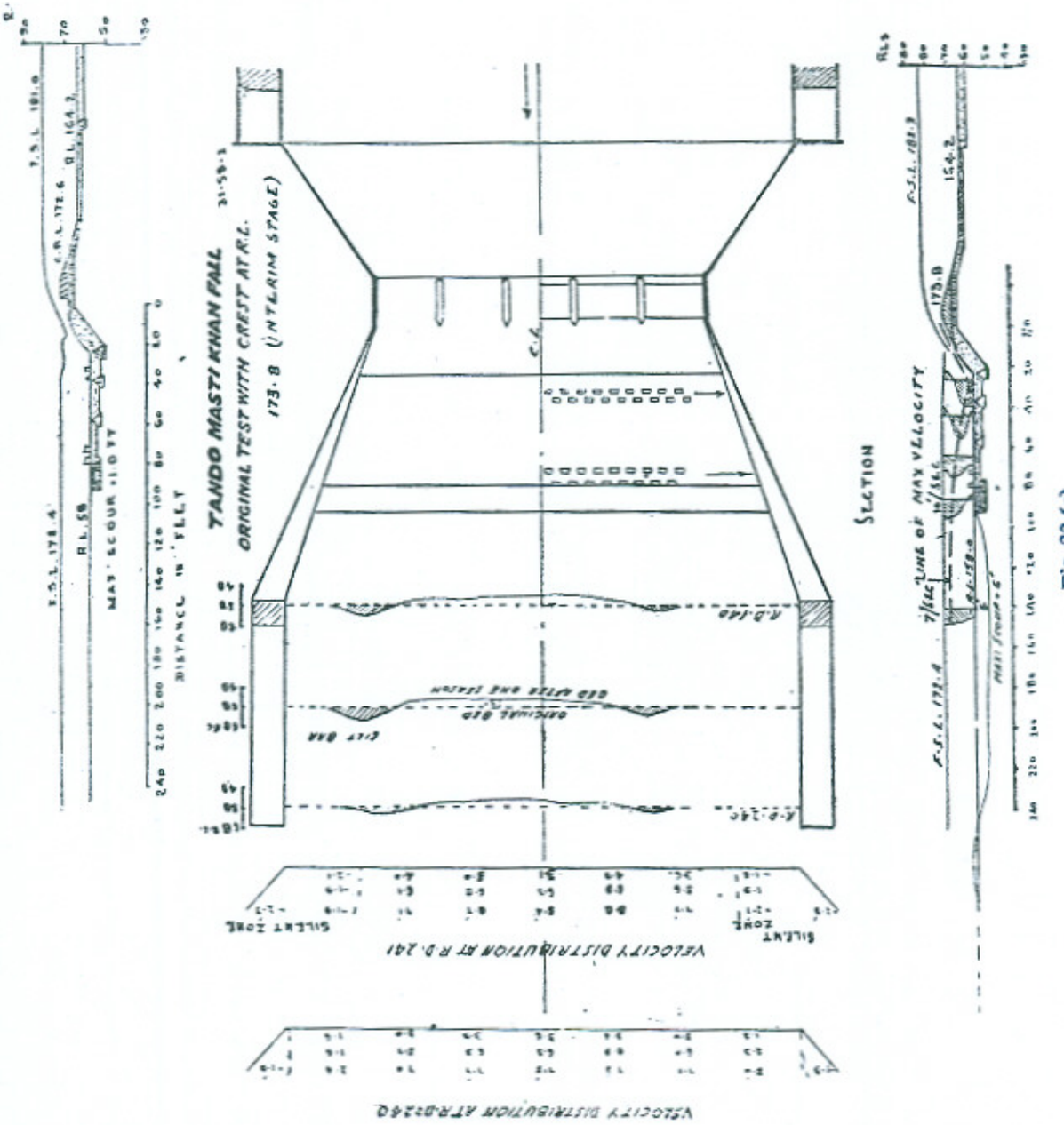

TANDO MASTI KHAN FALL
ORIGINAL TEST WITH CREST AT R.L.
173·8 (INTERIM STAGE)
SECTION
VELOCITY DISTRIBUTION AT R.D. 240
VELOCITY DISTRIBUTION AT R.D. 241
SILENT ZONE
DISTANCE IN FEET
MAX. SCOUR 11·0 FT

Fig. 22 (a)

MODEL OF TANDO MASTI KHAN FALL
Original Conditions

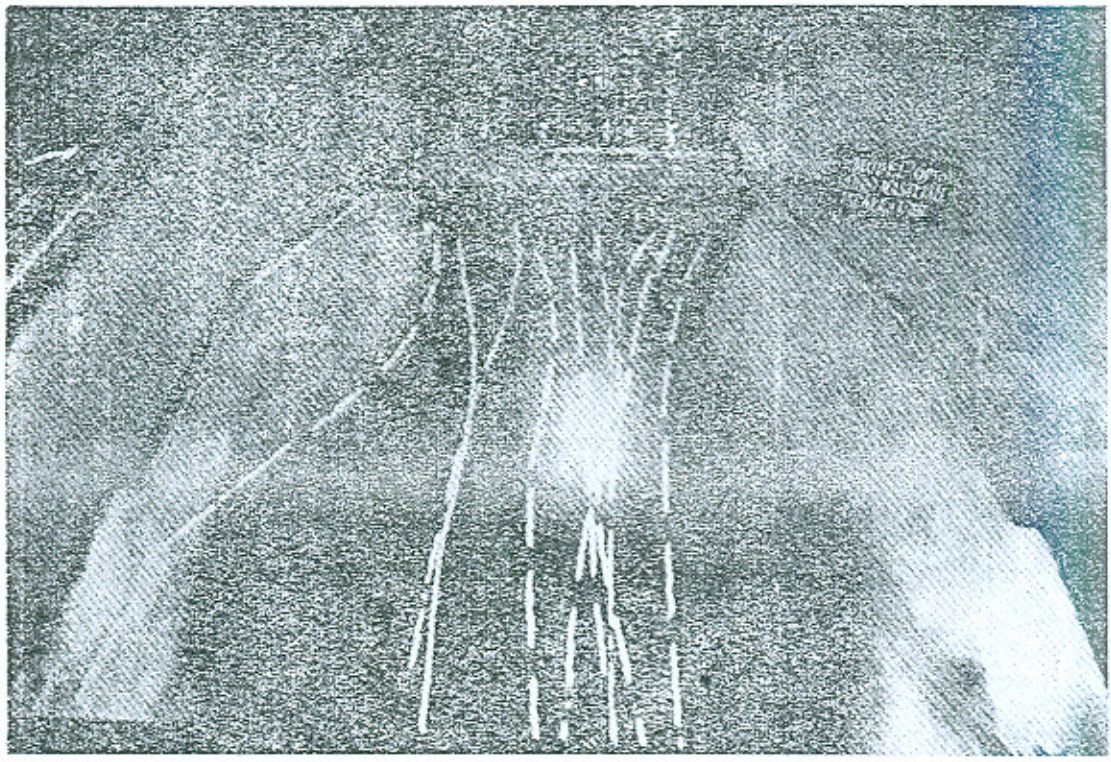


Fig No. 22-*b*—Flow condition at full supply discharge heavy concentration in centre, and dead pockets along sides

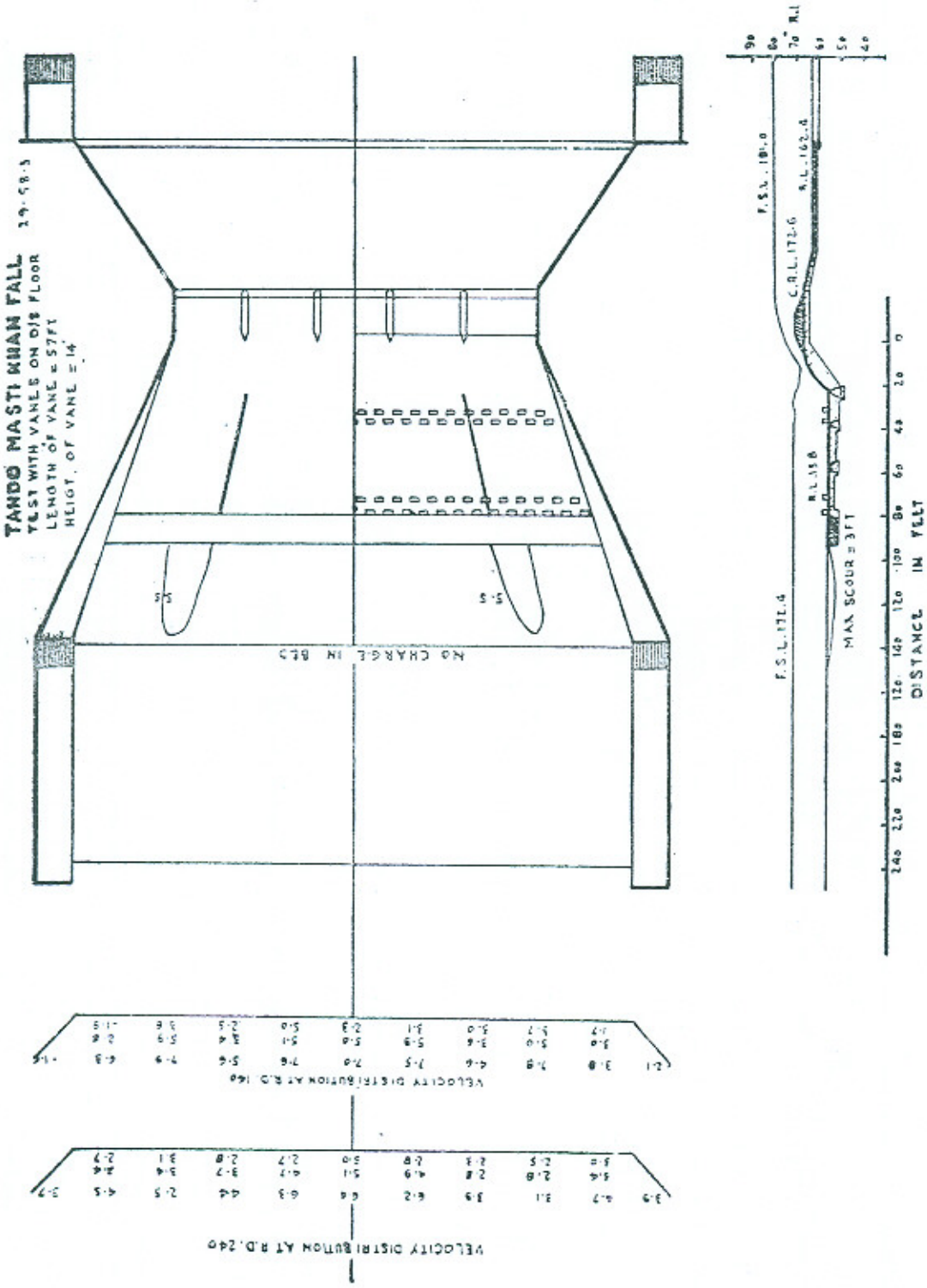

TANDO MASTI KHAN FALL
TEST WITH VANES ON D/S FLOOR
LENGTH OF VANE = 57FT
HEIGT. OF VANE = 14'
No CHARGE IN BED
VELOCITY DISTRIBUTION AT R.D. 240
VELOCITY DISTRIBUTION AT R.D. 144
F.S.L. 171.4
MAX SCOUR = 3FT
DISTANCE IN FEET

Fig. 23 (*a*)

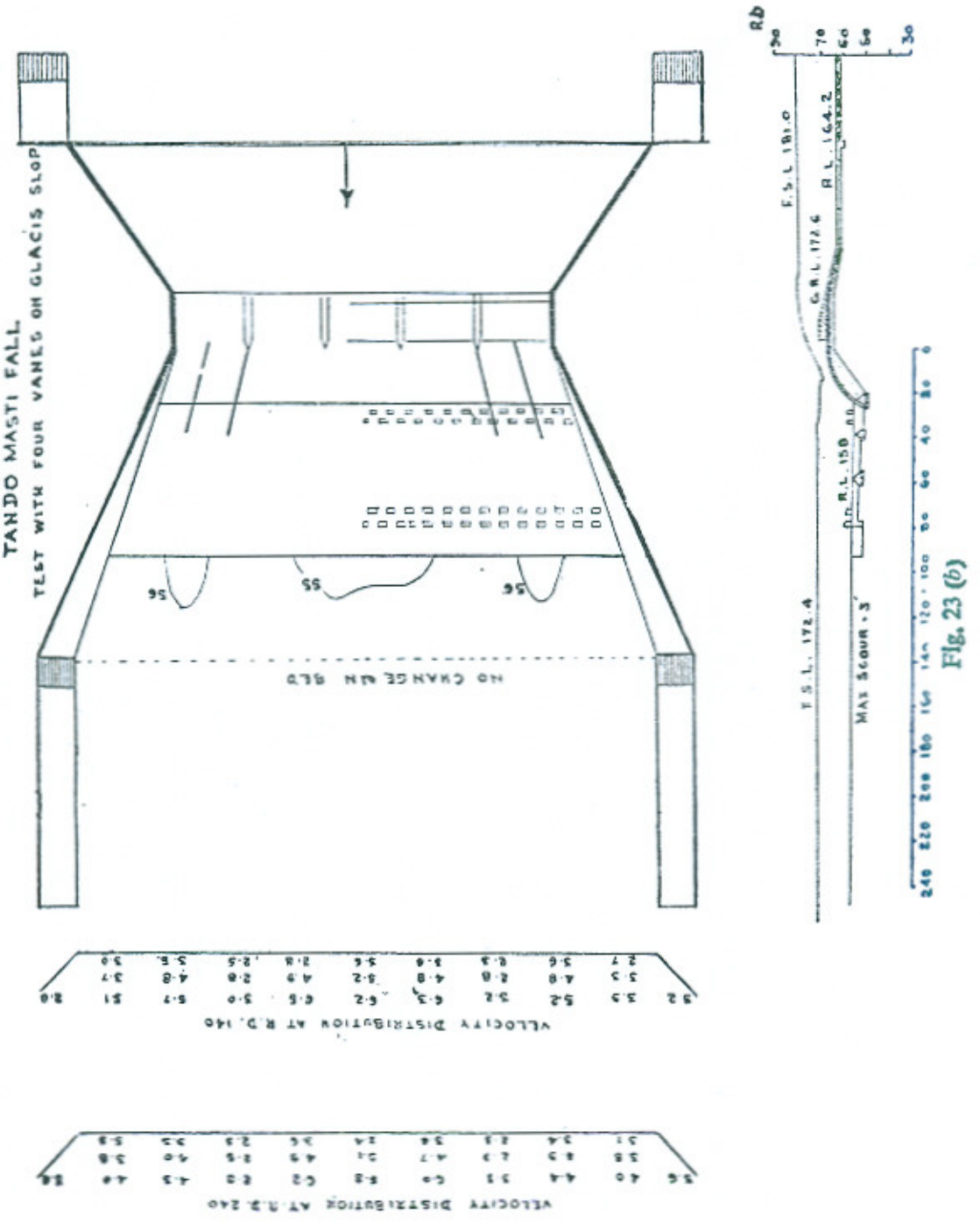

TANDO MASTI FALL
TEST WITH FOUR VANES ON GLACIS SLOP
NO CHANGE IN BED
VELOCITY DISTRIBUTION AT R.D. 140
VELOCITY DISTRIBUTION AT R.D. 240
F.S.L. 181.0
G.R.L. 172.6
R.L. 164.2
R.L. 150.0
F.S.L. 172.4
MAX SCOUR - 3'
RD

Fig. 23 (*b*)

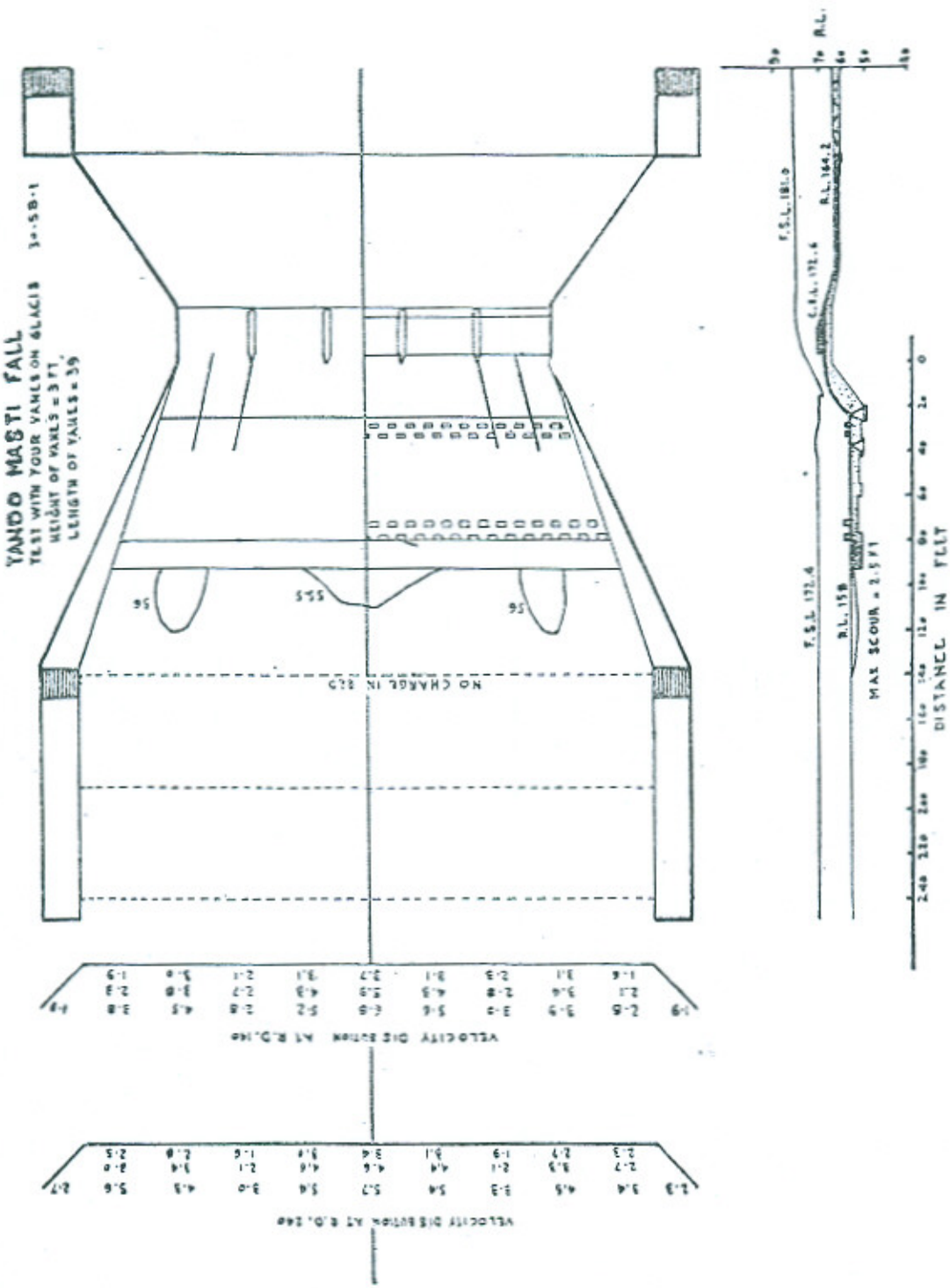

YANDO MASTI FALL
TEST WITH FOUR VANES ON GLACIS
HEIGHT OF VANES = 3 FT.
LENGTH OF VANES = 39'
NO CHARGE IN BED
MAX SCOUR = 2.5 FT
DISTANCE IN FEET

Fig. 24 (a)

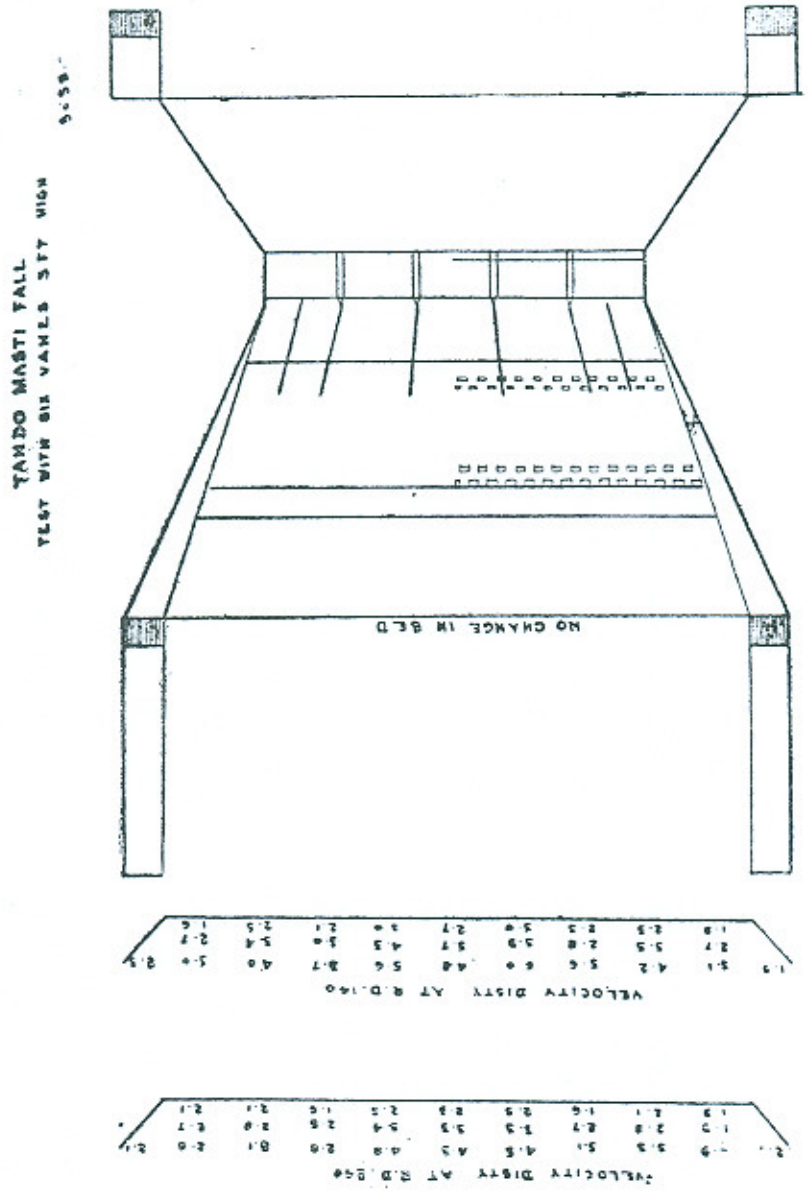

TANDO MASTI FALL
TEST WITH SIX VANES 3FT HIGH
NO CHANGE IN BED

Fig. 24 (*b*).

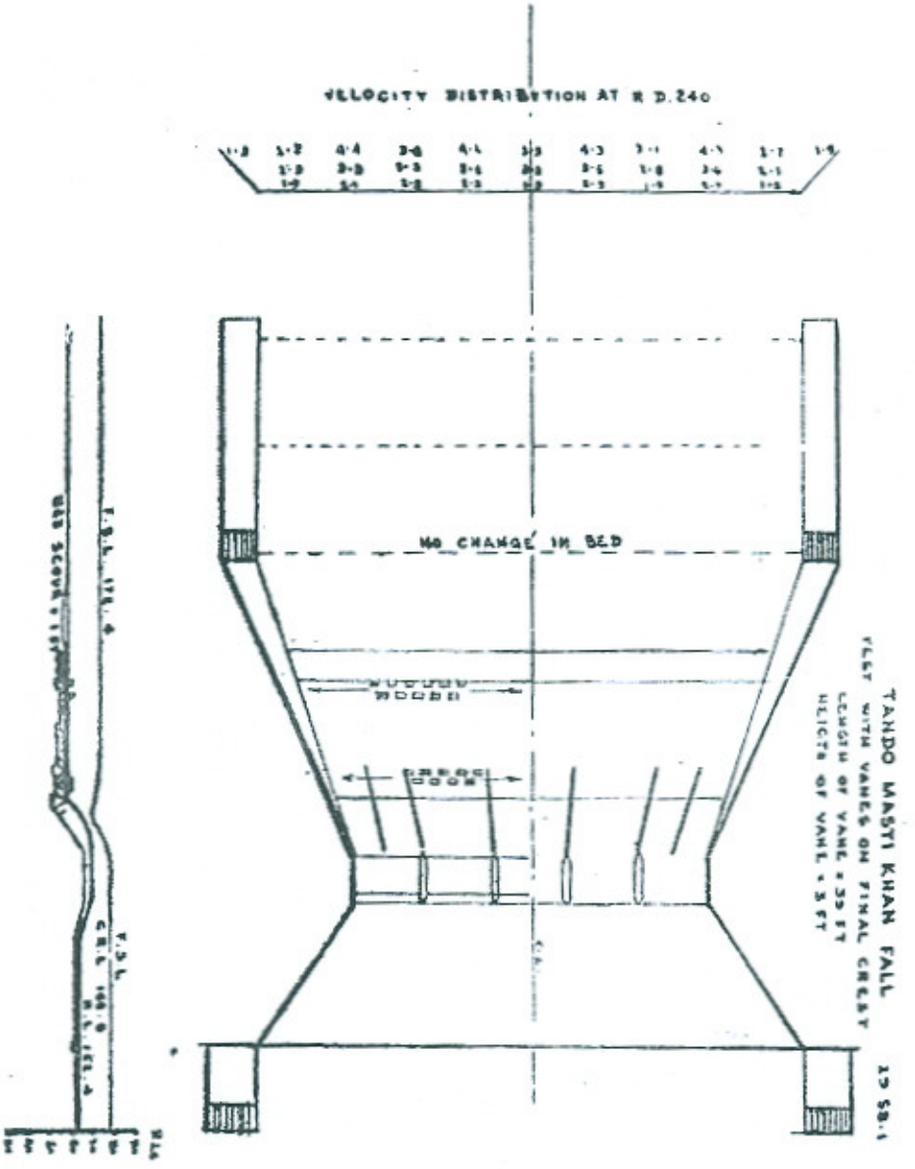

VELOCITY DISTRIBUTION AT R.D. 240
NO CHANGE IN BED
TANDO MASTI KHAN FALL

Fig. 24 (c)

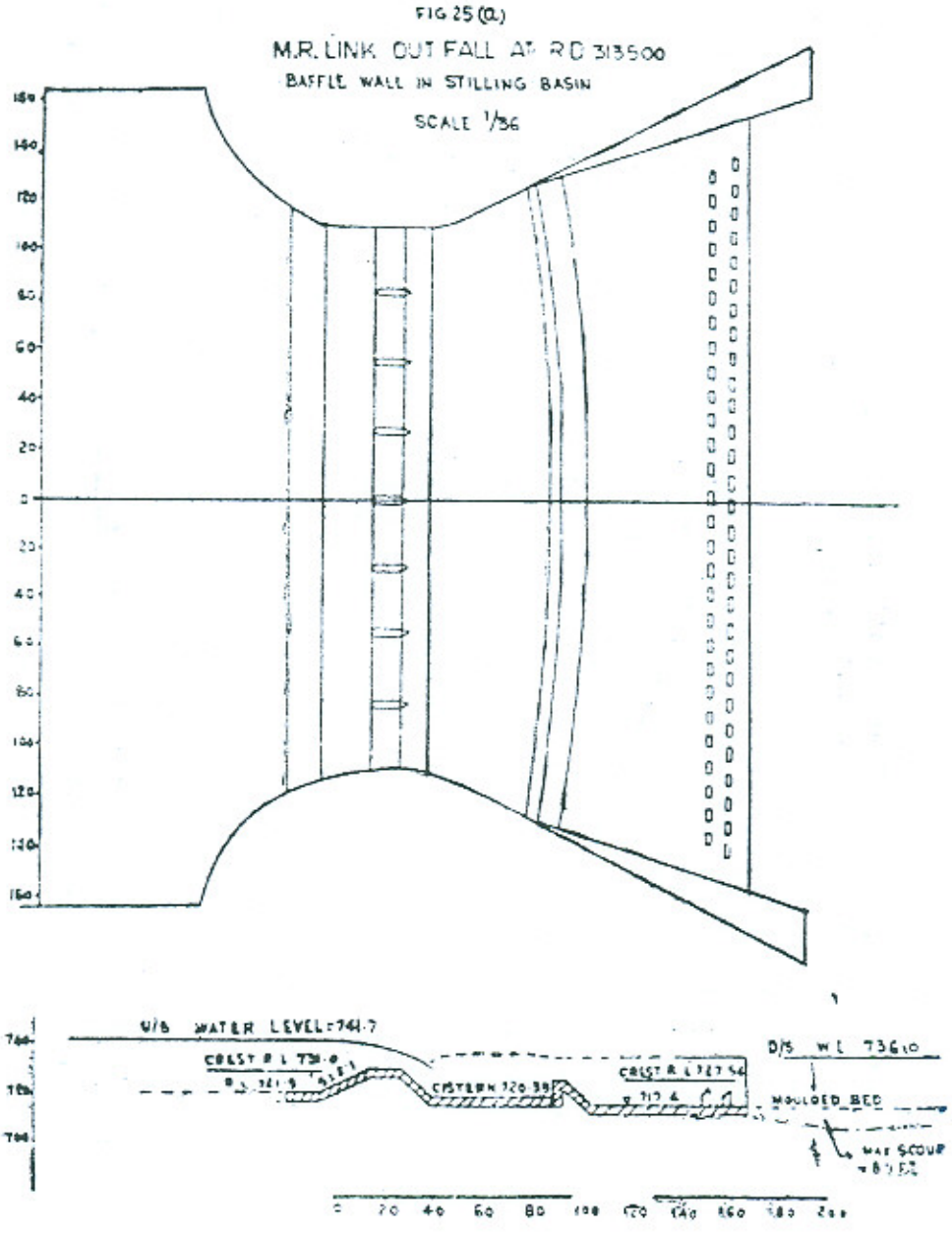

FIG 25 (a)
M.R. LINK OUT FALL AT R.D 313500
BAFFLE WALL IN STILLING BASIN
SCALE 1/36
U/S WATER LEVEL=741.7
CREST R.L 738.0
CISTERN 720.38
CREST R.L 727.54
D/S W.L 736.10
MOULDED BED
MAX SCOUR

Fig. 25 (a).

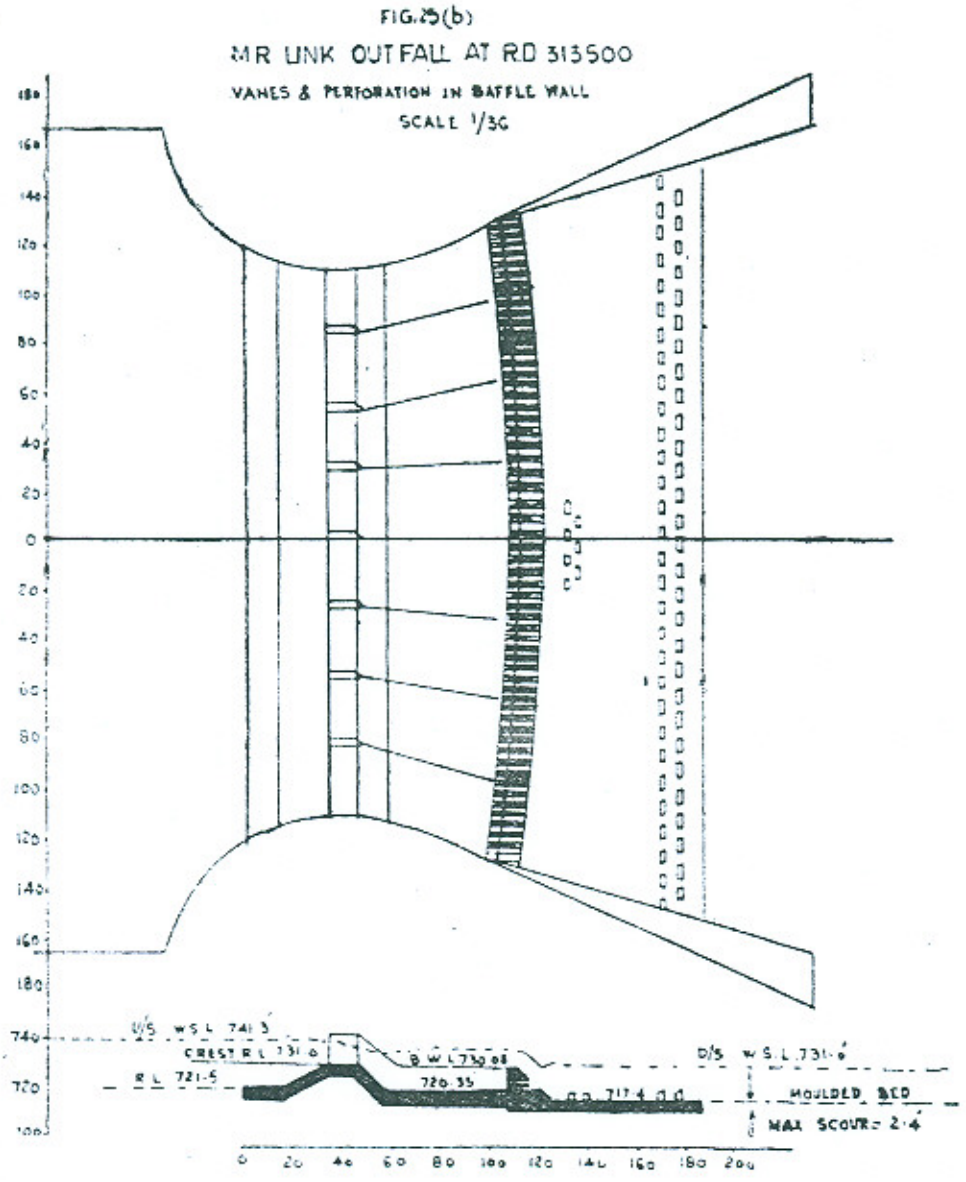

FIG.25(b)
MR UNK OUTFALL AT RD 313500
VANES & PERFORATION IN BAFFLE WALL
SCALE 1/30
U/S W.S.L. 741.3
CREST R.L. 731.0
R.L. 721.5
B.W.L. 730.08
720.35
717.4
D/S W.S.L. 731.6
MOULDED BED
MAX SCOUR = 2.4
0 20 40 60 80 100 120 140 160 180 200

Fig. 25 (*b*)

MODEL OF M.S. LINK SUBSIDIARY OUT FALL AT R.D. 313,500
Flow Conditions.
Qn = 20,000 Cs.



Fig 26 (*a*)—Without Vanes

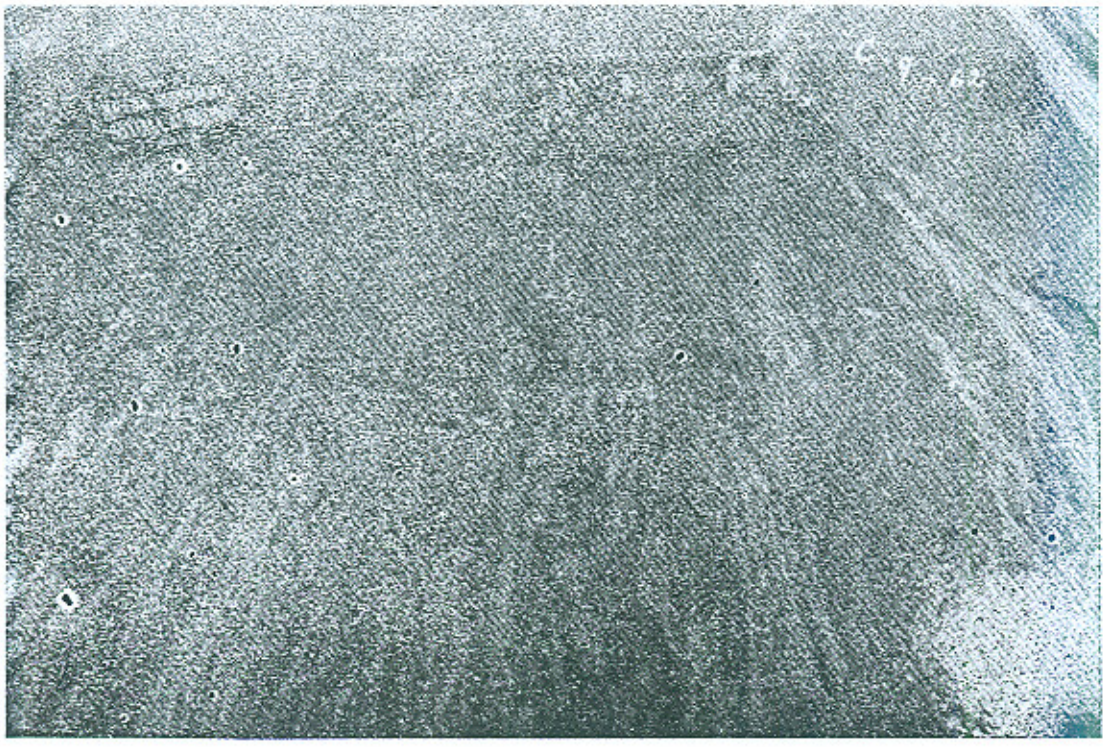
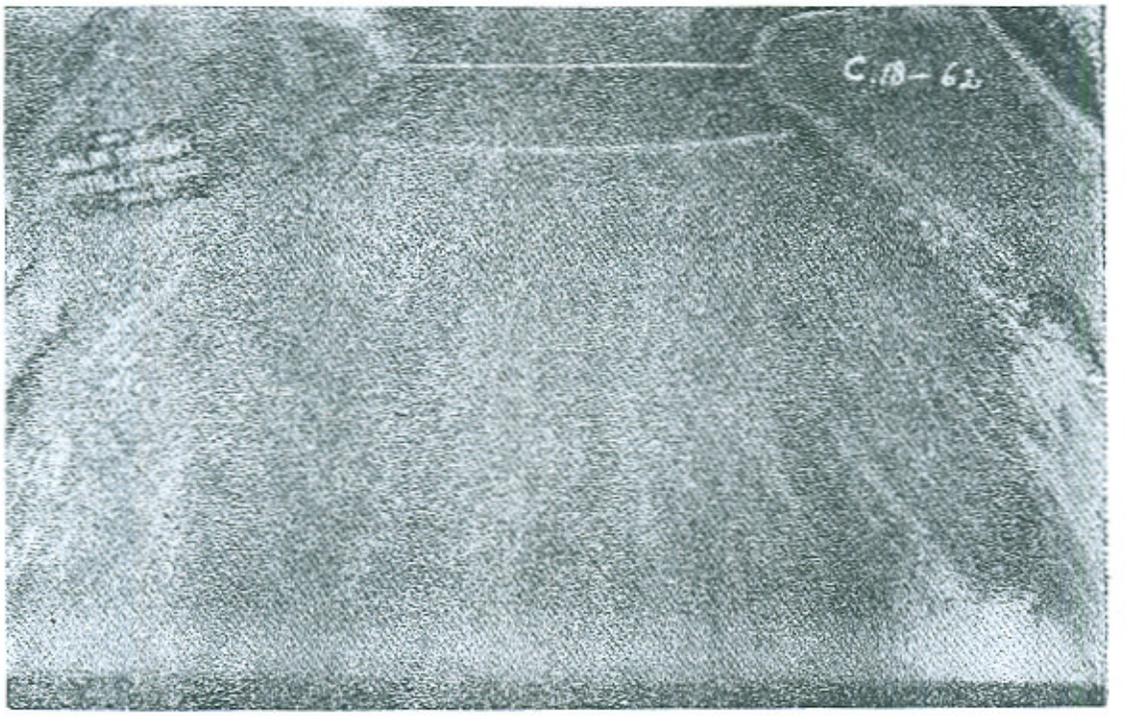


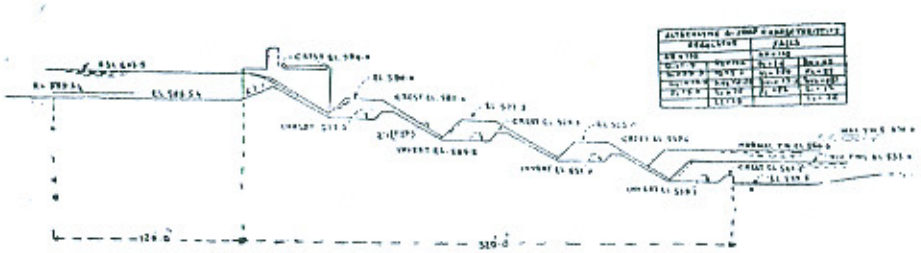
Fig. 26 (*b*)—Without Vanes in Continuation to Side Piers

MODEL OF M.R. LINK SUBSIDIARY OUT FALL AT R.D. 313,500
Scale — 1/36
Flow Conditions



Qn = 20,000 Cs

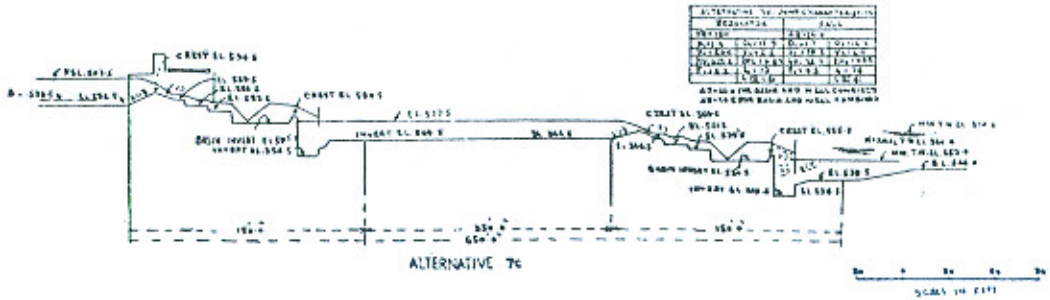
Fig. 26(*c*)



ALTERNATIVE 4



ALTERNATIVE 5a



ALTERNATIVE 7c



ALTERNATIVE 7a



ALTERNATIVE 7b

GENERAL HYDRAULIC DATA

NOTE
FOR PRELIMINARY ALTERNATIVES SEE 5a

INDUS BASIN PROJECT
CHASHMA-JHELUM LINK CANAL
OUTFALL TO JHELUM RIVER
INITIAL SELECTION AND DESIGN
HYDRAULIC SCHEMATIC PROFILES
ALTERNATIVES TO BE MODEL TESTED

Fig. 27

MODEL OF CHASHMA JHELUM LINK OUTFALL ALTERNATIVE 7 (*b*)
Upstream Pond level = 602.25
Tail water level = 553.00
Original design.

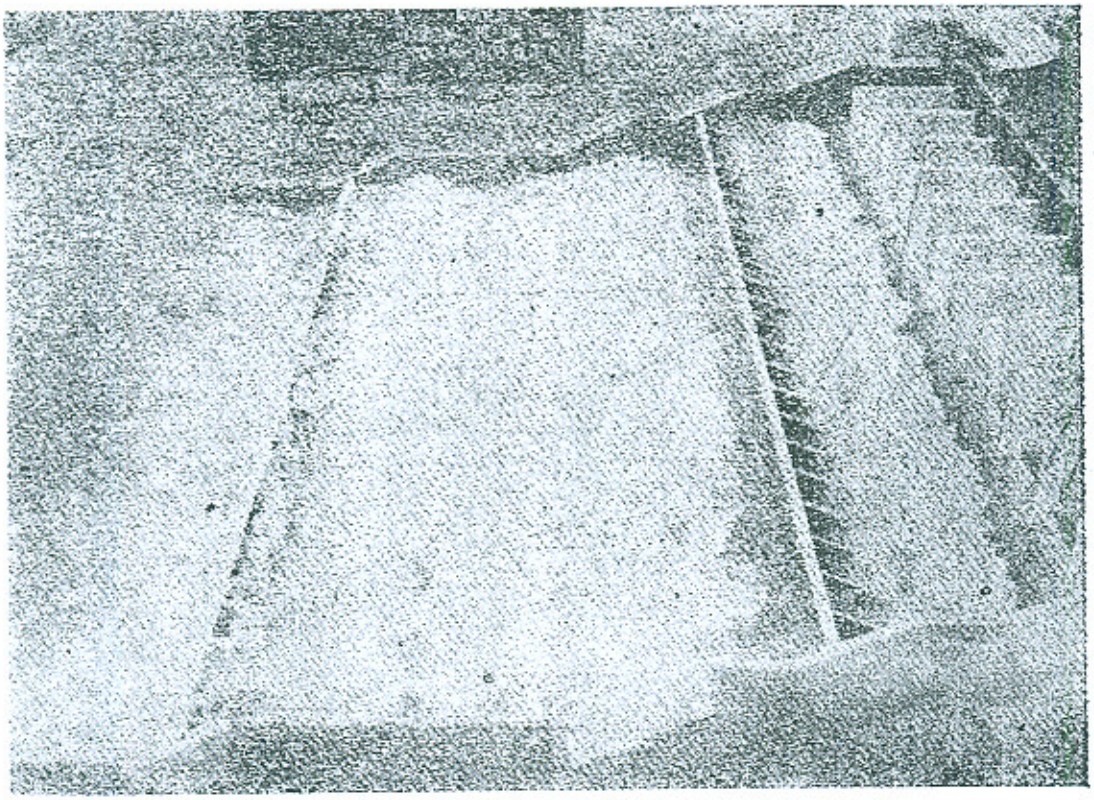


Fig. 28—Flow Conditions at Q. =21,700 Cs
Notice.—The upper well is not functioning.

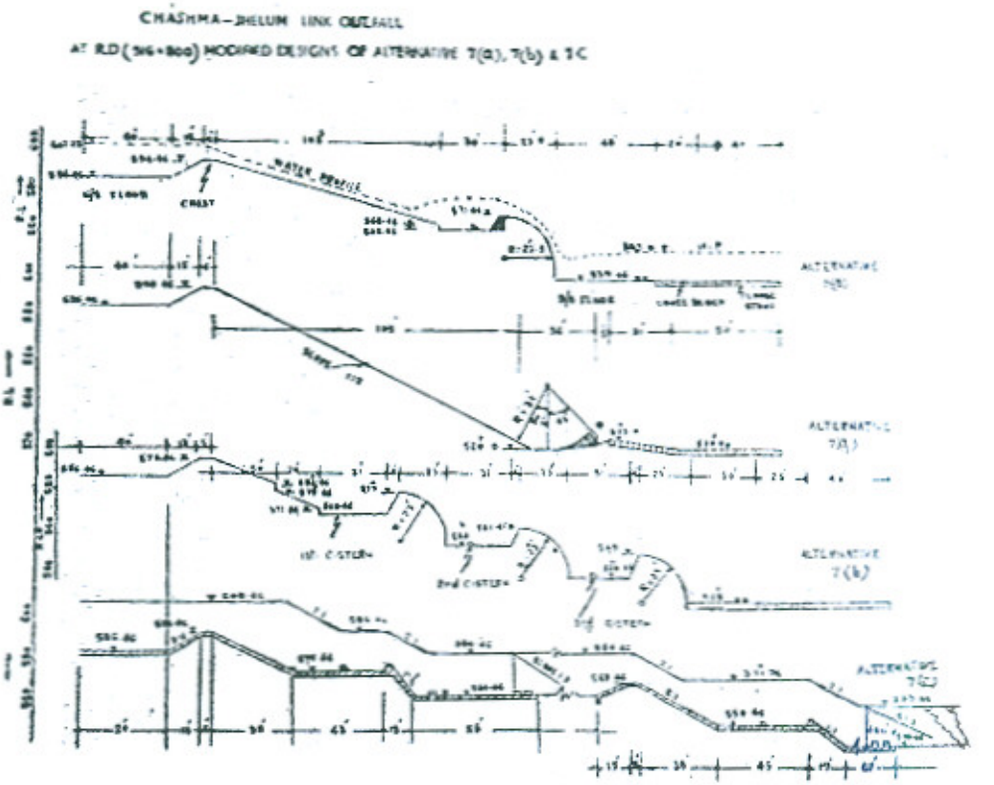

CHASHMA–JHELUM LINK OUTFALL
AT R.D (516+800) MODIFIED DESIGNS OF ALTERNATIVE 7(a), 7(b) & 7C
CREST
ALTERNATIVE 7(a)
ALTERNATIVE 7(b)
ALTERNATIVE 7(c)

Fig. 29

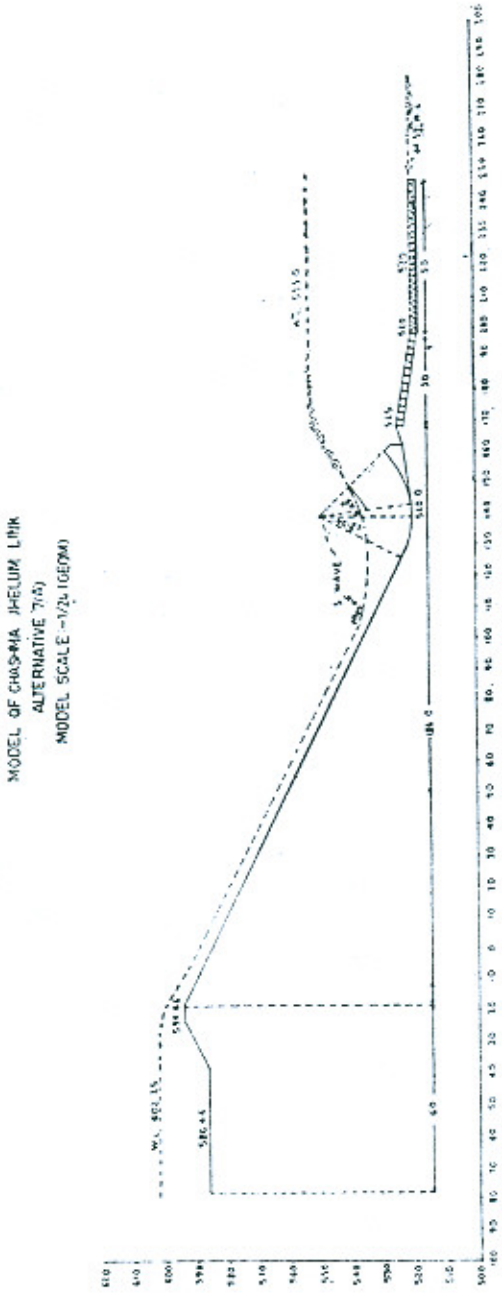

MODEL OF CHASHMA JHELUM LINK
ALTERNATIVE 7(iii)
MODEL SCALE - 1/24 (GEOM)

Fig. 30

MODEL OF CHASHMA JHELUM LINK ALTERNATIVE 7(*a*)
MODEL SCALE 1/24 (Geom)
FLOW CONDITIONS SIDE VIEW

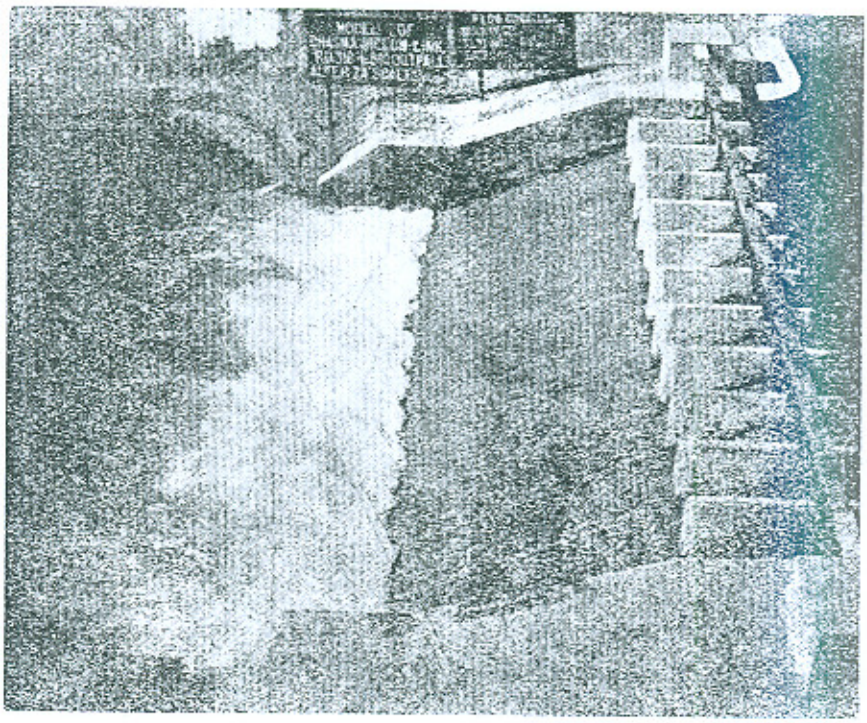
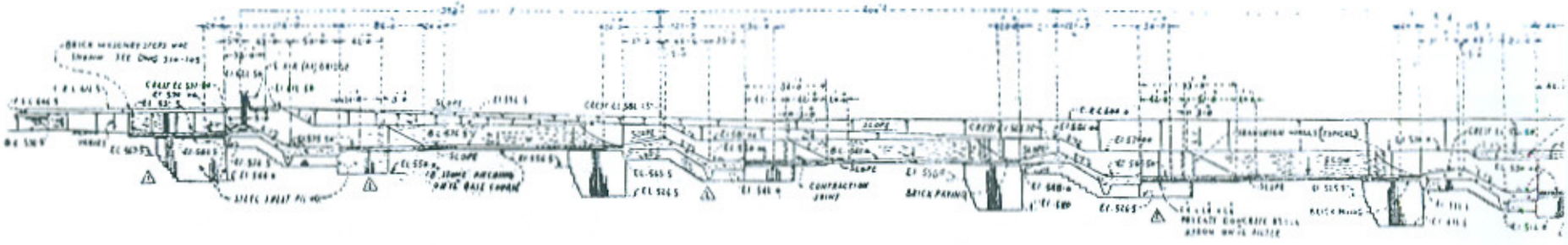
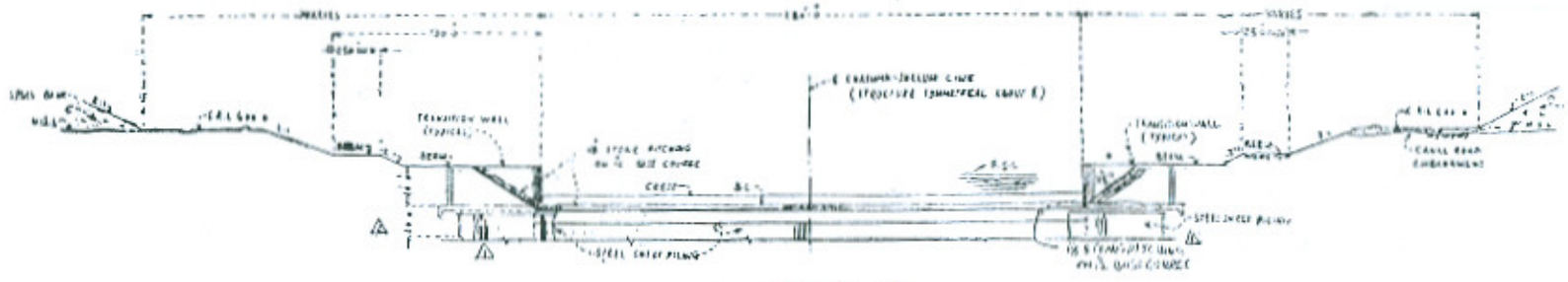


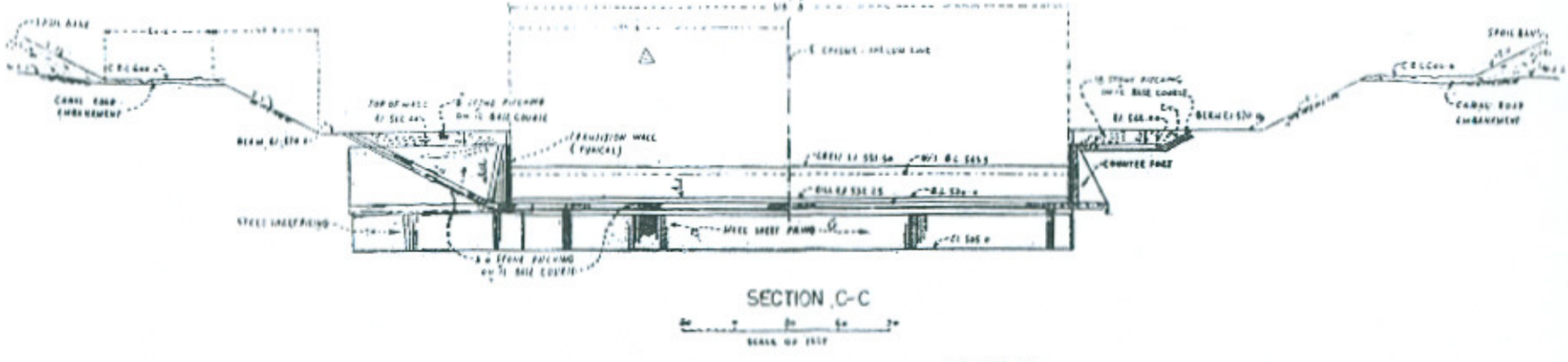
Fig. 30(*b*)—Discharge 21700 Cs
U/S W.L. 602.25
D/S W.L. 553.0



SECTION A-A

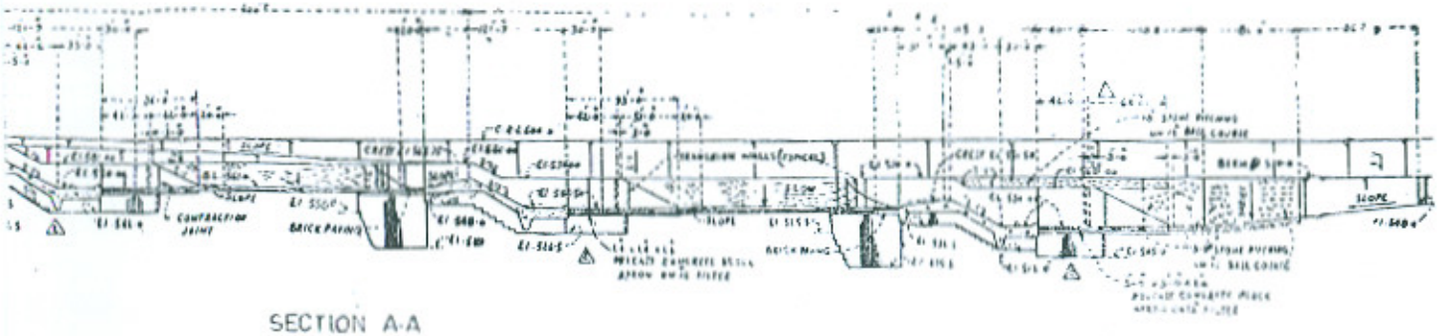


SECTION B-B

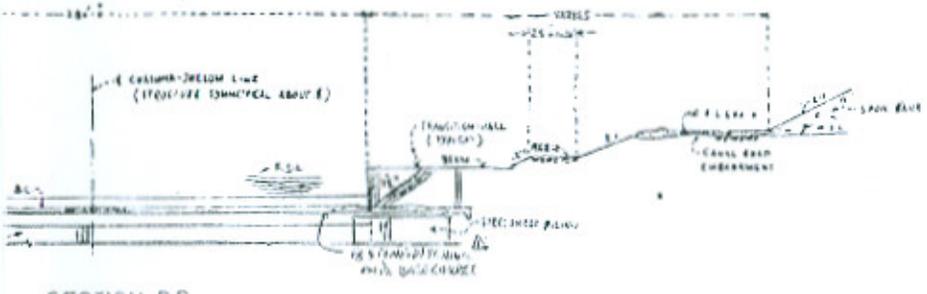


SECTION C-C

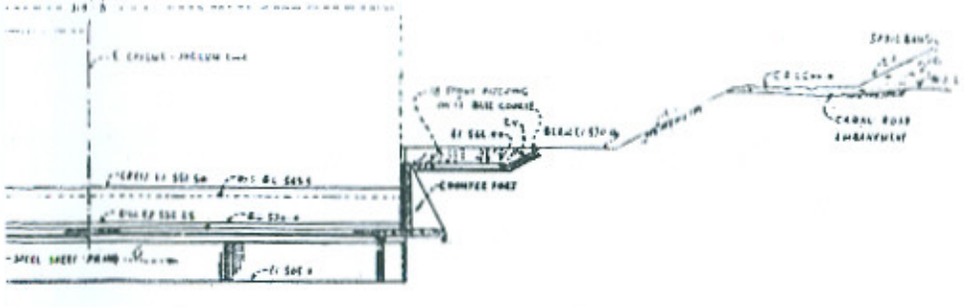
Fig. 31 (*b*)



SECTION A-A



SECTION B-B



SECTION C-C

Fig. 31 (*b*)

NOTES

FOR LOCATION OF SECTION SEE DWG. SH. 67

FOR GENERAL STRUCTURAL NOTES SEE DWG. SH. 19

REFERENCE DRAWINGS

R D 330+600 OUTFALL - GENERAL PLAN ... Sht *

CHASHMA JHELUM LINK

OUT FALL R D 330 - 600

GENERAL SECTIONS

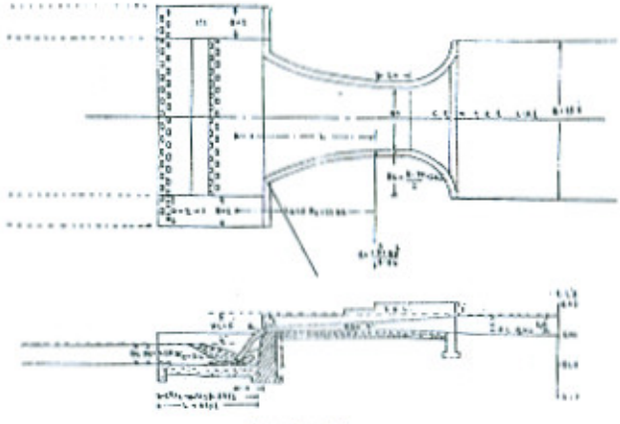


Fig. 31 (*c*)

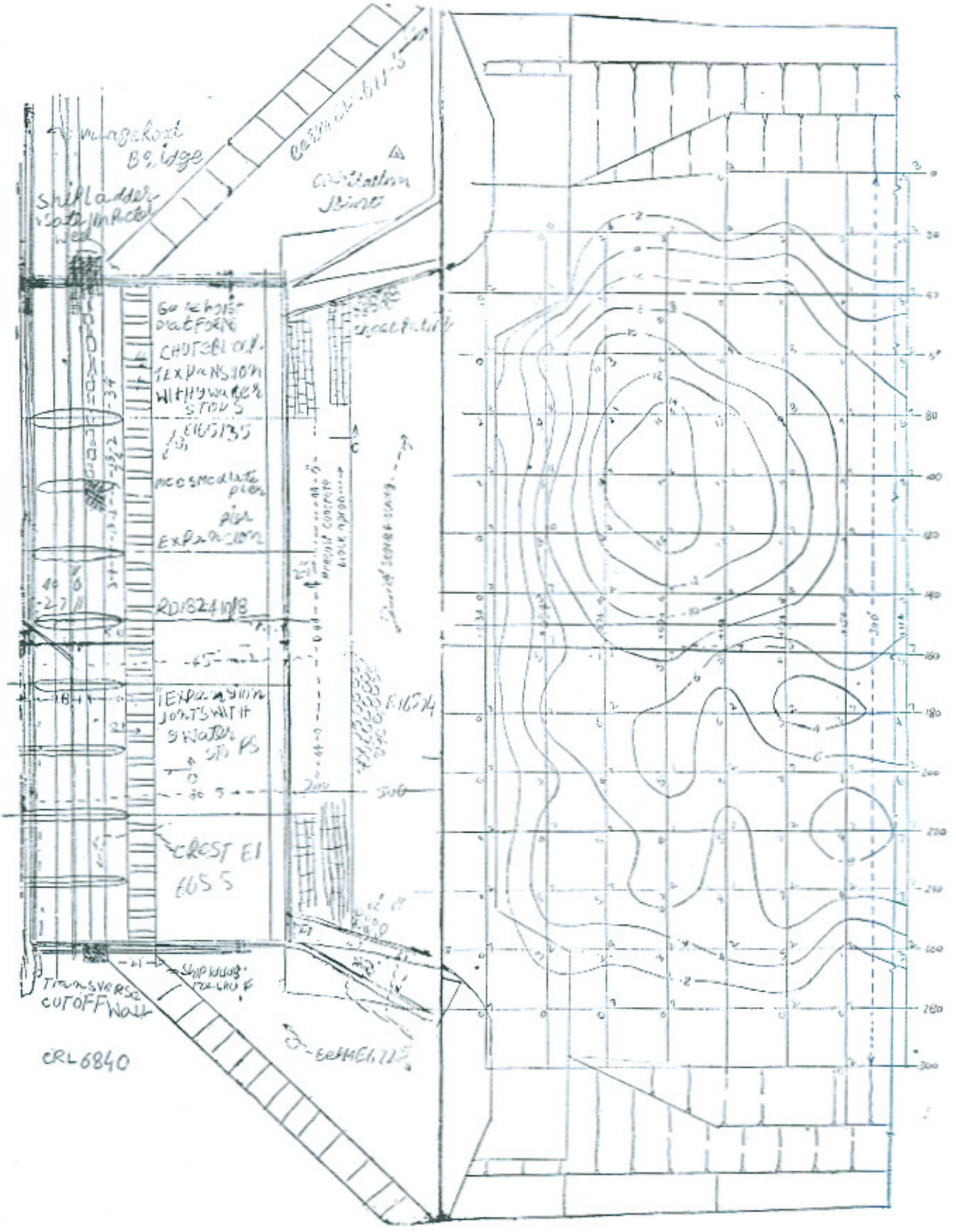
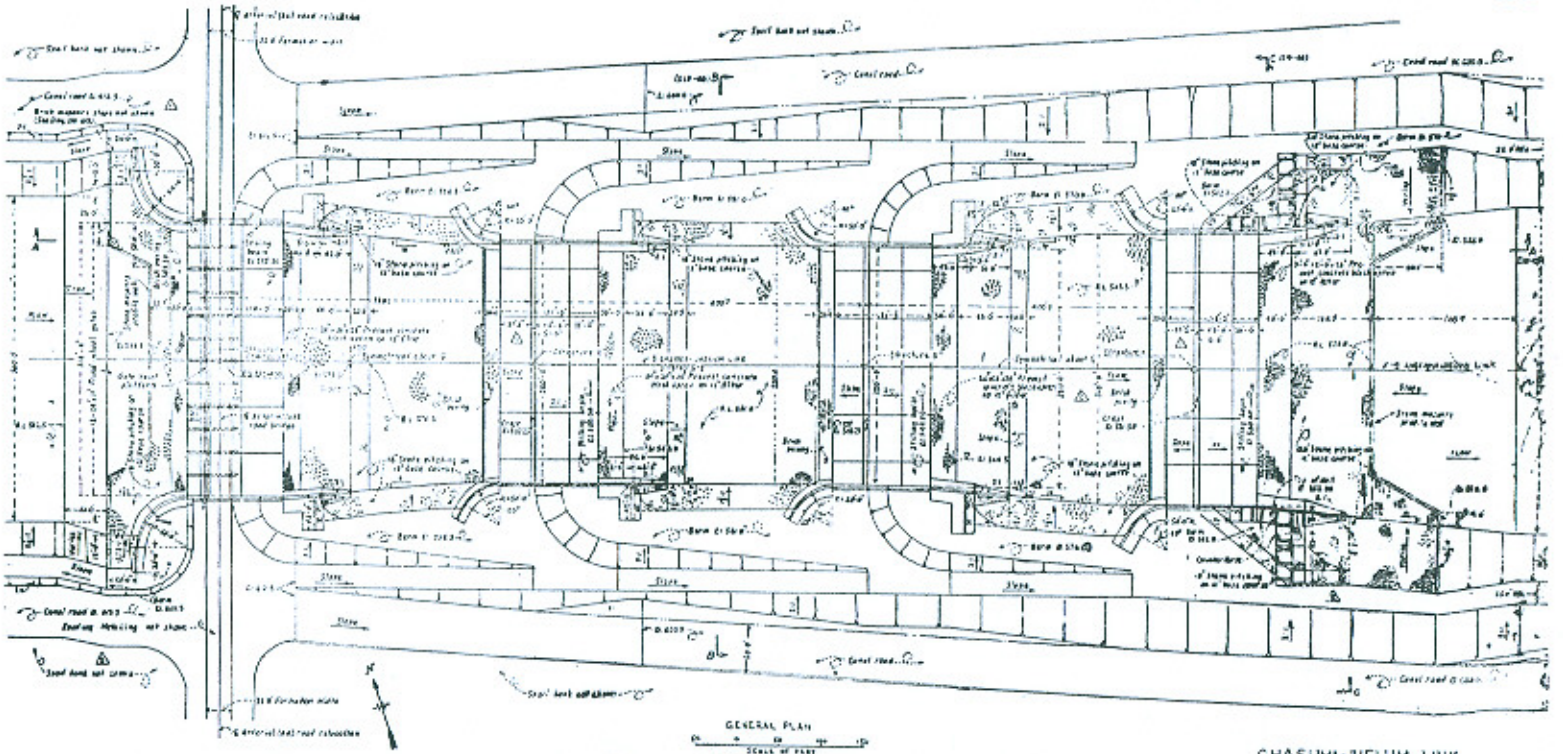

Bridge
Ship ladder
Gantry platform
CHUTE BLOCK
EXPANSION
WITH WATER STOPS
EL 1655.35
INTERMEDIATE PIER
EXPANSION
EL 1654
CREST EL 1655
TRANSVERSE CUTOFF WALL
CRL 6840

Fig. 32



GENERAL PLAN

Scale of Feet

REFERENCE DRAWINGS

NOTES

CHASHMA-JHELUM LINK
OUTFALL RD 330 + 400
GENERAL PLAN

Fig. 31 (a)

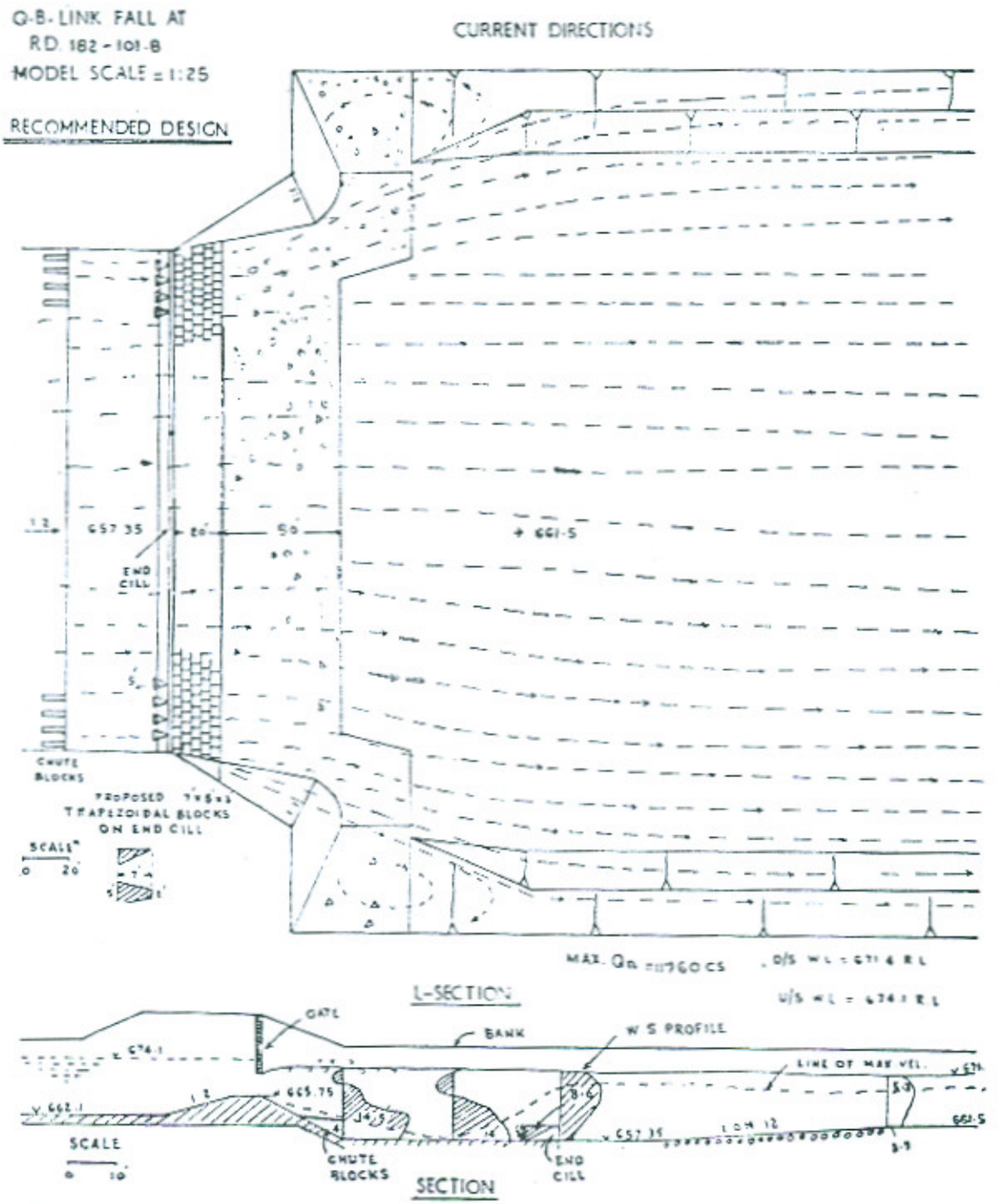

Q-B-LINK FALL AT
R.D. 182 - 101-8
MODEL SCALE = 1:25
RECOMMENDED DESIGN
CURRENT DIRECTIONS
END SILL
CHUTE BLOCKS
PROPOSED TRAPEZOIDAL BLOCKS ON END SILL
SCALE
MAX. Qn = 1760 CS
L-SECTION
GATE
BANK
W S PROFILE
LINE OF MAX VEL.
SCALE
CHUTE BLOCKS
END SILL
SECTION

Fig. 32 (*b*)

CHASHMA JHELUM LINK FALL AT RD 193+000
MODEL SCALE = 1:30

TEST III

WATER SURFACE PROFILE AND VELOCITY DISTRIBUTION ALONG C L

Q_n = 16000 CS
q_n = 55.6 CS

TEST WITH TRAPEZOIDAL BLOCKS 3 HIGH ON THE END SILL

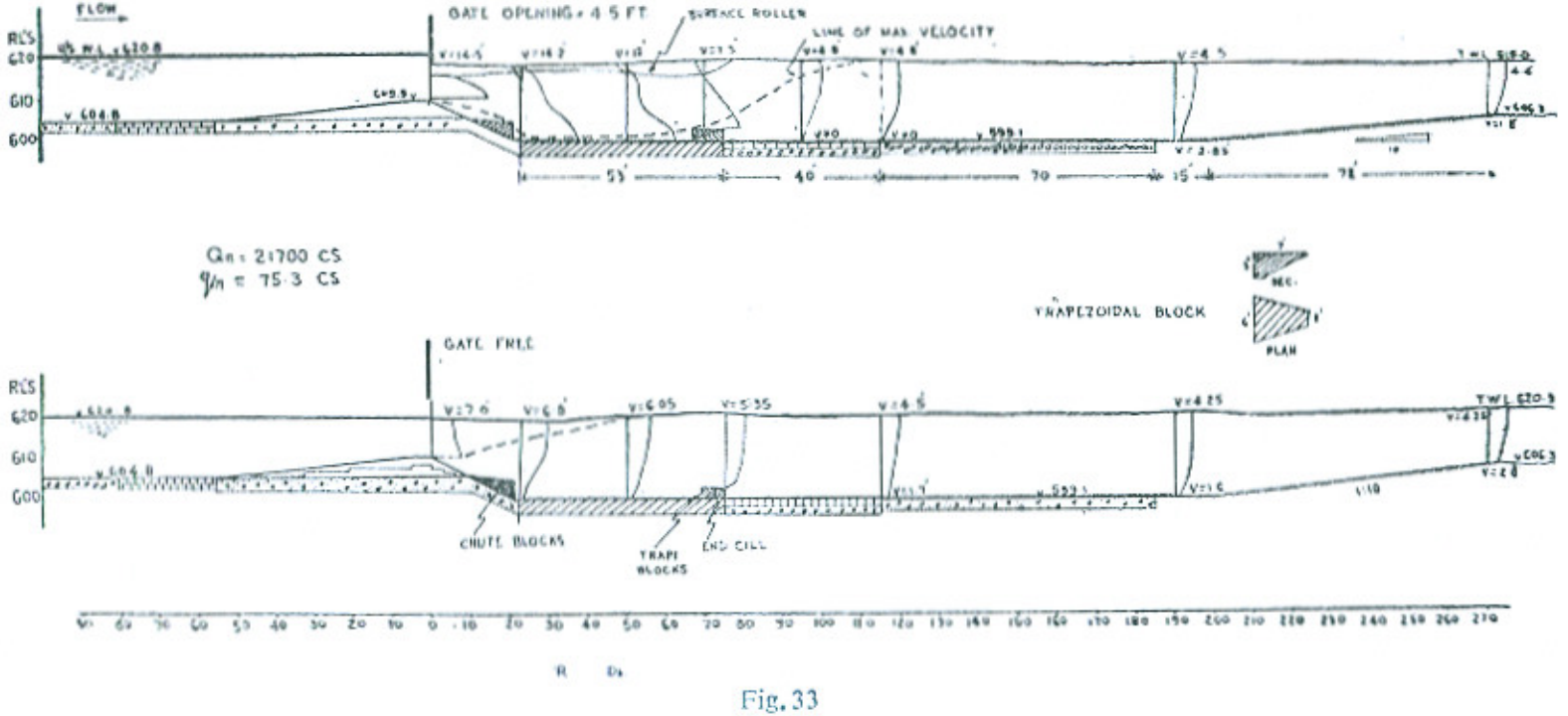


Fig. 33

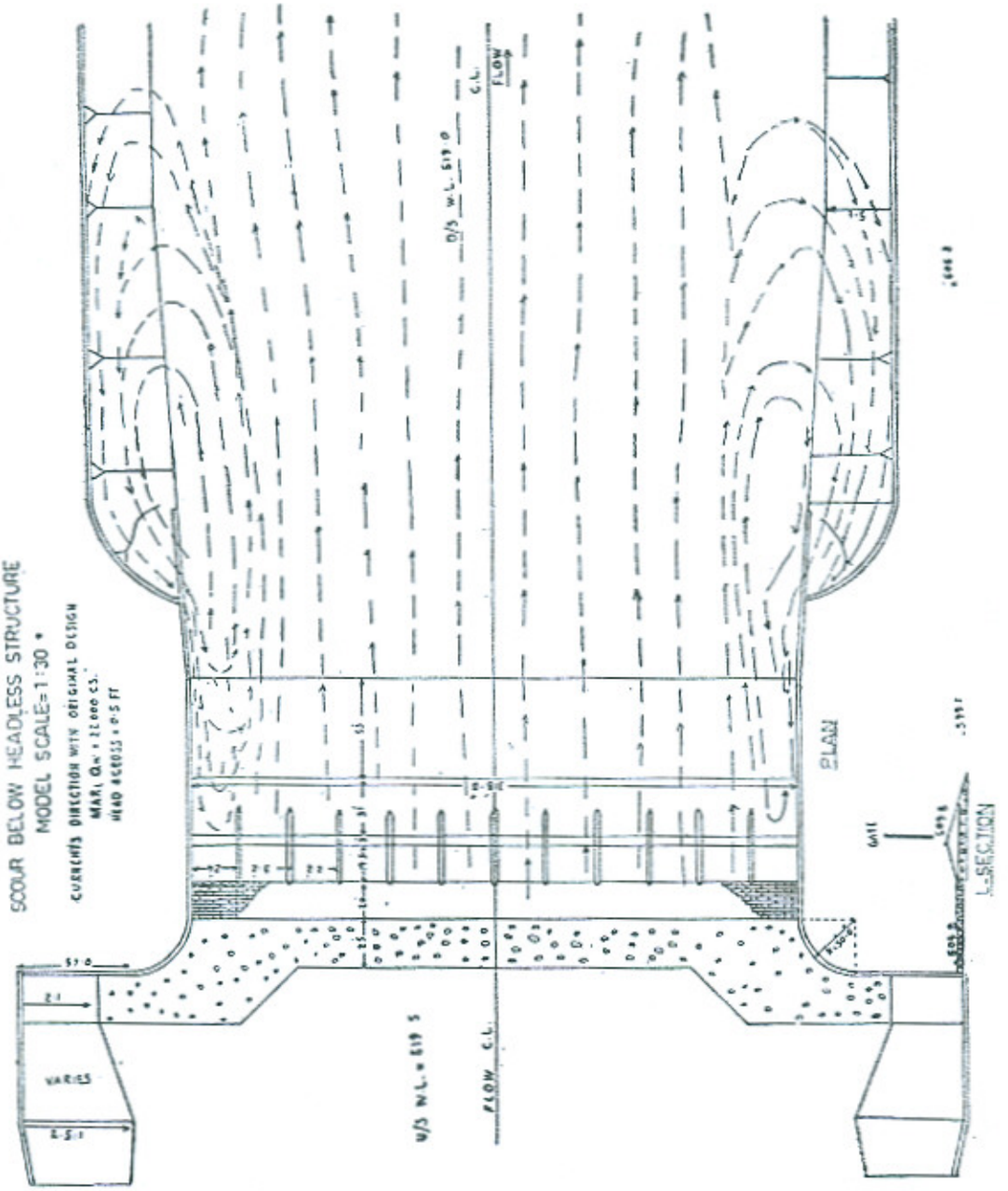

SCOUR BELOW HEADLESS STRUCTURE
MODEL SCALE= 1:30
CURRENTS DIRECTION WITH ORIGINAL DESIGN
PLAN
SECTION
FLOW
VARIES

Fig. 34 (*a*).

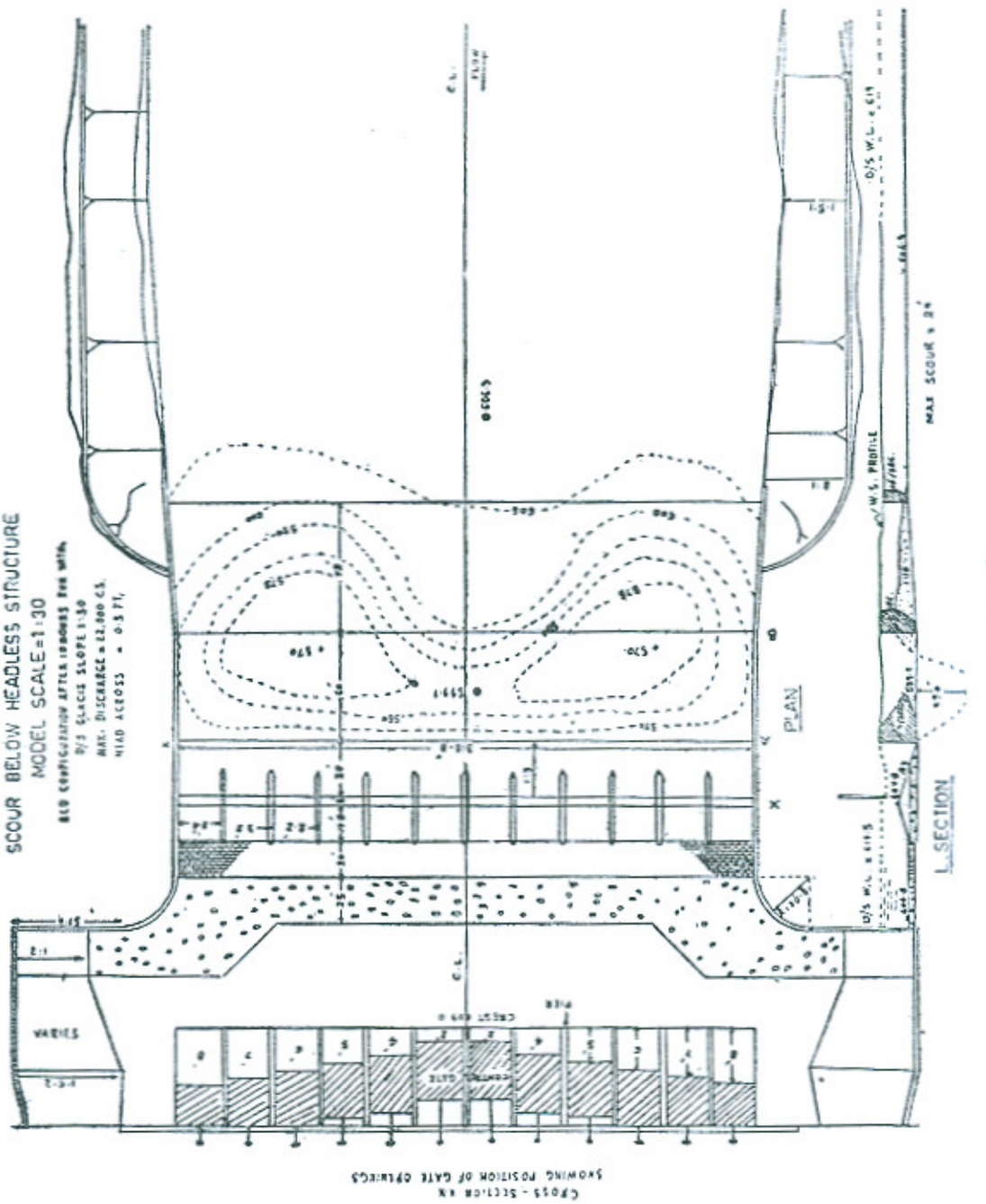

SCOUR BELOW HEADLESS STRUCTURE
MODEL SCALE = 1:30
PLAN
L SECTION
CROSS - SECTION AA
SHOWING POSITION OF GATE OPENINGS

Fig. 34 (*b*)

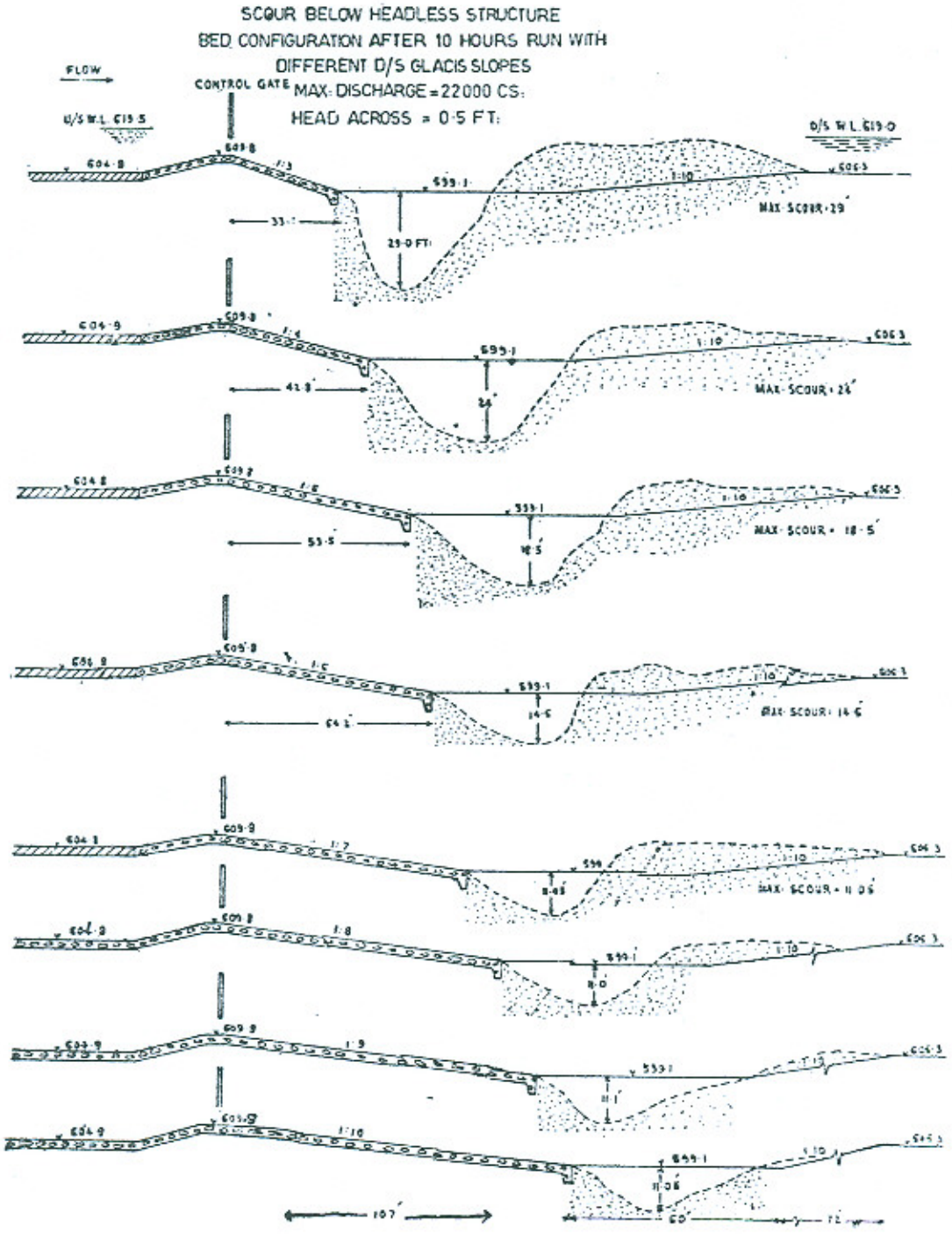

SCOUR BELOW HEADLESS STRUCTURE
BED CONFIGURATION AFTER 10 HOURS RUN WITH
DIFFERENT D/S GLACIS SLOPES
FLOW
CONTROL GATE
MAX. DISCHARGE = 22000 CS.
HEAD ACROSS = 0·5 FT.
U/S W.L. 619·5
D/S W.L. 619·0
MAX. SCOUR = 29'
25·0 FT.
MAX. SCOUR = 24'
MAX. SCOUR = 18·5'
MAX. SCOUR = 14·6'
MAX. SCOUR = 11·06'
107'

Fig. 35 (*a*).

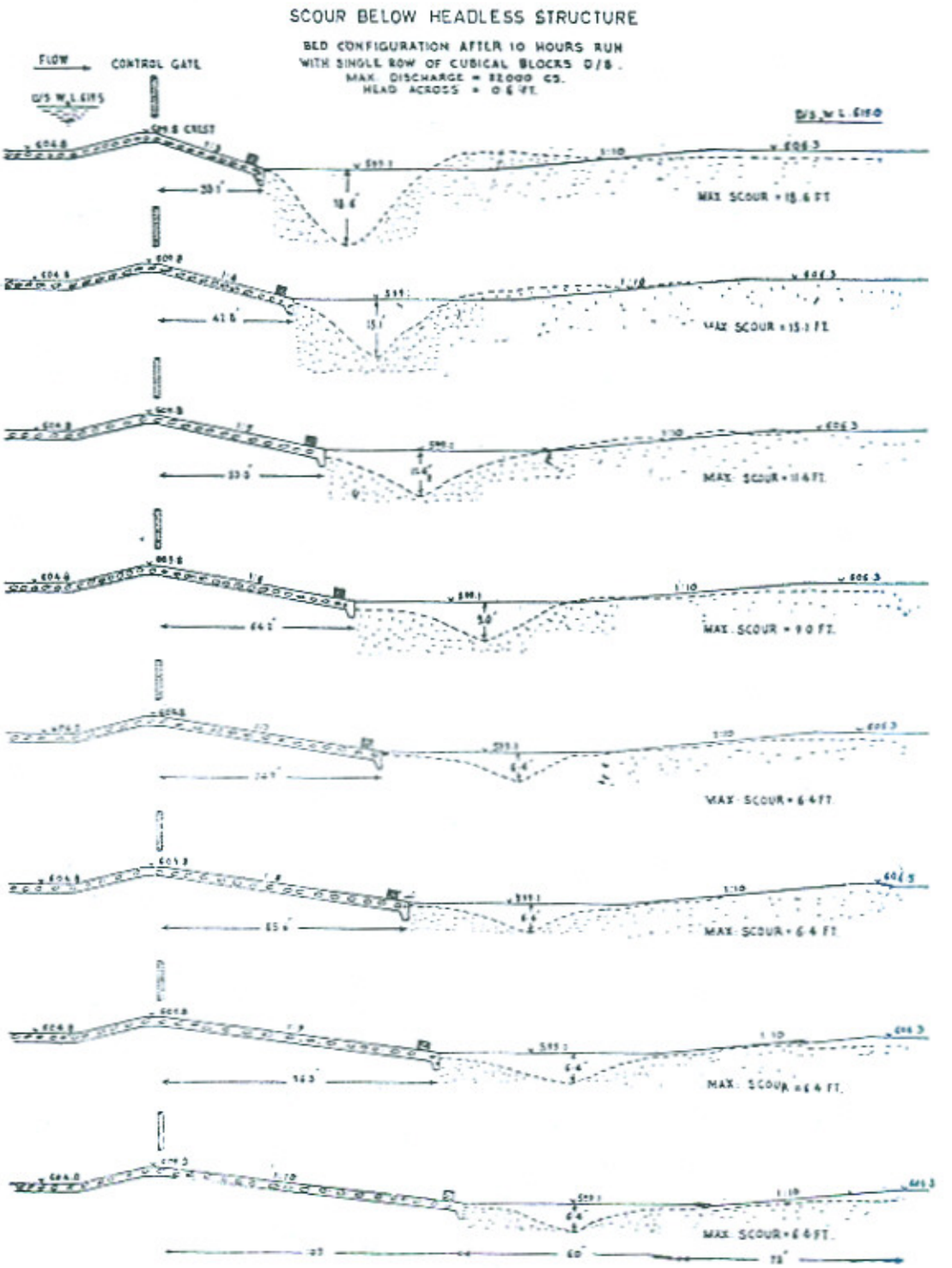

SCOUR BELOW HEADLESS STRUCTURE
BED CONFIGURATION AFTER 10 HOURS RUN
WITH SINGLE ROW OF CUBICAL BLOCKS D/8.
MAX. DISCHARGE = 82000 CS.
HEAD ACROSS = 0.6 FT.
FLOW
CONTROL GATE
U/S W.L 619.5
D/S W.L 619.0
MAX. SCOUR = 15.6 FT.
MAX. SCOUR = 11.4 FT.
MAX. SCOUR = 9.0 FT.
MAX. SCOUR = 6.4 FT.
MAX. SCOUR = 6.4 FT.
MAX. SCOUR = 6.4 FT.
MAX. SCOUR = 6.4 FT.

Fig. 35 (*b*).

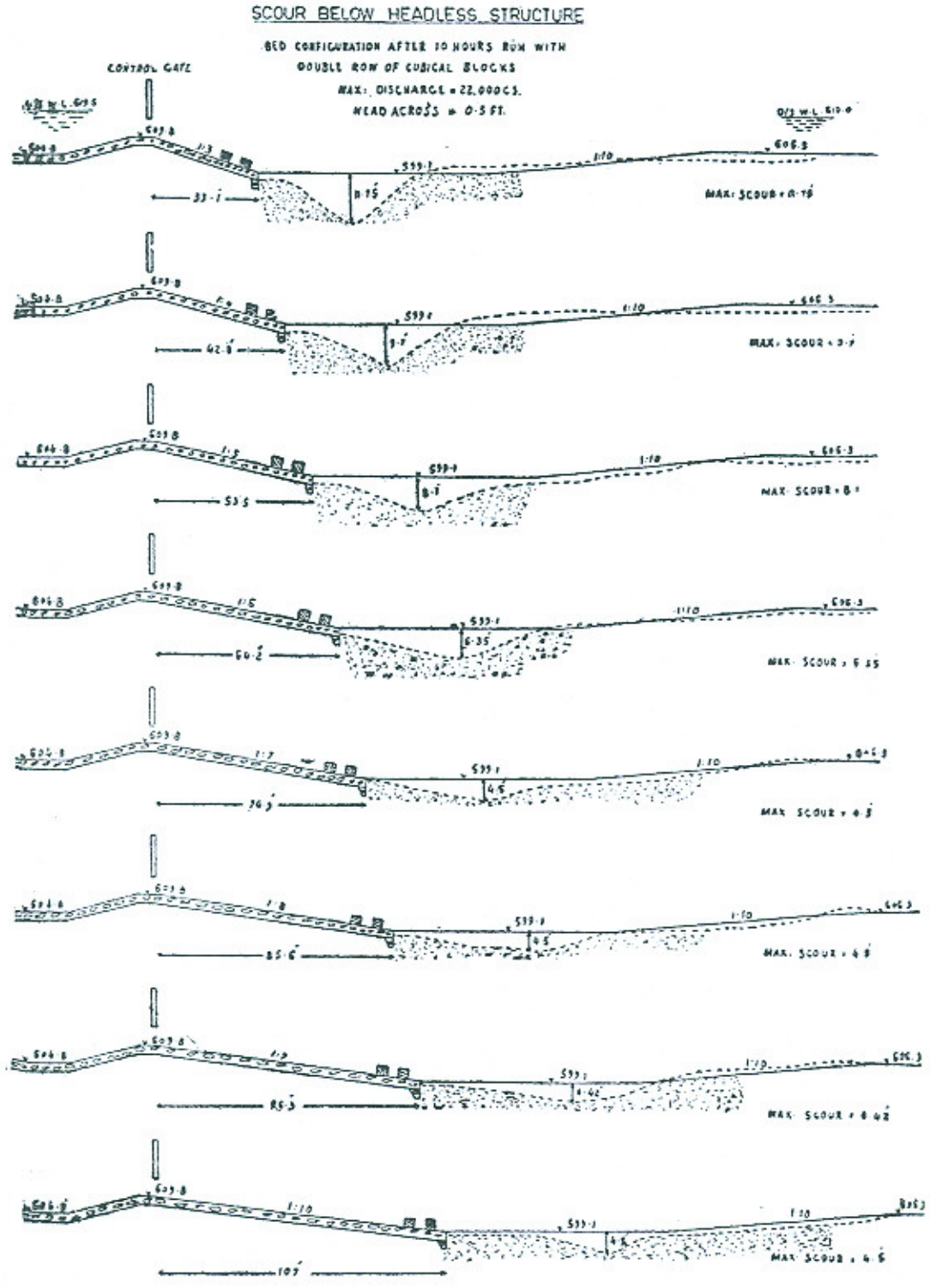

SCOUR BELOW HEADLESS STRUCTURE
BED CONFIGURATION AFTER 10 HOURS RUN WITH
DOUBLE ROW OF CUBICAL BLOCKS
MAX. DISCHARGE = 22,000 CS.
HEAD ACROSS = 0·5 FT.
CONTROL GATE
MAX. SCOUR = 8·75'
MAX. SCOUR = 9·7'
MAX. SCOUR = 8'
MAX. SCOUR = 6·35'
MAX. SCOUR = 4·8'
MAX. SCOUR = 4·8'
MAX. SCOUR = 4·42'
MAX. SCOUR = 4·5'

Fig. 35 (*c*)

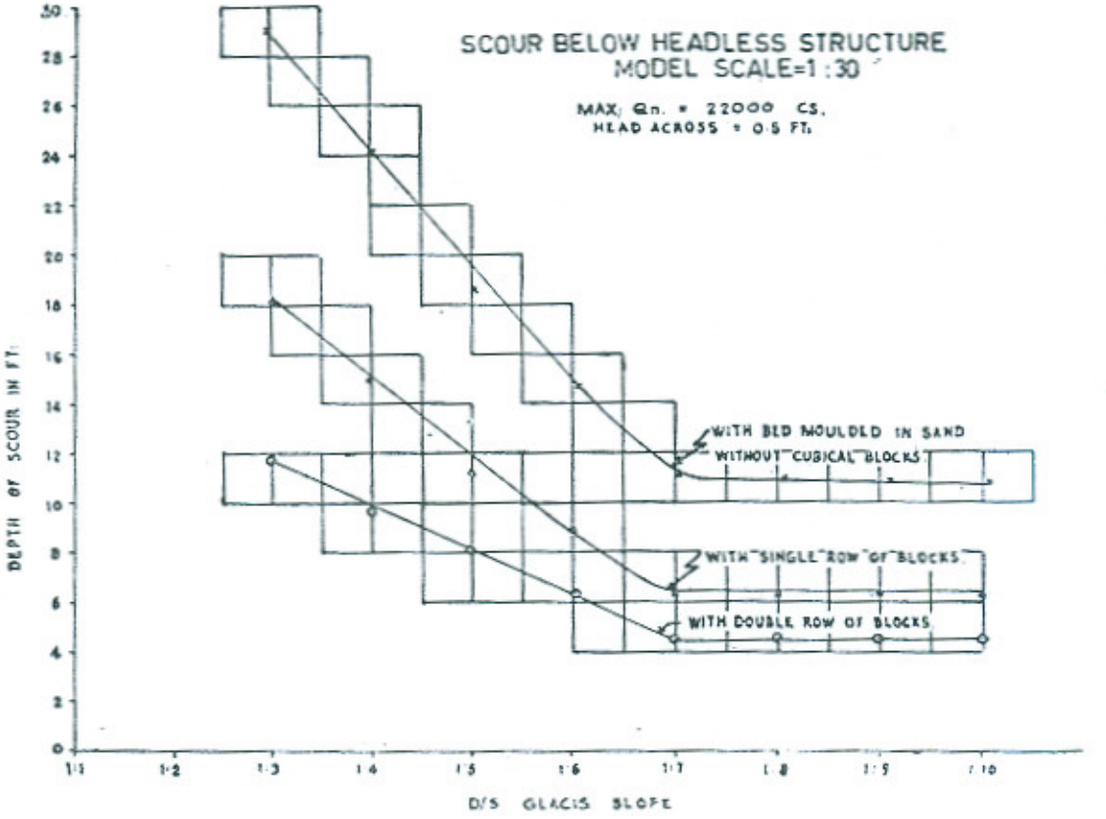

SCOUR BELOW HEADLESS STRUCTURE
MODEL SCALE=1:30
MAX. Qn. = 22000 CS.
HEAD ACROSS = 0.5 FT.
WITH BED MOULDED IN SAND
WITHOUT CUBICAL BLOCKS
WITH SINGLE ROW OF BLOCKS
WITH DOUBLE ROW OF BLOCKS
DEPTH OF SCOUR IN FT.
D/S GLACIS SLOPE

Fig. 36

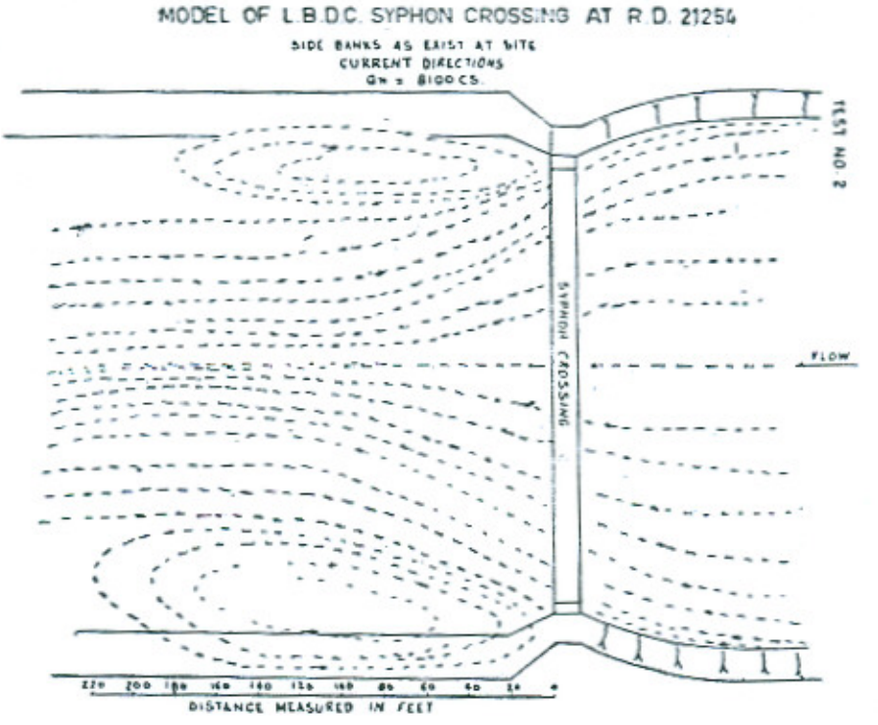

MODEL OF L.B.D.C. SYPHON CROSSING AT R.D. 21254
SIDE BANKS AS EXIST AT SITE
CURRENT DIRECTIONS
Qn = 8100 CS.
TEST NO 2
SYPHON CROSSING
FLOW
DISTANCE MEASURED IN FEET

Fig. 37

TYPICAL DESIGN OF SPREADING FLOOD TYPE FALL

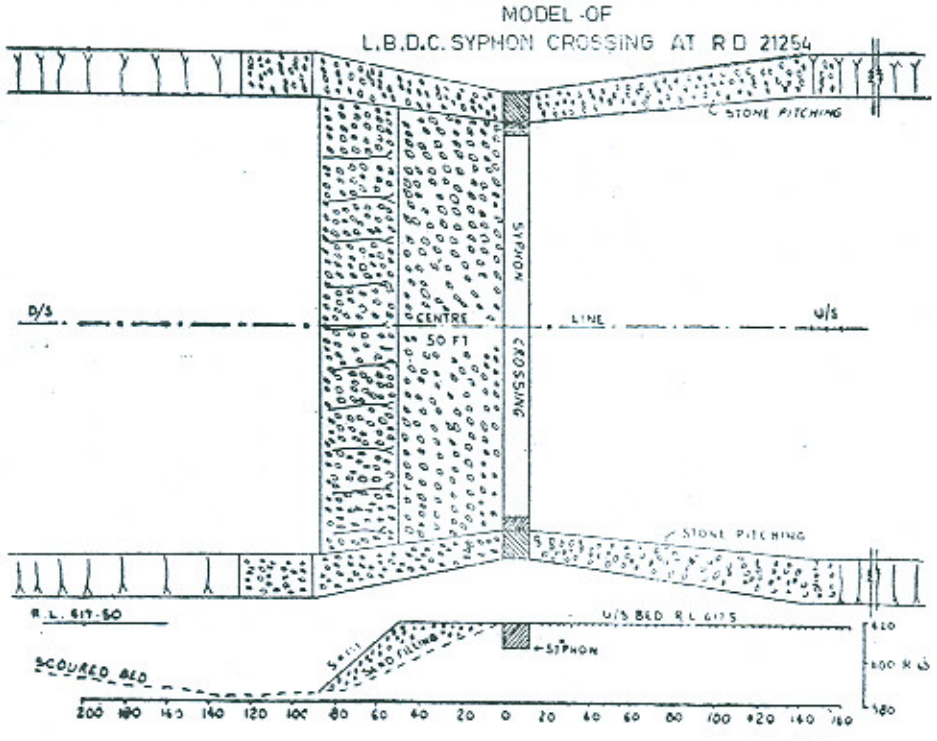
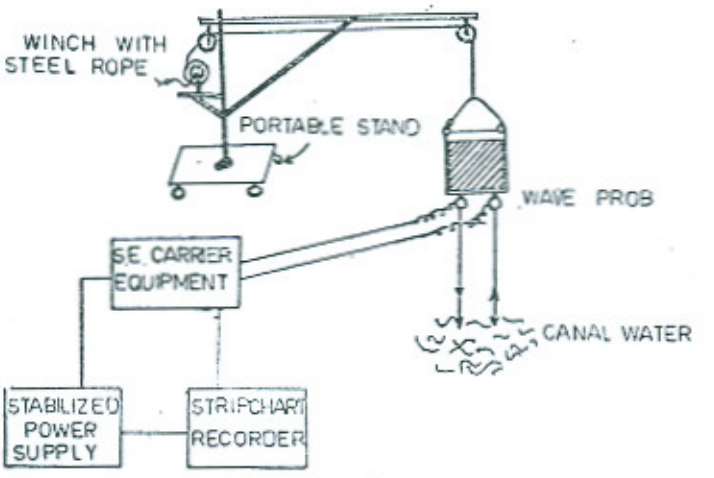


Fig. 37 (*b*)

EQUIPMENT FOR WAVERECORDING



Appendix—II