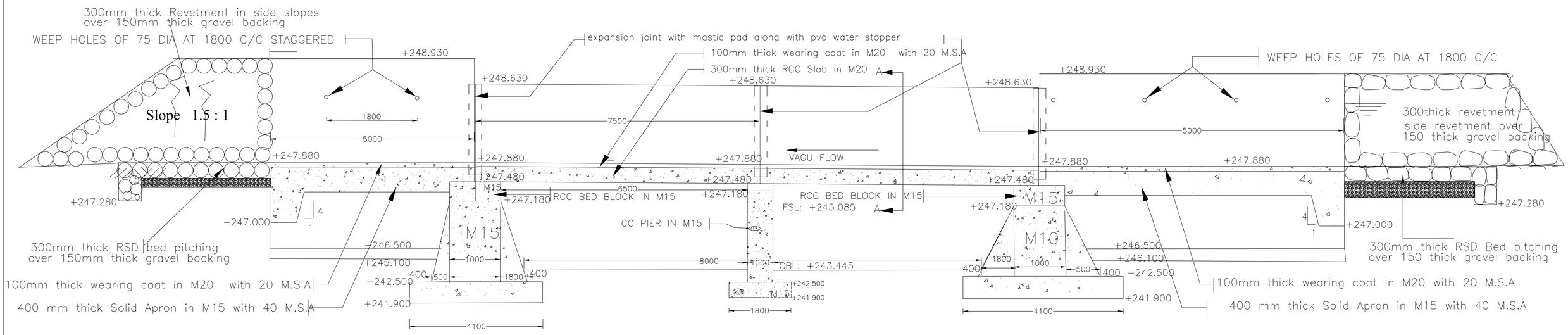


LONGITUDINAL SECTION AT X–X

REINFORCEMENT DETAILS OF TROUGH OVER THE PIER

DRAIN UPSTREAM WING & RETURN WALL

DRAIN DOWNSTREAM WING & RETURN WALL

NOTES ACCOMPINING THE DRAWING:

1. All dimensions are in millimetres and levels are in meters, unless otherwise specified.
2. The measurements are to be read but not to be scaled
3. Wings and returns are designed adopting T.V.A.Procedure saturated unit weight of earth is taken as 2100 kg/m3. Angle of repose as 30 degrees angle of internal friction between backfill and wall face as 16 degrees.

(A)SPECIFICATIONS:

1) The materials of construction shall conform to the following specification requirement of Indian standards (whenever revised, the same are to be adopted)
   (a) CEMENT : 43 Grades
   (b) STEEL : HYSD Bars of grade Fe 415(tor-40) IS 1786-1985.
   (c) AGGREGATES : IS 383-1970(second revision).
2) Plain and reinforced concrete shall conform to the requirements of IS 456-2000.

3) The super passage is designed as water retaining structure. The trough shall be in cement concrete M20 grade using 20 mm HBG Machine crushed graded metal. The construction of super passage shall be done in one operation without leaving any longitudinal joint in the trough slab.

4) The mix proportions and size of aggregate for various components of super passage shall be as follows:
   a) Wearing coat on super passage trough slab shall be 100 mm thick in CC M20 grade using 20mm HBG Machine crushed graded aggregate.
   b) Wearing coat over transition floors shall be 100mm thick in CC M 20 grade using 20mmHBG machine crushed graded aggregate
   c) R.C.C.Trough slab and sidewalls shall be in M.20 grade concrete using 20mm H.B.G machine crushed graded aggregate.
   d) The bed blocks over the piers and abutment shall be with R.C.C. M 20 grade concrete with 20mm HBG machine crushed graded metal. The bearing surface over the bed blocks is to be rendered perfectly smooth in CM (1:3) mix and with thick Kraft paper shall be placed before the trough slab is laid.
   e) Abutments shall be in CC M15 grade using 40mm H.BG.machine crushed graded metal.
   f) Transition floors, cut offs, foundations of Abutments, wings and returns in CC M15 grade using 40mm HBG machine crushed graded metal.

5) (a) The wearing coat shall be laid monolithically with the base slab.
   (b) The bed and sides of canal shall be lined with 100mm thick concrete in CC M15grade for a length of 10mts on either side of the structure or as per the agreement conditions whichever is lengthier.
6) All concrete shall be machine mixed and vibrated.

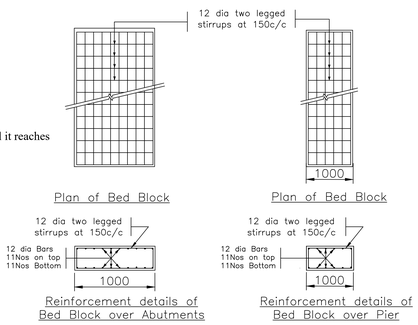
7) The slab and sidewalls of trough shall be laid monolithically.
8) No water pressure is considered in the design of. Wings and returns. It is therefore, necessary to ensure free drainage arrangements. Therefore, Weep holes spaced at 1800mm c/c staggered shall be provided in wings as specified in the drawing, with reverse filters as per IS 4558- 1985.

9) 12mm thick expansion joint with 300 mm wide P.V.C. stopper shall be provided at the junction of trough over the piers and for joints between wings and trough slab over pier and abutments.
   12 mm thick expansion joints filled with mastic filler as proposed for bridge slab over pier and abutments.

10) Pressure relief holes in the form of no fine concrete blocks at 1800mm c/c and staggered shall be provided in transition floors both U/S and D/s as shown in the drawing.
11) The U/s and D/s protection works shall be done as shown in the drawing.
13) The notes accompanying the drawing shall be kept in the view during execution.
14) Suitable approach and tail channels may be formed at the time of execution to meet the actual vagu course by allowing safe velocities, and as per the hydraulic calculations made in the design analysis and as per the site conditions.
15) The Engineer-in-charge of construction shall satisfy himself about the suitability of drawing of super passage with reference to the field conditions; before taking up the execution of the work .The bed level and other H.P's of canal now adopted in the design and drawings are as per the approved H.Ps .
16) The coarse aggregate for all R.C.C. work shall be 20mm graded hard granite variety and machine crushed metal.
17) Concrete for M20 grade shall have a specified characteristics compressive strength of 20 N/mm2 on 150mm cube at 28 days.
18) Tail channel with bed width as shown in the drawing and 1½ : 1 side slopes has to be excavated from D/s transition till it reaches the natural vagu course as per the site condition.
19) Length of laps in reinforcing bars shall be according to the clause26.2.5.1 of IS 456-2000.
20) The following are the permissible stress considered in the design of R.C.C members.
   (1) For faces away from water retaining sides
      Stress in steel :1840 kg/cm2
      Stress in concrete :70kg/cm2
   (2) For faces in direct contact with water
      Stress in Steel :1500Kg/cm2
      Stress in concrete :50kg/cm2
21) The reinforcement in the vertical wall/beam and in the slab are to be staggered so that the bars in horizontal will be just at the centre of bars in verticals and vice versa in order to avoid crowding of bars at corners to facilitate better placement of concrete.
22) Full scale elevation for the bars shall be laid out on plane plastered floor to the dimensions shown in drawing, so as to get correct clearance between different bars and then the bars bent up to the proper shape.
23) Clear cover of concrete shall be as follows:
   (a)Vertical members = 40mm
   (b)Horizontal members = 30mm.
24)Skin reinforcement shall be provided with 8 mm dia @ 250c/c in abutments and pier.
25)Necessary arrangements should be made for the continuity of the inspection track.
26) During execution if inferior soils are met with at foundation levels of wings and returns, the sections of wings and returns are to be revised suitably.

H PS 2R MINOR OF THONDUR DISTRIBUTORY OF PBC SYSTEM

SL NO.	PARTICULARS	VALUES
1	DISCHARGE REQUIRED	0.2298 Cumecs
2	DISCHARGE DESIGNED	0.2298 Cumecs
3	BED WIDTH	1.00 M
4	FULL SUPPLY DEPTH	0.60 M
5	BED LEVEL	+247.880
6	FULL SUPPLY LEVEL	+248.480
7	T.B.L.	+248.780
8	SURFACE FALL	1 IN 2000
9	SIDE SLOPES	1.5 : 1
10	TOP WIDTH OF BANKS (L/R)	
11	FREE BOARD	0.30 M
12	COEFFICIENT OF RUGOSITY	0.018 M
13	VELOCITY	0.607 m/sec



NOT TO BE SCALED

For KBL-MCCL joint Venture
Authorised Signatory

Assistant Executive Engineer
GKLI Sub-Division No- 4
KONDAPURAM

Deputy Executive Engineer
GKLI Sub-Division No- 4
KONDAPURAM

GOVERNMENT OF ANDHRA PRADESH			
CLIENT :	IRRIGATION & C.A.D DEPARTMENT		
CONTRACTOR :	KBL_MCCL(JV)		
PROJECT :	GANDIKOTA LIFT IRRIGATION SCHEME		
TITLE:	Superpassage cum SLB at km: 15.375 of feeder channel from paidipalem to Himakunta sump GENERAL PLAN, ELEVATION, SECTION & NOTES		
Prepared by: Contractor, KBL_MCCL(JV)	Submitted by: Executive Engineer GKLI DIVISION PULIVENDULA	Approved BY: Superintending Engineer, G.N.S.S.Circle,KADAPA	
DRG NO : 2/3			