

7. CANAL DROPS

S.No.	ITEM/COMPONENT	REFERENCE
I	GENERAL 1.The proposals,be scrutinised and verified by the Unit Officers before communicating to the C.D.O for vetting. 2.The Hydraulic Particulars of canal be scrutinised,verified and confirmed by the Unit Officers.	
II	SITE SURVEY:	
1	Site Survey to be furnished as per check slip for Drops with the following details	Check slip enclosed
a	i)Report accompanying the Site survey ii)H.P.s of canal.	
b	Site plan with flow direction of canal along with net levels @ 10m intervals & contours.	
c	LS of canal: i)covering 500 meters on U/S &D/S with levels @10m interval.	
d	Bore hole data /TPs upto Hard strata or for min. depth of 2m along the Centre line @ suitable intervals depending upon the importance of structure with minimum 2 Nos covering Canal @ centre & D/S sides.	Table I & II of APERL for test results of foundation soils enclosed. IRC 78 : 2000
II	DESIGN :	
a	Note on Principles of Design,the assumptions made & the general features of the structure.	
b	HYDRAULIC DESIGN 1.Fixation of crest ,Throat width of drop wall, Length of stilling basin and other components of stilling basin. 2.Design of Drop wall. 3.Transitions lengths on U/S & D/S . 4. Scour depth calculations. $R = 1.34 (q^2/f)^{1/3}$ with relevant factor of safety. 5. Checking of thickness of apron 6. Exit gradient calculations $G_E = (H/d) \times [1/(\pi \sqrt{\lambda})]$; Where $\lambda = [1 + \sqrt{(1 + \alpha^2)}]/2$; $\alpha = b/d$ 7. Proposal Sketch	Manual on canal falls,I.S:4997 Text Book of Irrigation Manual by W.M.Ellis. IS : 7784 (part - I) - 1993 IS : 7784 (part - I) - 1993 Publication No.12 of CBIP Publication No.12 of CBIP
c	STRUCTURAL DESIGN a. Design of Body wall (Drop wall) b. Design of stilling Basin. c. Design of wing walls &Return walls both on U/S &D/S of canal - The walls are to be designed adopting TVA procedure/ Coulomb's Theory / Rankine's Theory with a top width of 500mm. d) Tabulation of stress table :- A consolidated stress table has to be furnished indicating the stress on concrete & stress on soil for the Body wall& Wings e)Minimum grade of PCC shall be M10 Grade,unless otherwise specified. f) Wearing coat over Body wall & stilling basin minimum grade shall be CC M20 grade,unless otherwise specified.	As per IS: 456-2000 and IS: 3370-1965 IS: 4997- 1995 TVA Hand book , IS 1904-1966 IS-456:2000 IS-456:2000

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d	MISCELLANEOUS DETAILS:- a)Water stops b)Weep holes in the Retaining walls c) Expansion , Contraction & Construction Joints	IS:7784-1993 IS:7784-1993 IS : 3370 (part I) - 1965
III	DRAWINGS a) General Layout on net level plan duly showing contours. b) General plan & Sectional elevation & End View- Plan indicating Half plan @Top &Half plan @ bottom & Sectional Elevation along the LS of the canal & End View along the cross section of the canal. c)Wall Sections & Details of miscellaneous items. The drawings shall contain assumptions made,TPs,Specifications,HPs of canal,Bar bending schedule where-ever applicable, Stress table etc.	Scale : 1:50, 1:100, (or) 1:200 i)Scale : 1:50,(or) 1:100 for sections ii)Scale: 1:25(or)1:20 for Rcc details