNDED TO SUBROUNDED AND ALL UPTO ± 50% TO ± 65% WITH VARYING AMOUNT OF SAND AND SILT.
- TALLUS AND SCREE: HILL SLOPE MATERIAL COMPOSED OF BIG BOULDER AND ANGULAR GRAVELS. MOSTLY OF LIMESTONE. BUT UNDERNEATH IS SHALE.
- SHALE: (UPPER GREEN TO LIGHT GREEN, SOFT, UNIFORM, MASSIVE, OCCUPYING THE NALA BED EASILY WEATHERED).
- CULTIVATED LAND: COMPOSED OF CLAY SILTY LOAM MAKING 6"-8" COVER USED FOR CULTIVATION.
- BOREHOLE NEW
- BOREHOLE OLD

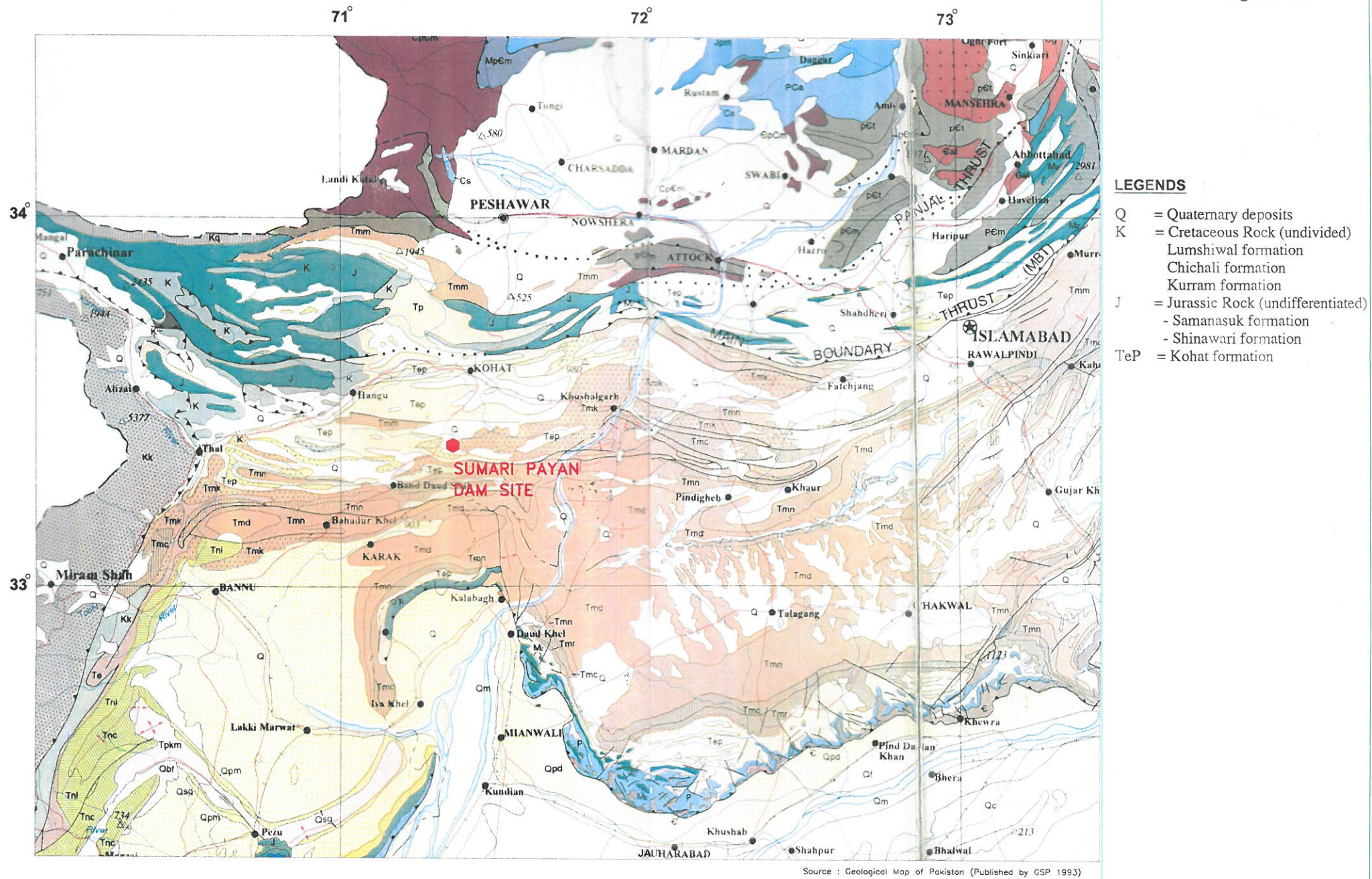
FLOOD PLAIN DEPOSIT, IT IS COMPARED OF GRAVELS SAND, AND SILT IN DIFFERENT PROPORTION. THE GRAVELS ARE ROUNDED TO SUBROUNDED AND ALL UPTO ± 50% TO ± 65% WITH VARYING AMOUNT OF SAND AND SILT.

HILL SLOPE MATERIAL COMPOSED OF BIG BOULDER AND ANGULAR GRAVELS. MOSTLY OF LIMESTONE. BUT UNDERNEATH IS SHALE.

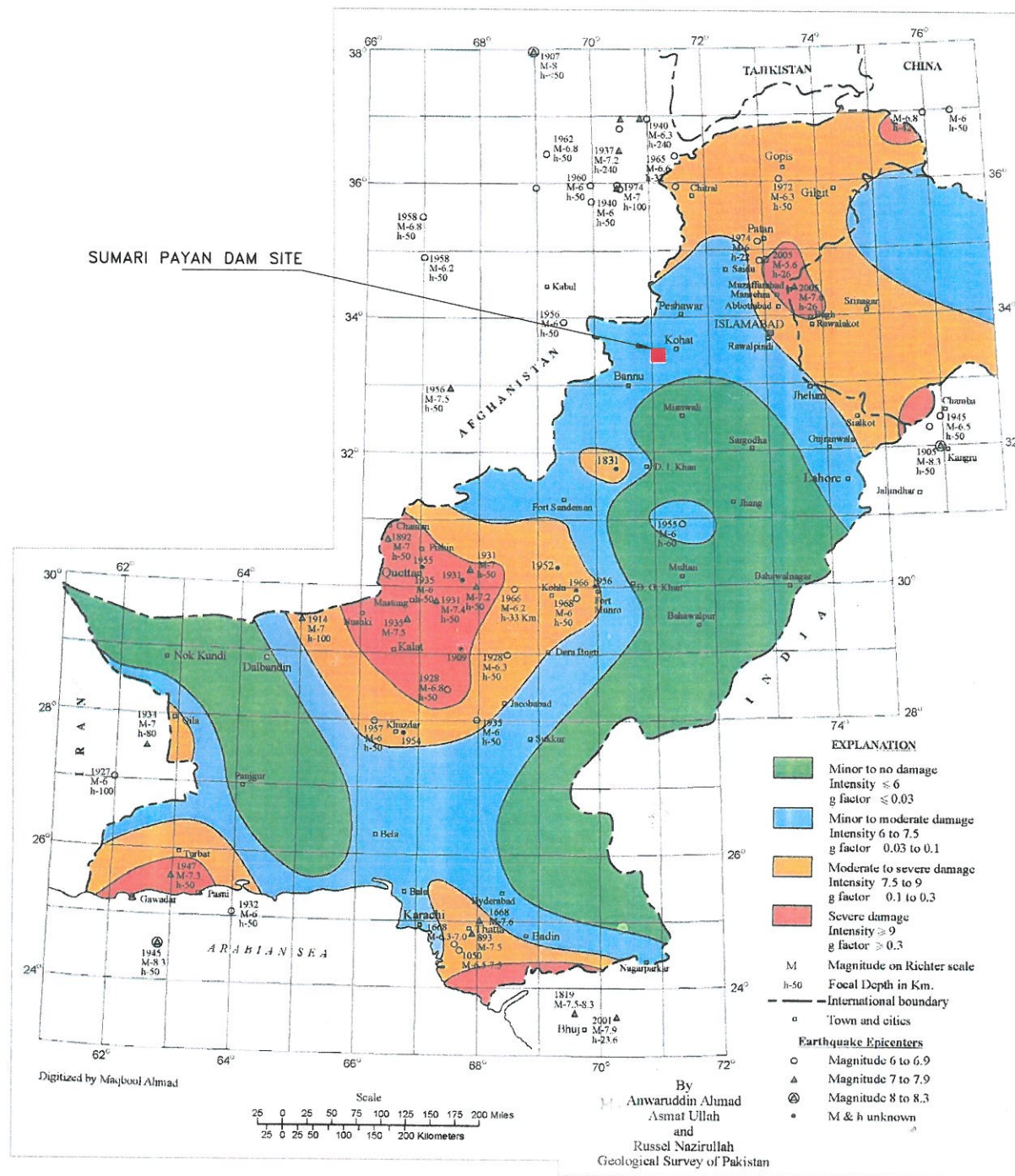
| S.NO.                                                                                               | DATE                 | DESCRIPTIONS    | CHECK    |
|-----------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                      |                      |                 |          |
| SMALL DAM PROJECT                                                                                   |                      |                 |          |
| SUMARI PAYAN DAM<br>SURFACE GEOLOGICAL PLAN                                                         |                      |                 |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>18B -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A., LAHORE. |                      |                 |          |
| DRAWN:                                                                                              | M. NADEEM            | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                           | RAH NAWAZ            | DRAWING NO.     |          |
| CHECKED:                                                                                            | ARSHAD HASHMI        | 3.3             |          |
| APPROVED:                                                                                           | SIBT UL HASSAN NAQVI |                 |          |



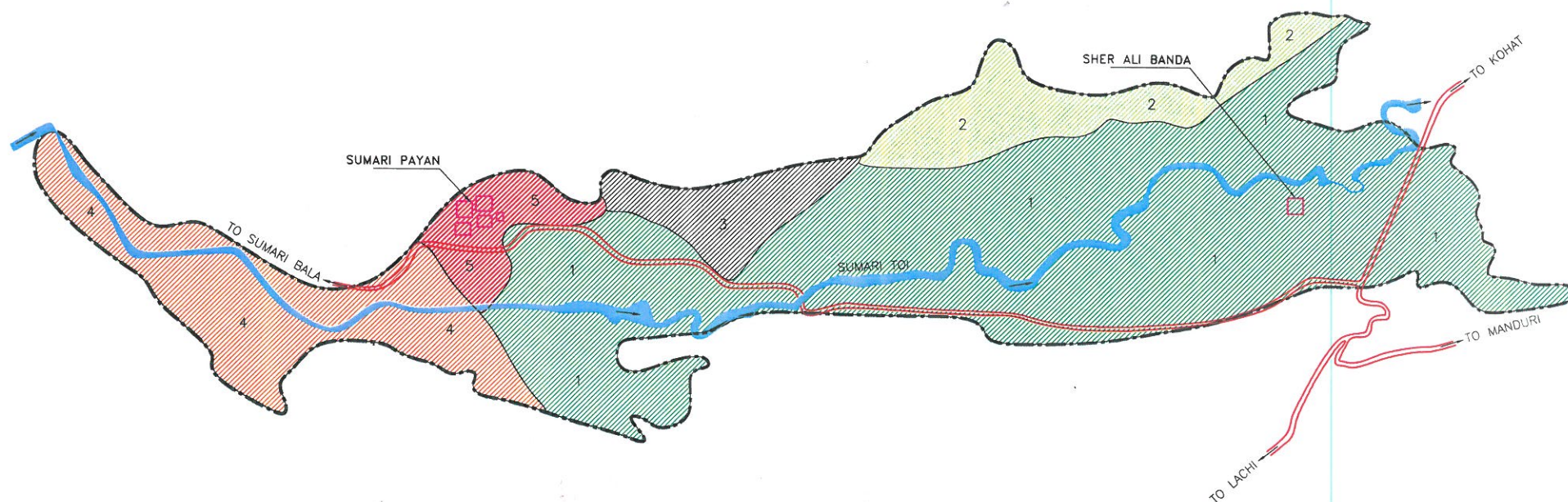
Figure 3.1



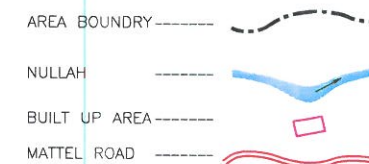
Regional Geological Map



| S.NO.                                                                                            | DATE                 | DESCRIPTIONS    | CHECK    |
|--------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                   |                      |                 |          |
| SMALL DAM PROJECT                                                                                |                      |                 |          |
| SEISMIC ZONING MAP                                                                               |                      |                 |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188-A, COMMERCIAL AREA, PHASE-II,<br>D.H.A., LAHORE |                      |                 |          |
| DRAWN:                                                                                           | M. NADEEM            | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                        | RAJIB SHAH           | FIGURE NO.      |          |
| CHECKED:                                                                                         | ARSHAD NASHUI        | 3.2             |          |
| APPROVED:                                                                                        | SIBT UL HASSAN NAQVI |                 |          |



#### CONVENTIONAL SIGNS



#### MAP LEGEND:

| MAP UNIT NO.              | SOIL POTENTIAL UNDER IRRIGATION                  | LAND CAPABILITY CLASS/SUBCLASS | EXTENT |      |
|---------------------------|--------------------------------------------------|--------------------------------|--------|------|
|                           |                                                  |                                | ACRES  | %    |
| 1.                        | GOOD AGRICULTURAL LAND (CLAYEY)                  | irlls                          | 2655   | 68.3 |
| 2.                        | MAINLY MODERATE WITH SOME GOOD AGRICULTURAL LAND | irlls-irlls (60:40)            | 351    | 9.0  |
| 3.                        | MODERATE AGRICULTURAL LAND                       | irlls                          | 216    | 5.5  |
| 4.                        | MAINLY MODERATE WITH SOME POOR AGRICULTURAL LAND | irlls-irllvs (60:40)           | 671    | 17.2 |
| 5.                        | AGRICULTURALLY UNPRODUCTIVE LAND                 | vlll                           | --     | --   |
| TOTAL AREA FOR IRRIGATION |                                                  |                                | 3893   | 100  |

|                                                                                                     |                     |                 |          |
|-----------------------------------------------------------------------------------------------------|---------------------|-----------------|----------|
| S.NO.                                                                                               | DATE                | DESCRIPTION     | CHECK    |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                      |                     |                 |          |
| SMALL DAM PROJECT                                                                                   |                     |                 |          |
| SUMARI PAYAN<br>LAND CAPABILITY MAP<br>OF COMMAND AREA                                              |                     |                 |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A., LAHORE. |                     |                 |          |
| DRAWN:                                                                                              | M. NADEEM           | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                           | M. NADEEM           | DRAWING NO.     |          |
| CHECKED:                                                                                            | M.A. TAHIR          | 8.1             |          |
| APPROVED:                                                                                           | SIBT UL HASAN NAQVI |                 |          |



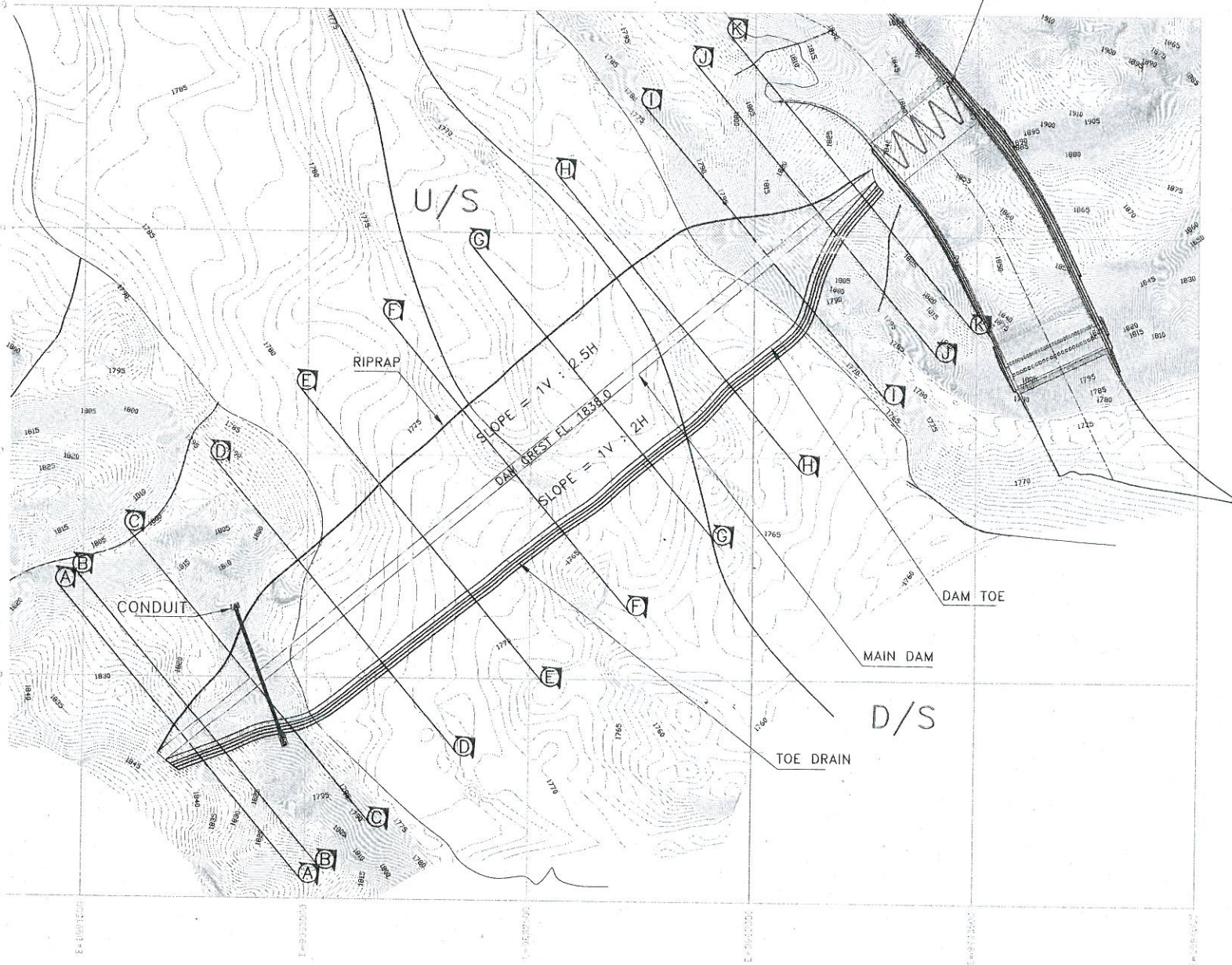
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N-3702000

N-3702000

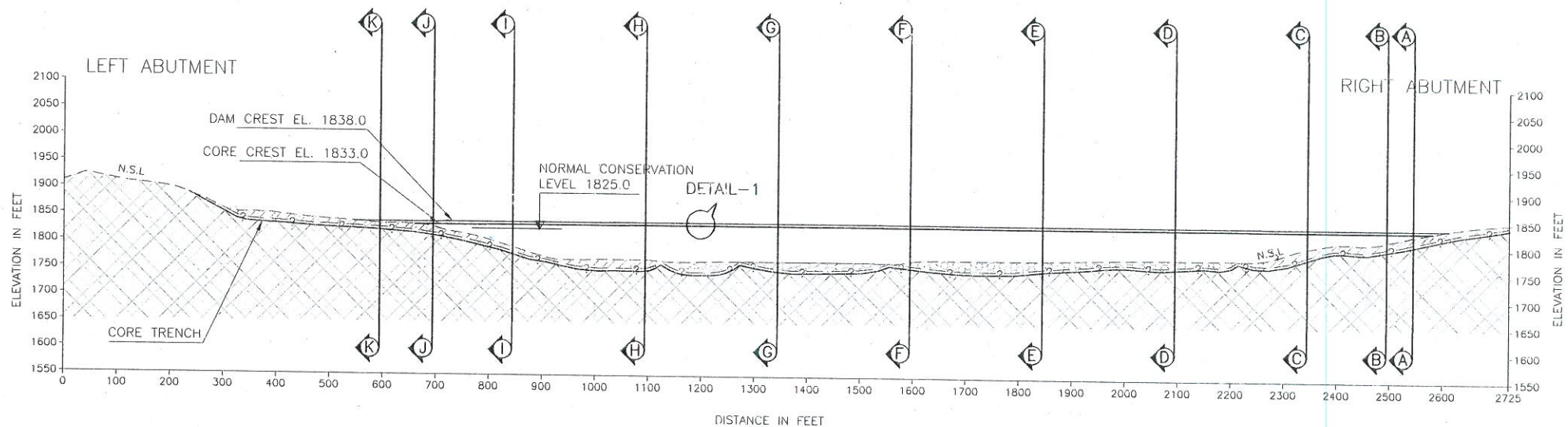
N-3702000

N-3702000



0 240 480 FEET

|                                                                                                                                                                                             |                      |                  |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------|----------|
| S.NO.                                                                                                                                                                                       | DATE                 | DESCRIPTIONS     | CHECK    |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                              |                      |                  |          |
| SMALL DAM PROJECT                                                                                                                                                                           |                      |                  |          |
| SUMARI PAYAN MAIN DAM PLAN                                                                                                                                                                  |                      |                  |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 - Y, COMMERCIAL AREA, PHASE-III,<br>D.I.H.A, LAHORE. |                      |                  |          |
| DRAWN:                                                                                                                                                                                      | M. NADEEM            | DATE: JUNE, 2008 | REV. No. |
| DESIGNED:                                                                                                                                                                                   | ASAD                 | DRAWING NO.      |          |
| CHECKED:                                                                                                                                                                                    | ZAFER MAJID          | 5.1              |          |
| APPROVED:                                                                                                                                                                                   | SIBT-UL-HASSAN NAQVI |                  |          |



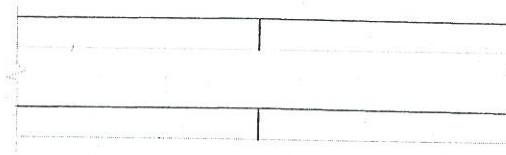
### LEGEND

- STREAM BED DEPOSITS:
- CULTIVATED LAND:
- TALLUS AND SCREE:
- SHALE: (UPPER SURFACE WEATHERED)
- ALLUVIAL DEPOSIT:

### NOTES

1. ALL LEVELS AND DIMENSIONS ARE IN FEET
2. FOR DETAIL OF X-SECTIONS SEE DRAWING NO. 5.2 AND 5.4
3. FOR GEOLOGICAL DETAILS SEE DRAWING NO. 3.4

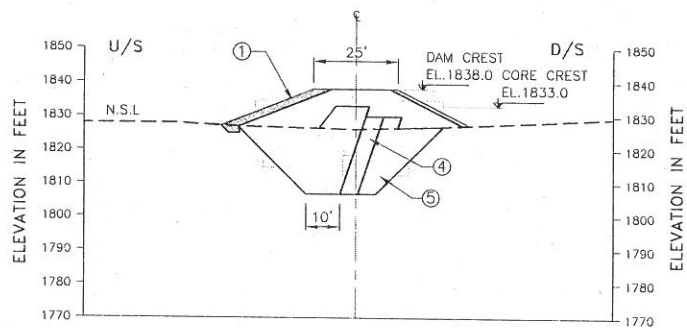
0 200 400 FEET



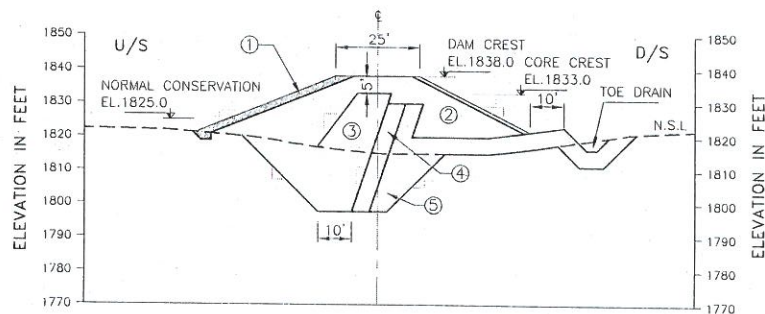
### DETAIL-1

DAM CREST CAMBER,  
1% OF MAX HT. (0.9675')

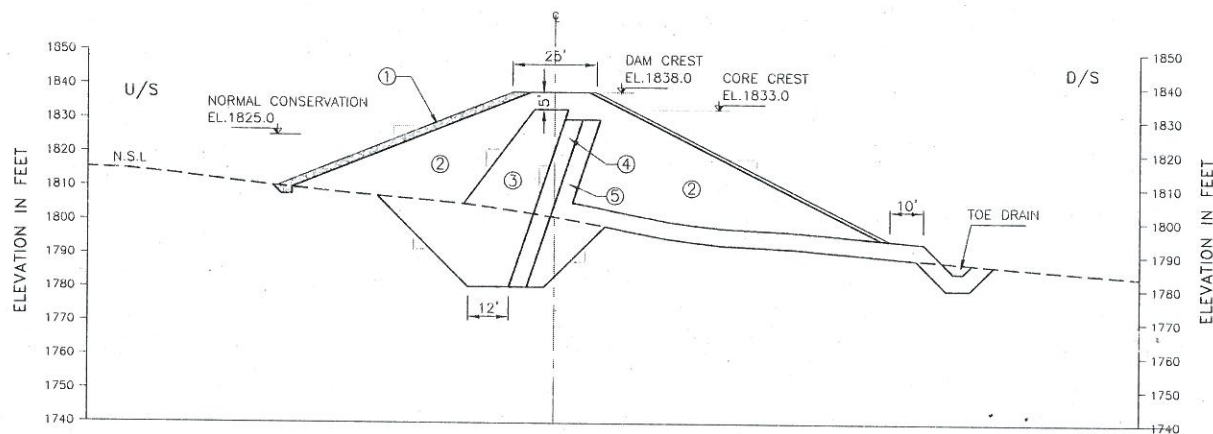
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|------------------------------------------------------|----------------------|-----------------|----------|
| S.NO.                                                | DATE                 | DESCRIPTIONS    | CHECK    |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT       |                      |                 |          |
| SMALL DAM PROJECT                                    |                      |                 |          |
| SUMARI PAYAN DAM                                     |                      |                 |          |
| L-SECTION ALONG DAM AXIS                             |                      |                 |          |
|                                                      |                      |                 |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.            |                      |                 |          |
| 188 - Y, COMMERCIAL AREA, PHASE - II, D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                               | M. NADEEM            | DATE: JUNE 2009 | REV. NO. |
| CHECKED:                                             | ASAD                 | DRAWING NO.     |          |
| APPROVED:                                            | SAHEER MAJID         | 5.5             |          |
|                                                      | SIBT-UL-HASSAN NAQVI |                 |          |



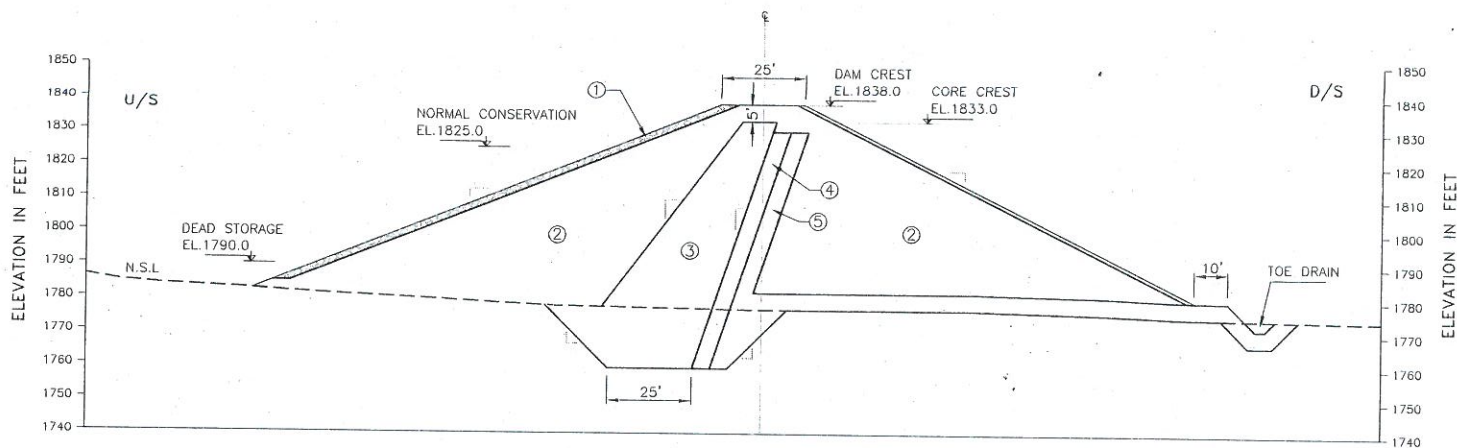
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

## REFERENCE DRAWINGS

1. FOR DAM PLAN SEE DWG. NO. 5.1
2. FOR DAM L-SECTIONS SEE DWG. NO. 5.2
3. FOR DAM X-SECTIONS SEE DWG. NO. 5.4 TO 5.6

## NOTES

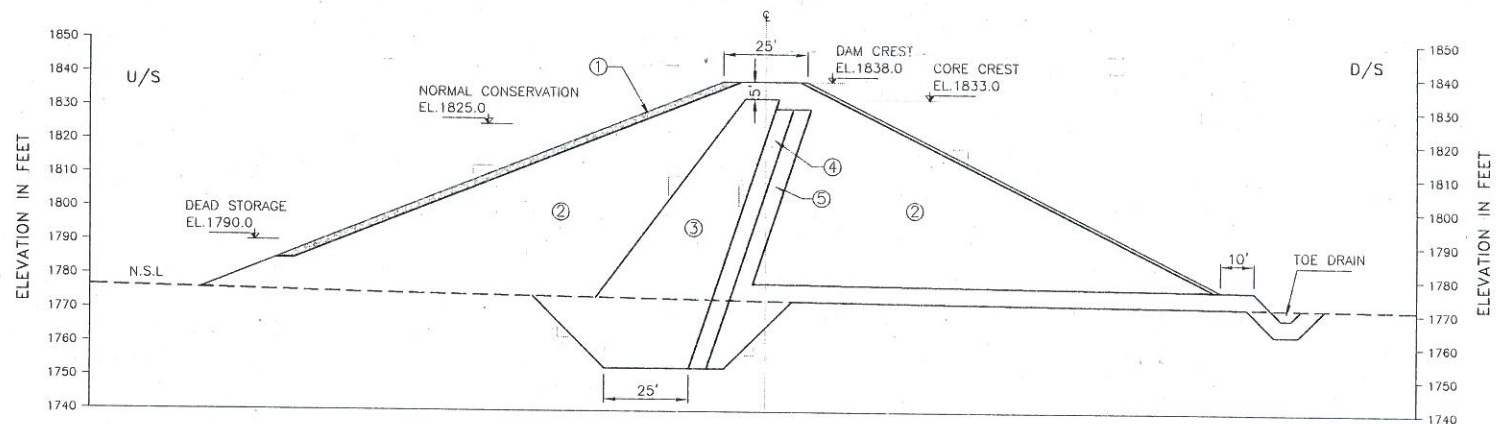
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

## LEGEND

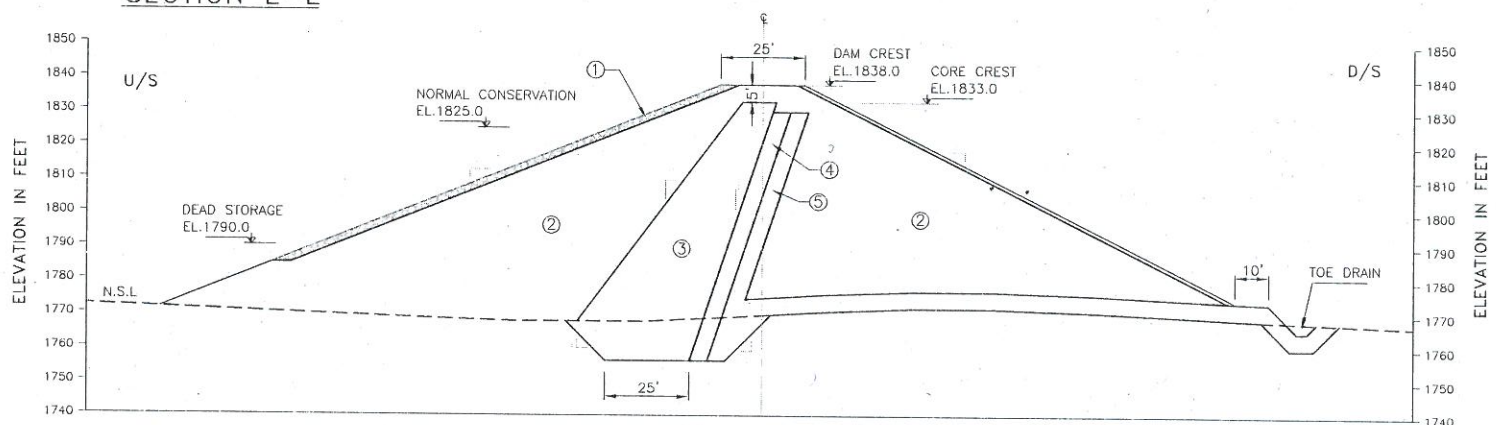
- ① RIPRAP
- ② SHELL
- ③ CORE
- ④ FINE FILTER
- ⑤ COARSE FILTER
- ⑥ DRAIN

0 40 80 FEET

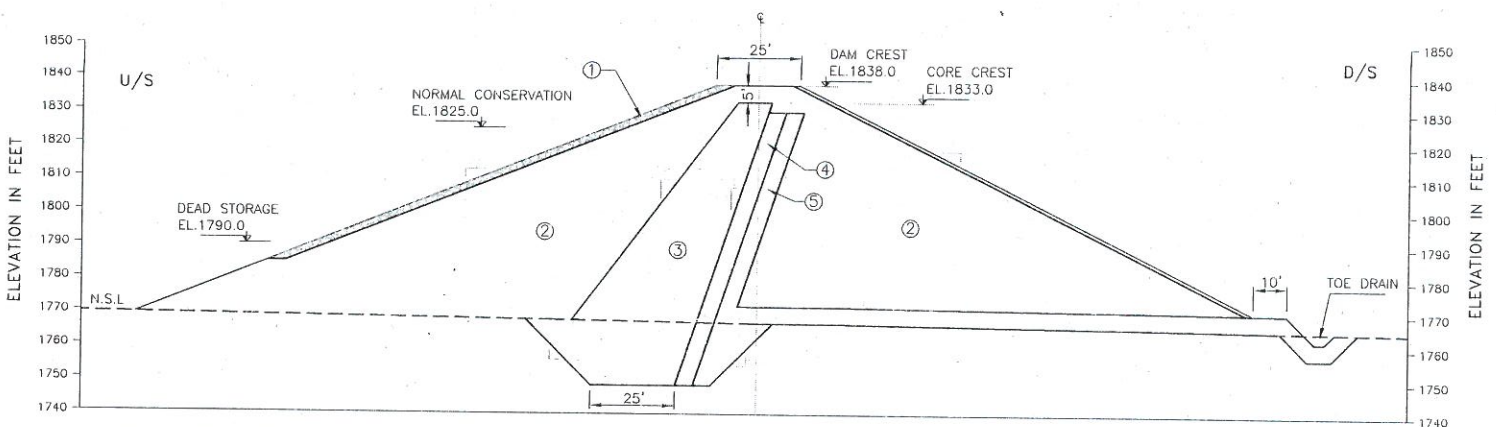
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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                             |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                          |                      |                 |          |
| SUMARI PAYAN DAM                                                                                                                                                                           |                      |                 |          |
| TYPICAL CROSS SECTION                                                                                                                                                                      |                      |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>168 -Y, COMMERCIAL AREA, PHASE - II,<br>D.H.A., LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                     | M. NADEEM            | DATE: JUNE 2009 | REV. NO. |
| DESIGNED:                                                                                                                                                                                  | ASAD                 | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                   | ZAHLEEL MAJID        | 5.2             |          |
| APPROVED:                                                                                                                                                                                  | SIBT-UL-HASSAN NAQVI |                 |          |



SECTION E-E



SECTION F-F



SECTION G-G

## REFERENCE DRAWINGS

1. FOR DAM PLAN SEE DWG. NO. 5.1
2. FOR DAM L-SECTIONS SEE DWG. NO. 5.2
3. FOR DAM X-SECTIONS SEE DWG. NO. 5.4 TO 5.6

## NOTES

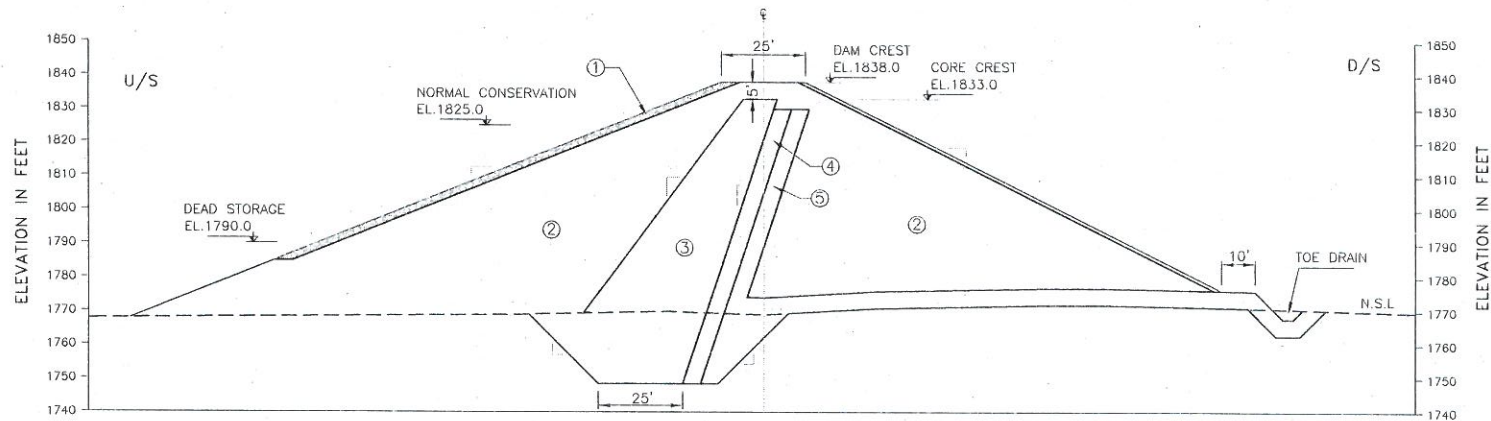
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

## LEGEND

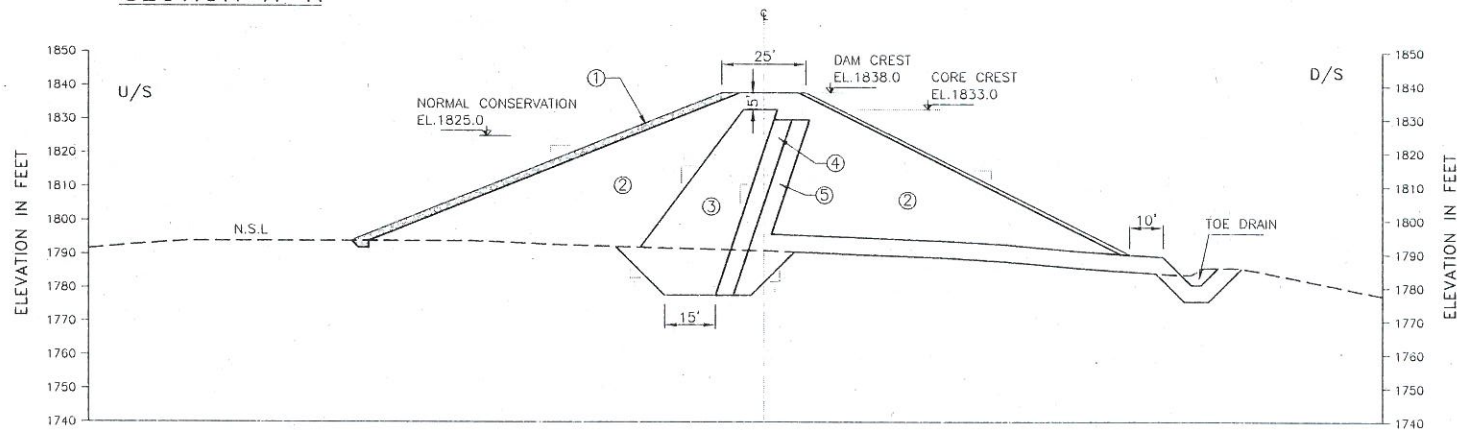
- ① RIPRAP
- ② SHELL
- ③ CORE
- ④ FINE FILTER
- ⑤ COARSE FILTER
- ⑥ DRAIN

0 40 80 FEET

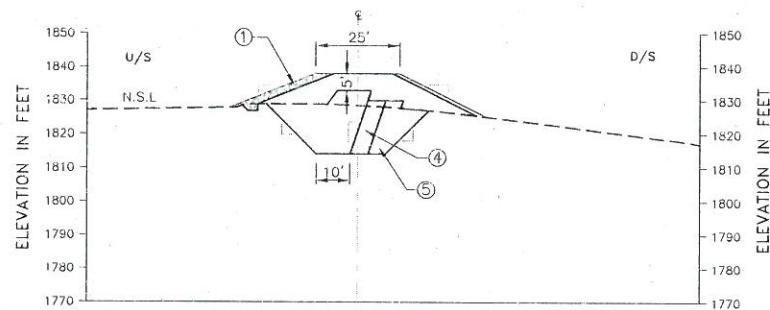
| S.NO.                                                                                                                                                                                            | DATE                 | DESCRIPTIONS     | CHECK    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                   |                      |                  |          |
| SMALL DAM PROJECT                                                                                                                                                                                |                      |                  |          |
| SUMARI PAYAN DAM                                                                                                                                                                                 |                      |                  |          |
| TYPICAL CROSS SECTION                                                                                                                                                                            |                      |                  |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>168 -T, COMMERCIAL AREA, PHASE - II,<br>D.H.A. LAHORE. |                      |                  |          |
| DRAWN:                                                                                                                                                                                           | M. NADEEM            | DATE: JUNE, 2009 | REV. NO. |
| DESIGNED:                                                                                                                                                                                        | ASAD                 | DRAWING NO.      |          |
| CHECKED:                                                                                                                                                                                         | ZAHED MALIK          | 5.3              |          |
| APPROVED:                                                                                                                                                                                        | SIBI-UL-JASSAN NAZKI |                  |          |



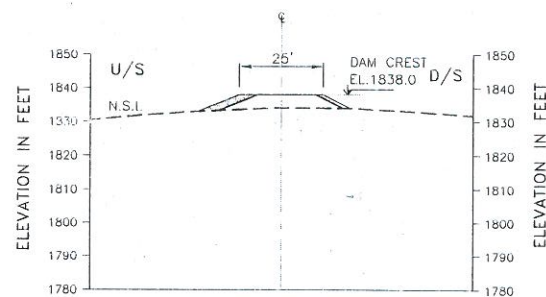
SECTION H-H



SECTION I-I



SECTION J-J



SECTION K-K

## REFERENCE DRAWINGS

1. FOR DAM PLAN SEE DWG. NO. 5.1
2. FOR DAM L-SECTIONS SEE DWG. NO. 5.2
3. FOR DAM X-SECTIONS SEE DWG. NO. 5.4 TO 5.6

## NOTES

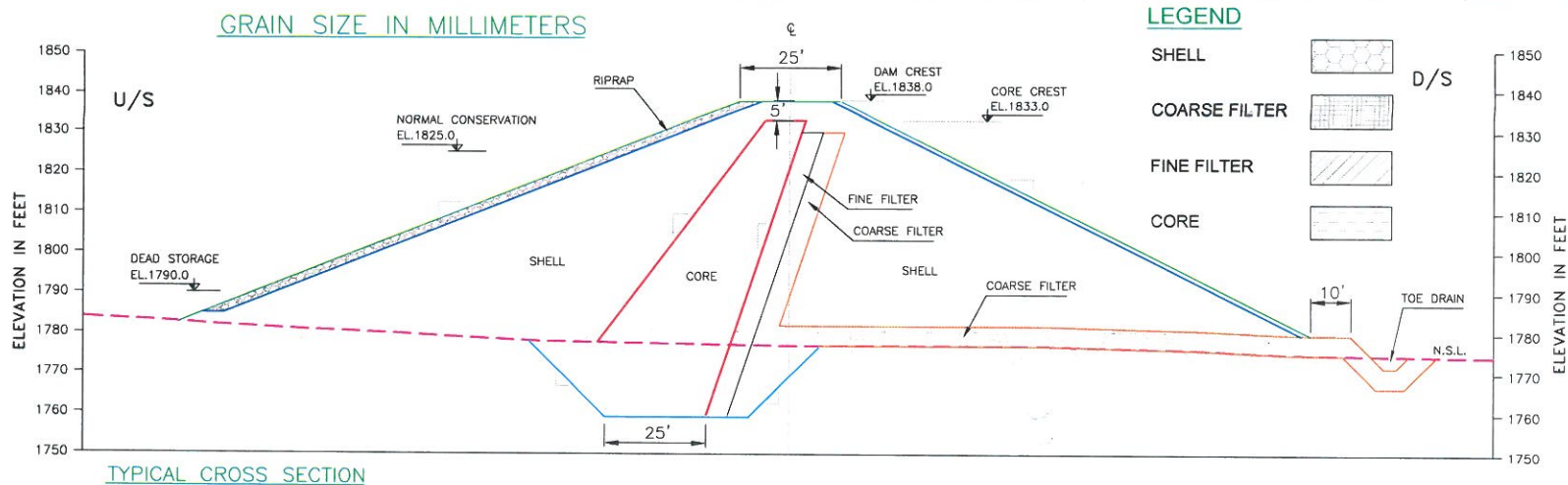
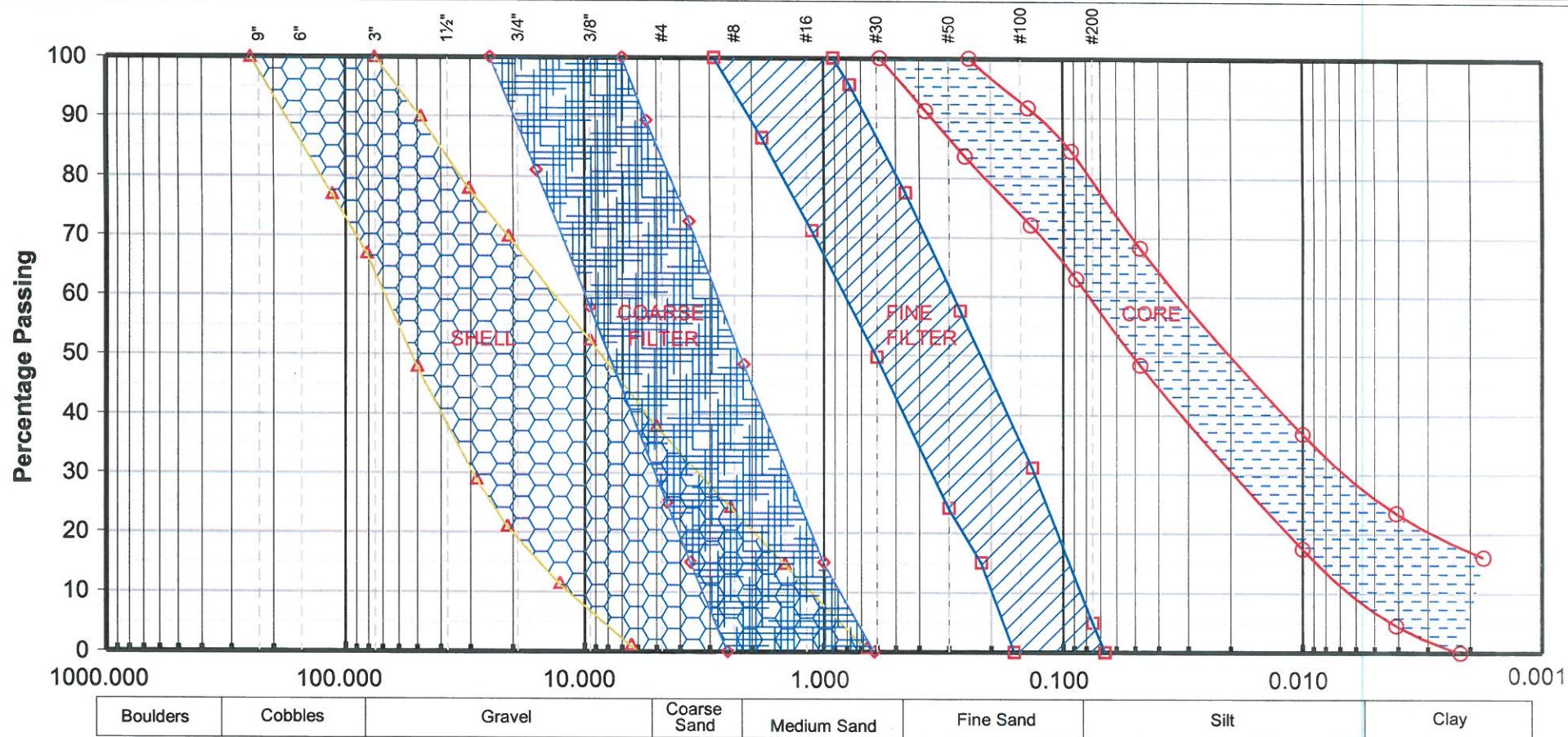
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

## LEGEND

- ① RIPRAP
- ② SHELL
- ③ CORE
- ④ FINE FILTER
- ⑤ COARSE FILTER
- ⑥ DRAIN

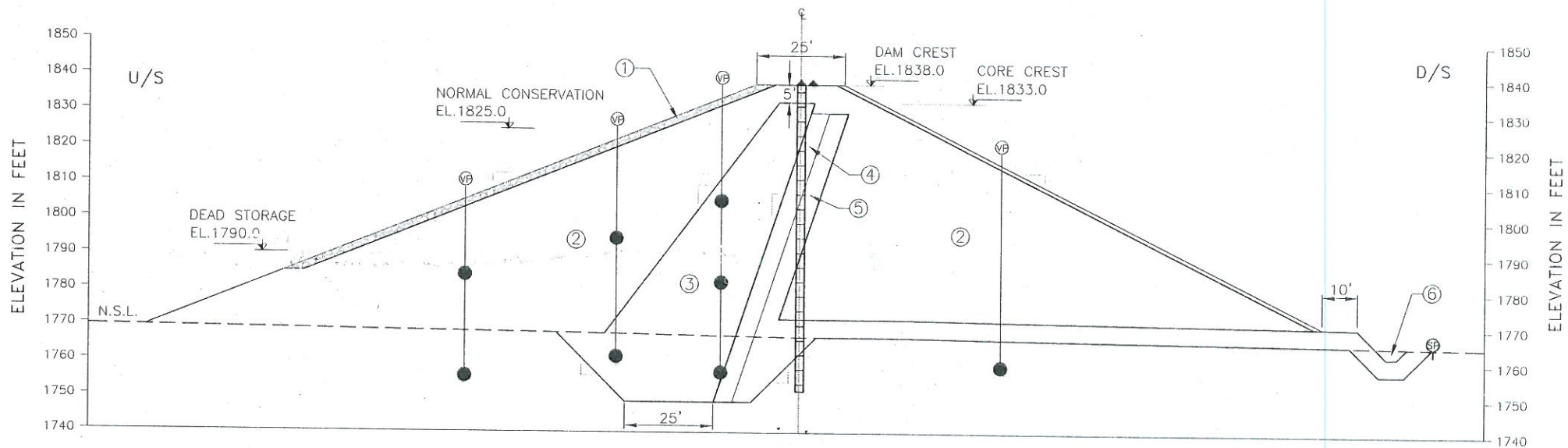
0 40 80 FEET

| S.NO.                                                                                                                                                                                             | DATE                  | DESCRIPTIONS    | CHECK    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                    |                       |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                                 |                       |                 |          |
| SUMARI PAYAN DAM                                                                                                                                                                                  |                       |                 |          |
| TYPICAL CROSS SECTION                                                                                                                                                                             |                       |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>188 - Y, COMMERCIAL AREA, PHASE - II,<br>D.H.A. LAHORE. |                       |                 |          |
| DRAWN:                                                                                                                                                                                            | M. NADEEM             | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                         | ASAD                  | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                          | ZAMEEN MALIK          | 5.5             |          |
| APPROVED:                                                                                                                                                                                         | SIBTI-UL-HASSAN NAQVI |                 |          |



0 400 800 FEET

|                                                                                                     |                      |                 |          |
|-----------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| S.NO.                                                                                               | DATE                 | DESCRIPTION     | CHECK    |
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                       |                      |                 |          |
| SMALL DAM PROJECT                                                                                   |                      |                 |          |
| SUMARI PAYAN DAM GRADATIONS<br>EMBANKMENT MATERIAL<br>(SHELL, FILTER AND CORE)                      |                      |                 |          |
|                                                                                                     |                      |                 |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 - Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                              | M. NADEEM            | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                           | ASAD                 | DRAWING NO.     |          |
| CHECKED:                                                                                            | ZAFEEER MALIK        | 5.6             |          |
| APPROVED:                                                                                           | SIBT UL HASSEN RAOVI |                 |          |



SECTION G-G

LEGEND

- VIBRATING WIRE PIEZOMETERS
- STANDPIPE PIEZOMETER
- SURFACE MARKERS
- VERTICAL INCLINOMETER WITH SPIDER MAGNETS

LEGEND

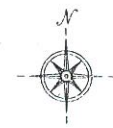
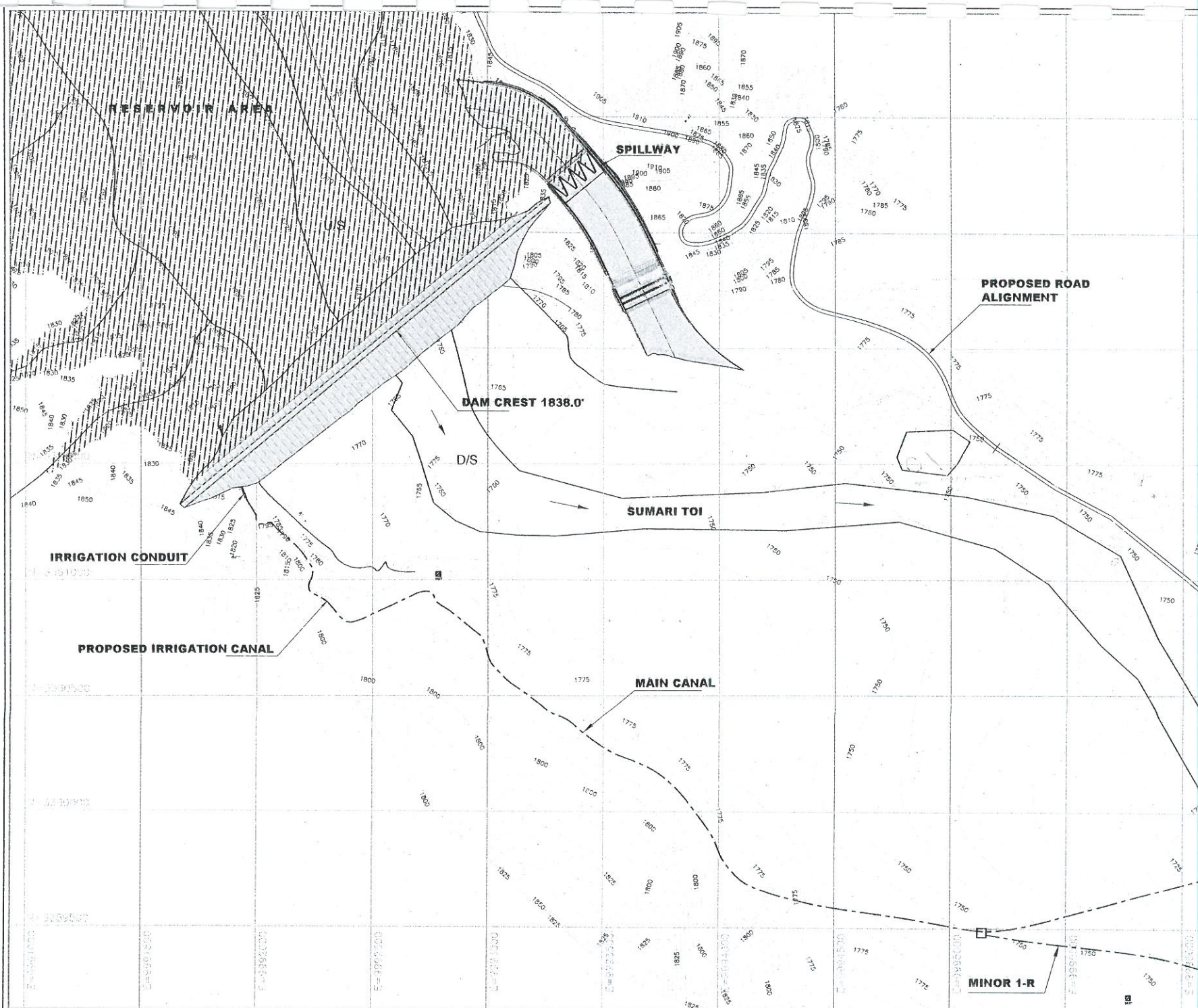
- (1) RIPRAP
- (2) SHELL
- (3) CORE
- (4) FINE FILTER
- (5) COARSE FILTER
- (6) DRAIN

NOTE:

ALL GRID AND LEVELS ARE IN FT.

0 30 60 FEET

| S.NO.                                                                                                 | DATE                     | DESCRIPTIONS     | CHECK    |
|-------------------------------------------------------------------------------------------------------|--------------------------|------------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                        |                          |                  |          |
| SMALL DAM PROJECT                                                                                     |                          |                  |          |
| MAIN DAM                                                                                              |                          |                  |          |
| INSTRUMENTATION SECTION                                                                               |                          |                  |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 - Y, COMMERCIAL AREA, PHASE - III,<br>G.H.A, LAHORE. |                          |                  |          |
| DRAWN:                                                                                                | M. NADEEM                | DATE: JUNE, 2008 | REV. No. |
| DESIGNED:                                                                                             | ASAD                     | DRAWING NO.      |          |
| CHECKED:                                                                                              | ZAHED WALK               |                  |          |
| APPROVED:                                                                                             | CHIEF EN. MUHAMMAD NAQVI | 5.13             |          |



### REFERENCE DRAWINGS

1. FOR DAM LAYOUT PLAN AND SECTIONS  
SEE DWG. NO. 5.1 TO 5.5
2. FOR SPILLWAY PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 6.1 TO 6.7
3. FOR CONDUIT PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 7.1 TO 7.8

### NOTE

ALL DIMENSIONS AND LEVELS ARE IN FEET.



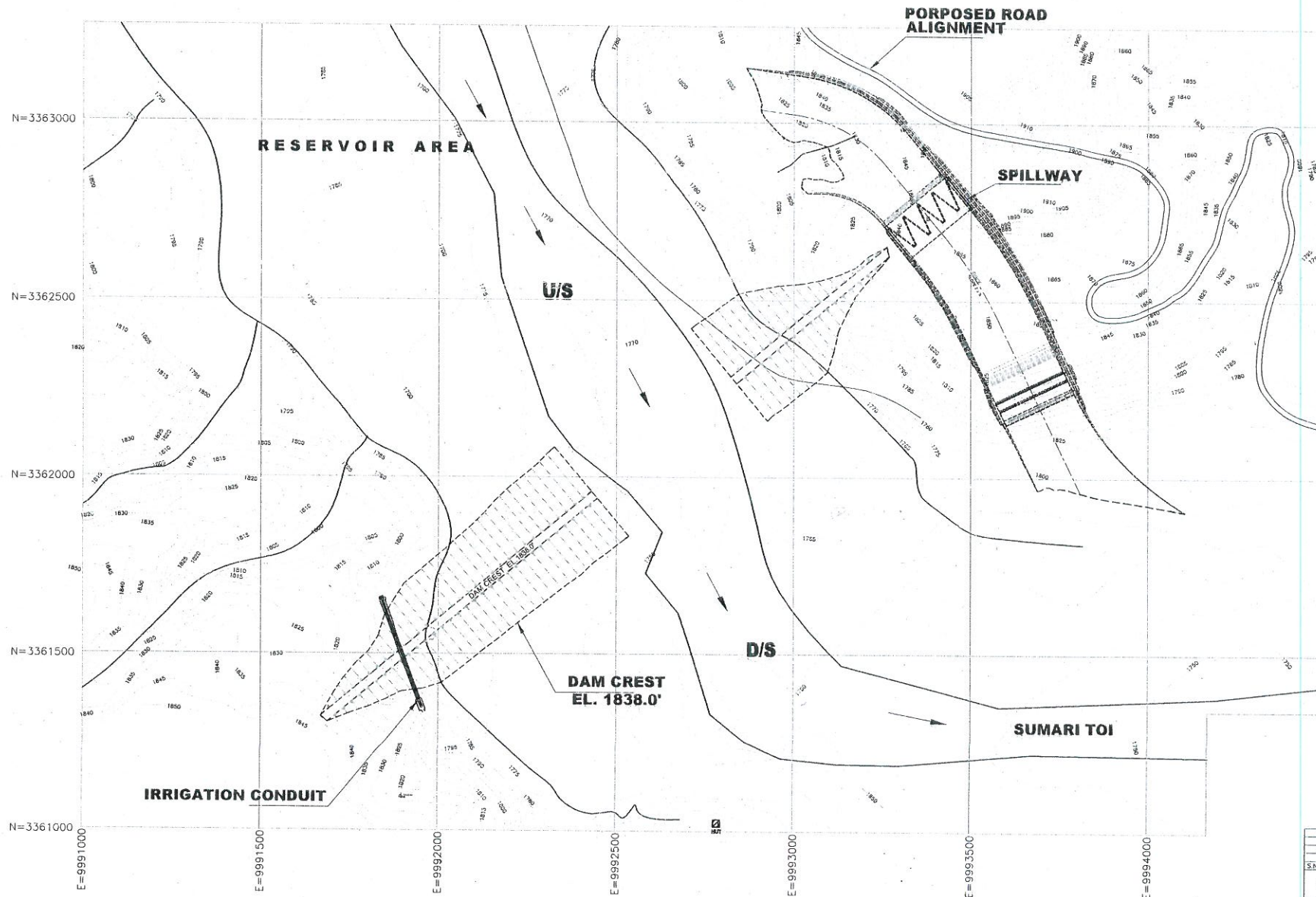
| S.NO. | DATE | DESCRIPTIONS | CHECK |
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|       |      |              |       |

SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT

SMALL DAM PROJECT

**SUMARI PAYAN DAM  
GENERAL LAYOUT PLAN**

|                                                                                                                 |                               |                 |          |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------|----------|
| <b>PKS</b> PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>118 - Y, COMMERCIAL AREA, PHASE - III,<br>D.I.A, LAHORE |                               | DATE: JUNE 2009 | REV. NO. |
| DRAWN: ZAHID BANA                                                                                               | DESIGNED: SIBTUL HASSAN       | FIGURE NO.      |          |
| CHECKED: D.K. KIRMANI                                                                                           | APPROVED: SIBTUL HASSAN NAQVI | GEN-01          |          |



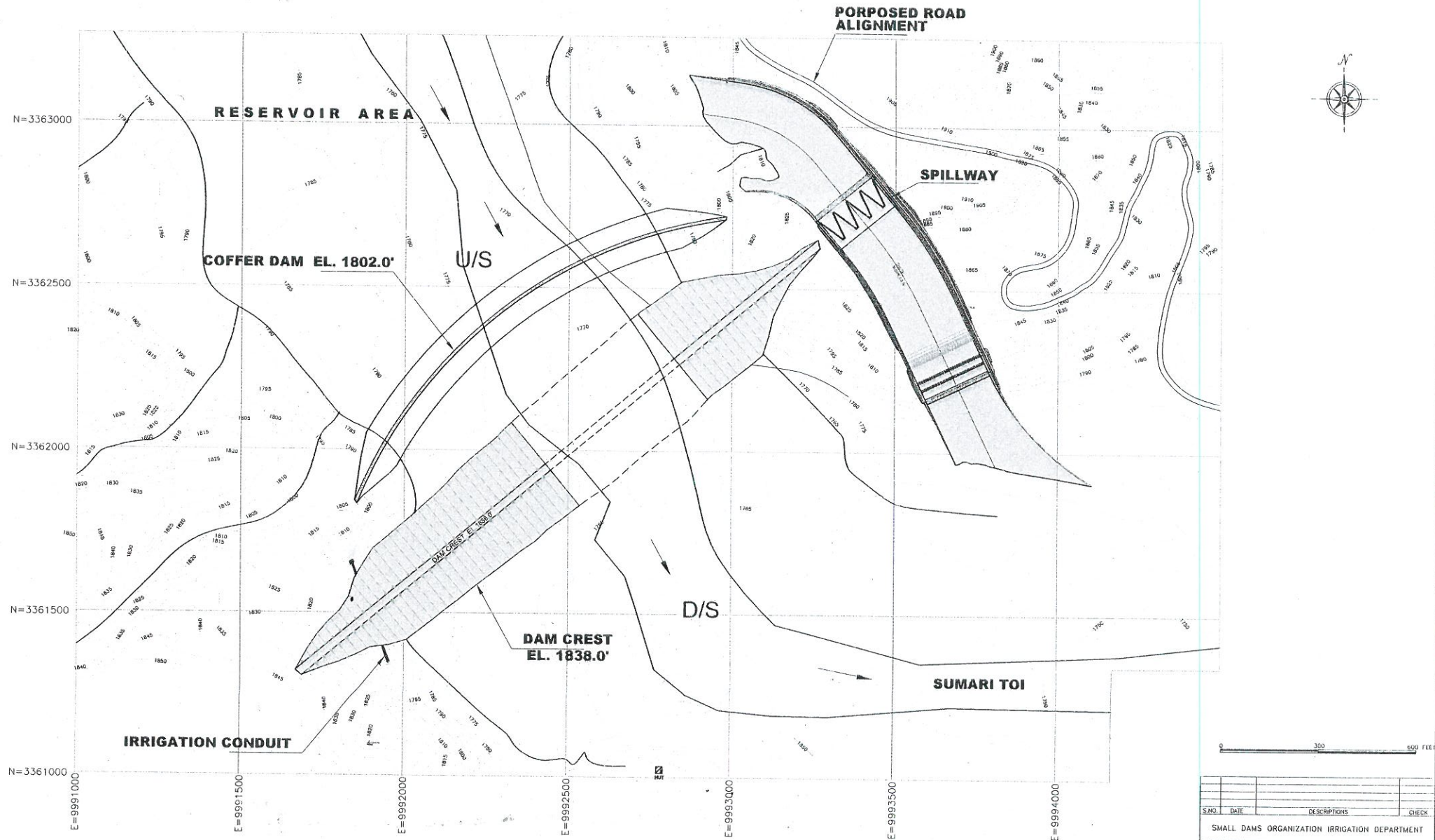
#### REFERENCE DRAWINGS

1. FOR DAM LAYOUT PLAN AND SECTIONS  
SEE DWG. NO. 5.1 TO 5.5
2. FOR SPILLWAY PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 6.1 TO 6.7
3. FOR CONDUIT PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 7.1 TO 7.8

#### NOTE

ALL DIMENSIONS AND LEVELS ARE IN FEET.

| S.NO.                                                                                                                                                                                           | DATE                   | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                                                                                                                   |                        |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                               |                        |                 |          |
| SUMARI PAYAN DAM<br>CONSTRUCTION PLANNING<br>DIVERSION SCHEME STAGE-1                                                                                                                           |                        |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>188 - T, COMMERCIAL AREA, PHASE-II,<br>D.H.A. LAHORE. |                        |                 |          |
| DRAWN:                                                                                                                                                                                          | ZAHID RANA             | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                       | SUBT. UL. HASSAN NADVI | FIGURE NO.      |          |
| CHECKED:                                                                                                                                                                                        | S.N. ARMAN             |                 |          |
| APPROVED:                                                                                                                                                                                       | SUBT. UL. HASSAN NADVI | 6.14            |          |



#### REFERENCE DRAWINGS

1. FOR DAM LAYOUT PLAN AND SECTIONS  
SEE DWG. NO. 5.1 TO 5.5
2. FOR SPILLWAY PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 6.1 TO 6.7
3. FOR CONDUIT PLAN, SECTIONS AND DETAILS  
SEE DWG. NO. 7.1 TO 7.8

#### NOTE

ALL DIMENSIONS AND LEVELS ARE IN FEET.

| S.NO. | DATE | DESCRIPTIONS | CHECK |
|-------|------|--------------|-------|
|       |      |              |       |
|       |      |              |       |

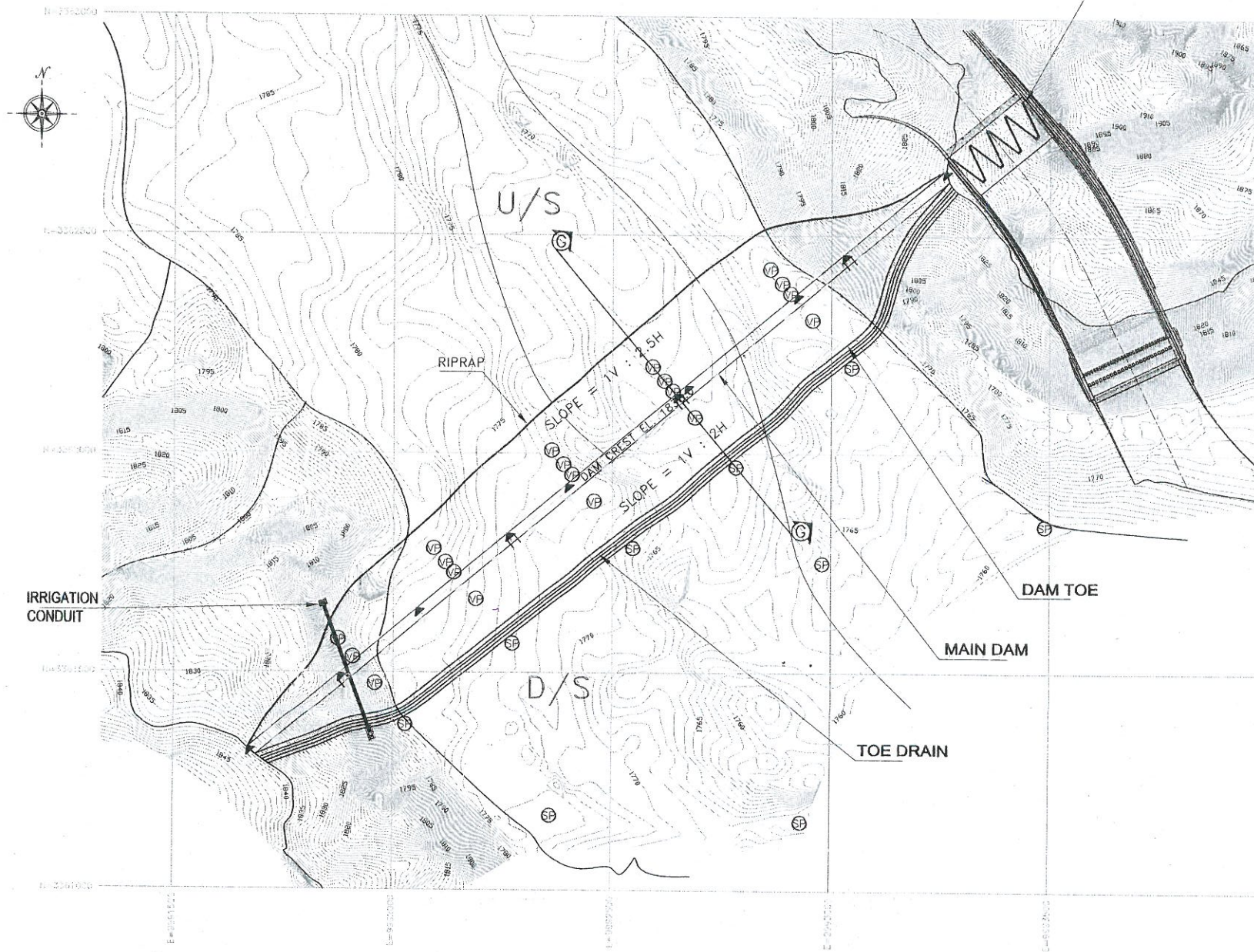
SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT

SMALL DAM PROJECT

SUMARI PAYAN DAM  
CONSTRUCTION PLANNING  
DIVERSION SCHEME STAGE-2

**PES** PAKISTAN ENGINEERING SERVICES (PVT.) LTD.  
188 -T, COMMERCIAL AREA, PHASE-III,  
D.H.A. LAHORE.

|                                              |                                                                          |                                       |              |
|----------------------------------------------|--------------------------------------------------------------------------|---------------------------------------|--------------|
| DRAWN:<br>DESIGNED:<br>CHECKED:<br>APPROVED: | ZAHID RAMA<br>SHEIKH HASSAN NAQVI<br>D.R. KIRMANI<br>SHEIKH HASSAN NAQVI | DATE: JUNE 2009<br>FIGURE NO:<br>6.15 | REV. NO:<br> |
|----------------------------------------------|--------------------------------------------------------------------------|---------------------------------------|--------------|



# LEGEND

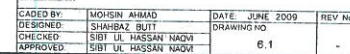
- VP VIBRATING WIRE PIEZOMETERS
- SP STANDPIPE PIEZOMETER
- ▲ SURFACE MARKERS
- ▲ VERTICAL INCLINOMETER WITH SPIDER MAGNETS
- || CROSS ARM EXTENSOMETERS

## NOTE

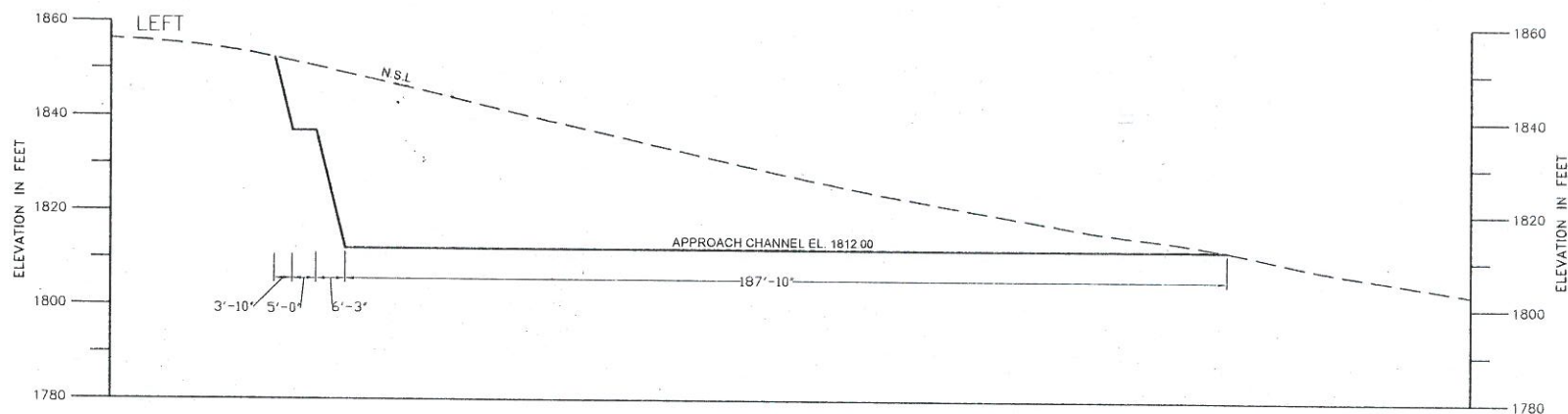
- ALL GRID AND LEVELS ARE IN FT.

0 240 480 FEET

| S.NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DATE           | DESCRIPTIONS     | CHECK    |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|----------|--------|-----------|------------------|----------|-----------|------|--|--|----------|-------------|--|--|-----------|----------------|------------------|--|
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                  |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| SMALL DAM PROJECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                  |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| MAIN DAM<br>INSTRUMENTATION PLAN                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                  |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| <div> <div> <p>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br/>188 - Y. COMMERCIAL AREA, PHASE - III,<br/>D.H.A. LAHORE.</p> </div> <table border="1"> <tr> <td>DRAWN:</td> <td>M. NADEEM</td> <td>DATE: JUNE, 2009</td> <td>REV. No.</td> </tr> <tr> <td>DESIGNED:</td> <td>ASAD</td> <td></td> <td></td> </tr> <tr> <td>CHECKED:</td> <td>FAHIM MALIK</td> <td></td> <td></td> </tr> <tr> <td>APPROVED:</td> <td>SIBT-UL-HASSAN</td> <td>DRAWING NO. 5.12</td> <td></td> </tr> </table> </div> |                |                  |          | DRAWN: | M. NADEEM | DATE: JUNE, 2009 | REV. No. | DESIGNED: | ASAD |  |  | CHECKED: | FAHIM MALIK |  |  | APPROVED: | SIBT-UL-HASSAN | DRAWING NO. 5.12 |  |
| DRAWN:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | M. NADEEM      | DATE: JUNE, 2009 | REV. No. |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| DESIGNED:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ASAD           |                  |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| CHECKED:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FAHIM MALIK    |                  |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |
| APPROVED:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SIBT-UL-HASSAN | DRAWING NO. 5.12 |          |        |           |                  |          |           |      |  |  |          |             |  |  |           |                |                  |  |







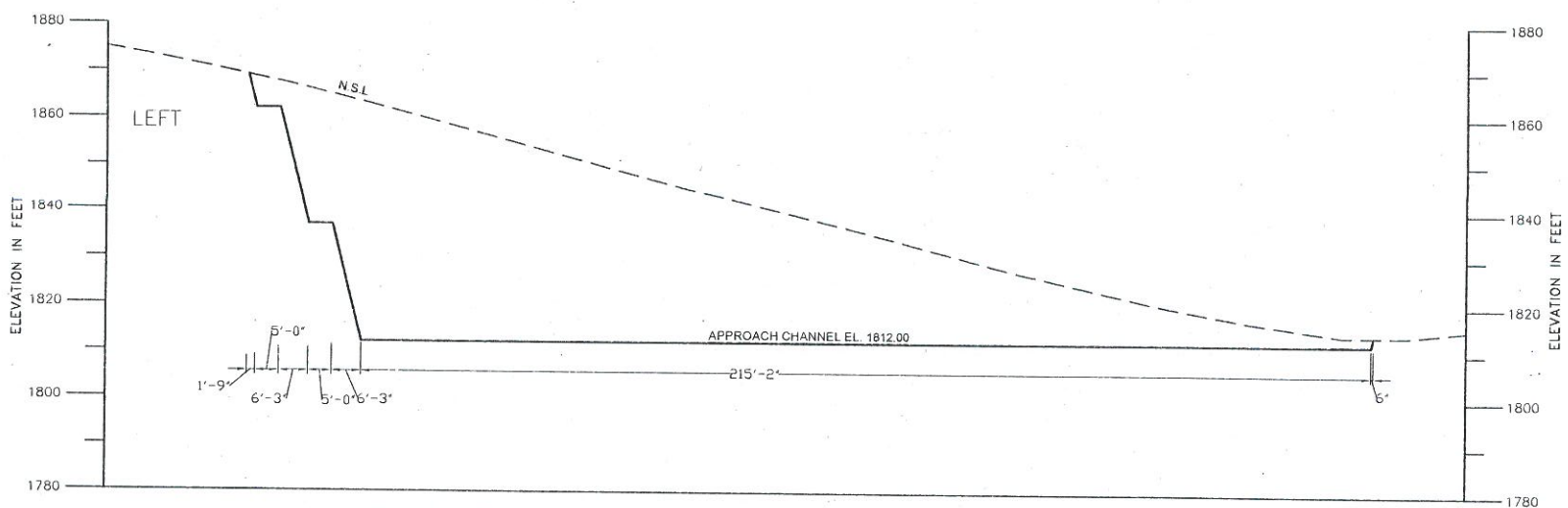
SECTION B-B

#### NOTES

1. ALL DIMENSIONS AND LEVELS ARE IN FEET

#### REFERENCES

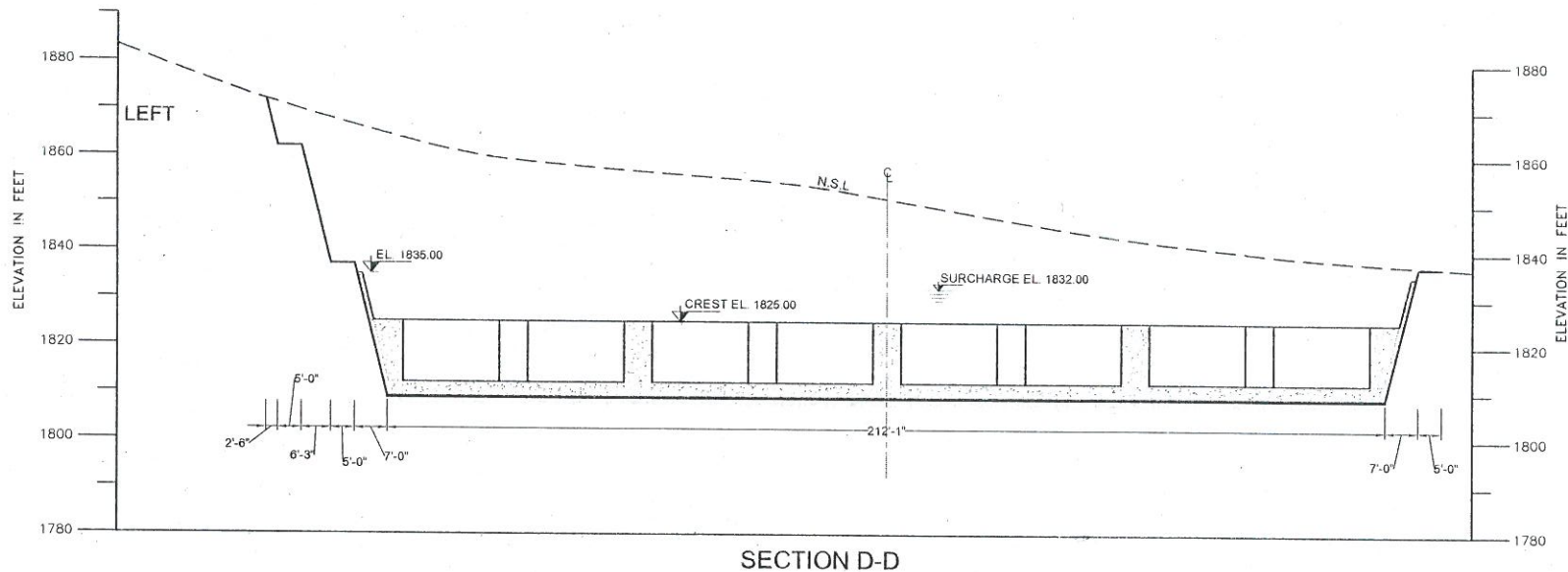
1. FOR GENERAL LAYOUT PLAN SEE DWG. NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTION SEE DWG. NO. 6.3, 6.4, 6.6 & 6.7
4. FOR LABYRINTH PLAN & SECTION DWG. NO. 6.4



SECTION C-C

0 30 60 FEET

| S.NO                                                                                                                                                                                            | DATE                 | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
|                                                                                                                                                                                                 |                      |                 |          |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                  |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                               |                      |                 |          |
| SUMARI PAYAN SPILLWAY<br>X-SECTIONS B-B & C-C                                                                                                                                                   |                      |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>188 -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                          | MOHSIN AHMAD         | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                       | SHAHBAZ BUTT         | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                        | SIBT UL HASSAN NAQVI | 6.5             |          |
| APPROVED:                                                                                                                                                                                       | SIBT UL HASSAN NAQVI |                 |          |

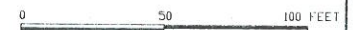
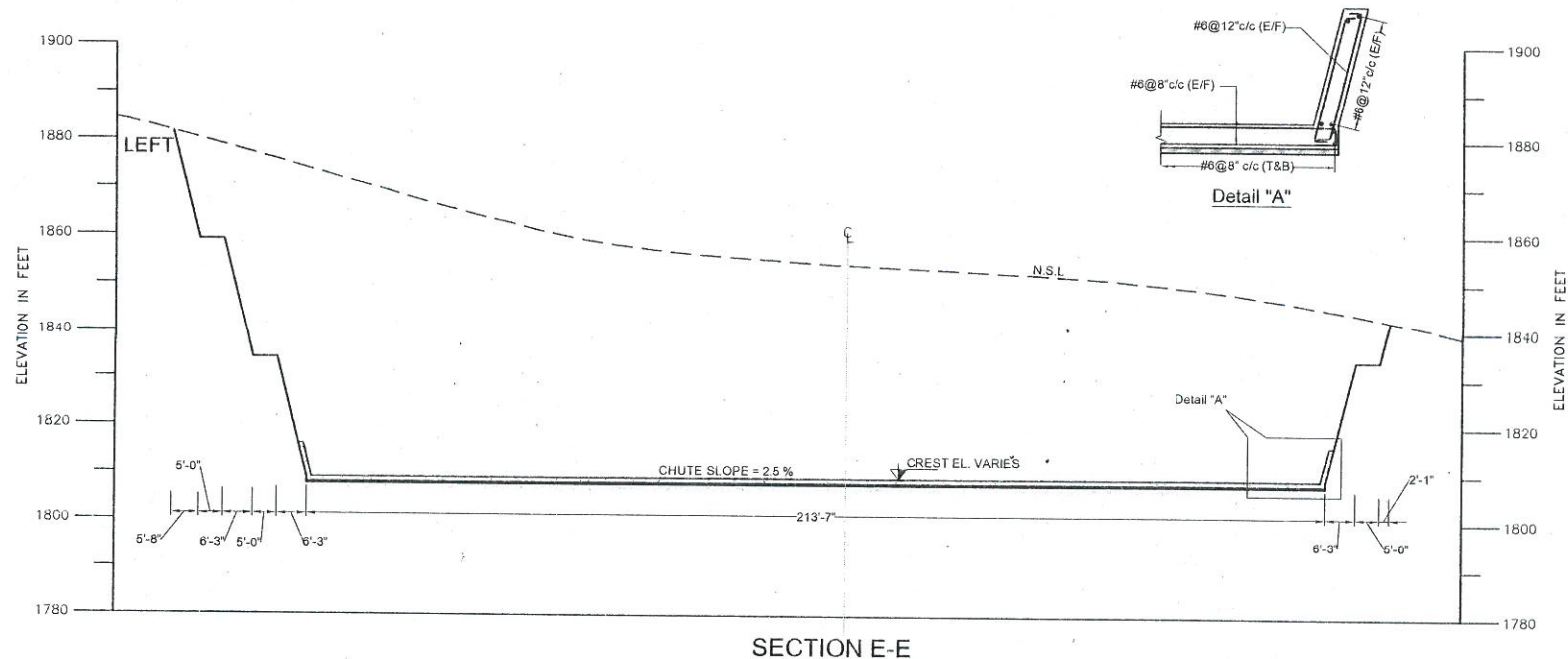


#### NOTES

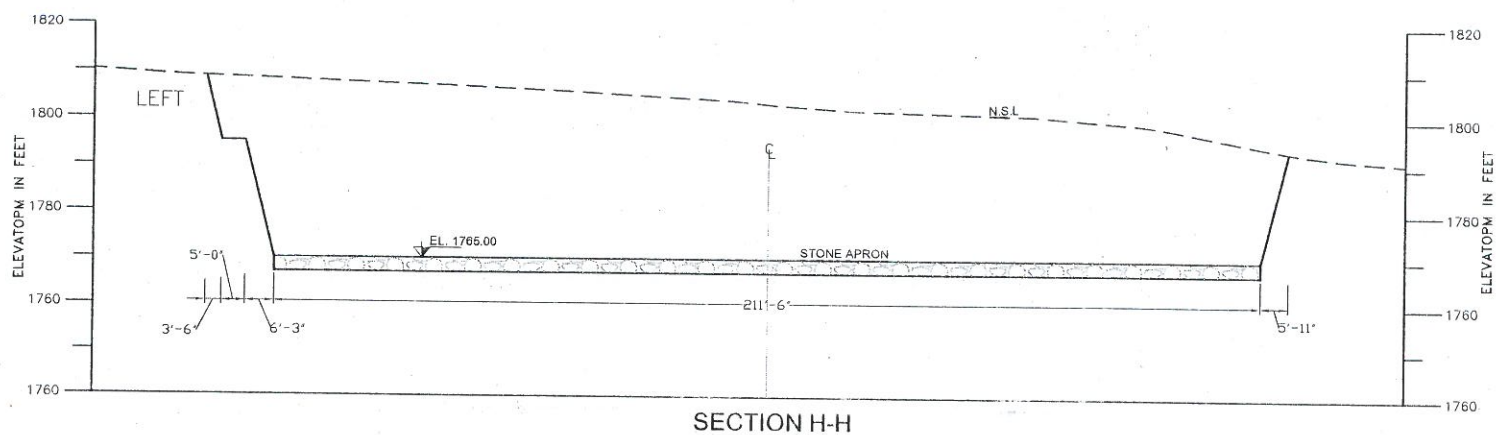
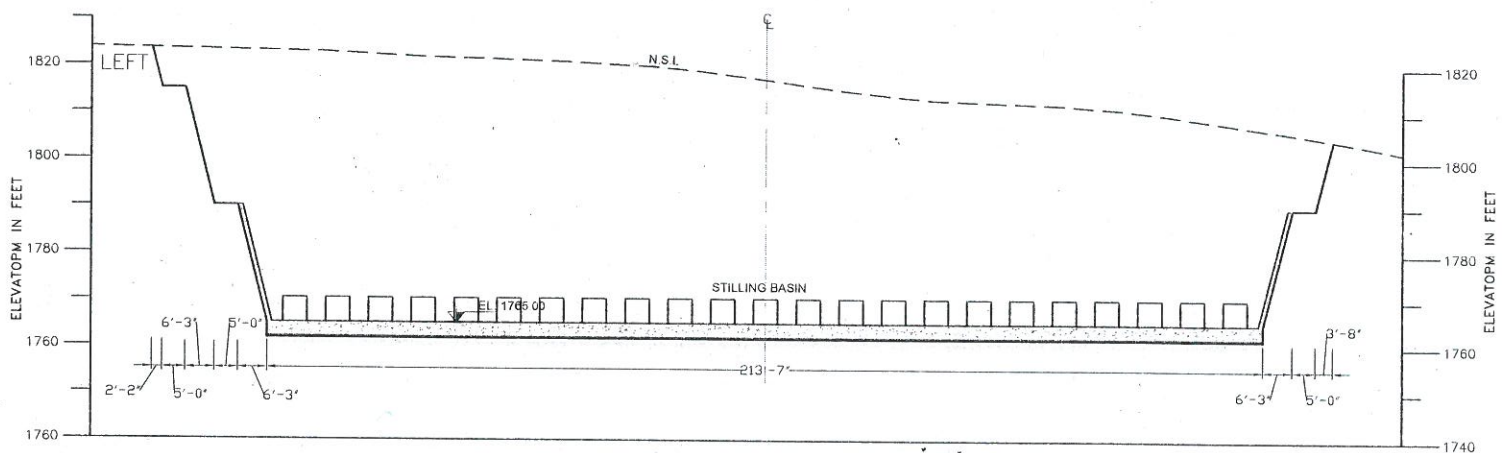
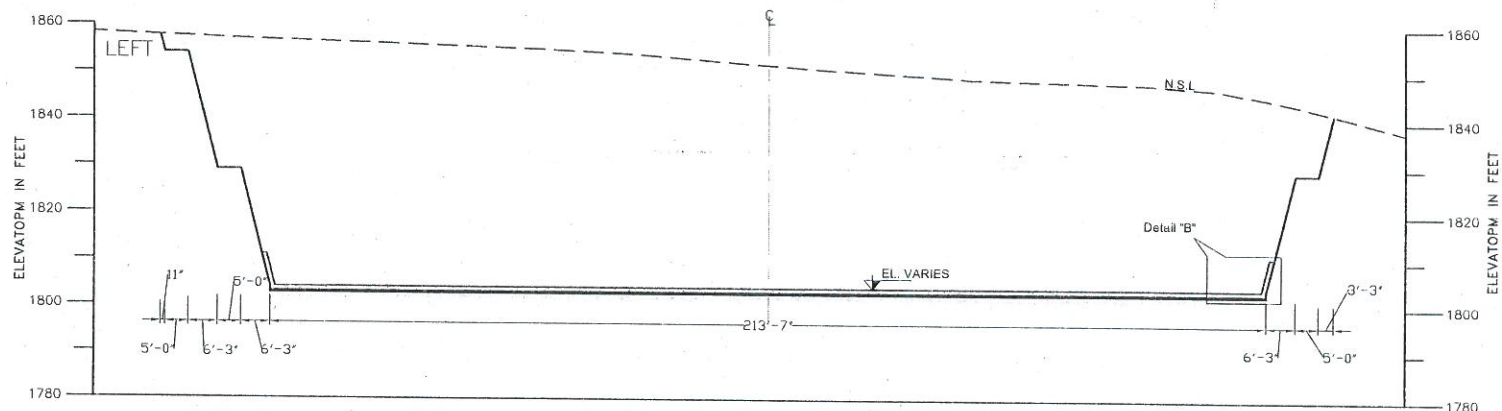
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

#### REFERENCES

1. FOR GENERAL LAYOUT PLAN SEE DWG. NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTION SEE DWG. NO. 6.3 TO 6.5 & 6.7
4. FOR LABYRINTH PLAN & SECTION DWG. NO. 6.4



| S.NO.                                                                                                                                                                                     | DATE                 | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                            |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                         |                      |                 |          |
| SUMARI PAYAN DAM                                                                                                                                                                          |                      |                 |          |
| SPILLWAY X-SECTIONS D-D & E-E                                                                                                                                                             |                      |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A., LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                    | MOHSEN AHMAD         | DATE: JUNE 2009 | REV. NO. |
| DESIGNED:                                                                                                                                                                                 | SHAHBAZ BUTT         | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                  | SIBT UL HASSAN NAQVI | 6.6             |          |
| APPROVED:                                                                                                                                                                                 | SIBT UL HASSAN NAQVI |                 |          |

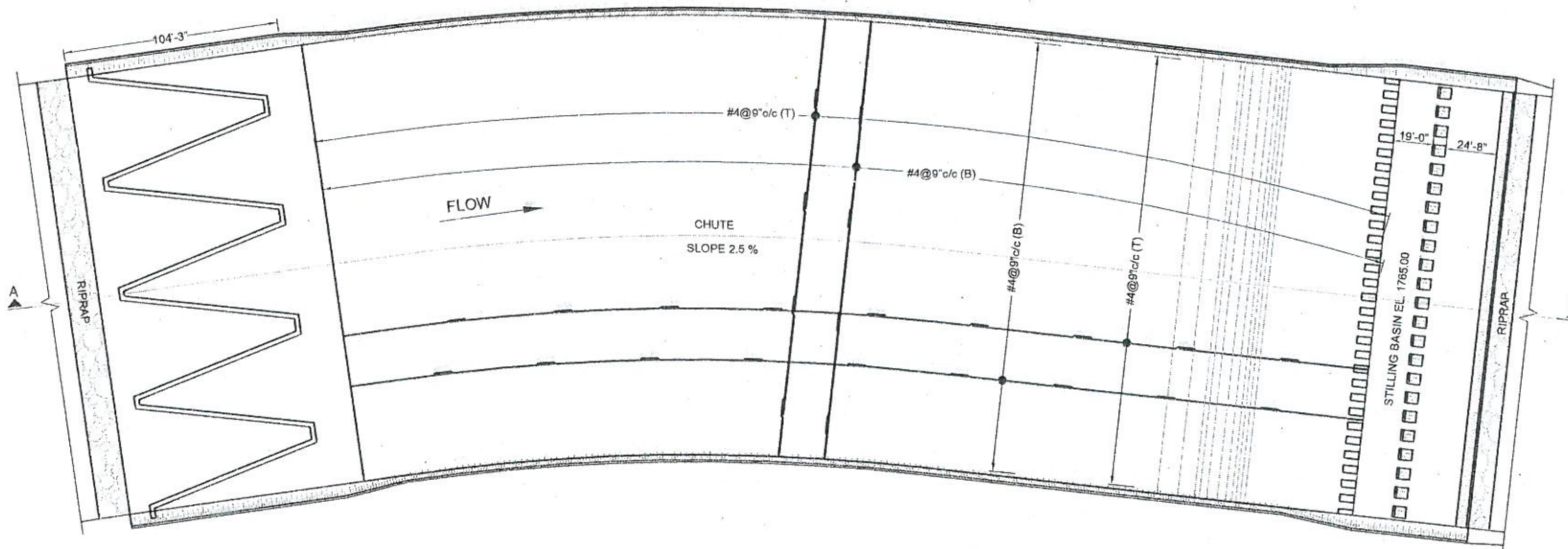
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## NOTES

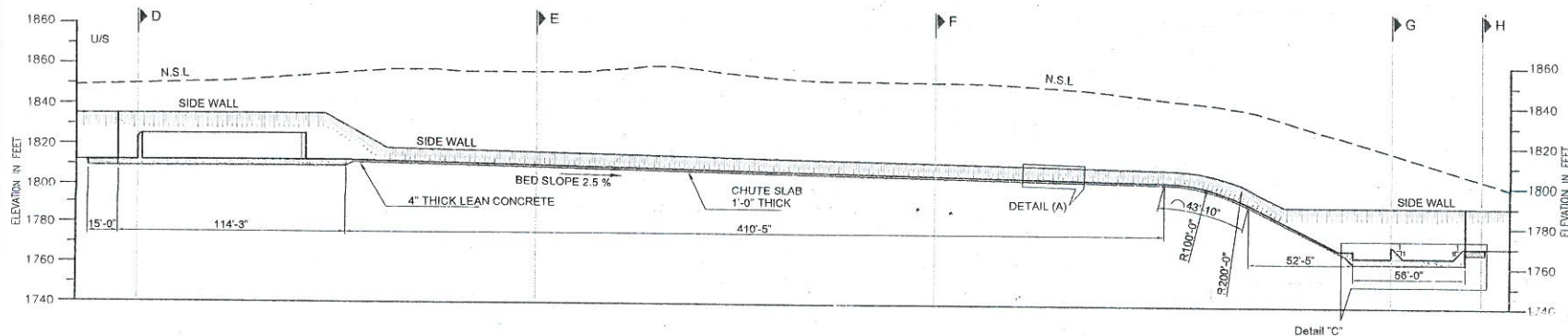
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

## REFERENCES

1. FOR GENERAL LAYOUT PLAN SEE DWG. NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTION SEE DWG. NO. 6.3 & 6.5 TO 6.7
4. FOR LABYRINTH PLAN & SECTION DWG. NO. 6.4



SPILLWAY PLAN



SECTION A-A



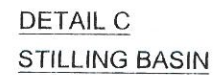
DETAIL (A)  
CHUTE SLAB

0 60 120 FEET

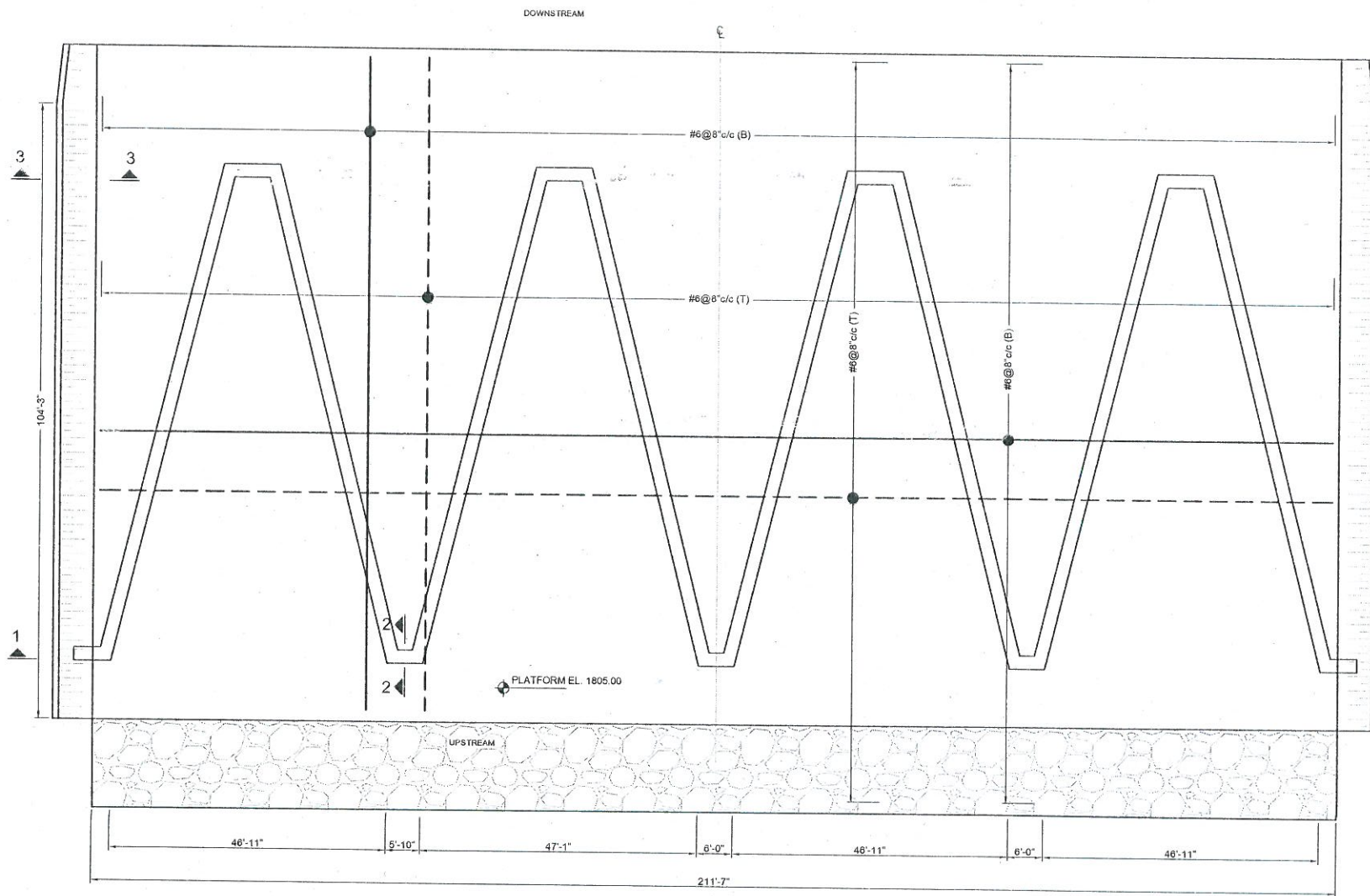
| S.NO                                                                                              | DATE                 | DESCRIPTIONS | CHECK     |
|---------------------------------------------------------------------------------------------------|----------------------|--------------|-----------|
| DIRECTORATE GENERAL SMALL DAMS IRRIGATION<br>DEPARTMENT KHYBER PAKHTUNKHAWA                       |                      |              |           |
| SMALL DAM PROJECT                                                                                 |                      |              |           |
| SUMARI PAYAN DAM PROJECT<br>SPILLWAY PLAN AND L-SECTION<br>REINFORCEMENT DETAIL                   |                      |              |           |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>7 - B, COMMERCIAL AREA, PHASE - V,<br>D.H.A, LAHORE. |                      |              |           |
| DESIGNED BY                                                                                       | MOHSIN AHMAD         | DATE         | JUNE 2009 |
| CHECKED BY                                                                                        | SHAHBAZ BUTT         | DRAWING NO.  | 6.2       |
| APPROVED BY                                                                                       | S/MT UL HASSAN NAQVI | REV NO.      | -         |

1. ALL DIMENSIONS AND LEVELS ARE IN FEET

1. FOR GENERAL LAYOUT PLAN SEE DWG. NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTION SEE DWG. NO. 6.5 TO 6.7
4. FOR LABYRINTH PLAN & SECTION DWG. NO. 6.4



|                                                                                                                                                                                          |                                                                              |              |  |  |  |                                       |  |          |  |
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| S.NO.                                                                                                                                                                                    | DATE                                                                         | DESCRIPTIONS |  |  |  |                                       |  | CHECKER  |  |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                           |                                                                              |              |  |  |  |                                       |  |          |  |
| SMALL DAM PROJECT                                                                                                                                                                        |                                                                              |              |  |  |  |                                       |  |          |  |
| SUMARI PAYAN SPILLWAY<br>STILLING BASIN DETAIL                                                                                                                                           |                                                                              |              |  |  |  |                                       |  |          |  |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>18B - Y. COMMERCIAL AREA, PHASE-III,<br>G.H.A. LAHORE |                                                                              |              |  |  |  |                                       |  |          |  |
| DRAWN:<br>DESIGNED:<br>CHECKED:<br>APPROVED:                                                                                                                                             | MOHSIN AHMAD<br>SHAMHAZ BUTT<br>SRIT UL HASSAN NAQVI<br>SRIT UL HASSAN NAQVI |              |  |  |  | DATE: JUNE 2009<br>DRAWING NO.<br>6.3 |  | REV. No. |  |



**REINFORCEMENT PLAN**

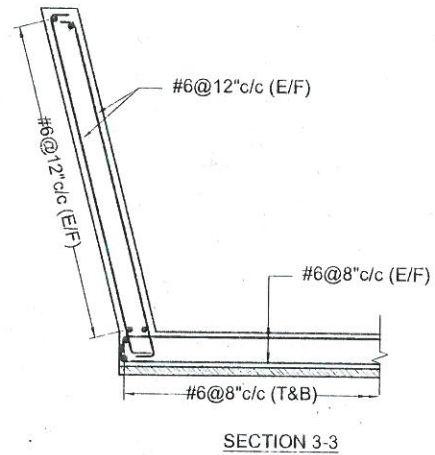
### NOTES

1. ALL DIMENSIONS AND LEVELS ARE IN FEET

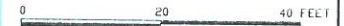
### REFERENCES

1. FOR GENERAL LAYOUT PLAN SEE DWG. NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTIONS SEE DWG. NO. 6.3, 6.5 TO 6.7

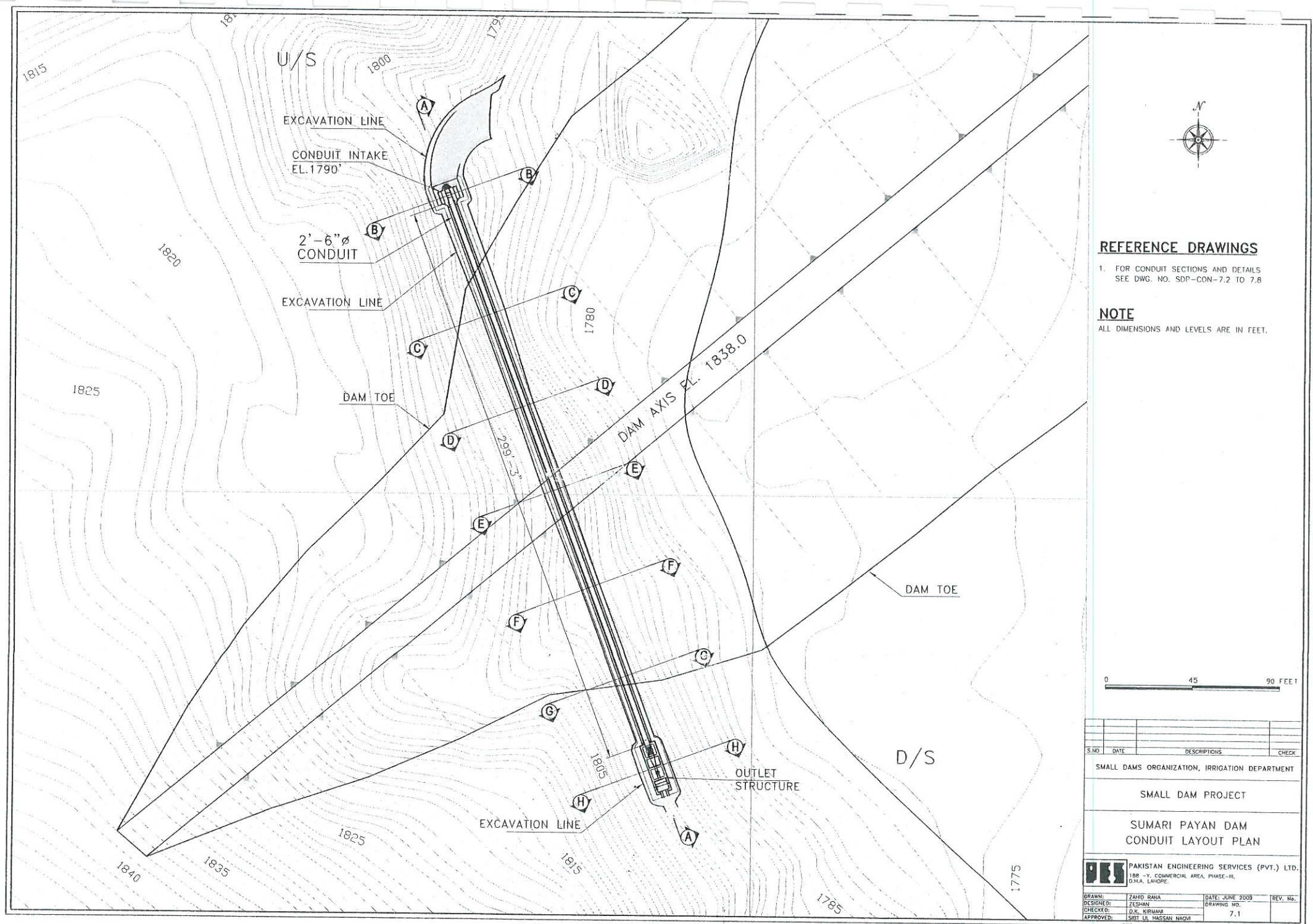
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| NO.                                                                                                                                                                                                | DATE                 | DESCRIPTIONS    | CHECK    |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                     |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                                  |                      |                 |          |
| SUMARI PAYAN SPILLWAY<br>LABYRINTH<br>PLAN REINFORCEMENT                                                                                                                                           |                      |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>188 - Y, COMMERCIAL AREA, PHASE - III,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                             | MOHSIN AHMAD         | DATE: JUNE 2009 | REV. NO. |
| DESIGNED:                                                                                                                                                                                          | SHAHBAZ BUTT         | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                           | SIBT UL HASSAN NAQVI | 6.4             |          |
| APPROVED:                                                                                                                                                                                          | SIBT UL HASSAN NAQVI |                 |          |



1. FOR GENERAL LAYOUT PLAN SEE DWG.  
NO. GEN-01
2. FOR SPILLWAY LAYOUT PLAN SEE DWG. NO. 6.1
3. FOR X-SECTIONS SEE DWG. NO.6.3, 6.5 TO 6.7



|                                                                                                                                                                                                   |      |                      |  |  |  |                        |  |                 |  |
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|                                                                                                                                                                                                   |      |                      |  |  |  |                        |  |                 |  |
|                                                                                                                                                                                                   |      |                      |  |  |  |                        |  |                 |  |
| S.NO.                                                                                                                                                                                             | DATE | DESCRIPTIONS         |  |  |  |                        |  | CHECK           |  |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                    |      |                      |  |  |  |                        |  |                 |  |
| SMALL DAM PROJECT                                                                                                                                                                                 |      |                      |  |  |  |                        |  |                 |  |
| SUMARI PAYAN SPILLWAY<br>LABYRINTH<br>SECTION REINFORCEMENT                                                                                                                                       |      |                      |  |  |  |                        |  |                 |  |
|  <b>PAKISTAN ENGINEERING SERVICES (P.V.I.) LTD.</b><br>1BB - Y, COMMERCIAL AREA, PHASE-III,<br>D.I.A. LAHORE |      |                      |  |  |  |                        |  |                 |  |
| <b>DRAWN:</b>                                                                                                                                                                                     |      |                      |  |  |  | <b>DATE:</b> JUNE 2009 |  | <b>REV. NO.</b> |  |
| <b>DESIGNED:</b>                                                                                                                                                                                  |      | SHAHBAZ BUTT         |  |  |  | <b>DRAWING NO.</b>     |  |                 |  |
| <b>CHECKED:</b>                                                                                                                                                                                   |      | SIBT UL HASSEN NAQVI |  |  |  |                        |  |                 |  |
| <b>APPROVED:</b>                                                                                                                                                                                  |      | SIBT UL HASSEN NAQVI |  |  |  | 6.4                    |  |                 |  |



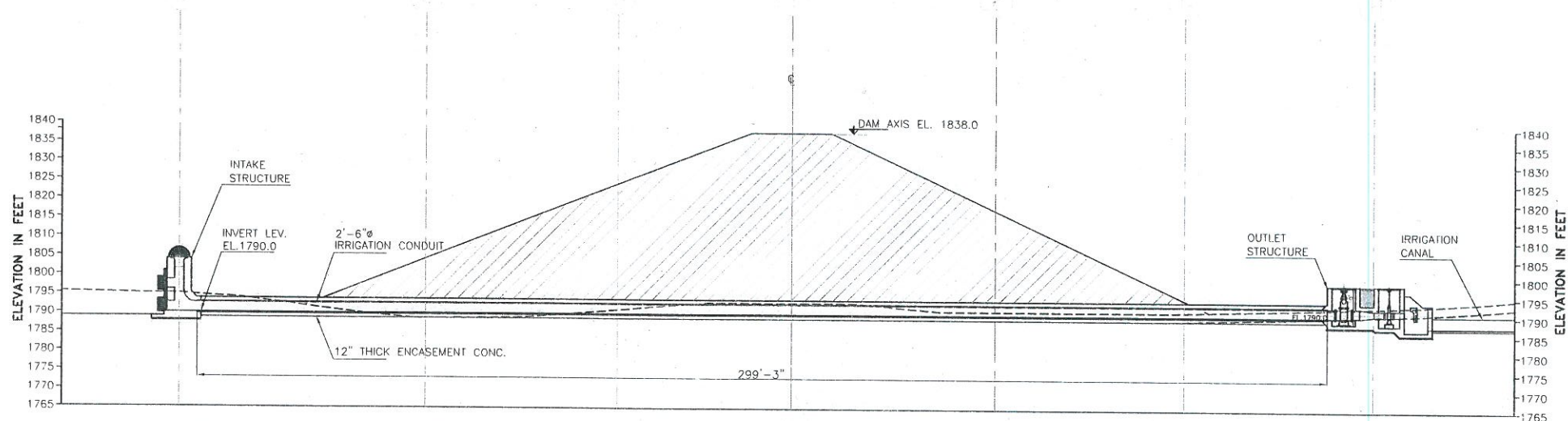
# **REFERENCE DRAWINGS**

1. FOR CONDUIT SECTIONS AND DETAILS  
SEE DWG. NO. SDP-CON-7.2 TO 7.8

## **NOTE**

ALL DIMENSIONS AND LEVELS ARE IN FEET.

| S. NO.                                                                                                                                               | DATE                  | DESCRIPTIONS    | CHECK    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|----------|
|                                                                                                                                                      |                       |                 |          |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                       |                       |                 |          |
| SMALL DAM PROJECT                                                                                                                                    |                       |                 |          |
| SUMARI PAYAN DAM<br>CONDUIT LAYOUT PLAN                                                                                                              |                       |                 |          |
| <div> <div> </div> <div> <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br/> 188 - Y. COMMERCIAL AREA, PHASE-II,<br/> D.I.A. LAHORE. </div> </div> |                       |                 |          |
| DRAWN:                                                                                                                                               | ZAHID RANA            | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                            | ZESHAN                | DRAWING NO.     |          |
| CHECKED:                                                                                                                                             | S.K. KHAN             | 7.1             |          |
| APPROVED:                                                                                                                                            | SHEIKH UL HASAN NAQVI |                 |          |



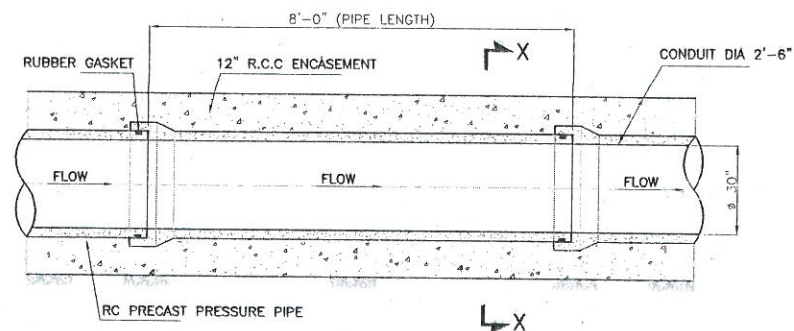
LONGITUDINAL SECTION A-A

## REFERENCE DRAWINGS

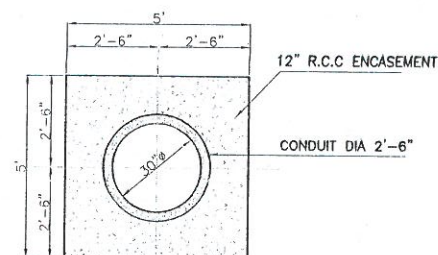
1. FOR CONDUIT LAYOUT PLAN SEE DWG. NO. 7.1
2. FOR X-SECTIONS SEE DWG. NO. 7.3 TO 7.8

## NOTE

1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



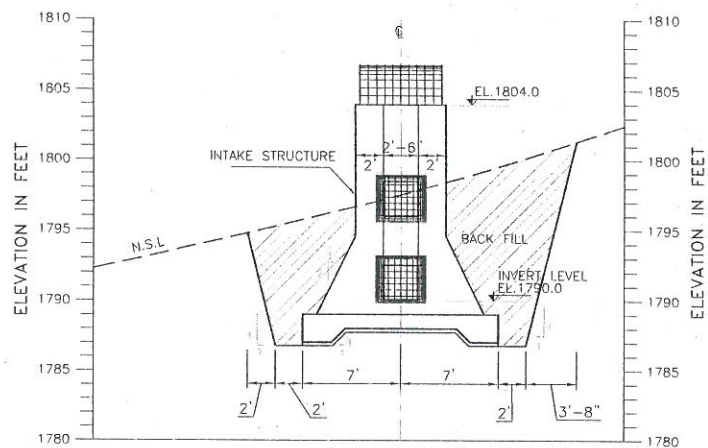
IRRIGATION CONDUIT DETAIL (TYP.)



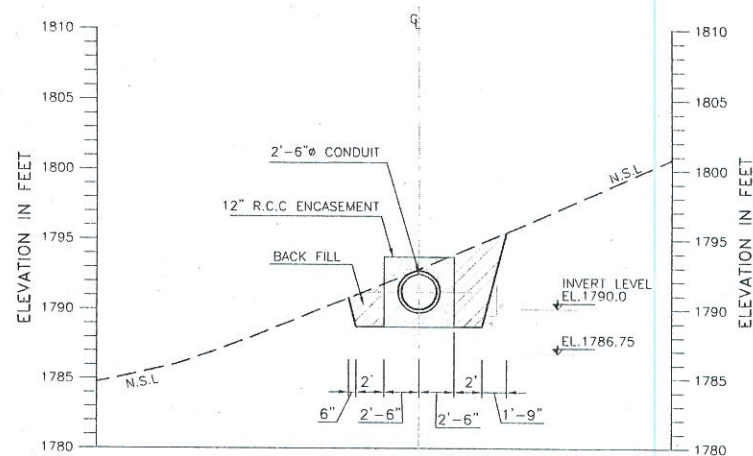
SECTION X-X

0 30 60 FEET

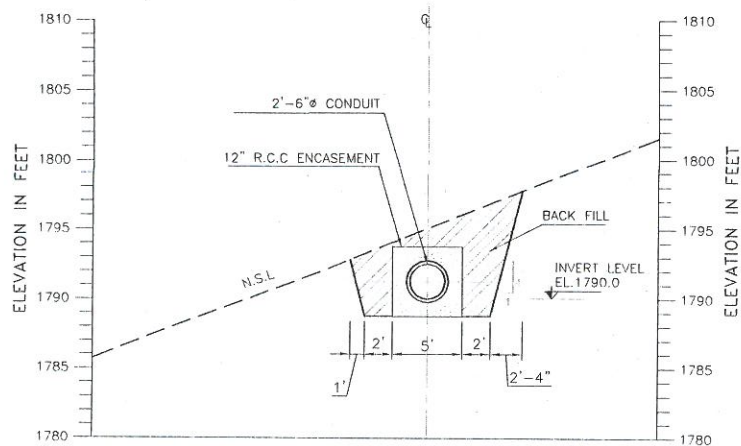
| S.NO.                                                                                                                                                                                       | DATE                | DESCRIPTIONS    | CHECK    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                              |                     |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                           |                     |                 |          |
| SUMARI PAYAN DAM                                                                                                                                                                            |                     |                 |          |
| CONDUIT LONGITUDINAL SECTION                                                                                                                                                                |                     |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>11B - Y. COMMERCIAL AREA, PHASE - III,<br>D.I.K. LAHORE. |                     |                 |          |
| DRAWN:                                                                                                                                                                                      | ZAHID RANA          | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                   | ZELJAN              | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                    | D.K. KHAN           | 7.2             |          |
| APPROVED:                                                                                                                                                                                   | SIBI UL HASAN NAQVI |                 |          |



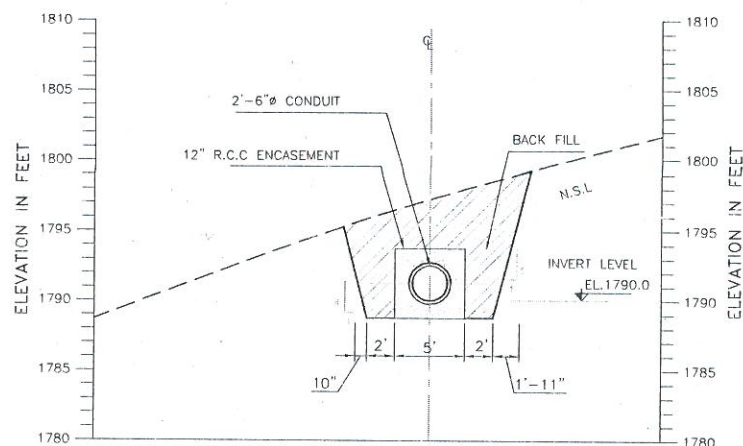
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

### REFERENCE DRAWINGS

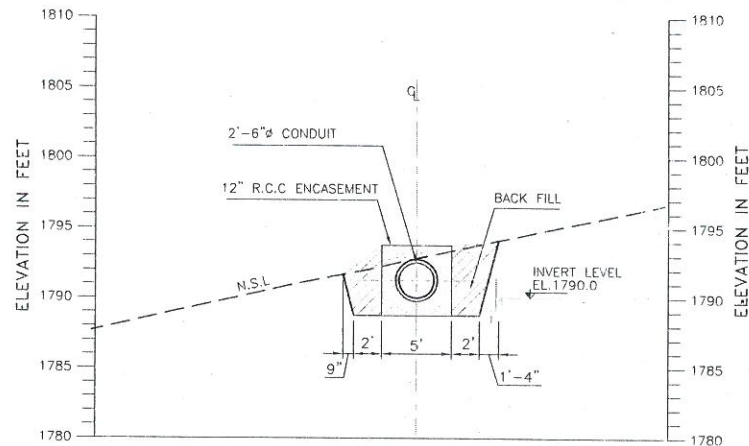
1. FOR CONDUIT LAYOUT PLAN SEE DWG. NO. 7.1
2. FOR SECTIONS SEE DWG. NO. 7.2 & 7.4
3. FOR DETAILS SEE DWG. NO. 7.5 TO 7.8

### NOTE

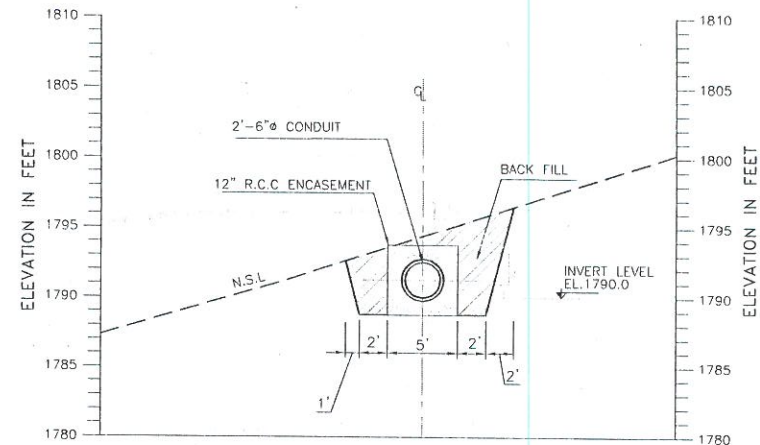
1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



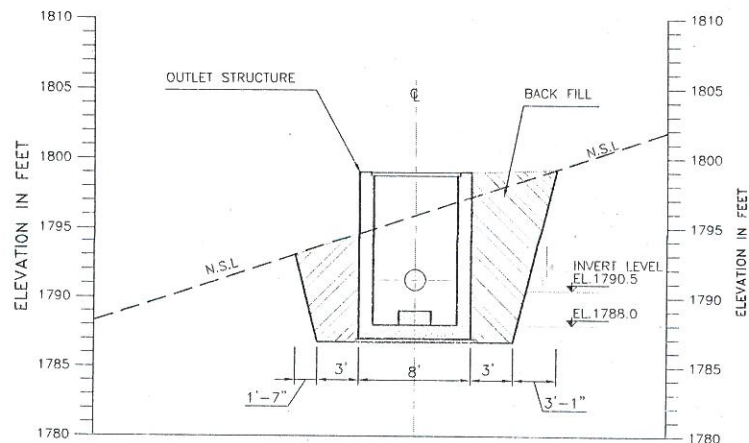
| S.NO.                                                                                                                                                                                              | DATE                 | DESCRIPTIONS    | CHECK    |
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| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                     |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                                  |                      |                 |          |
| SUMARI PAYAN DAM<br>CONDUIT CROSS SECTIONS                                                                                                                                                         |                      |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>185 - Y, COMMERCIAL AREA, PHASE - II,<br>D.I.A., LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                             | ZAHID RANA           | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                          | ZESHAN               | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                           | D.K. KIRMANI         | 7.3             |          |
| APPROVED:                                                                                                                                                                                          | SIBT UL HASSAN NAQVI |                 |          |



SECTION F-F



SECTION G-G



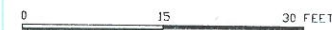
SECTION H-H

### REFERENCE DRAWINGS

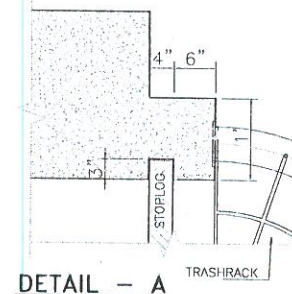
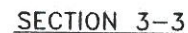
1. FOR CONDUIT LAYOUT PLAN SEE DWG. NO. 7.1
2. FOR SECTION SEE DWG. NO. 7.2 & 7.3
3. FOR DETAILS SEE DWG. NO. 7.5 TO 7.8

### NOTE

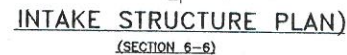
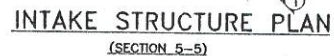
1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



| S.NO.                                                                                                           | DATE                 | DESCRIPTIONS    | CHECK    |
|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                  |                      |                 |          |
| SMALL DAM PROJECT                                                                                               |                      |                 |          |
| SUMARI PAYAN DAM<br>CONDUIT CROSS SECTIONS                                                                      |                      |                 |          |
| <b>PES</b> PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>18B - Y, COMMERCIAL AREA, PHASE - II,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                          | ZAHID RANA           | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                       | ZESQAN               | DRAWING NO.     |          |
| CHECKED:                                                                                                        | D.K. KHURAMI         | 7.4             |          |
| APPROVED:                                                                                                       | SIBT UL HASSAN NAQVI |                 |          |



DETAIL - A

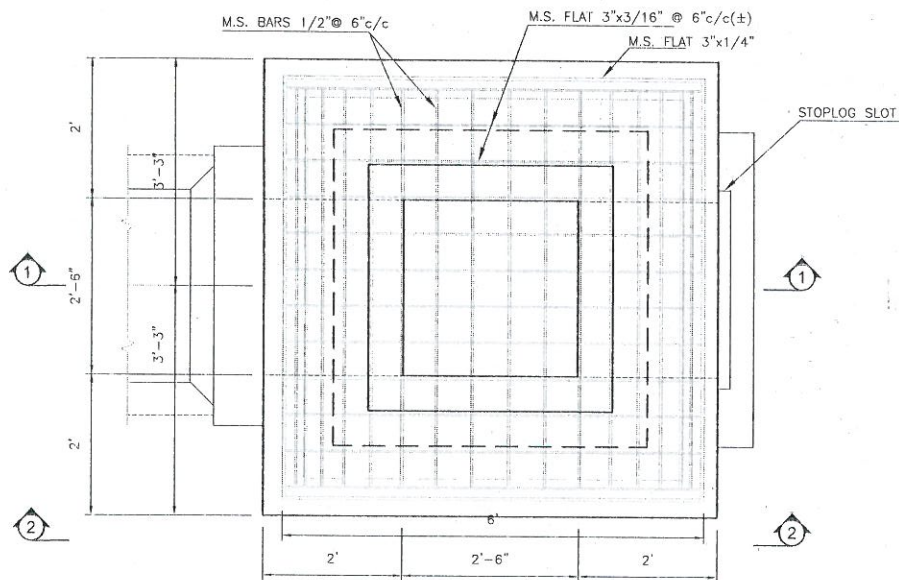


1. FOR CONDUIT LAYOUT PLAN SEE DWG. NO. 7.1
2. FOR SECTIONS SEE DWG. NO. 7.2 TO 7.4

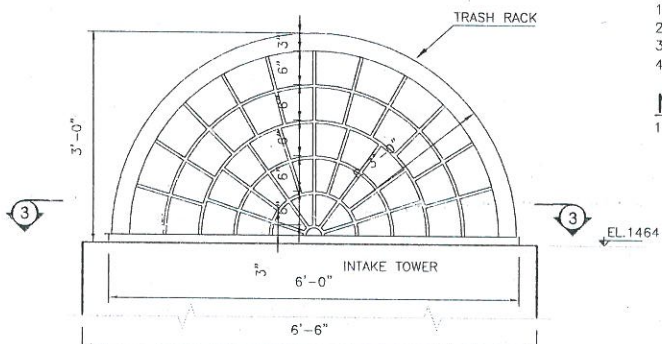
1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



|                                                                                                                                                                                           |                                                              |                               |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|----------|
|                                                                                                                                                                                           |                                                              |                               |          |
|                                                                                                                                                                                           |                                                              |                               |          |
| S.NO.                                                                                                                                                                                     | DATE                                                         | DESCRIPTIONS                  | CHECK    |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                            |                                                              |                               |          |
| SMALL DAM PROJECT                                                                                                                                                                         |                                                              |                               |          |
| SUMARI PAYAN DAM                                                                                                                                                                          |                                                              |                               |          |
| INTAKE STRUCTURE PLAN, SECTIONS<br>AND DETAILS                                                                                                                                            |                                                              |                               |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>1/81 -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE. |                                                              |                               |          |
| DRAWING<br>DESIGNED:<br>CHECKED:<br>APPROVED:                                                                                                                                             | ZAMID RAMA<br>ZUBAIR<br>D.K. KIRMANI<br>SIOT UL HASSAN NAQVI | DATE: JUNE 2009<br>FIGURE NO. | REV. NO. |
|                                                                                                                                                                                           |                                                              | 7.5                           |          |



**TRASHRACK PLAN**  
INLET STRUCTURE AT EL.3000.0



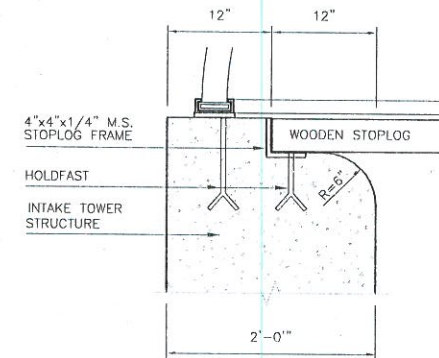
**SECTION 2-2**  
(ELEVATION OF TRASHRACK)

**REFERENCE DRAWINGS**

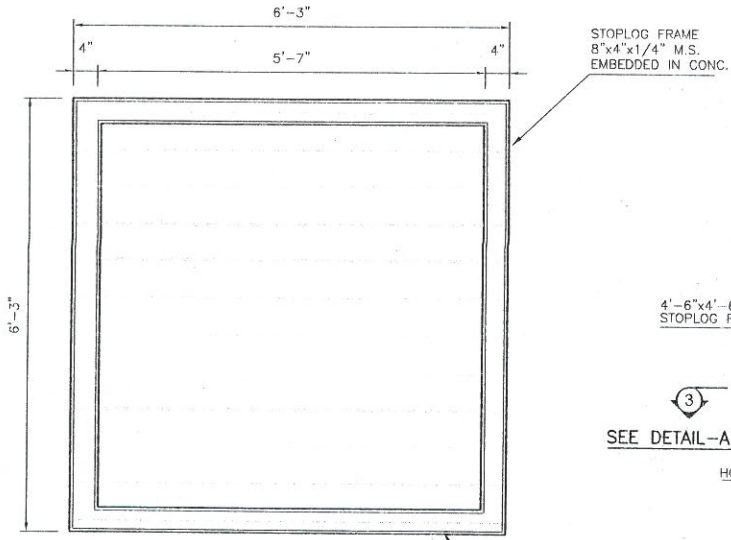
1. FOR CONDUIT PLAN SEE DWG. NO. 7.1
2. FOR L-SECTION SEE DWG. NO. 7.2
3. FOR X-SECTIONS SEE DWG. NO. 7.3 & 7.4
4. FOR INTAKE DETAILS SEE DWG. NO. 7.5

**NOTE**

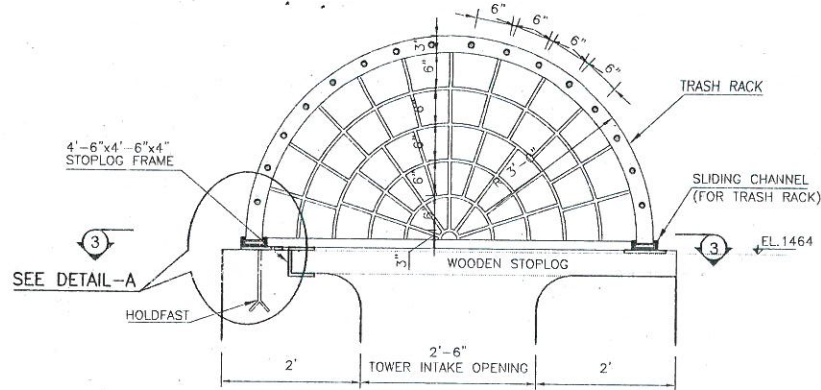
1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



**DETAIL - A**

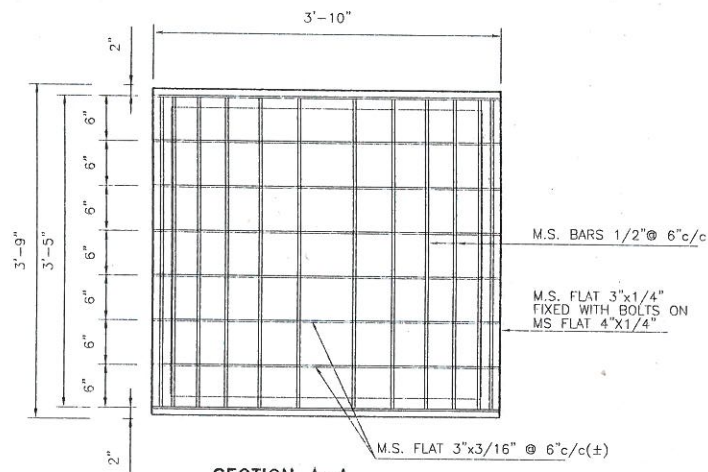


**STOPLOG FRAME 3-3**  
PLAN

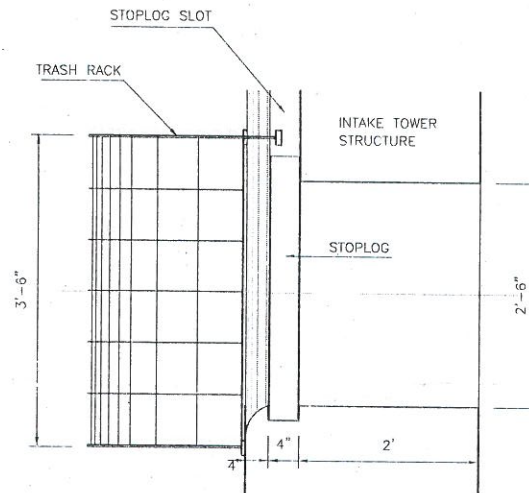


**SECTION 1-1**

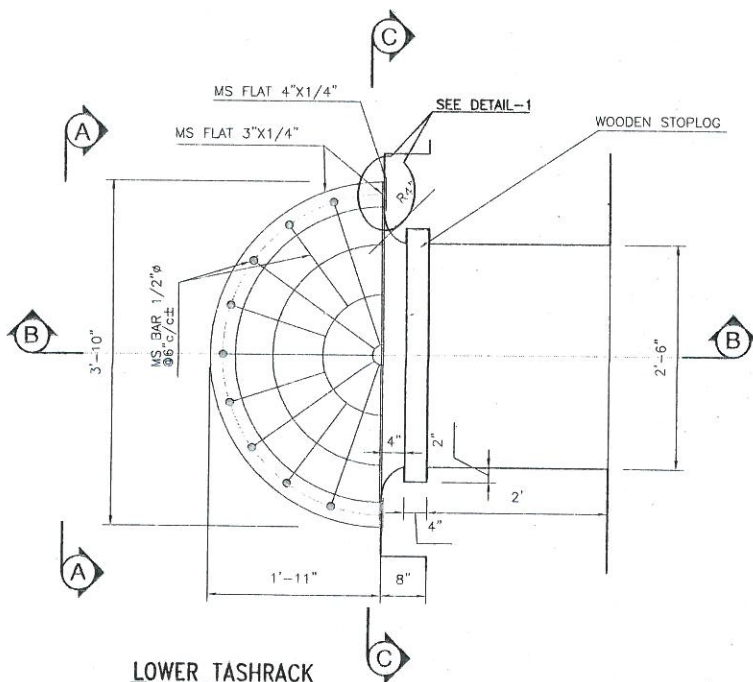
| S.NO.                                                                                                                                                                                     | DATE                | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------|----------|
|                                                                                                                                                                                           |                     |                 |          |
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                            |                     |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                         |                     |                 |          |
| SUMARI PAYAN DAM                                                                                                                                                                          |                     |                 |          |
| IRRIGATION CONDUIT INTAKE                                                                                                                                                                 |                     |                 |          |
| TRASHRACK DETAILS                                                                                                                                                                         |                     |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 - Y, COMMERCIAL AREA, PHASE-II,<br>D.H.A., LAHORE. |                     |                 |          |
| DRAWN:                                                                                                                                                                                    | ZAHID RANA          | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                 | ZAHID RANA          | FIGURE NO.      |          |
| CHECKED:                                                                                                                                                                                  | D.K. KIRMANI        | 7.6             |          |
| APPROVED:                                                                                                                                                                                 | SIBT UL HASAN NAQVI |                 |          |



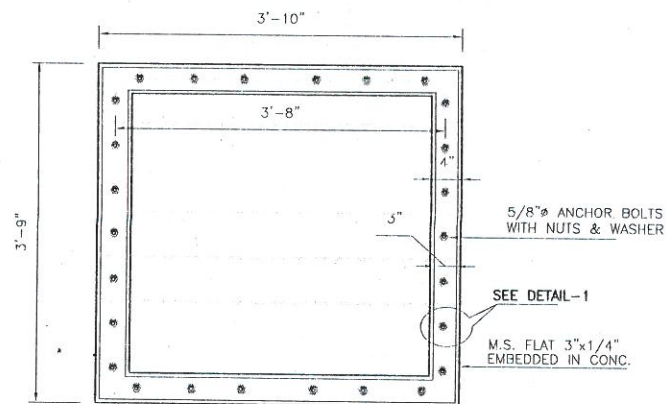
**SECTION A-A**  
LOWER TASHRACK ELEVATION



**SECTION B-B**



**LOWER TASHRACK**  
PLAN



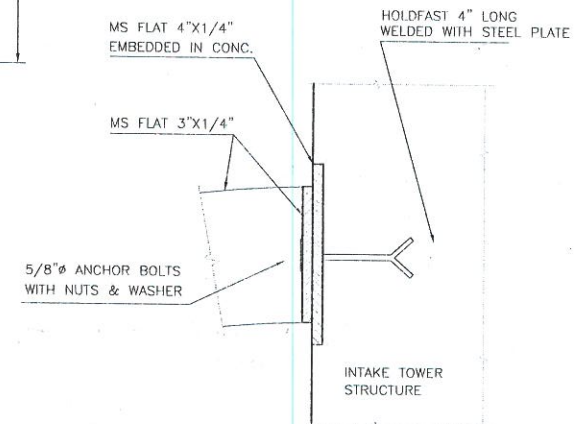
**SECTION C-C**  
LOWER TASHRACK FRAME

# **REFERENCE DRAWINGS**

1. FOR CONDUIT PLAN SEE DWG. NO. 7.1
2. FOR L-SECTION SEE DWG. NO. 7.2
3. FOR X-SECTIONS SEE DWG. NO. 7.3 & 7.4
4. FOR INTAKE DETAILS SEE DWG. NO. 7.5

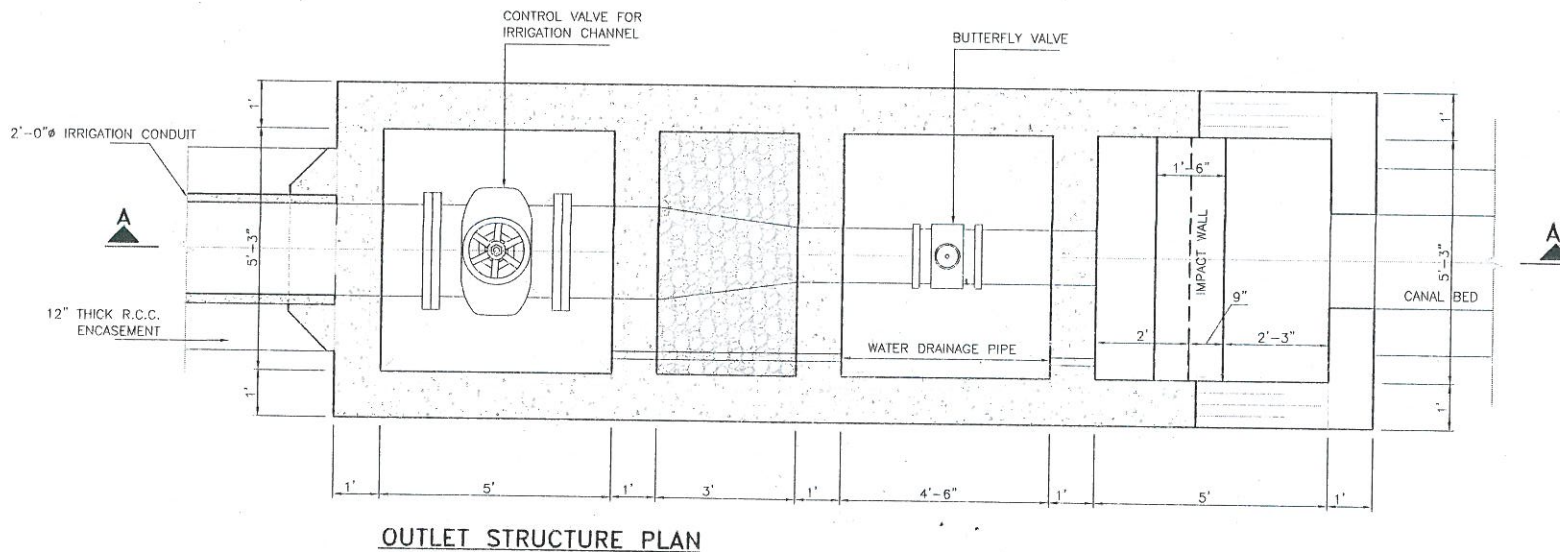
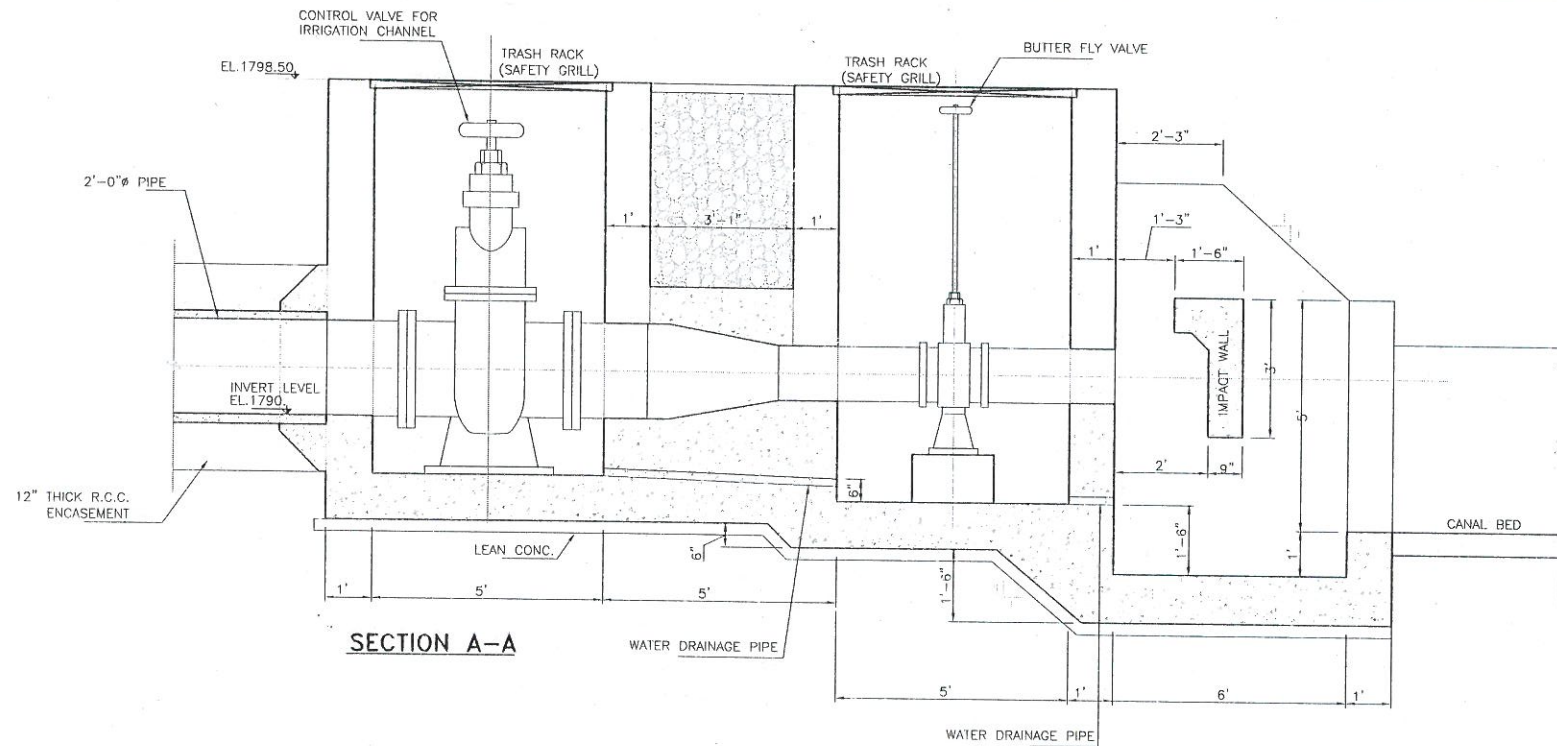
## **NOTE**

1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



**DETAIL - 1**

| S.NO.                                                                                                                                                                                           | DATE                 | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                                                                                                  |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                               |                      |                 |          |
| SUMARI PAYAN DAM<br>TRASHRACK AND STOPLOG DETAILS<br>INTAKE OPENING AT LOWER LEVEL                                                                                                              |                      |                 |          |
|  <b>PAKISTAN ENGINEERING SERVICES (PVT.) LTD.</b><br>18B -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                          | ZAHID RANA           | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                       | ZESHAH               | FIGURE NO.      |          |
| CHECKED:                                                                                                                                                                                        | D.K. KIRMANI         | 7.7             |          |
| APPROVED:                                                                                                                                                                                       | SIBT UL HASSAN NAQVI |                 |          |

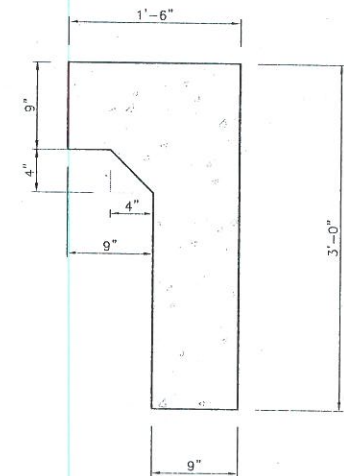


## REFERENCE DRAWINGS

1. FOR CONDUIT PLAN SEE DWG. NO. 7.1
2. FOR L-SECTION SEE DWG. NO. 7.2
3. FOR X-SECTIONS SEE DWG. NO. 7.3 & 7.4

## NOTE

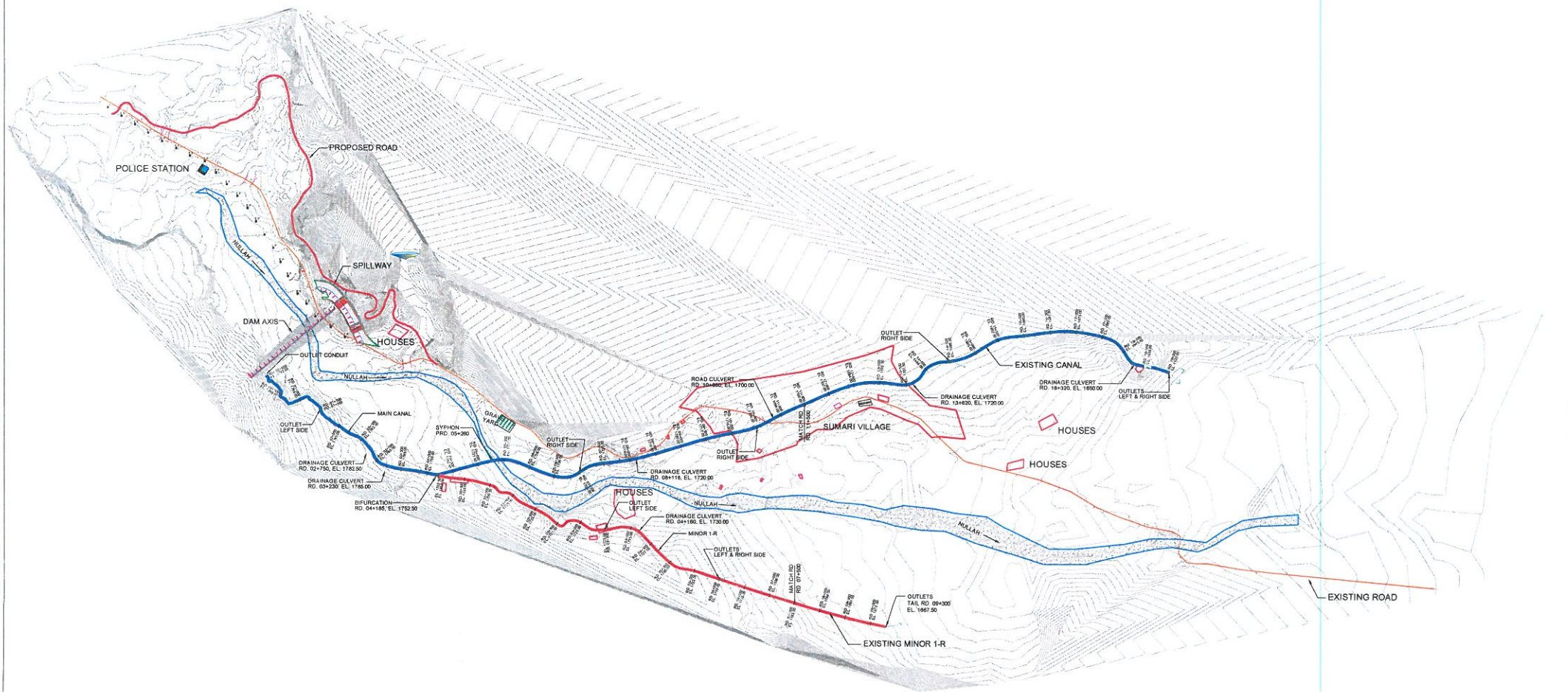
1. ALL DIMENSIONS AND LEVELS ARE IN FEET.



## IMPACT WALL DETAIL

0 3 6 FEET

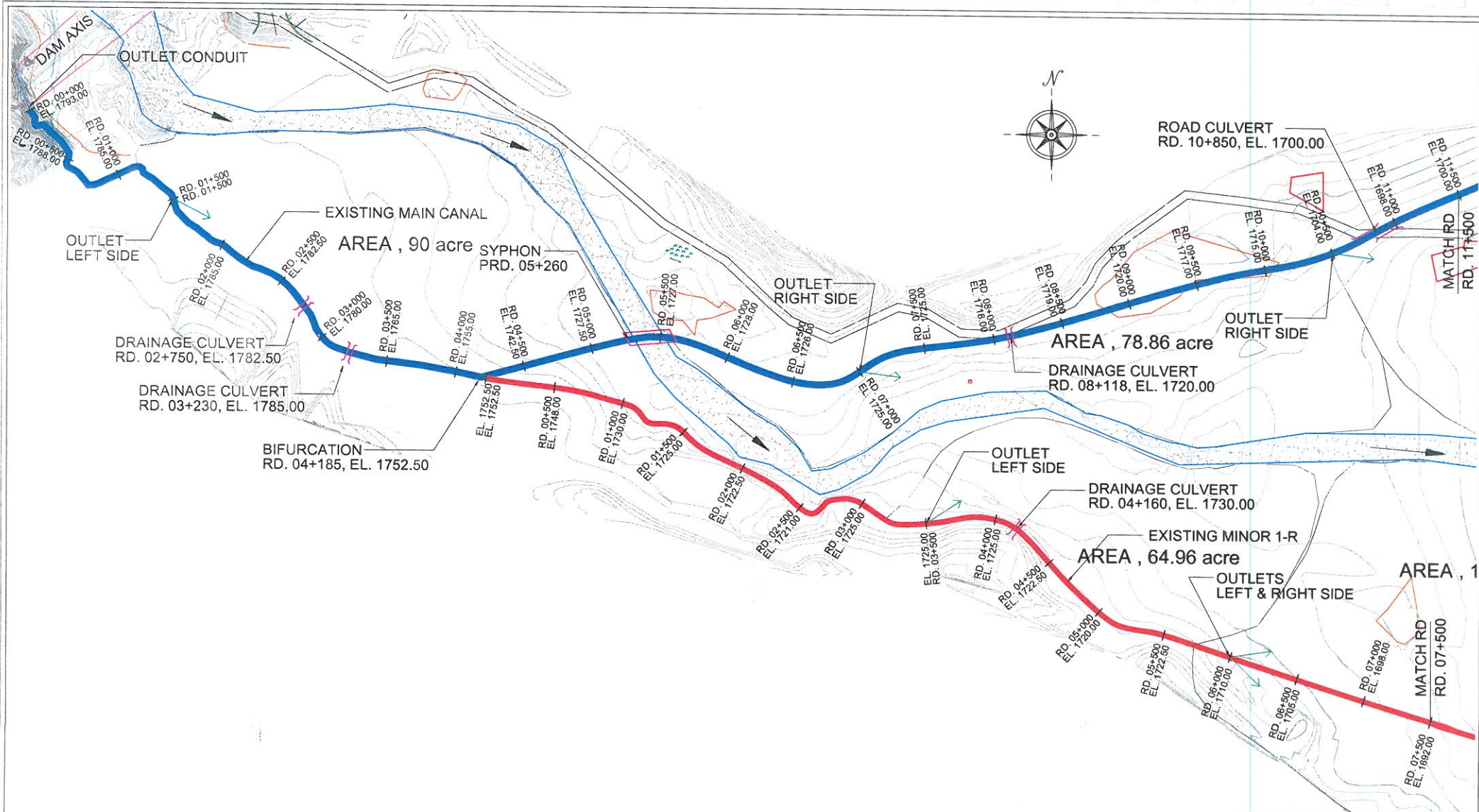
| S.NO.                                                                                                           | DATE                 | DESCRIPTIONS    | CHECK    |
|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION DEPARTMENT                                                                  |                      |                 |          |
| SMALL DAM PROJECT                                                                                               |                      |                 |          |
| SUMARI PAYAN DAM                                                                                                |                      |                 |          |
| IRRIGATION CONDUIT                                                                                              |                      |                 |          |
| OUTLET STRUCTURE & DETAILS                                                                                      |                      |                 |          |
| <b>PESS</b> PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>18B - 4, COMMERCIAL AREA, PHASE-II,<br>D.H.A., LAHORE. |                      |                 |          |
| DRAWN:                                                                                                          | ZAHID RANA           | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                       | ZESHAN               | FIGURE NO.      |          |
| CHECKED:                                                                                                        | D.K. KIRMANI         | 7.8             |          |
| APPROVED:                                                                                                       | SIBT UL HASSAN NAQVI |                 |          |

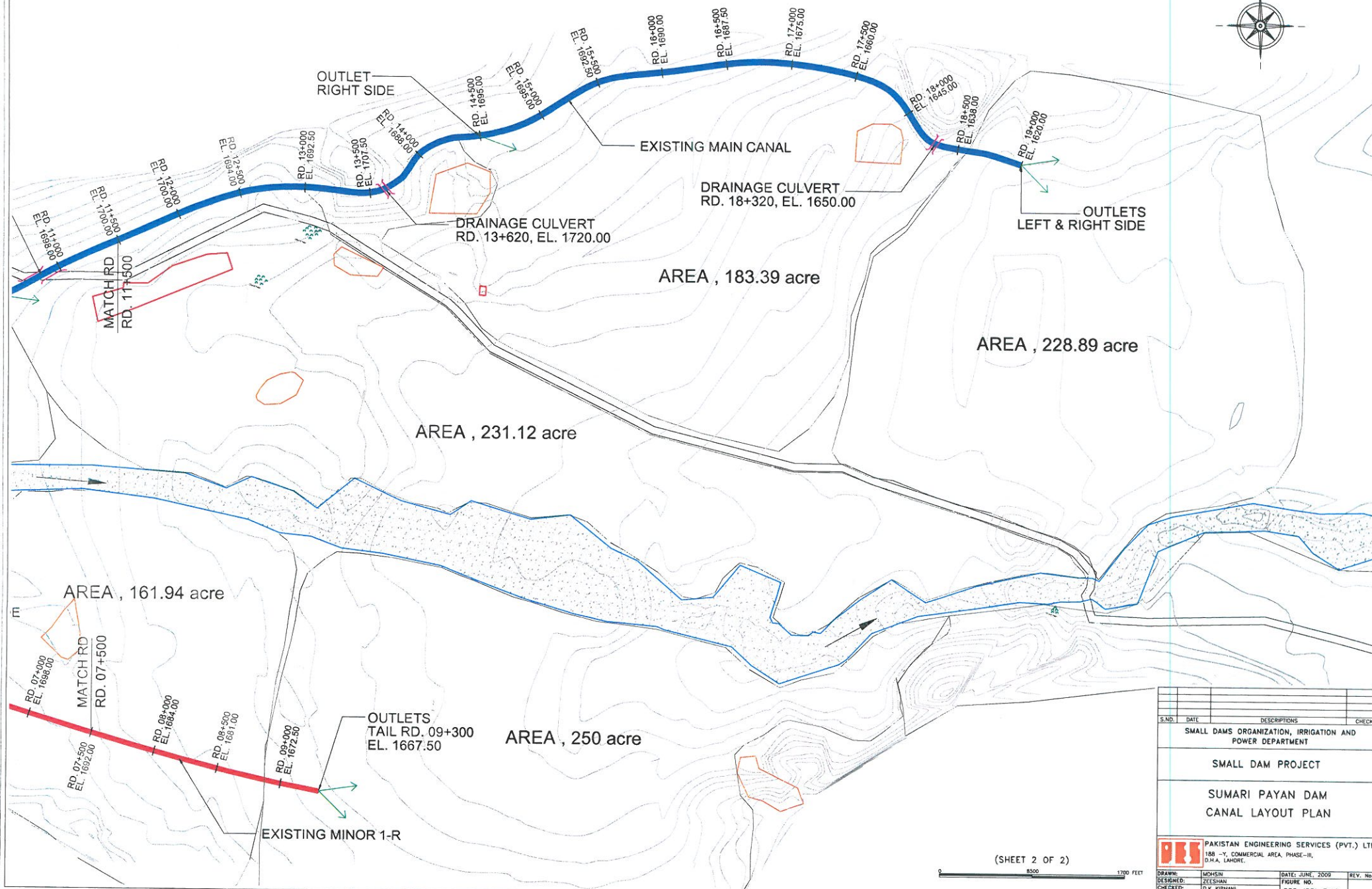


(SHEET 2 OF 2)

0 2000 4000 FEET

| S.NO.                                                    | DATE          | DESCRIPTIONS     | CHECK    |
|----------------------------------------------------------|---------------|------------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION AND POWER DEPARTMENT |               |                  |          |
| SMALL DAM PROJECT                                        |               |                  |          |
| SUMARI PAYAN DAM SURVEY PLAN                             |               |                  |          |
| <div> </div>                                             |               |                  |          |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.                |               |                  |          |
| 18B - Y. COMMERCIAL AREA, PHASE - II, D.H.A. LAHORE.     |               |                  |          |
| DRAWN:                                                   | MOHSIN        | DATE: JUNE, 2009 | REV. No. |
| DESIGNED:                                                | ZEEHAN        | FIGURE NO.       |          |
| CHECKED:                                                 | D.K. KIRMANI  | SPD-S-2.1        |          |
| APPROVED:                                                | SIBTUL HASSAN |                  |          |





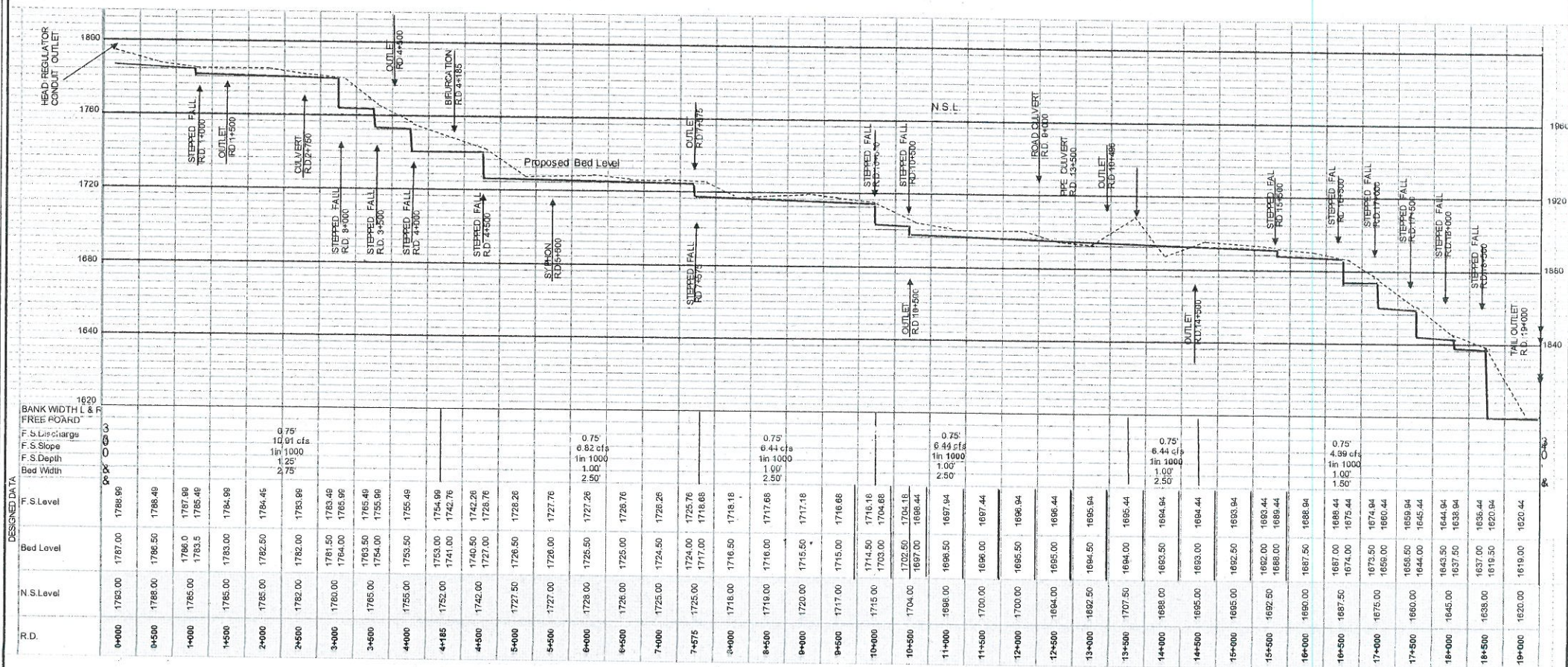
(SHEET 2 OF 2)

0 8500 1700 FEET

| S.NO.                                                                                                         | DATE          | DESCRIPTIONS     | CHECK    |
|---------------------------------------------------------------------------------------------------------------|---------------|------------------|----------|
| SMALL DAMS ORGANIZATION, IRRIGATION AND POWER DEPARTMENT                                                      |               |                  |          |
| SMALL DAM PROJECT                                                                                             |               |                  |          |
| SUMARI PAYAN DAM CANAL LAYOUT PLAN                                                                            |               |                  |          |
| <b>PES</b> PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>188 -Y, COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE. |               |                  |          |
| DRAWN:                                                                                                        | MOHSEN        | DATE: JUNE, 2009 | REV. NO. |
| DESIGNED:                                                                                                     | ZULFIKAR      | FIGURE NO.       |          |
| CHECKED:                                                                                                      | D.K. KIRMANI  | SPD-IRRI-7.10    |          |
| APPROVED:                                                                                                     | SIBTUL HASSAN |                  |          |

# NOTE

1. ALL DIMENSIONS AND LEVELS ARE IN FEET

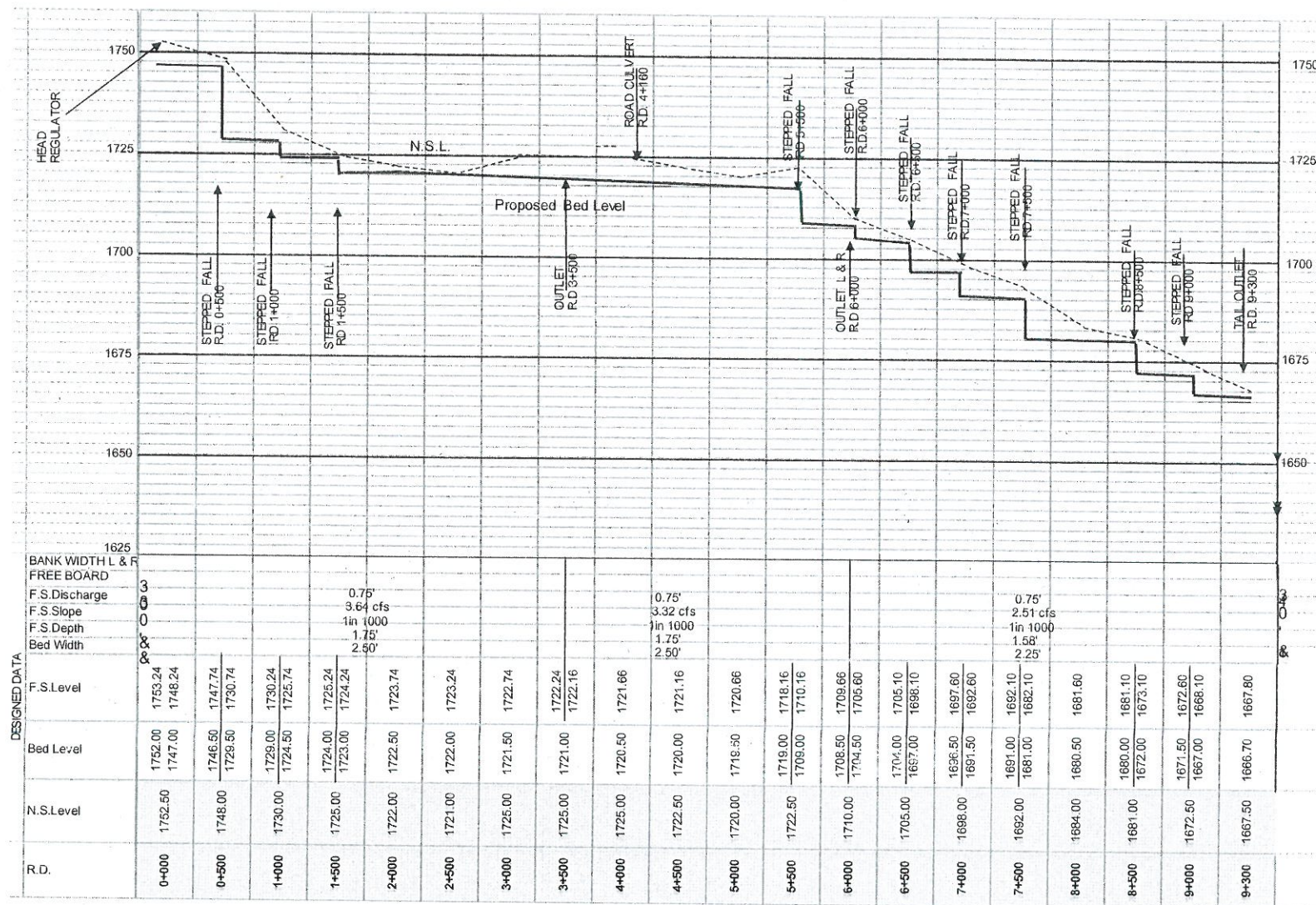


0 70 140 FEET

|                                                                                                   |                      |              |             |
|---------------------------------------------------------------------------------------------------|----------------------|--------------|-------------|
| S.NO.                                                                                             | DATE                 | DESCRIPTIONS | CHECK       |
| DIRECTORATE GENERAL SMALL DAMS IRRIGATION<br>DEPARTMENT KHYBER PAKHTUNKHAWA                       |                      |              |             |
| SMALL DAM PROJECT                                                                                 |                      |              |             |
| SUMARI PAYAN DAM PROJECT<br>IRRIGATION MAIN CANAL<br>L-SECTION                                    |                      |              |             |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>7 - B, COMMERCIAL AREA, PHASE - V,<br>D.H.A, LAHORE. |                      |              |             |
| DESIGNED BY:                                                                                      | MOHSIN AHMAD         | DATE:        | JUNE 2009   |
| CHECKED BY:                                                                                       | SIBT UL HASSAN NAQVI | DRAWING NO:  | SPD-IRR-710 |
| APPROVED BY:                                                                                      | SIBT UL HASSAN NAQVI | REV:         | 10          |

# NOTE

1. ALL DIMENSIONS AND LEVELS ARE IN FEET



0 50 100 FEET

|                                                                                                   |                     |              |              |
|---------------------------------------------------------------------------------------------------|---------------------|--------------|--------------|
| S.NO.                                                                                             | DATE                | DESCRIPTIONS | CHECK        |
| DIRECTORATE GENERAL SMALL DAMS IRRIGATION<br>DEPARTMENT KHYBER PAKHTUNKHAWA                       |                     |              |              |
| SMALL DAM PROJECT                                                                                 |                     |              |              |
| SUMARI PAYAN DAM PROJECT<br>IRRIGATION MINOR CANAL<br>L- SECTION                                  |                     |              |              |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>7 - B, COMMERCIAL AREA, PHASE - V,<br>D.H.A, LAHORE. |                     |              |              |
| DESIGNED BY:                                                                                      | MOHSIN AHMAD        | DATE:        | JUNE 2009    |
| CHECKED BY:                                                                                       | SIBI UL HASSAN NAHM | DRAWING NO:  | SPD-IRR-7 11 |
| APPROVED BY:                                                                                      | SIBI UL HASSAN NAHM | REV NO:      | -            |

# NOTE

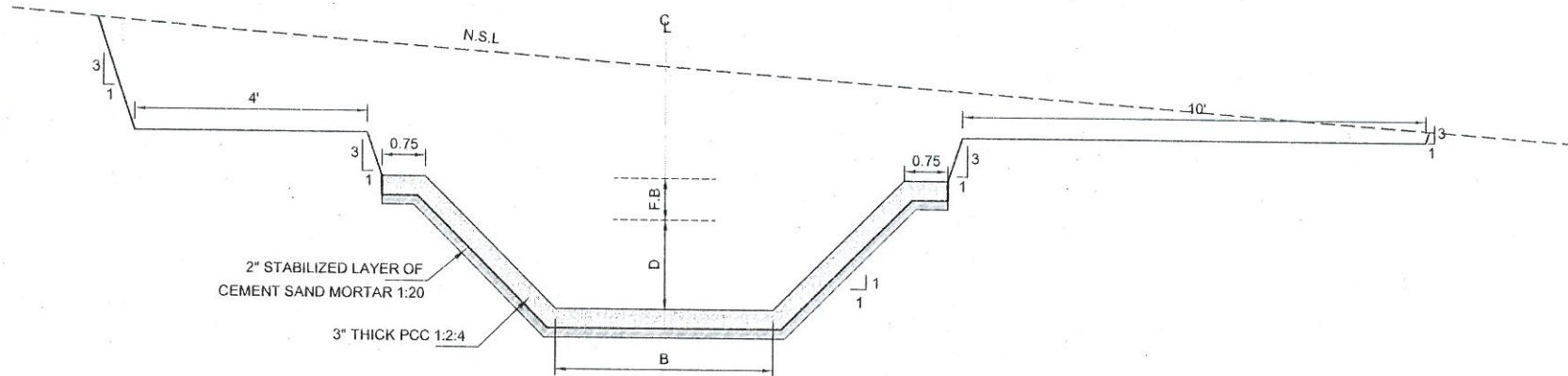
1. ALL DIMENSIONS AND LEVELS ARE IN FEET

## MAIN CANAL SECTION DATA

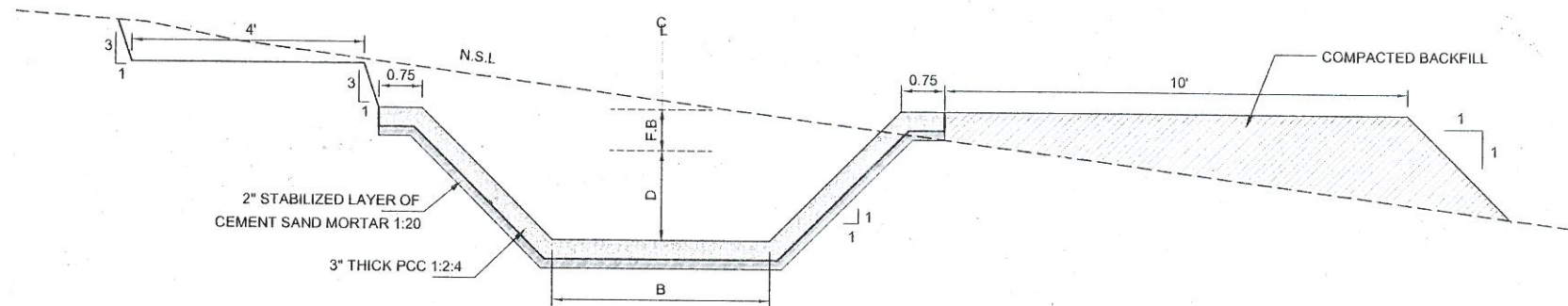
| PCC LINED TRAPEZOIDAL |                   |           |
|-----------------------|-------------------|-----------|
| RDs.                  | BED WIDTH (B)     | DEPTH (D) |
| 0+000-04+185          | 2.75'             | 1.25'     |
| 04+185-07+575         | 2.50'             | 1.00'     |
| 07+575-10+000         | 2.50'             | 1.00'     |
| 10+000-13+500         | 1.50' DIA MS PIPE |           |
| 13+500-14+500         | 2.00'             | 1.00'     |
| 14+500-19+000         | 1.50'             | 1.00'     |

## MINOR CANAL SECTION DATA

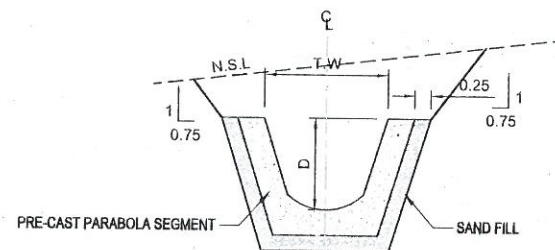
| PRE-CAST PARABOLA SEGMENT |           |           |
|---------------------------|-----------|-----------|
| RDs.                      | TOP WIDTH | DEPTH (D) |
| 0+000-03+500              | 2.50'     | 1.75'     |
| 03+500-06+000             | 2.50'     | 1.75'     |
| 06+000-09+300             | 2.25'     | 1.58'     |



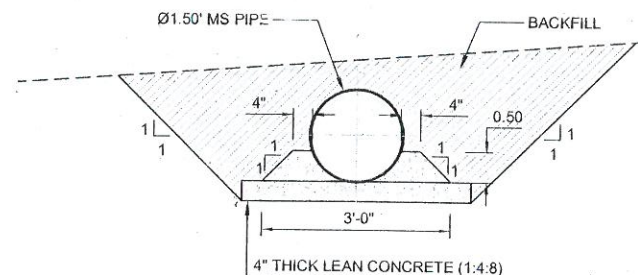
MAIN CANAL TYPICAL CROSS SECTION IN CUT



MAIN CANAL TYPICAL CROSS SECTION IN CUT & FILL

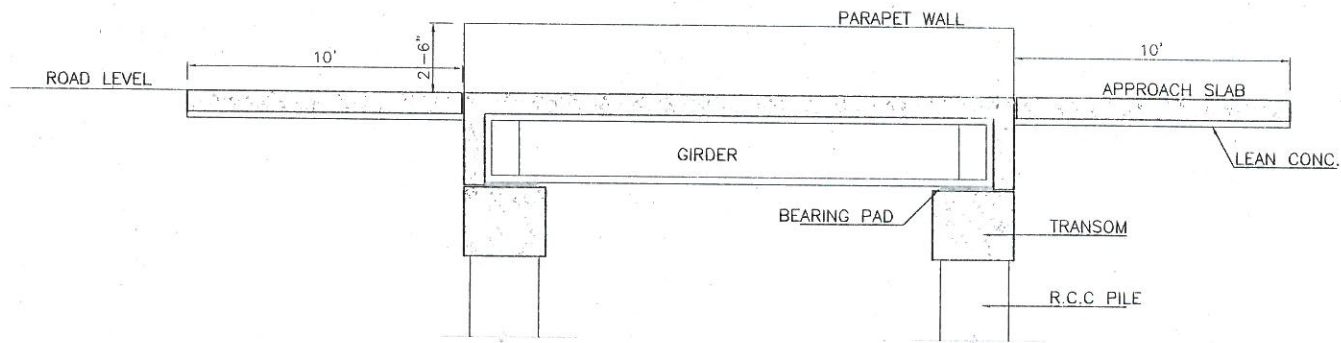


MINOR CANAL TYPICAL CROSS SECTION

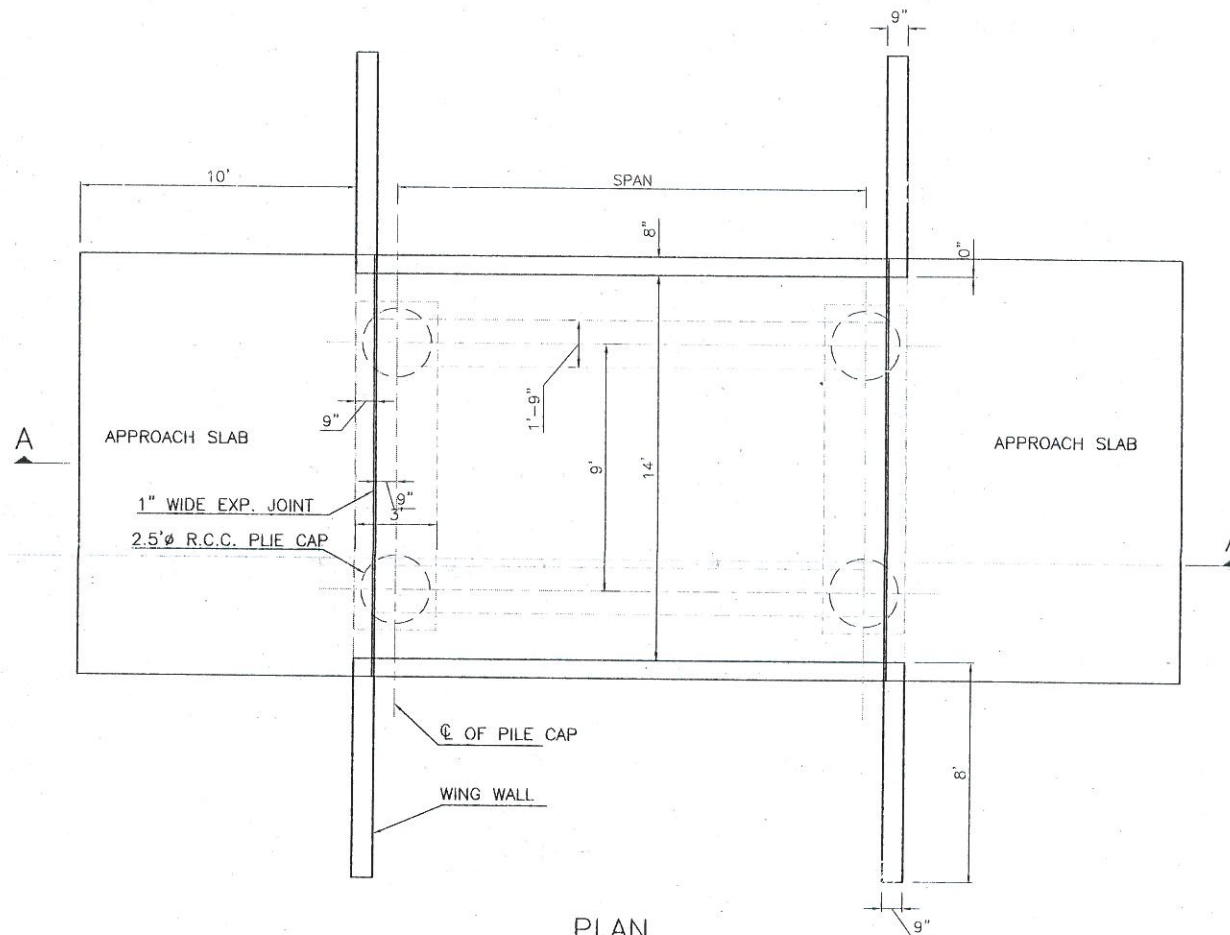


MAIN CANAL PIPE CROSS SECTION

| S.NO.                                                                                             | DATE                 | DESCRIPTIONS | CHECK     |
|---------------------------------------------------------------------------------------------------|----------------------|--------------|-----------|
| DIRECTORATE GENERAL SMALL DAMS IRRIGATION<br>DEPARTMENT KHYBER PAKHTUNKHAWA                       |                      |              |           |
| SMALL DAM PROJECT                                                                                 |                      |              |           |
| SUMARI PAYAN DAM PROJECT<br>IRRIGATION CANAL<br>TYPICAL CROSS SECTIONS                            |                      |              |           |
| PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>7 - B, COMMERCIAL AREA, PHASE - V,<br>D.H.A, LAHORE. |                      |              |           |
| DESIGNED BY:                                                                                      | MOHSIN AHMAD         | DATE:        | JUNE 2009 |
| DRAWN BY:                                                                                         | D.K. KIRMANI         | REV. NO.     |           |
| CHECKED BY:                                                                                       | SIBT UL HASSAN NAQVI | DRAWING NO.  |           |
| APPROVED BY:                                                                                      | SIBT UL HASSAN NAQVI | SPD-IRR-7.12 |           |

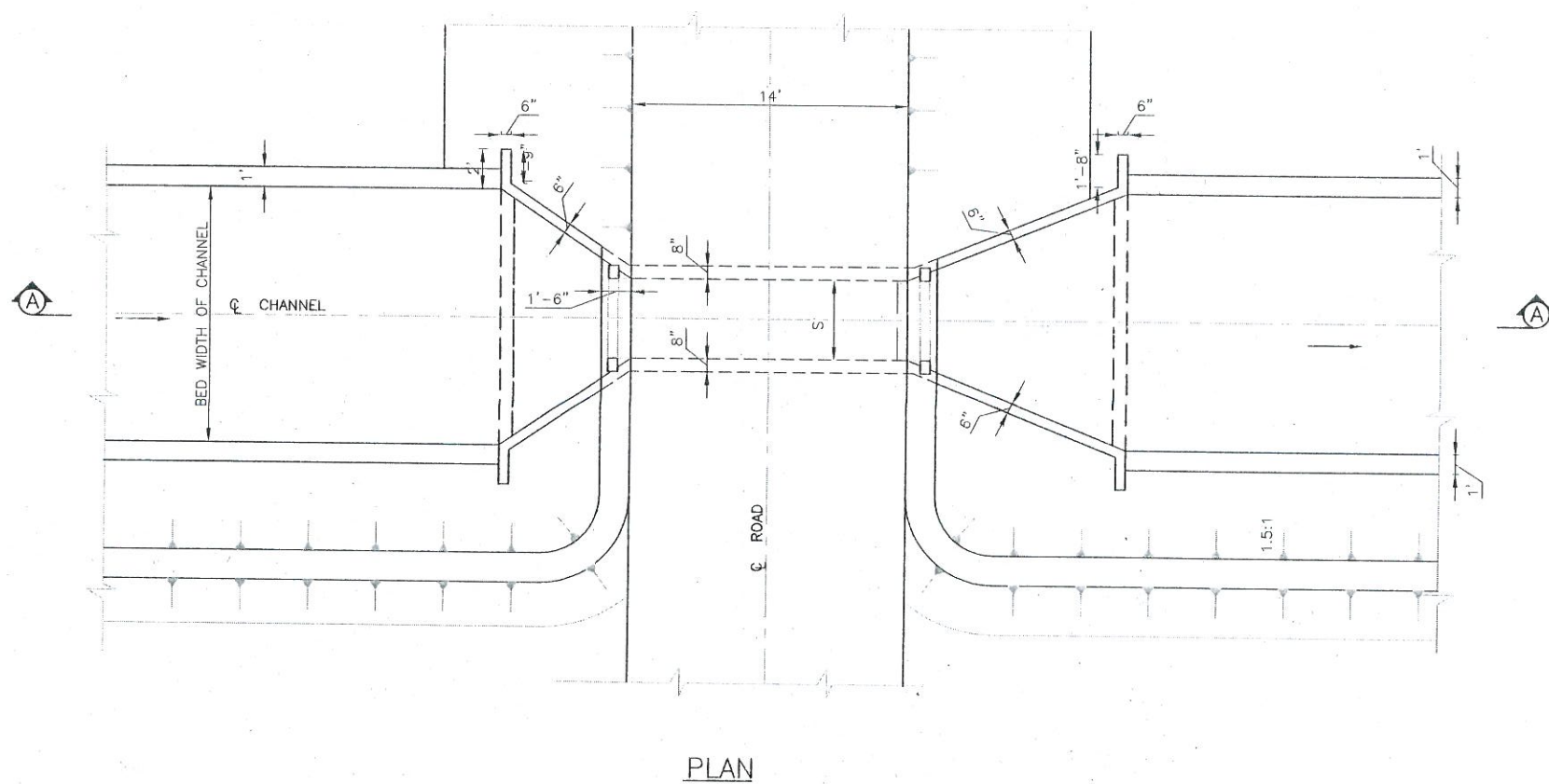
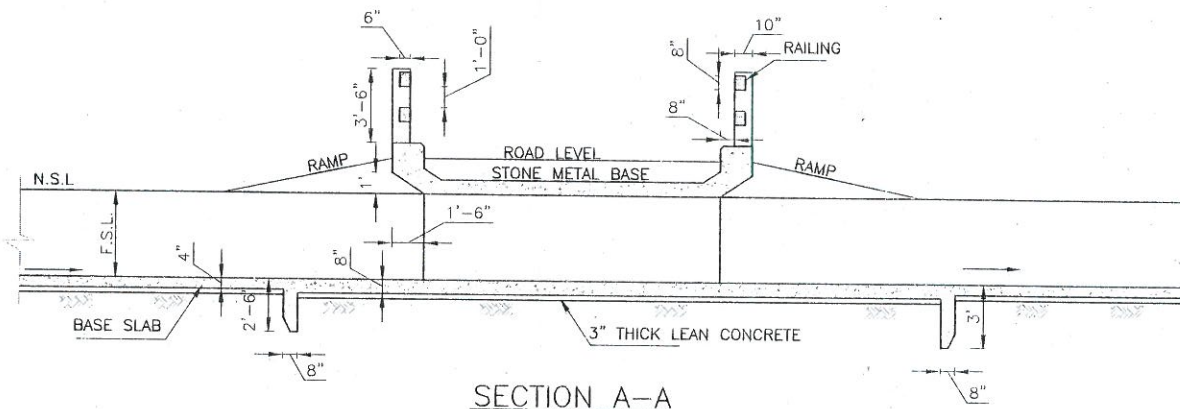


SECTION A-A

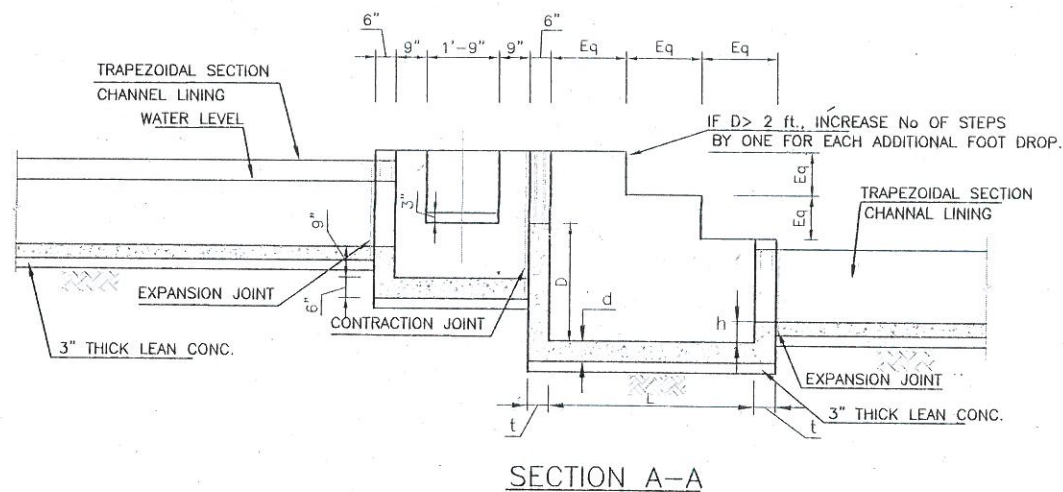
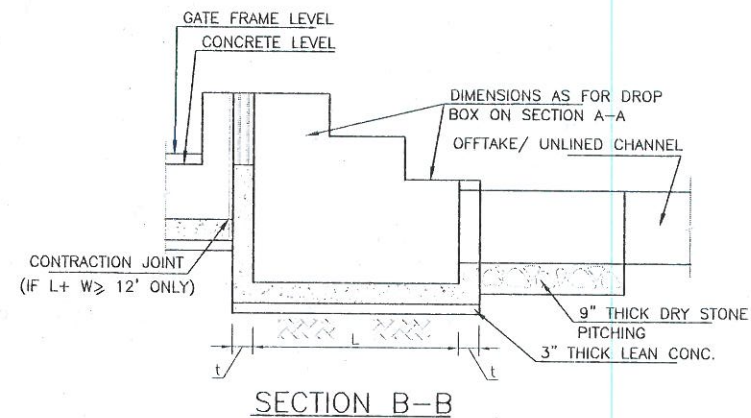


PLAN

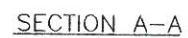
| S.NO.                                                                                                                                                                                       | DATE                 | DESCRIPTIONS    | CHECK    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                                                                                                               |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                           |                      |                 |          |
| V.R BRIDGE<br>PLAN & SECTION (TYP)                                                                                                                                                          |                      |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>168 - Y, COMMERCIAL AREA, PHASE - III,<br>D.H.A. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                      | ZAHID NAZKA          | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                                                                                                   | ANWAR KHAN           | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                    | G.K. KHANANI         |                 |          |
| APPROVED:                                                                                                                                                                                   | SIBT UL HASSAN NAZKI | 7.11            |          |



| S.NO.                                                                                                       | DATE                    | DESCRIPTIONS    | CHECK    |
|-------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|----------|
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                               |                         |                 |          |
| SMALL DAM PROJECT                                                                                           |                         |                 |          |
| ROAD CULVERT (TYP.)                                                                                         |                         |                 |          |
| <b>PES</b> PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>18B -Y, COMMERCE AREA, PHASE-III,<br>D.H.A, LAHORE. |                         |                 |          |
| DRAWN:                                                                                                      | ZAFAR RANA              | DATE: JUNE 2009 | REV. No. |
| DESIGNED:                                                                                                   | ANWAR KHAN              | DRAWING NO.     |          |
| CHECKED:                                                                                                    | D.K. KIRMANI            | 7.12            |          |
| APPROVED:                                                                                                   | SHEET ULLI HASSAN NAQVI |                 |          |

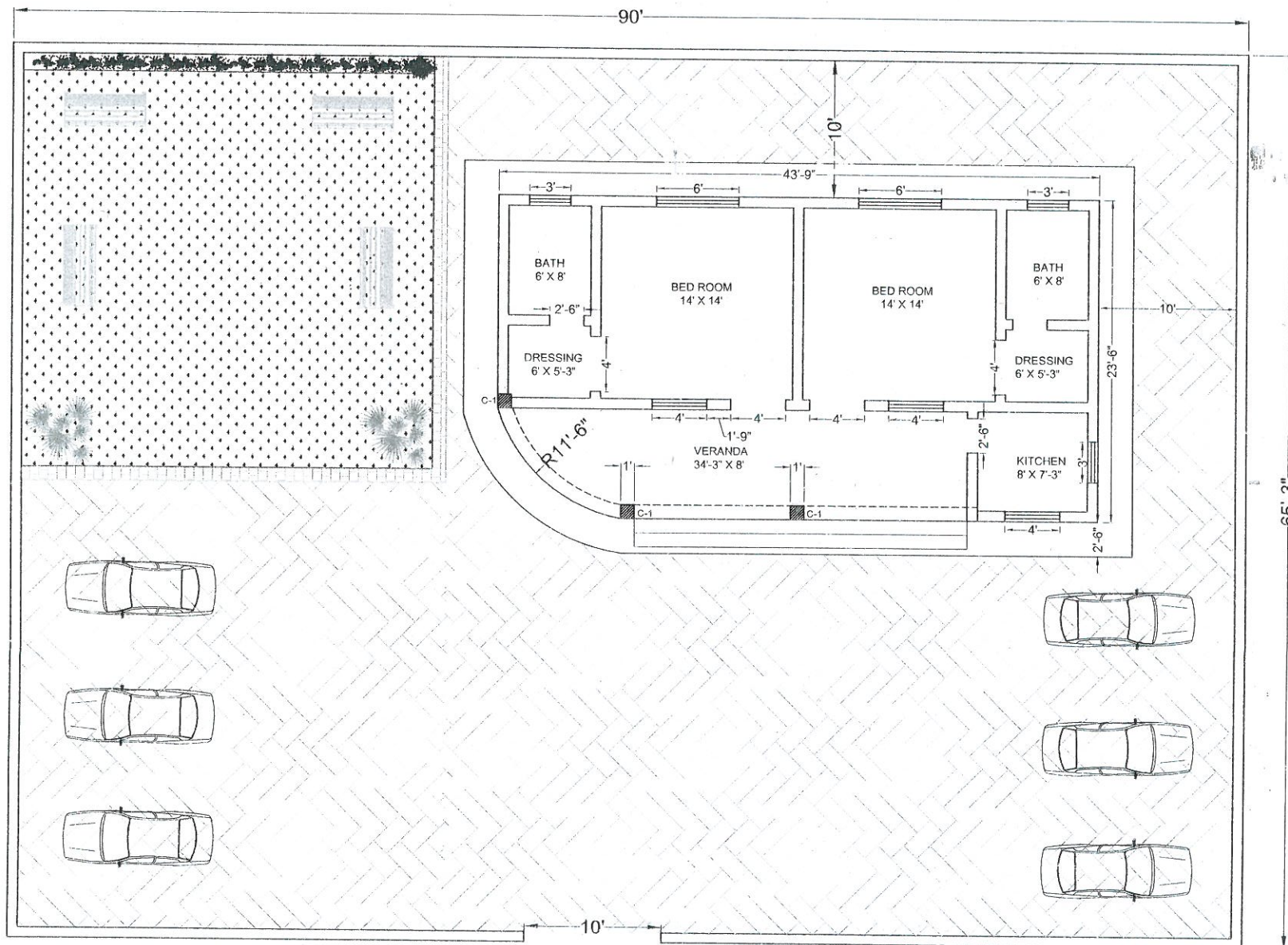


|                                                                                       |                                               |                                |          |         |  |
|---------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------|----------|---------|--|
|                                                                                       |                                               |                                |          |         |  |
| S.NO.                                                                                 | DATE                                          | DESCRIPTIONS                   |          | CHECKED |  |
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                         |                                               |                                |          |         |  |
| SMALL DAM PROJECT                                                                     |                                               |                                |          |         |  |
| OUTLET (TYPICAL)                                                                      |                                               |                                |          |         |  |
|  |                                               |                                |          |         |  |
| 15B - Y. COMMERCIAL AREA, PHASE-III,<br>D.H.A. LAHORE.                                |                                               |                                |          |         |  |
| DRAWN:<br>DESIGNED:<br>CHECKED:                                                       | M.NAEEM MIRHAS<br>ANWAR KHANI<br>D.K. KIRMANI | DATE: JUNE 2009<br>DRAWING NO. | REV. NO. |         |  |
| APPROVED:                                                                             | RASHID UL HASAN NAQVI                         | 7.13                           |          |         |  |



|                                                                                                                                                                                         |                      |                 |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------|
|                                                                                                                                                                                         |                      |                 |          |
|                                                                                                                                                                                         |                      |                 |          |
|                                                                                                                                                                                         |                      |                 |          |
| S.NO.                                                                                                                                                                                   | DATE                 | DESCRIPTIONS    | CHIEF    |
| SMALL DAMS ORGANIZATION IRRIGATION DEPARTMENT                                                                                                                                           |                      |                 |          |
| SMALL DAM PROJECT                                                                                                                                                                       |                      |                 |          |
| AQUEDUCT                                                                                                                                                                                |                      |                 |          |
| PLAN AND SECTION (TYPICAL)                                                                                                                                                              |                      |                 |          |
|  PAKISTAN ENGINEERING SERVICES (PVS) LTD.<br>188 -Y, COMMERCIAL AREA, PHASE-III,<br>D.I.H. LAHORE. |                      |                 |          |
| DRAWN:                                                                                                                                                                                  | ZAHID NAKA           | DATE: JUNE 2008 | REV. NO. |
| DESIGNED:                                                                                                                                                                               | ANWAR KOSAN          | DRAWING NO.     |          |
| CHECKED:                                                                                                                                                                                | D.K. KIRMANI         |                 |          |
| APPROVED:                                                                                                                                                                               | SIBT UL HASSAN NAQVI | 7.14            |          |

NOTE:-  
1:- ALL LEVEL AND DIMENSIONS ARE IN FEET



| S.NO.                                                                                                                                                                                   | DATE        | DESCRIPTION | CHECK    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------|
| DIRECTORATE GENERAL SMALL DAMS IRRIGATION<br>DEPARTMENT KHYBER PAKHTUNKHAWA                                                                                                             |             |             |          |
| SMALL DAM PROJECT                                                                                                                                                                       |             |             |          |
| SUMARI PAYAN DAM PROJECT<br>CHOWKIDA, HUT<br>PLAN                                                                                                                                       |             |             |          |
|  PAKISTAN ENGINEERING SERVICES (PVT.) LTD.<br>7 - B, COMMERCIAL AREA, PHASE - V,<br>D.H.A, LAHORE. |             |             |          |
| DRAWN BY:                                                                                                                                                                               | FAHMOOD ALI | DATE:       | REV. No. |
| CHECKED BY:                                                                                                                                                                             | ADNAN MAJID | DRAWING NO: |          |
| APPROVED BY:                                                                                                                                                                            | ASHTAG ALI  | SPD-CH-12   |          |