



**GOVERNMENT OF TAMILNADU
WATER RESOURCES ORGANISATION
PUBLIC WORKS DEPARTMENT
CHENNAI REGION, CHENNAI**

**TAMILNADU IRRIGATED AGRICULTURE MODERNISATION AND
WATER RESOURCES MANAGEMENT PROJECT**

**REHABILITATION OF LEFT OUT INFRASTRUCTURES IN IAMWARM SUB
BASINS UTILISING THE SAVINGS - PHASE – III**

PACKAGE NO.I IAMWARM/WRD/ GDN/ LEFT OUT WORKS/ III

**GADILAM SUB BASIN
DETAILED PROJECT REPORT**

ESTIMATE AMOUNT : 127.04 LAKHS

DETAILED PROJECT REEPORT ON REHABILITATION OF LEFT OUT TANKS AND ANICUT IN PHASE III OF GADILAM SUB BASIN IN ULUNDURPET TALUK IN VILLUPURAM DISTRICT.

Estimate Amount Rs. 127.04 Lakhs

INTRODUCTION :-

The Government of Tamilnadu have taken a number of progressive actions on water resources and irrigation management, particularly through the bank assisted Tamil Nadu Water Resources Consolidation Project (WRCP) which was closed in September 2004 with a satisfactory rating. Now the Tamil Nadu Government have decided to implement a project for the modernization of the Traditional Irrigation systems in Tamil Nadu with a loan assistance from World Bank. The World Bank had also come forward to assist the Tamilnadu Government's proposal. Under the World Bank funded project of "Irrigated Agriculture Modernization and Water Resources Management –(WRCP- II) about 16 river sub basins have been selected and proposed to be taken up under the control of Water Resources Organisation Wing of Public Works Department of Tamilnadu. The Gomukhinadhi sub basin is one among the sixteen

1. Gadilam Nadhi Sub Basin:

The Gadilam River originates in Swamymalai hills in Villupuram District and drainage from Melaphazhengoore reserve forest in Kallakurichi Taluk of Villupuram District. The Gadilam River sub basin is located between Latitude $79^{\circ} 10'25''$ – $79^{\circ} 50'30''$ and Longitude $11^{\circ} 43'30''$ $11^{\circ} 55'45''$ and its surrounded by Vellar river basin on the South side, Varahanadhi basin on the North side and bay of Bengal on the east. The River flows for a length of 180 km.

There is no direct ayacut and system tanks in this basin and consists mainly non-system tank which are rainfed. The Gadilam sub basin is having 86 Nos. of non system tanks and 14 Nos. of Anaicuts which is having a total ayacut 9356.95 Ha, being maintained by PWD. The Gadilam Sub Basin area receives an average annual rainfall of 920.79mm.

In Phase III of IAMWARM Project, rehabilitation works to Irrigation Structures in GADILAM Sub Basin in Ulundurpet Taluk in Villupuram District have been taken up during the year 2011-2012 and works are in progress. Gadilam sub basin falling under Pennaiyar Basin which feed many irrigation tanks lying under respective water courses.

Under Phase III of IAMWARM Project in Gadilam Sub Basin, The estimate prepared for the schedule of rates for the year 2009-2010 has been cleared by the World Bank and subsequently the Government has administratively sanctioned the proposals in G.O.Ms.No.311/Public Works (WRI) Department dated 21.10.2010. Among the Gadilam Sub basins Rs.3051.68 Lakhs has been provided for the Rehabilitation of Works in Gadilam Sub basin comprising 9 packages. There are 86 non system tanks and three Anicut in this sub basin comprising 9 packages in Ulundurpet Taluk in Villupuram District.

In these packages 86 tanks and three Anicut are proposed to taken up and these works are nearing completion as per estimate and agreement.

The above Packages works are carried out according to the DPR and as per estimate, while preparing estimate these Tanks and Anicut are left un noticed and subsequently brought to the knowledge of WRO by the WUA people during execution of above works.

During WRO officials visit to the sub basin they also emphasized the need of taking up the left out tanks and anicut. As pointed out by the WUA.

By utilizing the overall savings amount available in the project additional rehabilitation works proposed in this Sub Basin area, based on the agreed actions in the wrap up meeting chaired by the Finance Secretary on 17.09.2012, which was communicated in Engineer in Chief WRD Letter Notec Cell/57252/WB Mission/2009 dated 05.10.2012.

The Block Level Water Users Association meetings conducted during November 2010 and feedback obtained regarding the success of the IAMWARM Project. In the above meetings, a questionnaire (Department wise) given to the WUA representatives and obtain the feedback.

By analyzing the feed backs given by them it is found that some essential works were left out in the IAMWARM Project. Based on their feed back again a walk through survey conducted along with the WUA President and TC Members, left out essential Tanks and Anicut components identified and the particulars gathered accordingly.

TANKS

In this Sub basin totally 86 Nos. of tanks and 3 Anicut rehabilitated under IAMWARM project out of 109 Nos. of tanks and 4 Anicut available in the Sub Basin area. In those 86 tanks and 4 Anicut all the infrastructures renewed and brought to farmers use successfully. But, some of tanks & components were left out due to various reasons. Now they are brought in to Participatory Irrigation Management by forming WUAs and made awareness. In such tanks reconstruction of Sluices, reconstruction of Weirs, strengthening tank bund are proposed in this Additional Proposal.

Considering the ayacut under these Tanks and Anicut, these water bodies require urgent renovation works so as to bring them to the original and designed standards and harvest water to provide irrigation facilities to the ayacut under the respective tanks. The bunds of the tanks have to be strengthened to following standards.

1. Top width : 3.00 M
2. Front & Rear slope : 2:1
3. Free board : 1.50 M

Out of **91** tanks in this sub basin **86** tank bund standardization was carried out and it is now proposed to take up left out of 5 tanks bund standardization.

Out of **148** sluices in this sub basin **124** sluices has been repaired and reconstructed

Now **5** sluices is proposed to reconstruct

Out of **70** weir in this sub basin **48** weir has been repaired and reconstructed

Now **5** weir is proposed to repair

Tank bund

Provision are made in 5 Tanks for bund strengthening, TBL Stone, Boundary Stone, fore shore bund, Turfing at rear slope and Gravel Topping.

Weir.

Following repairs in the weir are proposed:

Skin wall: E.W foundation, M10 using 20mm, Rcc M20 using 20mm with steel and D/S apron in PCC M20 using 20mm, cutoff wall M10 using 20mm, Model section and measuring device of each sluice portion.

Lining of Irrigation channel

Lining of Irrigation channel is now proposed for a length of 15m each tank and Provision for E.W foundation & M15 using 40mm 0.30 thickness of 0.75m height in M15 using 40mm.

Supply channel

Desilting of Supply channel, Bed bar at every 100m using M10 20mm and provision also made for construction RCC culvert in supply channel.

Apart from this, Sluices and weirs are to be reconstructed so as to make the water bodies fully functional. Hence these tanks and Anicut can be taken up under IAMWARM Project in Gadilam Sub Basin.

These additional tanks and Anicut in Gadilam sub basin covers Ulundurpet in Villupuram District.

By utilizing the over all savings amount available in the project the following essential components like strengthening of left out tank bund, Reconstruction of left out sluices and Weirs are provided wherever needed. Also the WUA's representation also considered and for the essential requirement in the water bodies, this additional proposal prepared. The total cost for the DPR works out of Rs. **127.04** Lakhs.


ASSISTANT EXECUTIVE ENGINEER
WATER RESOURCES ORGANISATION P W D
VELLAR BASIN SUB DIVISION
KALLAKURICHI - 606 202


Executive Engineer P.W.D./W.R.O.
Vellar Basin Division, Vriddhachalam.


Superintending Engineer, P.W.D., W.R.O.,
Vellar Basin Circle,
Cuddalore - 607 001.


CHIEF ENGINEER, P.W.D., WRO.
CHENNAI REGION. CHENNAI-5



STATEMENT -I

Rehabilitation of Left Out works in Gadilam Sub Basin
Abstract showing the details of Rehabilitation works proposed

Region: Chennai

Circle: Vellar Basin Circle, Cuddalore

Nodal Officer: Executive Engineer, PWD., WRO.,

Vellar Basin Divison, Vridhachalam.

Sl. No	Description	Tanks (Nos.)	Anicut (Nos)	Supply Channel Km.	Remarks
1	Available Infrastructure in the Sub Basin	91	8	292.45	
2	Rehabilitation works taken up under IAMWARM Project	86	4	232.75	
	a) Infrastructure in which all the components are in good condition and does not require rehabilitation now	86	4	232.75	
	b) Infrastructures taken up under IAMWARM but certain components not taken up then, but require rehabilitation now	5	-	-	
3	Tanks not taken up for rehabilitation since 2005 under any other schemes	5	-	59.70	
	a) Infrastructure in which all the components are in good condition and does not require rehabilitation now	-	4	39.70	
	b) Infrastructures taken up under IAMWARM but certain components not taken up then, but require rehabilitation now	5	-	20.00	
4	Total No of infrastructure requiring rehabilitation now.	5	-	20.00	

- 1 Certified that the works are proposed in the selected IAMWARM Sub Basin area
- 2 Certified that the Panchayat Union tanks are not considered in this project
- 3 Certified that for item 2 b, the components of the infrastructures now proposed were not taken up under IAMWARM Project.
- 4 For item No.3 - Certified that the works were not executed under various schemes (Viz., NABARD, Part II Schemes, etc.,) and IAMWARM since 2005.



Nodal Officer



Superintending Engineer



Chief Engineer

Statement II - A

REHABILITATION OF LEFT OUT TANKS & INFRASTRUCTURES IN GADILAM SUB BASIN OF IAMWARM PROJECT

REHABILITATION OF TANKS WORKS

Sl. No.	Name of Tank	Tank Bund		Repairs to Sluices		Reconstruction of Sluices		Repairs to Weir		Reconstruction of Weir		Shutter Renewal		Model section		Measuring Device		Total Amount in Lakhs
		Total Length	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	
1	Vellaiyur	1750	9.97	-	-	1	4.42	1	1.64			-	-	1	0.21	1	0.13	16.37
2	Anganur	1650	9.66	-	-	1	3.27	1	1.07			-	-	1	0.23	1	0.13	14.36
3	Panapadi	1700	10.53	-	-	1	5.71	1	1.12			-	-	1	0.23	1	0.11	17.70
4	Manalur	1850	11.25	-	-	1	4.69	1	0.83			-	-	1	0.22	1	0.11	17.10
5	Padur	4640	30.22	-	-	1	4.87			-	-	-	-	1	0.23	1	0.13	35.45
	TOTAL	11590	71.63	0	-	5	22.96	4	4.66					5	1.12	5	0.61	100.98

Tank bund

Provision are made in 5 Tanks for bund strengthening, TBL Stone, Boundry Stone fore shore bund, Turfing at rear slope and Gravel Topping.

Weir.

Following repairs in the weir are proposed.

skin wall, E.W foundation, M10 using 20mm , Rcc M20 using 20mm with steel and D/S apron PCC M20 using 20mm , cutoff wall M10 using 20mm, Model section and measuring device of each sluice portion.


Nodal Officer


Superintending Engineer

Chief Engineer

Statement II - B

REHABILITATION OF LEFT OUT TANKS & INFRASTRUCTURES IN GADILAM SUB BASIN OF IAMWARM PROJECT

REHABILITATION OF IRRIGATION CHANNEL

Sl. No.	Name of Tank	Desilting of Irrigation Channel		Lining of Irrigation Channel		Repairs to Drops, Sphon, Cistern		Reconstruction Culvert		Shutter Renewal		Total Amount in Lakhs
		Nos.	Amount in lakhs	Nos.	Amount in lakhs	Nos.	Amount in lakhs	Nos.	Amount in lakhs	Nos.	Amount in lakhs	
1	Vellaiyur	-	-	-	-	-	-	-	-	-	-	-
2	Anganur	-	-	-	-	-	-	-	-	-	-	-
3	Panapadi	-	-	1	0.65	-	-	-	-	-	-	0.65
4	Manalur	-	-	1	0.63	-	-	-	-	-	-	0.63
5	Padur	-	-	1	0.85	-	-	-	-	-	-	0.85
	TOTAL	-	-	3	2.13	-	-			-	-	2.13

Lining of Irrigation channel

Lining of Irrigation channel is now proposed for a length of 15m each tank and Provision for E.W foundation & M15 using 40mm 0.30 thickness of 0.75m height in M15 using 40mm.



Nodal Officer



Superintending Engineer

Chief Engineer

Statement II - C
REHABILITATION OF ANICUTS AND SUPPLY CHANNELS

Name of sub Basin : Gadilam

Sl. No.	Name of Anicut / Supply Channel	River Bund		Reconstruction of Anicut		Repairs to Anicut		Repairs to Head Sluice		Shutter Renewal		Supply Channel				Bed Bar		Culvert		Total Amount in Lakhs
		Length	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	Length	Amount in Lakhs	Length of retaining wall in M	Amount in Lakhs	Nos.	Amount in Lakhs	Nos.	Amount in Lakhs	
SUPPLY CHANNEL																				
1	Vellaiyur	-	-	-	-	-	-	-	-	-	-	1000	0.74	-	-	11	0.17	-	-	0.91
2	Anganur	-	-	-	-	-	-	-	-	-	-	2000	1.49	-	-	21	0.33	1	1.94	3.76
3	Panapadi	-	-	-	-	-	-	-	-	-	-	4000	3.93	-	-	41	0.66	1	1.96	6.55
4	Manalur	-	-	-	-	-	-	-	-	-	-	1500	1.25	-	-	16	0.25	1	1.75	3.25
5	Padur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6.01	6.01
	TOTAL											8500	7.41				1.41	6	11.66	20.48

Supply channel

Desilting of Supply channel, Bed bar at every 100m using M10 20mm and provision also made for construction RCC culvert in supply channel.



Nodal Officer




Superintending Engineer

Chief Engineer

WRO Cost Table for the Components of work now proposed for which left out infrastructures and Components in IAMWARM - Phase III

Sl.No.	Description of Component	Quantity	Unit	Amount in Lakhs
	TANKS			
1	Tanks Bund	11590	RM	71.63
2	Repairs to Sluices	-	Nos	-
3	Reconstruction of Sluices	5	Nos	22.96
4	Repairs to Weirs	4	Nos	4.66
7	Reconstruction of Weirs	-	Nos	-
6	Construction of Culvert	8	Nos	11.66
7	Shutters Renewal	-	Nos	-
8	Supply Channel	8500	RM	8.81
9	Bund Model Section	5	Nos	1.12
10	Measuring Device	5	Nos	0.61
11	Lining of Irrigation Channel	3	Nos	2.13
	Sub total			123.58
1	Provision for Advertisement Charges, Documentation Charges, Photographic Charges, Name board Charges, PS Charges, and contingences charges @ 2.5%			3.09
2	Provision for Labour welfare @ 0.3%			0.37
	Grand Total			127.04



 ASSISTANT EXECUTIVE ENGINEER
 WATER RESOURCES ORGANISATION P W D
 VELLAR BASIN SUB DIVISION
 KALLAKURICHI - 606 202

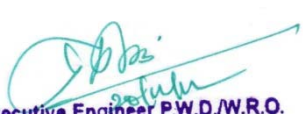

 Executive Engineer P.W.D./W.R.O.
 Vellar Basin Division, Vriddhachalam.



 Superintending Engineer, P.W.D., W.R.O.,
 Vellar Basin Circle,
 Cuddalore - 607 001,

1.6.3.WRO COST TABLE
NAME OF THE SUB BASIN: GADILAM

Sl. No.	Description of work	Length in 'm'	Quantity	Amount in Lakhs	Remarks
1. Tank Component					
1	Standardisation of tank Bund	11590	68000	71.63	
2	Desilting of Supply Channel	8500	26100	8.81	
3	Reconstruction of Sluice		5	22.96	
4	Repairs to Sluice		-	-	
5	Repairs to Weir		4	4.66	
6	Reconstruction of Weir		-	-	
7	Providing Measuring Device		5	0.61	
8	Bund Model Section		5	1.12	
9	ReConstruction of Culvert		6	11.66	
10	Providing New shutter		-	-	
11	Providing Lining		3	2.13	
	Sub Total		-	123.58	
	Environment cell				
	Ground water				
1)	Tank component			123.58	
2)	Non tank component			Nil	
3)	Environment cell				
	Grand Total			123.58	


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 Executive Engineer P.W.D./W.R.O.
 Vellar Basin Division, Vriddhachalam.


 Superintendent Engineer, P.W.D., W.R.O.,
 Vellar Basin Circle,
 Cuddalore - 607 001.

Name of work

**REHABILITATION OF LEFT OUT TANKS &
INFRASTRUCTURE IN GADILAM SUB BASIN OF
IAMWARM PROJECT.**

GENERAL ABSTRACT

Name of work: Rehabilitation of LEFT OUT IAMWARM TANKS
under gadilam sub basin in Ulundurpet and Thirukoilur
Taluk of Villupuram District.

Sl.No	Name of Tank	Amount in Lakhs
Tank Component		
1	Vellaiyur	17.29
2	Anganur	18.11
3	Panapadi	24.90
4	Manalur	20.98
5	Padur	42.30
	Total	123.58
	Provision for Advertisement Charges, Documentation Charges, photographic Charges, Name board Charges, PS Charges and Contingences Charges @ 2.5%	3.09
	Provision for Labour welfare @ 0.3%	0.37
	TOTAL	127.04

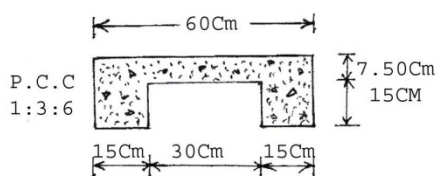
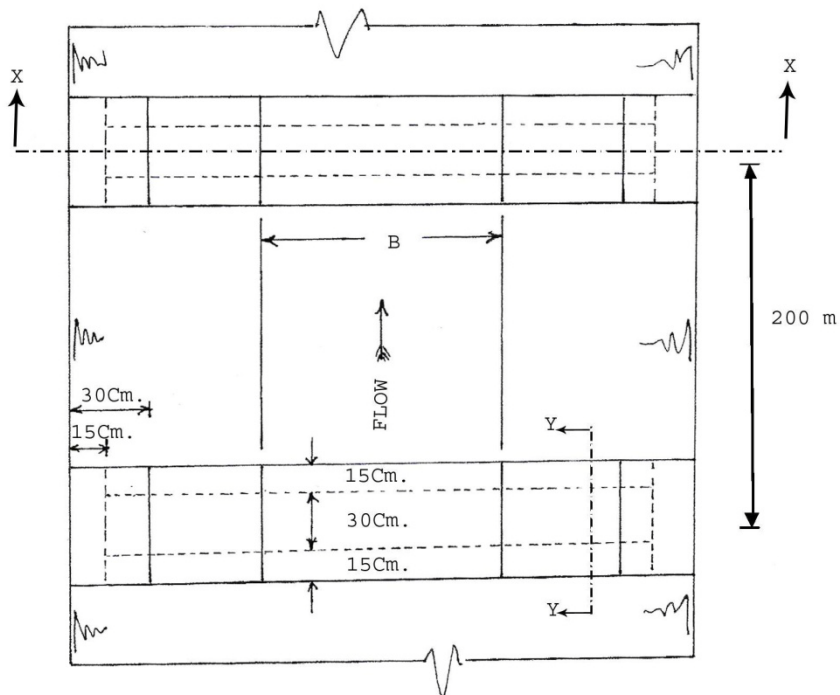
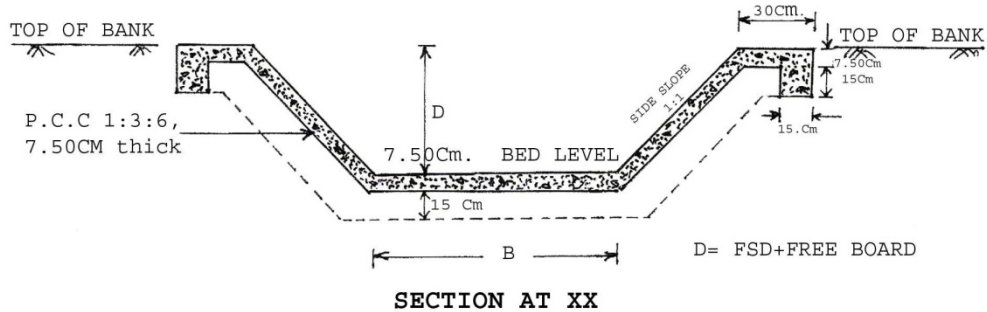

ASSISTANT EXECUTIVE ENGINEER
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CHIEF ENGINEER, P.W.D., W.R.O.
CHENNAI REGION, CHENNAI-5

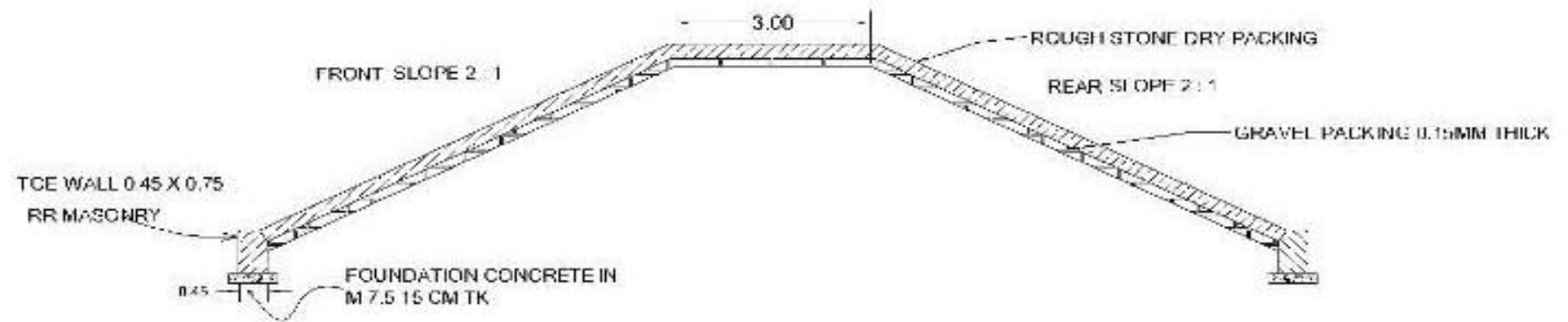
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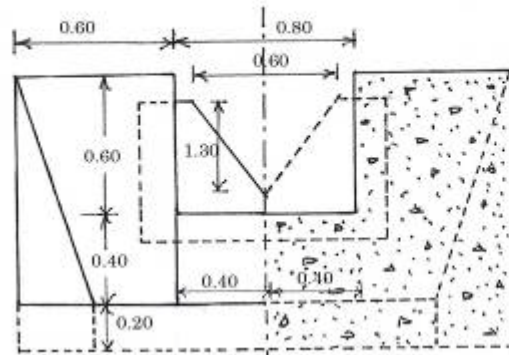
TN IAMWARM PROJECT - PHASE -III
GOMUKHI SUB BASIN
TYPICAL SKETCH OF BED BAR /
MODEL SECTION FOR
SUPPLY CHANNELS
SCALE:- NOT TO SCALE

Ref :- Guidelines by thiru.R.K.Malkothra W.B.Consultant

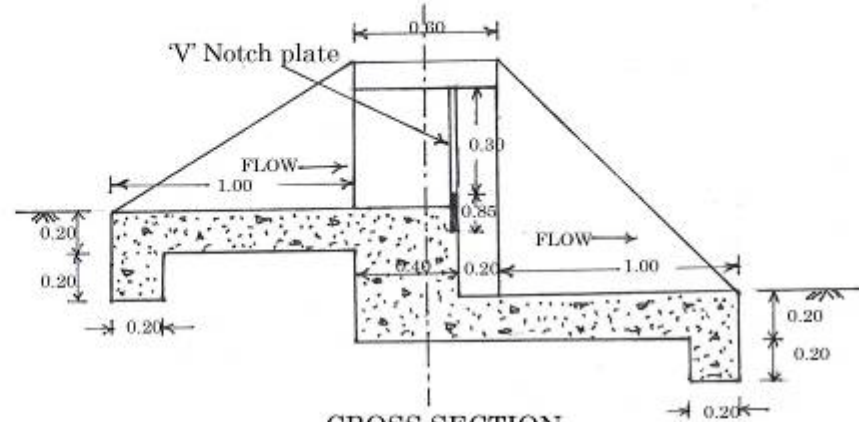
CONSTRUCTION OF MODEL SECTION IN TANK



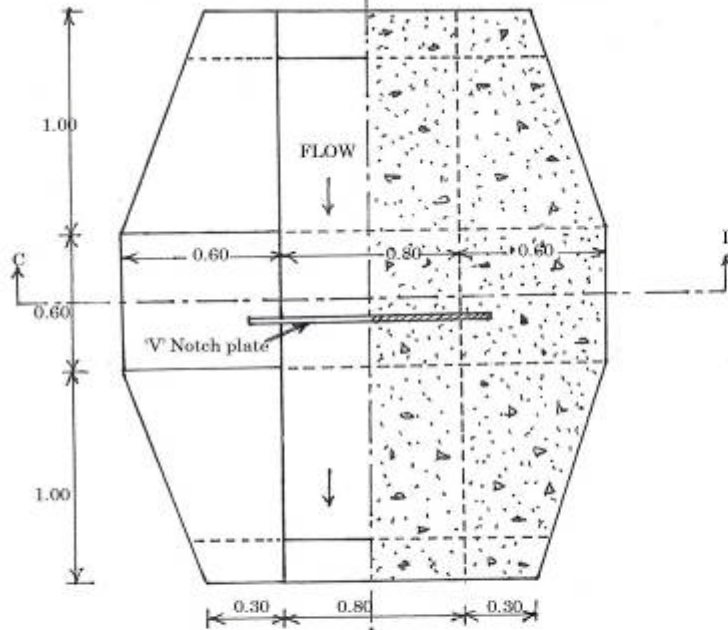
* All Dimensions are in Meters
Scale 1:10



HALF FRONT ELEVATION AND HALF SECTIONAL ELEVATION AT 'CD'



CROSS SECTION



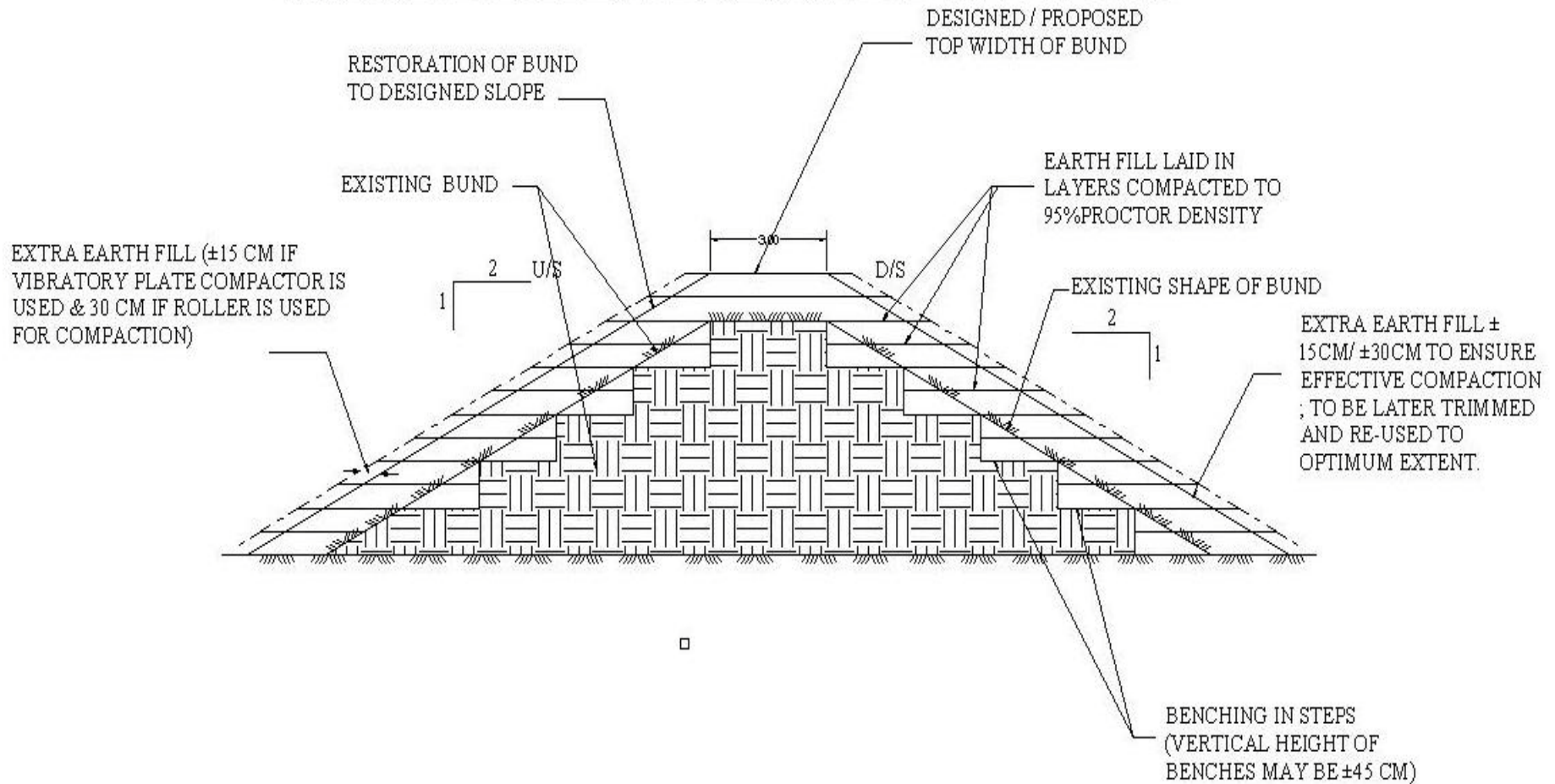
HALF PLAN AT TOP AND HALF PLAN AT BOTTOM

'V' -NOTCH - SALIENT DETAILS (For 1 to 4 C/s)

Discharge		Head Over Crest Cm	V' Notch size Cm	Overall size Cm
Cusec	Litre / sec			
1	28.3	20.5	25 x 50	50 x 65
2	56.6	27	30 x 60	50 x 75
3	85	32	35 x 70	55 x 90
4	113.27	36	42 x 84	60 x 100

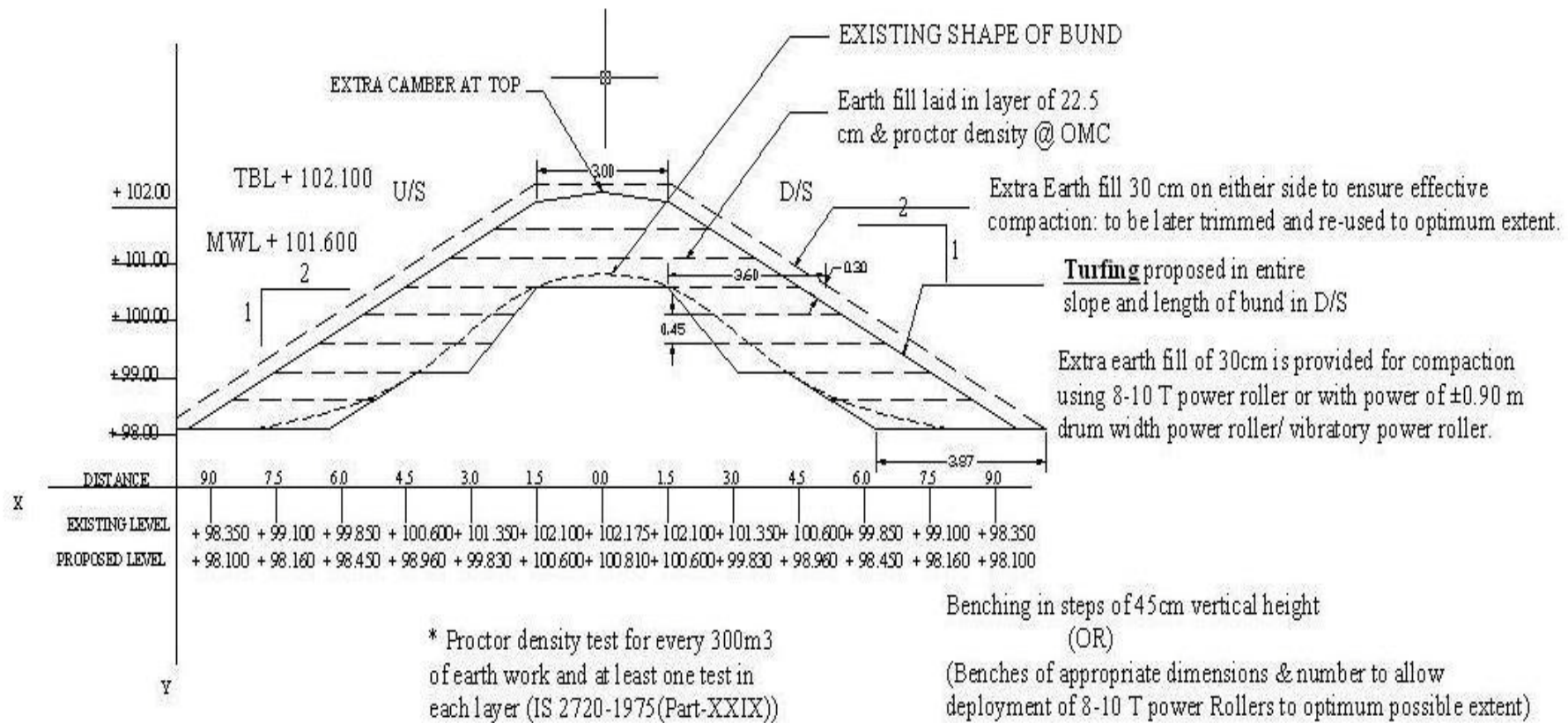
IAMWARM PROJECT - PHASE III
GOMUKHINADHI SUB BASIN
PROVIDING FLOW MEASURING
DEVICE ('V' NOTCH) IN THE FIELD
CHANNEL OF TANK SLUICE
Scale :- 1cm = 0.25m
All dimension are in 'Metre'

RAISING & STRENGTHENING OF TANK BUND



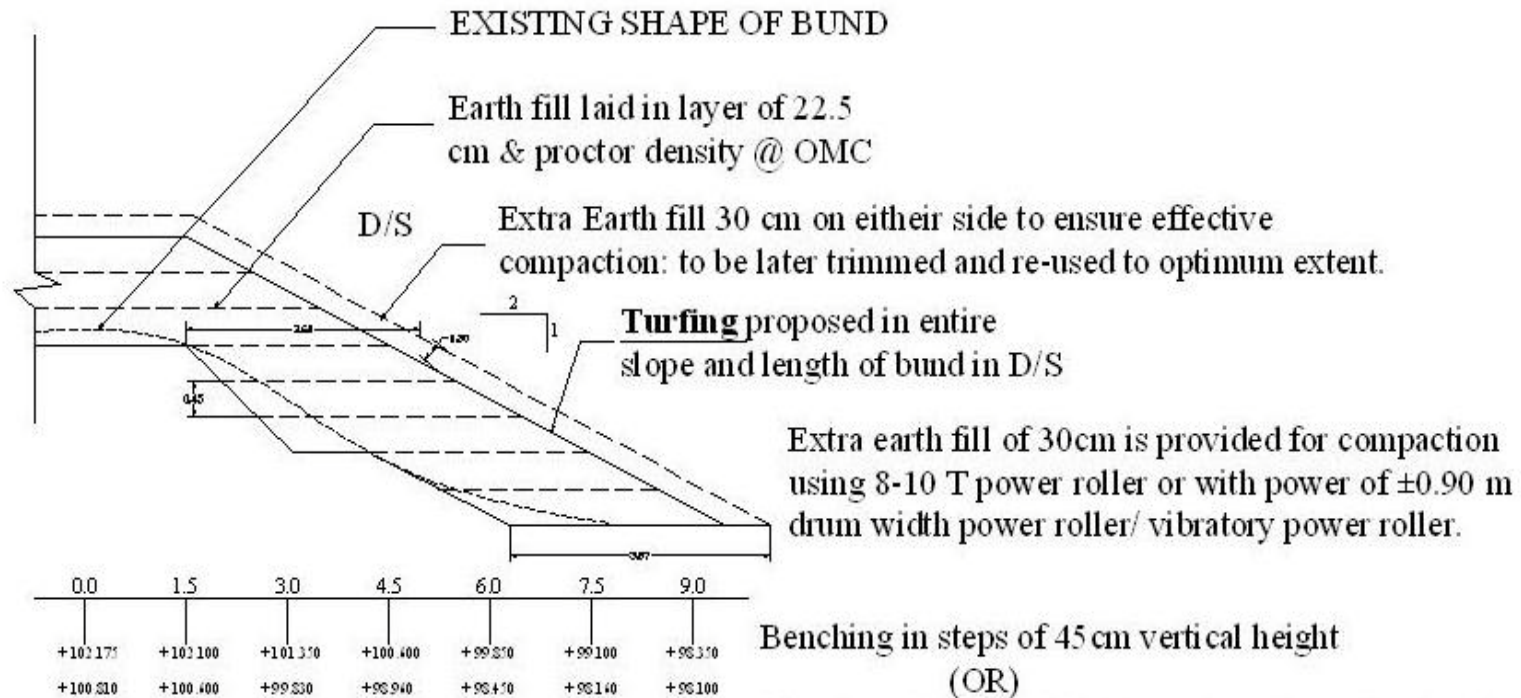
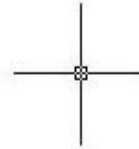
ALL DIMENSIONS ARE IN METER

METHODOLOGY OF RAISING & STRENGTHENING OF TANK BUND



ALL DIMENSIONS & LEVELS ARE IN METERS

METHODOLOGY OF RAISING &
STRENGTHENING OF TANK BUND

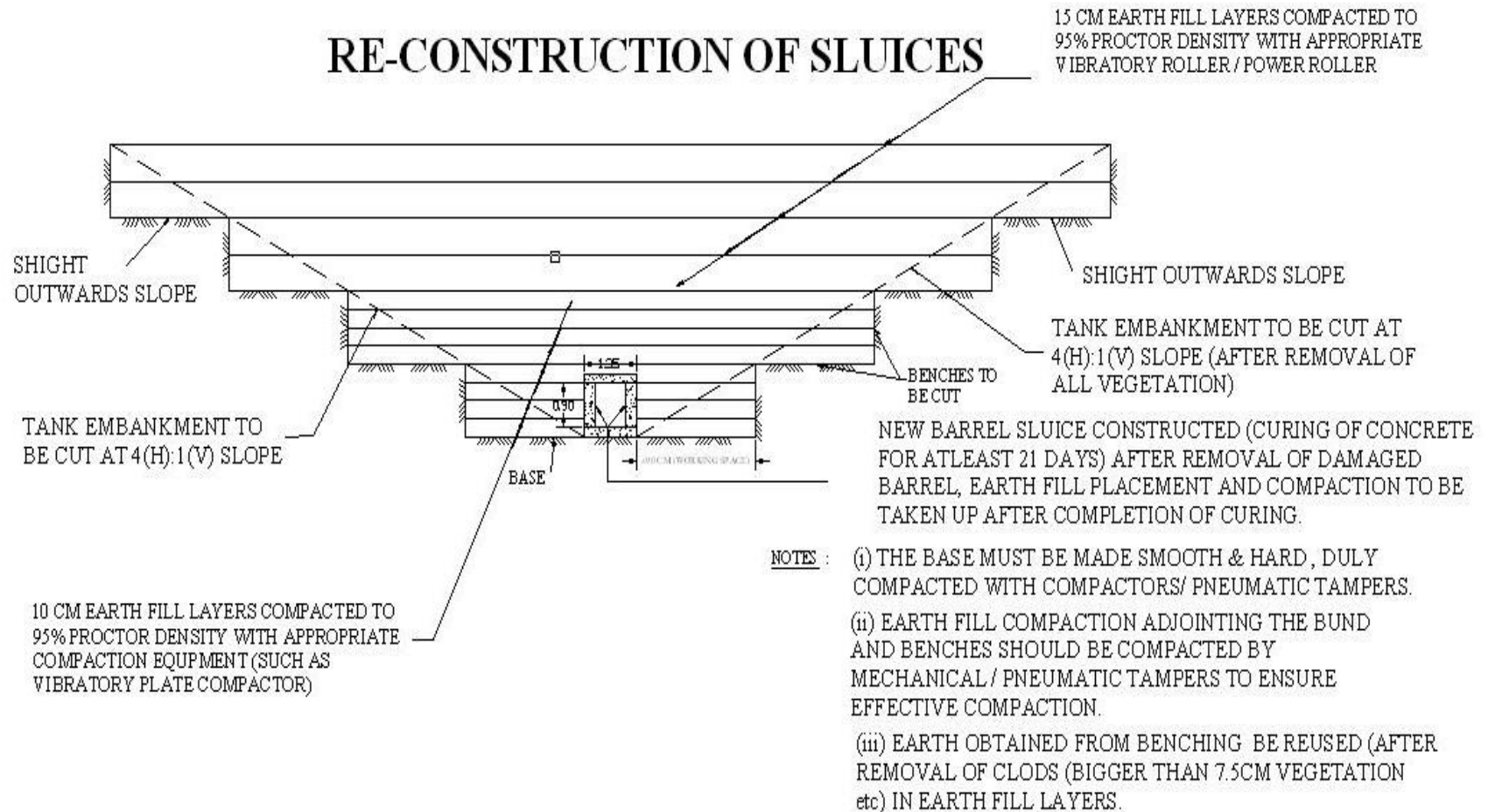


* Proctor density test for every 300m³ of earth work and at least one test in each layer (IS 2720-1975 (Part-XXIX))

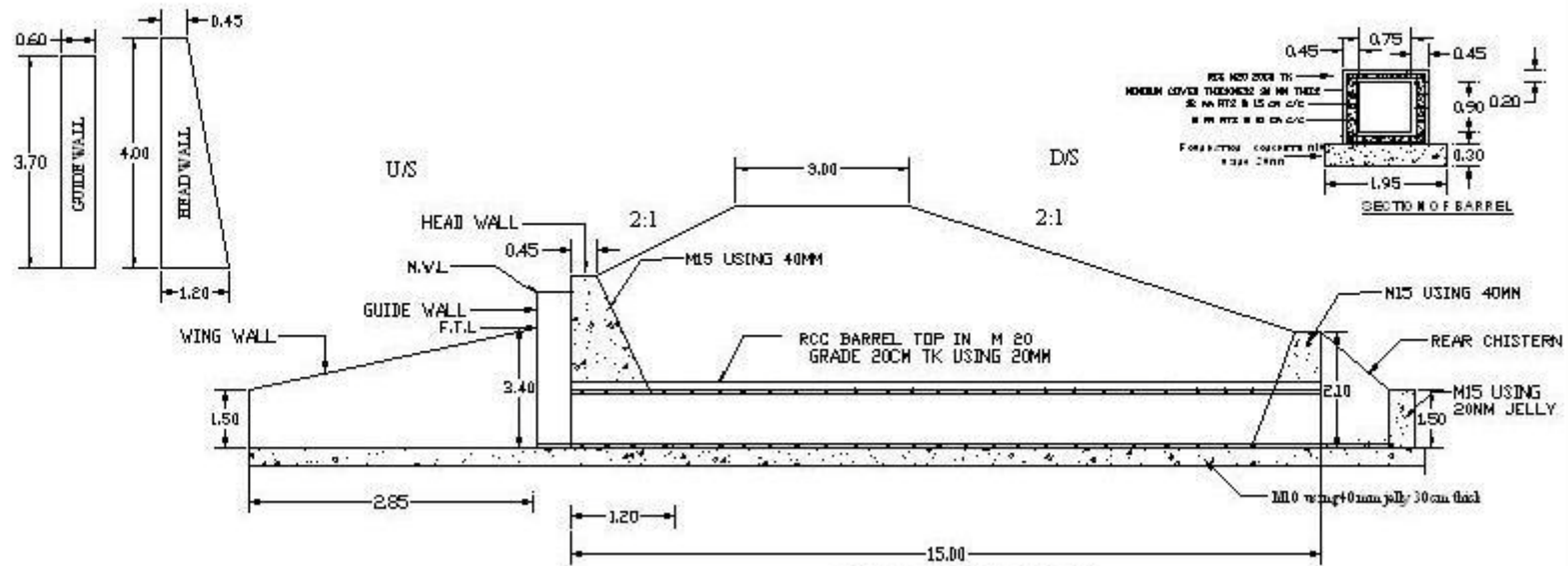
ENLARGED (PART SECTION)

ALL DIMENSIONS & LEVELS ARE IN METERS

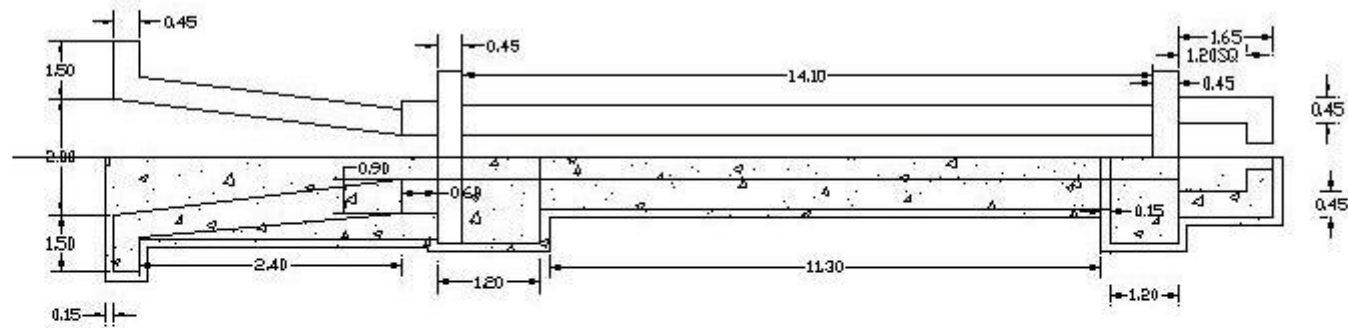
RE-CONSTRUCTION OF SLUICES



ALL DIMENSIONS ARE IN METER



CROSS SECTION



HALF PLAN AT TOP & HALF PLAN AT BOTTOM

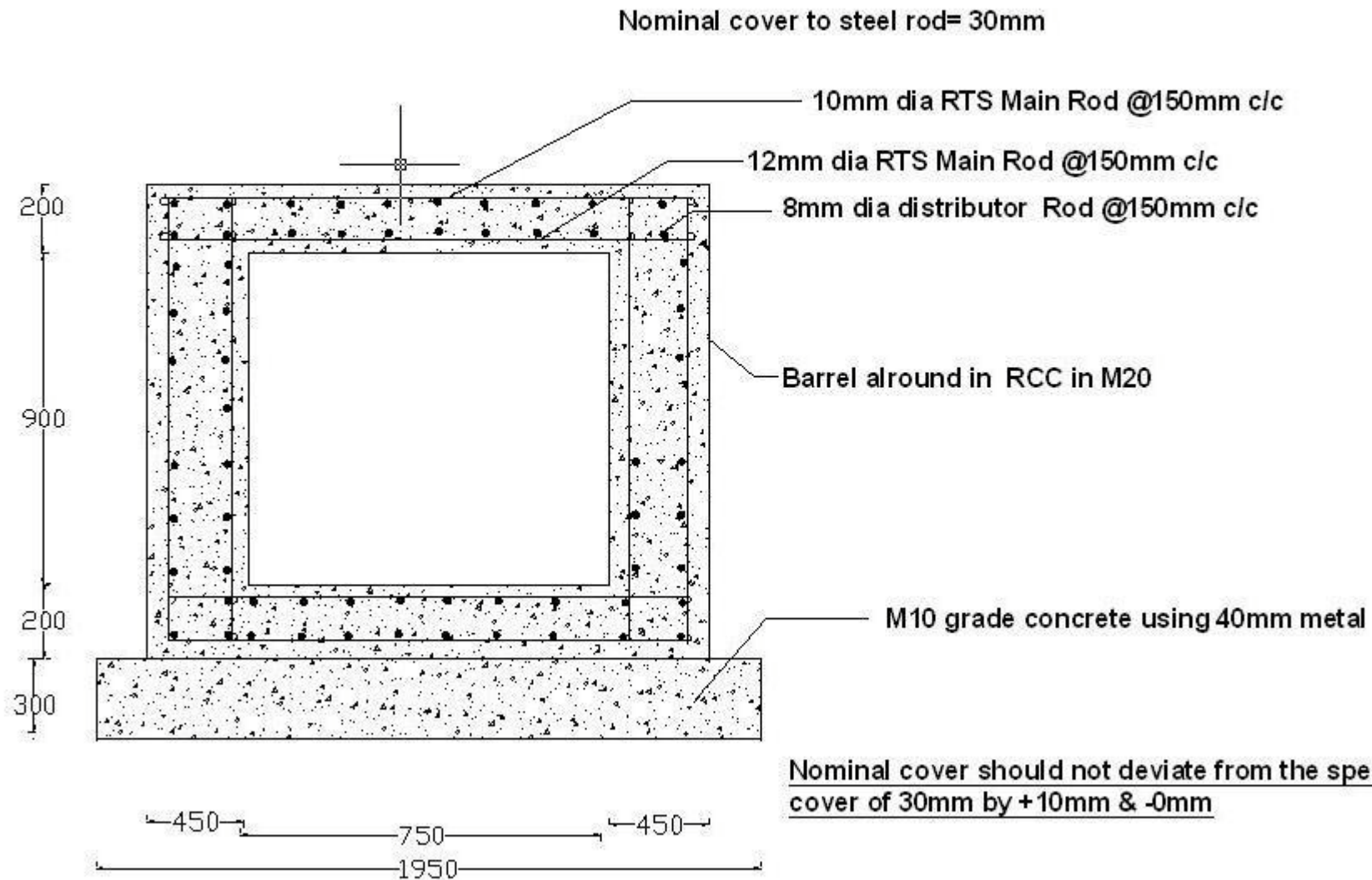
Certified that the reconstruction work is done as per the existing hydraulic particulars.

NAME OF WORK:

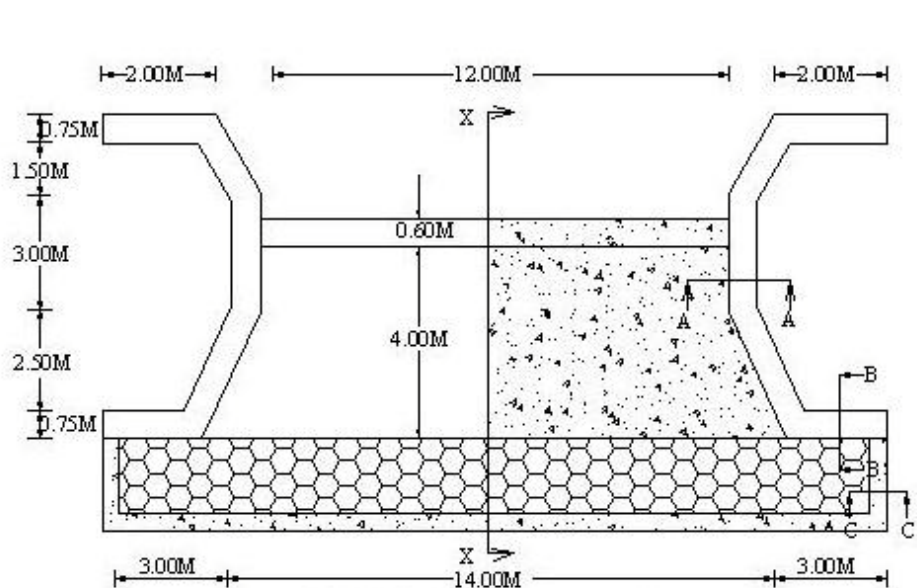
RE CONSTRUCTION OF WING WALL SLUICE
IN PANAPADI TANK

ALL DIMENSIONS ARE IN METER

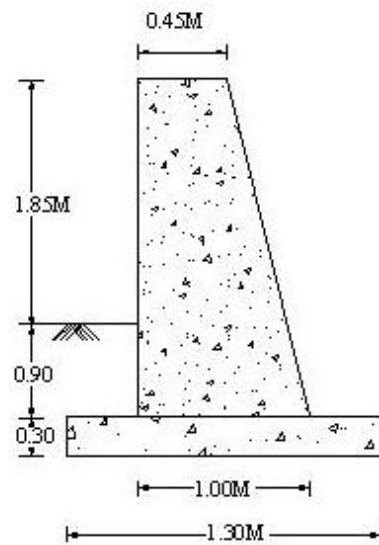
TYPICAL CROSS SECTION OF SLUICE BARREL



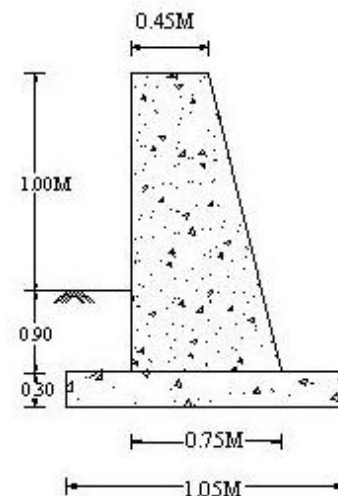
ALL DIMENSIONS ARE IN METER



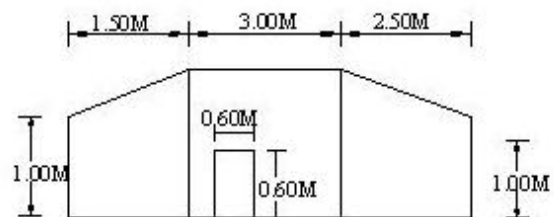
Weir Half plan at top and bottom



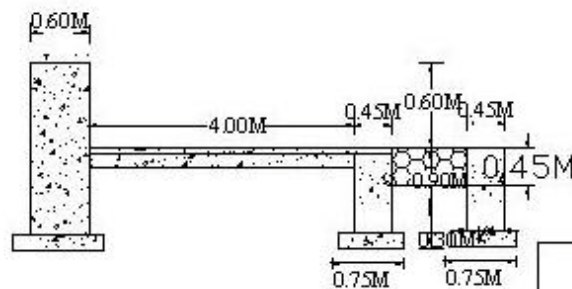
Abutment C/S at "AA"



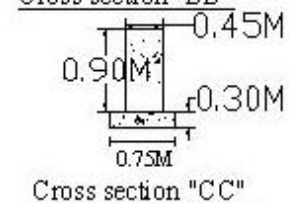
Cross section "BB"



Longitudinal section of abutment



Cross section of weir at "XX"



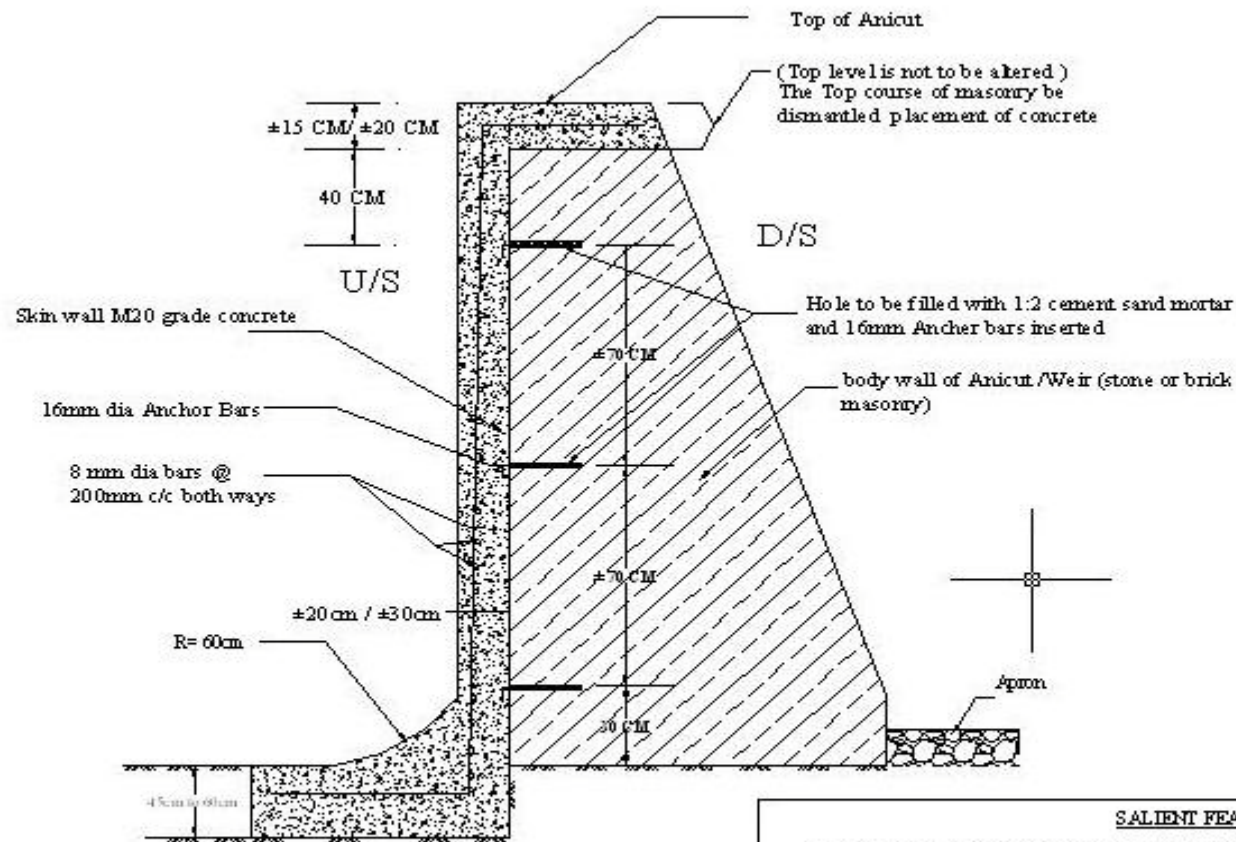
Cross section "CC"

REPAIRS TO WEIR

ALL DIMENSIONS ARE IN METER

TYPICAL SKETCH

Rehabilitation of Anicut & Weirs through SKIN WALL Concrete

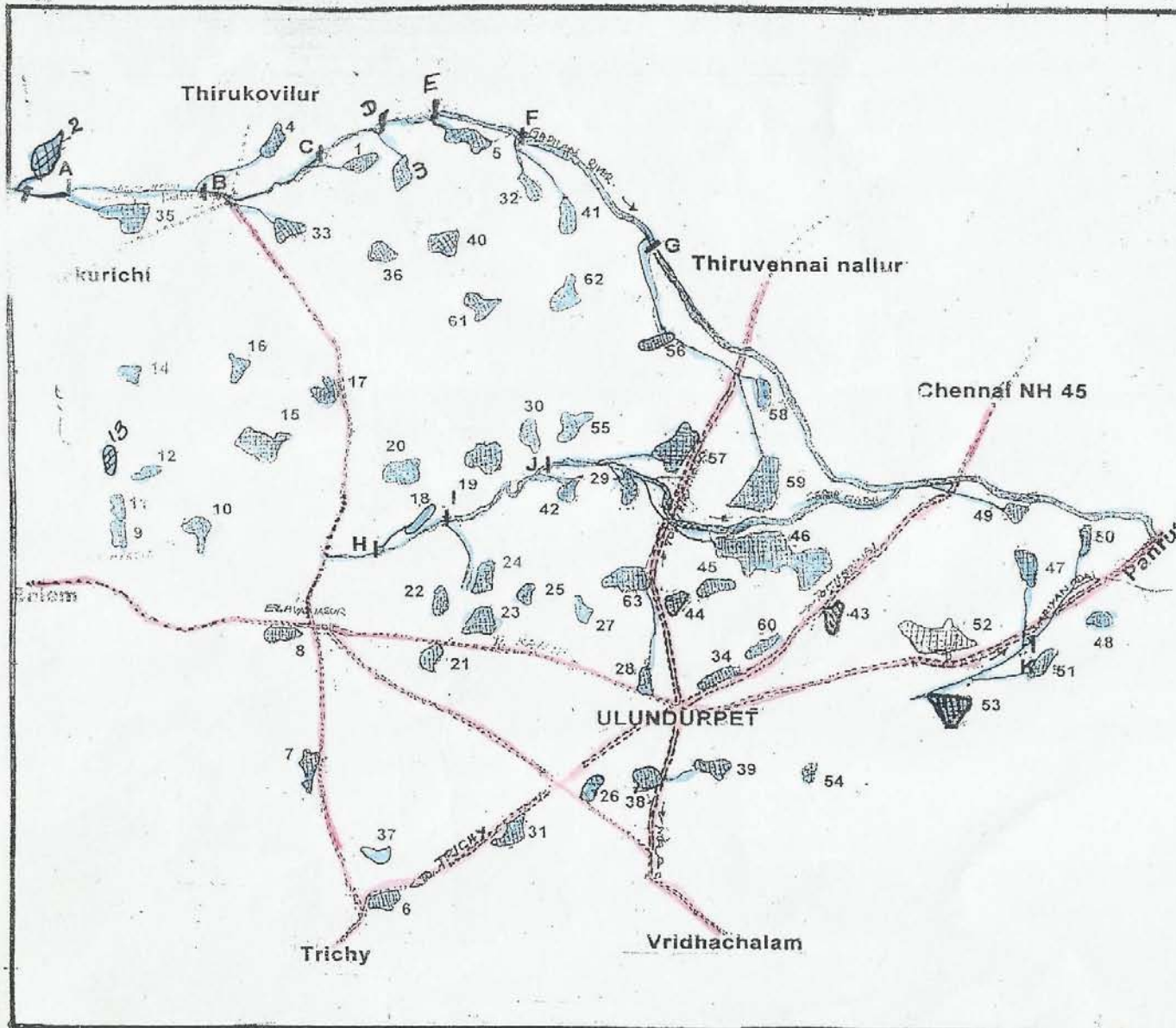


SALIENT FEATURES

- * Joints on U/S surface to be taken to 25mm depth & surface Toughened by chipping.
- * Drill holes of 50mm to be filled with 1:2 mortar and 16mm Anchor bars to be pushed in.
- * The roughed surface to be left wet for 72 hours and cement slurry (1:2.5) of 0.70 water-cement ratio be applied over the surface prior to placement of skin concrete.
- * concrete of M20 grade is to be used with 20mm maximum aggregate size.
- * curing is to be done for 21 days.
- * Thickness of skin concrete : 15cm at top & 20cm at bottom for Anicuts & weirs of height upto ±1.50m and 20cm at top & 30 cm at bottom for Anicuts of height more than ± 1.50m

JURISDICTION MAP, IRRIGATION SECTION - ULUNDURPET.

TANKS



01. ALUR	33. KATTUSELLUR
02. PANAPPADI	34. ULUNDUR
03. MOHALAR	35. KATTUEDAIYAR
04. MEMALUR	36. PERIYAKURUKKAI
05. ARUNKURUKKAI	37. AMAZHAVARAYANUR
06. ASANUR	38. KATTUNEMILI
07. PARINTHAL	39. PU. KILLANUR
08. PIDAGAM	40. NATHAMUR
09. SEMBIANMADEVI	41. PUTHANANTHAL
10. VEERAMANGALAM	42. PACHAPALAYAM
11. ALANGIRI	43. SENGURICHI
12. SALAPAKKAM	44. SEMMANANGUR
13. PINNALAVADI	45. ARALI
14. SIKKADU	46. PADHUR
15. KUNJARAM	47. T. KALATHUR
16. ATHAIUR	48. SENTHANADU
17. ERAJYUR	49. SENTHAMANGALAM
18. S. MALAYANUR	50. MANALUR
19. VADAKURUMBUR	51. MATTIGAI
20. KOOVADU	52. KUKALLAKURICHI
21. A. KUMARAMANGALAM	53. MATHIYANUR
22. SIRUPAKKAM	54. PU. MAMBAKKAM
23. VELLAIYUR	55. ATHANUR
24. ANGANUR	56. ATHUR
25. EAMAM	57. KALAMARUDHUR
26. PULLUR	58. PA. KILLANUR
27. PU. KONA LAVADI	59. ORATHUR
28. U. KEERANUR	60. NAGAR
29. U. SELLUR	61. KILIYUR
30. NEYVANAI	62. M. KUNNATHUR
31. PALI	63. PANDUR
32. THAMAL	

ANICITS

A. KATTUEDAIYAR	G. PUTHANANTHAL
B. MEMALUR	H. S. MALAYANUR
C. ALUR	I. LANGANUR
D. MOHALAR	J. PACHAPALAYAM
E. ARUNKURUKKAI	K. T. KALATHUR
F. THAMAL	