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Manual of Instructions for Railway Affecting Tanks and Works

Government of Andhra Pradesh
Irrigation & CAD Dept.
Hyderabad

S.I. Sub dn
EE/DD/BLURU.

GOVERNMENT OF ANDHRA PRADESH

MANUAL OF INSTRUCTIONS FOR RAILWAY AFFECTING TANKS AND WORKS

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ANNEXURE

THE MANUAL OF INSTRUCTIONS FOR RAILWAY AFFECTING TANKS

INTRODUCTION:

A large number of Irrigation works, river bunds, road embankments with inadequate water way for drainage situated upstream or downstream of the railway line are in existence in Andhra Pradesh State either in the form of Irrigation tanks and road embankments etc., for impounding rain water and its distribution through a network of canals and road embankments etc. such works under certain circumstances can endanger the safety of the railway line in the vicinity and thereby to the traveling public.

Recognizing this potential danger to the railway line this Manual of instructions for Railway Affecting Works' is issued.

(A) The manual deals with the classification, identification of railway affecting works, their standards of construction, maintenance, inspections and prompt intimation to railways of any unsatisfactory feature effecting adversely to the safety of the railways.

(B) The manual is applicable to all existing railway affecting works and those would be constructed in future by State Government, Panchayat Raj Department, Municipalities and other private organizations in the State of Andhra Pradesh. The Chief Engineer, Minor Irrigation is the coordinating authority and will be responsible for close liaison with all the above mentioned organizations for the purpose of this manual.

1.0 SCOPE

This manual deals with the rules to be followed for the construction , inspection and maintenance of railway affecting works in the State of Andhra Pradesh and action required to be taken at emergencies for ensuring safety of running trains.

2.00 RAILWAY AFFECTING WORKS DEFINITION AND DECLARING AUTHORITY:

A 'Railway Affecting work' means, any work of public utility, or a private enterpri a breach in, or a damage to, or substandard maintenance, or an act of negligen omission or commission, in due operation of which, would in the opinion o responsible officer, not below the rank of an Executive Engineer of Minor Irrigat or Divisional Engineer of the Railways result in danger to any railway track / brid in the vicinity. In the event of any dispute, the matter will be referred to the St Committee of Engineers subject to final decision by Chief Bridge Enginee Railways.

2.01 These railway affecting works are broadly classified as under:

I. Railway Affecting Tanks: Irrigation and water supply tanks or reservoirs.

II. Railway Affecting works: Other than tanks.

3.0 RAILWAY AFFECTIG TANKS - CLASSIFICATION:

Rules governing the classification of 'Railway Affecting' tanks can, at best be outl in broad principles for the guidance of the Engineers, but every tank has t examined on its own merits, not only with reference to its own merits, and reference to its characteristics, but also with reference to the locations / p along the railway alignment which will be affected in the events of its fa Whether a tank situated upstream / downstream of the railway line, is like affect the railway, depends on its distance from the railway line, in addition capacity and slope of the ground in between. It is emphasized, however, th deciding whether a tank is 'Railway Affecting' or not, consideration of the conditions have also to be borne in mind. The broad criteria for a tank classified as Railway affecting are indicated below.

3.01 Tanks within 0.4 Km of the railway line irrespective of the Capacity and having a full supply level higher than the formation o railway line.

3.02 Tank within 8 Km of railway line having capacity of 0.05 M.cum and mo

1 mcft = 8 acre ft

1.76 acre-ft

= 14.126 acre

3.03 Tank between 8 Km to 32 Km of Railway line having capacity of 0.14 M Cum to 3.0 M cum varying linearly.

3.04 Tank on Down stream of Railway line where FSL touches the Railway Embankments.

3.05 Tank through which railway line passes having bunds and surplussing works on downstream and liable to cause damage to the railway line and affect stability of its embankments and bridges due to sudden lowering of the level on account of breach in the bund or escape works.

3.06 Tank through which railway Line passes having crest level of surplussing weirs above danger level of the railway bridge or formation level of the railway line.

3.07 Tank on upstream of railway line having past history of breaches affects working of the railways and not remodeled to cope with known surplus discharge. Tank located upstream of the railway line having inadequate slope (until brought to the desired safe standards) for the tank bund.

3.08 Any tank or a series of tanks in the catchment of a stream crossing the railway line with a catchment area not less than 5% of the total catchment area of the stream at the point of railway crossing.

4.00 STANDARDS FOR CONSTRUCTION AND MAINTENANCE OF RAILWAY AFFECTING TANKS:

The following rules govern the construction and maintenance of Railway Affecting Tanks:

4.01 Catchment area of the tank must be correctly investigated and maximum discharge be computed as per the guidelines laid down in Annexure - I for various catchments. For the purpose of this clause Chief Engineer, Minor Irrigation Circular Memo No.D.C.E.(M.I.) OT1 - T4/28556/65, dated 25-09-1985 requires alteration in Step-III, the frequency period of 25 years to 50 years and this shall be limited to new Railway Affecting Tanks, for improvements, remodeling and maintenance of breached Railway Affecting

Tanks. Accordingly the graph has to be prepared for 50 years of frequency period.

4.02 If the tank in addition receives supply from a feeder channel, the maximum discharge has to be estimated, with the background knowledge gained during the heavy floods that occurred in the past.

4.03 The tanks which have not been provided with adequate surplussing arrangements should be provided with surplus weirs, or natural ground escape or bye-wash etc. The surplus works should be designed for the maximum flood discharge.

4.04 Existing surplus works found inadequate to cope up with the calculated or observed maximum discharges, or causing infringements to the free board, must be rebuilt, or additional surplussing arrangements provided to suit the requirements.

4.05 The surplus channels should not run parallel within 30 m from the toe of the railway embankment.

4.06 Regarding the top width, side slopes, and free board of tank bunds, standards that are stipulated in Annexure-I should be followed.

4.07 The existing tanks which are not up to the present standards shall be brought to the standards now stipulated, in a phased manner.

5.00 PROCEDURE FOR IDENTIFICATION AND INSPECTION OF RAILWAY AFFECTING TANKS:

5.01. The list of Railway Affecting Tanks should be updated once in a year before the onset of monsoon by the Chief Engineer, Minor Irrigation and same shall be intimated to the committee of Engineers. The State Committee shall meet at least twice in a year preferably in the last week of June and December.

5.02 The Chief Engineer, Minor Irrigation shall identify all the Railway Affecting Tanks belonging to the Irrigation Department of the State. In respect of tanks owned by Panchayat Raj Department, Municipalities, Public Sector undertakings

and private institutions and individuals a list of tanks shall be obtained from the parties concerned by the Chief Engineer, Minor Irrigation who after scrutiny shall incorporate them in the final list. The list of Railway Affecting Tanks shall be compiled by the Chief Engineer (Minor Irrigation) District wise incorporating all the particulars contained in the Proforma at Annexure - III Including distance of the RAT from the nearest Railway track in column No. 6.

5.03 The Chief Engineer, Minor Irrigation will on behalf of State Committee of Engineers, notify the list of Railway Affecting Tanks to all concerned, including the Chief Bridge Engineers and the divisional Engineers of respective Railways. The list of Railway Affecting Tanks shall be updated once in a year by the Chief Engineer, Minor Irrigation and the same shall be intimated to all concerned before the onset of monsoon viz by April every year.

5.03.1 District co-ordination Committee of Engineers with constituent members shall meet twice a year for review and follow up action. The Superintending Engineer / Executive Engineer. Where Superintending Engineer is not available (Minor Irrigation) shall be the Chairman and Convenor of these meetings. A Member for this committee for each district from State Government & Railways is enclosed as Annexure - II.

5.03.2 The meeting shall be held:

(i) Once after the monsoon in the month of November when the inspection reports of the concerned Deputy Executive Engineers of Irrigation and Panchayat Raj Departments will be available as per Para 5.05.1 of this Manual and

(ii) Once during the month of May (prior to the next monsoon) when a review can be made of the outstanding maintenance works, which were required to be done to restore the affected tanks to standards. This will facilitate the Railways to take adequate measures to protect such locations which are likely to be affected by the tanks in substandard condition.

5.04 Any matters of policy and direction or items of dispute / difference coming up in the District Level Committee meetings shall be specifically referred to the State Committee of Engineers for resolution. The Superintending Engineer/ Executive Engineer, Minor Irrigation (Member Convenor and Chairman) shall be responsible for this and advise all concerned. He shall also make out and circulate the minutes of the District Committee meetings to all concerned including Chief Engineer (Minor Irrigation) and Chief Bridge Engineers of Railways.

The Deputy Executive Engineers of Irrigation Department shall inspect every Railway Affecting Tank in their Jurisdiction soon after the monsoon and submit their post - monsoon and submit their post - monsoon inspection reports to their head of Department by the end of January every year. These reports shall be submitted in proforma as given in annexure IV A. Two copies of these reports will be sent to the respective Railway Divisional Engineers with an intimation to the Chief Bridge Engineer of the concerned Railway.

5.05.02 In case of Private Tanks, the Mandal Revenue Officer / Deputy Executive Engineer, Irrigation Department of that jurisdiction shall inspect these tanks and take action accordingly.

The Irrigation Department (represented by Deputy Executive Engineer / Mandal Development Officer) will take action to carry out necessary repairs in Railway Affecting Tanks as early as possible and maintain them in good condition well in advance of the commencement of the monsoon. The repairs should be taken up on priority basis.

(Vide GoRt. No. 1770, P.R & R.D. (Prog.I) Department Dt. 27.11.03.)

5.06 For tanks belonging to Municipality Instructions have been issued vide Govt. Memo. No. 10596 / A.2 / 01, Dt, 25.05.01, M.A & U.D Department, to the Engineer - In - Cheif, Public Health to instruct the concerned Deputy Executive Engineer's of Municipality & Public Health to inspect the Railway Affecting

Tanks situated near by tracks and maintain them in good condition well in advance of the commencement of the monsoon. He has also been requested to submit their post monsoon inspection reports to the Government as well as the respective of the concerned Railway. (Vide Govt. Memo. No. 10596/A.2/ 01 MA & UD Dept Dt. 25.05.01.)

5.07 The Irrigation Department and Panchayat Raj Department (represented by Deputy Executive Engineer / Mandal Development Officer) will take action to carry out the necessary repairs to the railway affecting tanks as early as possible and maintain them in good condition well in advance of the commencement of the monsoon. The repairs to such tanks should be taken up on priority.

5.08 The Railway's representative should have access and be given facilities to inspect the works, their maintenance and operation. Any request from the Railway Administration in connection with strengthening, repairs, maintenance or operation of such works to ensure safety of the Railway lines should also be attended with promptitude.

5.09 Every year the State Committee of Engineers shall review the position of non-receipt of the annual inspection reports on the condition of the railway affecting tanks pertaining to the entire state during the mee- ting in the month of June. During this meeting Chief Engineer, Minor Irrigation shall furnish a general report on the condition of tanks and action taken thereon.

5.10 **Timely Repairs not undertaken** : if the repairs are not under taken or completed for any reason whatsoever, by the proprietor of the Railway Affecting works, the Railways will be free to under take such repairs, as are deemed necessary, and post mobile or static patrol men at the cost of owning party. In case of non-payment of the expenditure incurred in this regard, State Government will arrange torecover these charges as the arrears of land revenue in case of private parties / Non Government Organizations.

5.11 **Declaring a section Vulnerable :** Divisional Engineer of the Railway concerned shall declare the section(s) of the Railway that is / are likely to be affected by non-completion of the urgently required repairs and strengthening or for whatever compelling circumstances as vulnerable and shall make suitable arrangements like patrolling of the section during monsoon and also take other necessary precautions to ensure the safety of the Railway line. All such sections with list of Railway Affecting Tanks requiring immediate attention shall be referred to State Committee / District Committee promptly

6.00 RAILWAY AFFECTING WORKS OTHER THAN TANKS CLASSIFICATION

The following may be considered as Railway Affecting Works:

6.01 Canals and Drainage Channels:

1. All the channels crossing railway lines having discharge of more than 1.5 cumecs and F.S.L. being more than 0.3 m above the ground level.

53 cases

2. Channels flowing towards the railway line and running parallel or oblique including all cross drainage works as specified below.
   (i) 5 to 15 cumecs up to 0.5 KM.
   (ii) 15 to 30 cumecs up to 1.0 Km
   (iii) More than 30 cumecs up to 1.5 KM canals running away from the railway line should also be considered only from the point of view of C.D. works in the canal located within 1.00 KM from the crossing.

6.02 Road Embankments:

Road embankments higher than 3 m with bridges, culverts and retaining walls within 0.8 Km on either side of the railway line. This structure will be treated as railway affecting but their execution is not subject to prior approval by the Railways but however railways will be informed in advance with necessary technical details of the structure by the Department concerned.

6.03 **Bunds:**

The following may be considered as railway affecting works:

(i) Marginal bunds on upstream or downstream on one / both banks of the river crossing the railway line.

(ii) Protection bunds or works on rivers constructed for diverting flow from one channel to another or for prevention of flow through a defunct channel crossing the railway line on upstream or downstream of the bund or works so constructed.

6.04 **Dams, Barrages and Weirs:**

Dams, Barrages and Weirs on streams crossing the railway line and located on the upstream, subject to the limitations specified under clause 3.01 to 3.08 supra, and dams, barrages and weirs on the downstream side having M.W.L. Higher than the danger level of Railway Bridges.

7.00 PROCEDURE FOR CONSULTATION AND INSPECTION OF RAILWAY AFFECTING WORKS:

7.01 Procedure as indicated in paras 5.02, 5.03, 5.05.1, 5.05.2, 5.06, 5.07, 5.08, 5.10 & 5.12 will apply to the Railway affecting works also.

RESPONSIBILITIES OF NOMINATED PERSONS.

8.00 The Annexure - IX nominates persons responsible for giving warning messages whenever the water level in the tank exceeds the danger level mark, concerned railway officials to be intimated have also been indicated in the same annexure. As the entire safety of bridge / location, which is threatened, depends on timely conveyance of the message, reliable and trustworthy persons should be nominated for each tank. For this purpose, the danger level at each tank should prominently displayed so that the nominated person can take immediate action.

8.01 Action in case of apprehended danger:

The Government in G.O.Rt. No. 1858, P.R & R.D (Mdl.II) Department, Dt. 02.11.05 have issued instructions that the Panchayat Secretaries / Assistant Panchayat Secretaries shall be made responsible to inform the concerned Divisional Railway Manager or Senior Divisional Railway Engineer or to the nearest Railway Station Master of any mishap of unusual occurrence of flood cyclone and other natural calamities etc., in time. For this purpose the HFL / MWL at each Railway Affecting Tanks / works should be prominently displayed so that the nominated person can take immediate action. Irrespective of water levels whenever the tank is in distress the Panchayat Secretaries / Assistant Panchayat Secretaries / Assistant Executive Engineer / Deputy Executive Engineer of the Department concerned should inform the railway authorities. The District Collector concerned and the M.R.O., should also be informed similarly. In case of other works, the concerned authorities in-charge of such works, should inform the Railway Authorities of flood warnings as defined in Annexure - IX, Railway Authority includes Station Master / Gang-man / Gate man.

(vide G.O. Rt. No. 1858, P.R & R.D (Mdl.II) Department, Dt. 02.11.05).

9.00 NEW RAILWAY AFFECTING WORKS / TANKS

All new works or modifications / remodeling of an existing work, which are likely to be classified as Railway Affecting tanks by any party (including a Government Department) should be informed to the concerned Railway Department in advance. For this purpose, the party concerned should furnish the necessary plans and hydraulic particulars to the concerned railways.

10.00 POWERS OF CENTRAL GOVERNMENT:

Notwithstanding anything contained in any other law, the Central Government may, if it is of the opinion that any work across, under, over or near a railway is likely to alter or impede the natural course of Water flow thereby endangering any cutting, embankment or other work on a Railway, issue directions in writing to any person, officer or authority responsible for such work directing such person, officer or authority to close, prohibit or regulate that work. This is as per section - 20, Indian Railway Act 1989.

S.P. TUCKER

PRINCIPAL SECRETARY TO GOVT (IRRIGATION)

ANNEXURE - I

OFFICE OF THE ENGINEER IN CHIEF : IRRIGATION WING : HYDERABAD-A.P.

Circular Memo.No. DCE(MI)/ OTI-T4/28556/65, dt. 25-9-1985

Sub : Design principles of Minor Irrigation Schemes - Procedure to be followed for calculating maximum flood discharge from catchment to Design surplus weirs - Regarding.

Ref : This office Circular Memo No. Y2/28556/65, dated 22.9.1972.

In this office Memo, cited, instructions were given to adopt Dickens Formula for Calculating maximum flood discharge from catchments taking the value of 'C' varying from 900 to 1200. This emperical formula though serves the purpose in a limited way does not take into consideration the factors like the nature of the catchment, length, width of the catchment, time of storm to peak etc and therefore, lacks precision.

In recent times, hydrographs are being u sed for estimating the maximum flood discharge, which will take into consideration all factors as far as possible to arrive at more realistic figures. Much theoritical work was done in hydrology during the past 5 decades. Correlation with practical field data was also done in selected catchments in India. Detailed hydrological studies were done elsewhere in the World. The Ministry of Agriculture, Central Unit for Soil Conservation (Hydrology and Sedimentation), Government of India had also brought out a "Hand Book of Hydrology".

Based on a study of the existing works, a simpler method is now worked out and suggested for arriving at the maximum flood discharge from catchments in all Minor Irrigation Schemes. This method takes care of important features of hydrological nature but reduces the rigorous method to simpler steps clubbed together so as to make easy application to minor irrigation schemes.

The method is briefly indicated below :

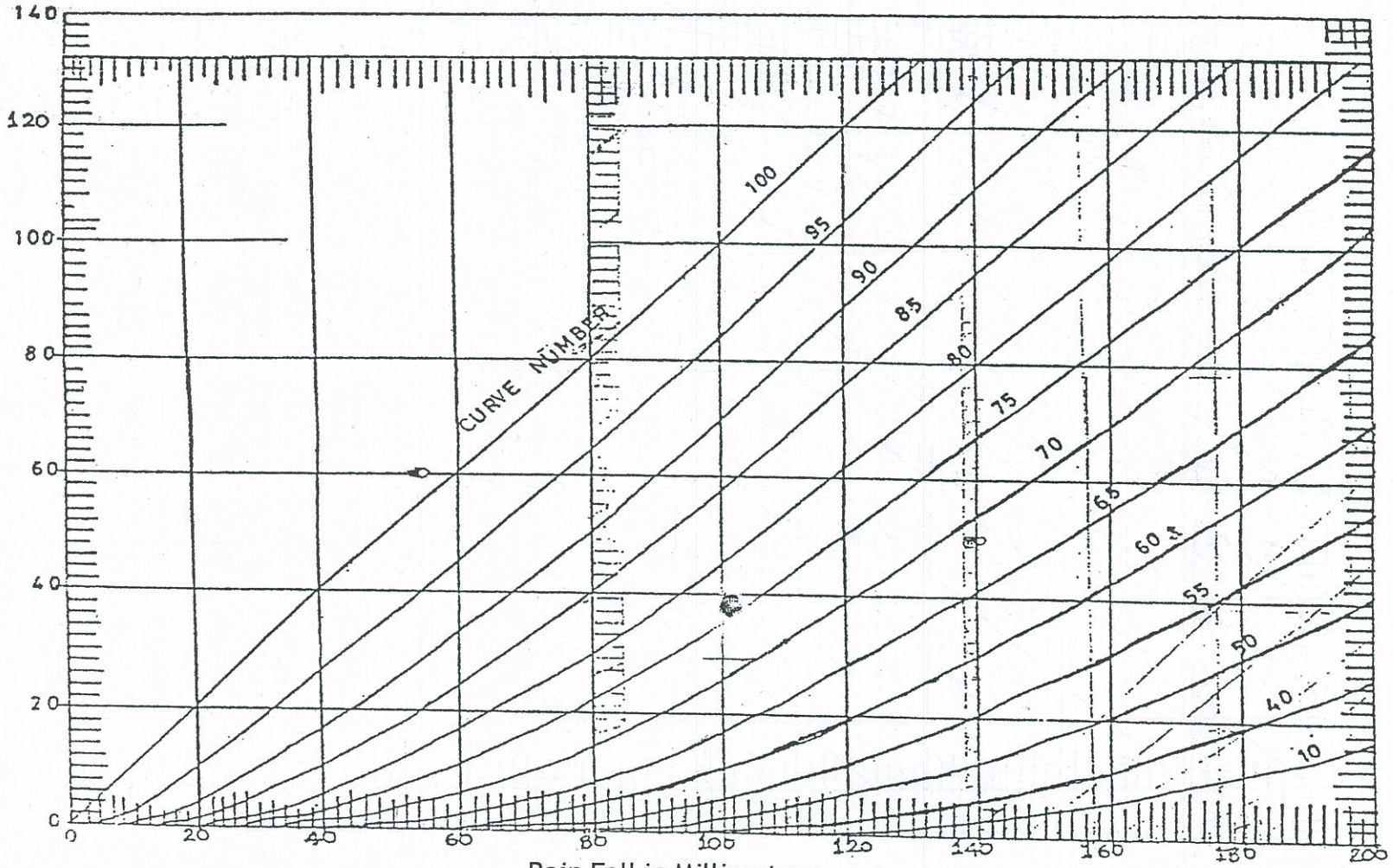
Step I : The catchment area in Sq. Km (A), length of the stream in km (L) and the width of the catchment in Km (W) are arrived at from the catchment area Map (S.I. Sheet 1 : 50,000 scale). L/W is then worked out.

Step II : Choosing run-off curve :

Table of Run-off curve numbers for Hydrologic soil groups :

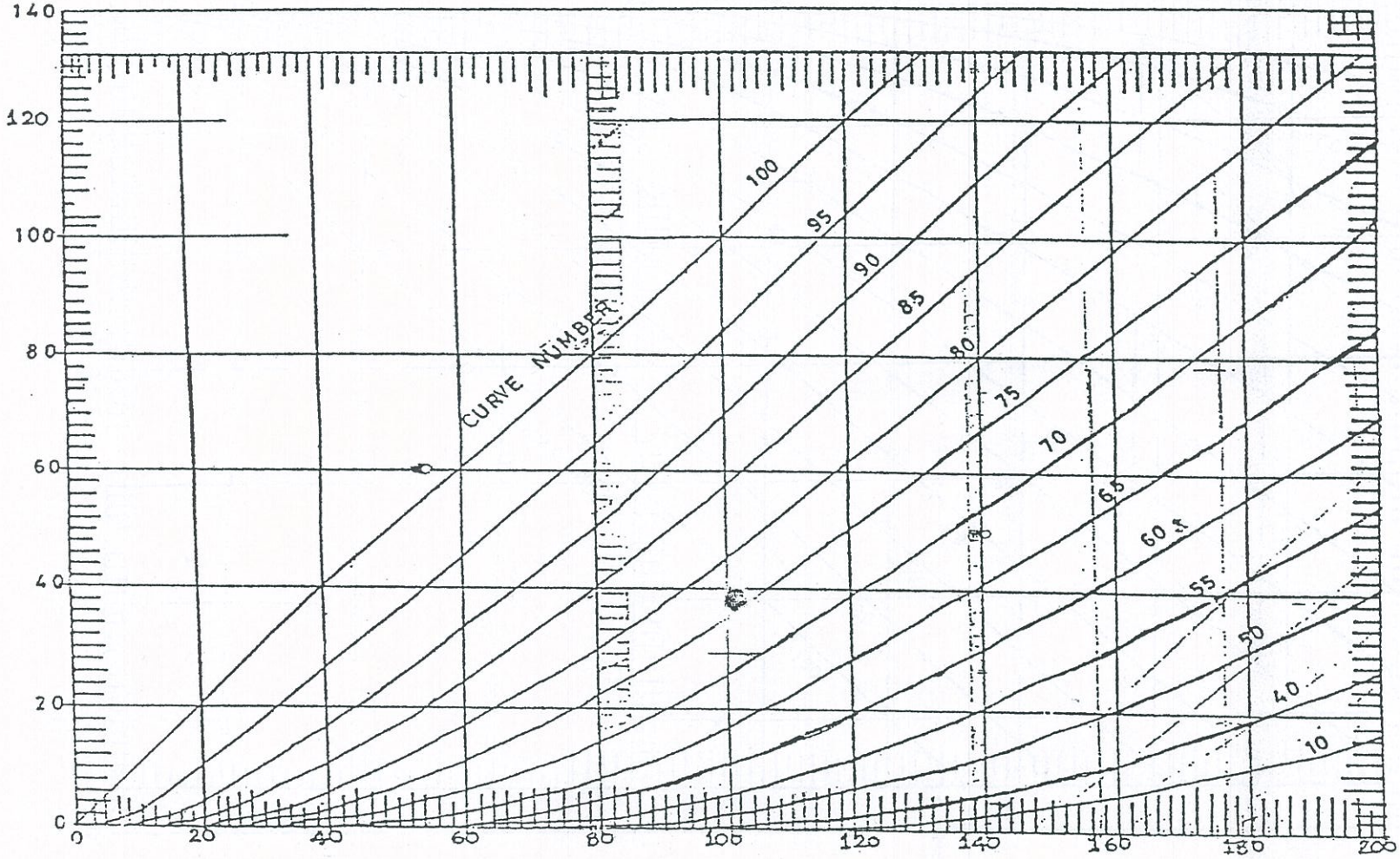
Land use		Run-off curve number	
		Red Soils (Altisols)	Black Soils (Vertisols)
1.	Cultivated crops	75	85
2.	Cultivated Paddy	95	95
3.	Forests / Gardens	50	70
4.	Wasate lands	80	90

In case of mixture, of Red soils and black soils in a minor irrigation catchment area, the curve number can be choosen pertaining to the predominant type of soils. In the case of different land uses and crops in catchment area, the method illustrated in example may be followed. The different land uses can also be estimated approximately from the latest 1 : 50,000 S.I. Sheets or by recognition or enquiry.



Rain Fall in Millimetres

GRAPH- I-RED -SOILS



Rain Fall (P) in Millimetres
GRAPH-II Black-Soils

Step III : In a frequency period of 25 years, the maximum rainfall 'P' (mm) recorded in a single day (24 hours) is taken out from the daily rain-fall records of the particular rainguage station influencing the catchment area. With the already arrived curve number (from (Step-II) and the rain-fall 'P', the direct run-off 'Q' in mm is read from the Graph-I (Red Soils) or II (Black soils) enclosed.

Step IV : Time to reach Peak (Tp) in hours is calculated from the formulae given below, choosing the relevant formula suitable to the given catchment area.

When (i)	L/W	>	4:1	Formula for Tp=0.76
(ii)	L/W	<	4:1	Formula for TP=0.48 a $^{0.28}$

Step V : After arriving at the values of Q (mm), Tp(hours), the maximum discharge (cumeces) is then calculated from the formula :

$$q = \frac{0.146 \times A \times Q \text{ cumes}}{Tp}$$

An example is worked out and enclosed for ready reference.

The above procedure may be adopted for arriving at the maximum flood discharge from catchments in all Minor Irrigation Scheme for designing surplus weir. In respect of existing M I Tanks, the surplus weir may be re-designed adopting this method whenever estimates for M I Tanks are prepared for improvements, restoration etc.

T. HANUMANTHA RAO
Chief Engineer : Minor Irrigation

Encl. : (1) Example - 1.
(2) Graph - 2 Nos.

EXAMPLE :

Given as 20 Sq. Km catchment area. The catchment area has a length and width ratio of 6 : 1 and the maximum rainfall recorded in a day for the last 25 years peiod is 150 millimeters. The soil group of the catchment is Red soils. The land uses are :

Cultivated lands with crops is 60% and waste lands 40%. Compute the maximum flood discharge from the catchment.

SOLUTION :

Step -- 1 : Given A = 20 Sq. Km.
L/W = 6 : 1
Hydrological soil group - Red soils

Step -- 2 :

Land use	% of area of catchment	Curve number according to circular Memo	Number times Percent
1. Cultivated crops	60	75	4500
2. Waste lands	40	80	3200
	100		7700

Weighted curve number = $\frac{7700}{100}$ = 77

Adopt curve = 80

Step -- 3 :

Given P=150 mm to find 'Q' read from Graph-1 (Red soils) for the curve number = 80. The value of 'Q' is read as 89 mm, from Graph - I.

Step -- 4 :

Tp can be computed by the formula

Tp = 0.76 $A^{0.28}$ (since L/W>4:1)

From the given catchment area of 20 Sq. Km.

Tp = 0.76 x $(20)^{0.28}$

= 1.758 hours

Step -- 5 :

q is computed by the formula

$$q = \frac{0.146 \times A \times Q}{TP} \text{ cumecs}$$

$$q = \frac{0.146 \times 20 \times 89}{1.758} \text{ cumecs}$$

= 148 Cumecs.

(this corresponds to a 'C' value of 1130 in Dicken's Formula $Q=Cm^{3/4}$ When the same is calculated as per Ali Nawab Jung Formula, it worksout to 262 Cumecs).

Result : Provide the surplus weir for a discharge of 148 cumecs.

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Chief Engineer : Minor Irrigation

Note : Please refer to Circular No. 21, for further Computations in higher rainfall areas and Isohyet map of A.P.

CIRCULAR No. 21

OFFICE OF THE ENGINEER IN CHIEF : IRRIGATION WING: HYDERABAD - A.P.

Circular Memo No. DCE (M1)OT.1-T4/28556/65, Dated : 26.1.1986

Sub : Design principles of Minor Irrigation Schemes - Procedure to be followed for calculating maximum flood discharge from catchment to Design surplus weirs - Regarding.

Ref : This office Circular Memo No. DCE(M1)OT-T4/28556/65, dated 25.9.1985

(Circular No. 13)

It is observed that in certain areas like Nellore and Chittoor Districts, the maximum daily rainfall (P) recorded over a period of 25 years is more than 200 mm. For reading the direct run-off (Q) in such cases, two more graphs are enclosed for reference as indicated below for rainfall intensities 200 mm to 1000 mm, in addition to two graphs already enclosed to this office Memo. Cited.

Graph - III	For Read soils
Graph - IV	For Black soils

Further, it is noticed that the value of maximum daily rainfall (P) is not readily available and this is resulting in delays as well as wrong computations in some cases. In order to have a correct idea of 25 years, one day rainfal in a particular area, a Map of Andhra Pradesh showing the isohyets of 25 years one day maximum rainfall is enclosed. This is prepared based on the Map published by Indian Meteorological Department. The Field Officers are requested to make use of this Map and do interpolation, for arriving at the value of maximum daily rainfall in the Project Catchment area. Since this Map is based upon statistical analysis done by Indian Meterological Department this can be straight away adopted and there is no need further gathering daily rainfall data for 25 years.

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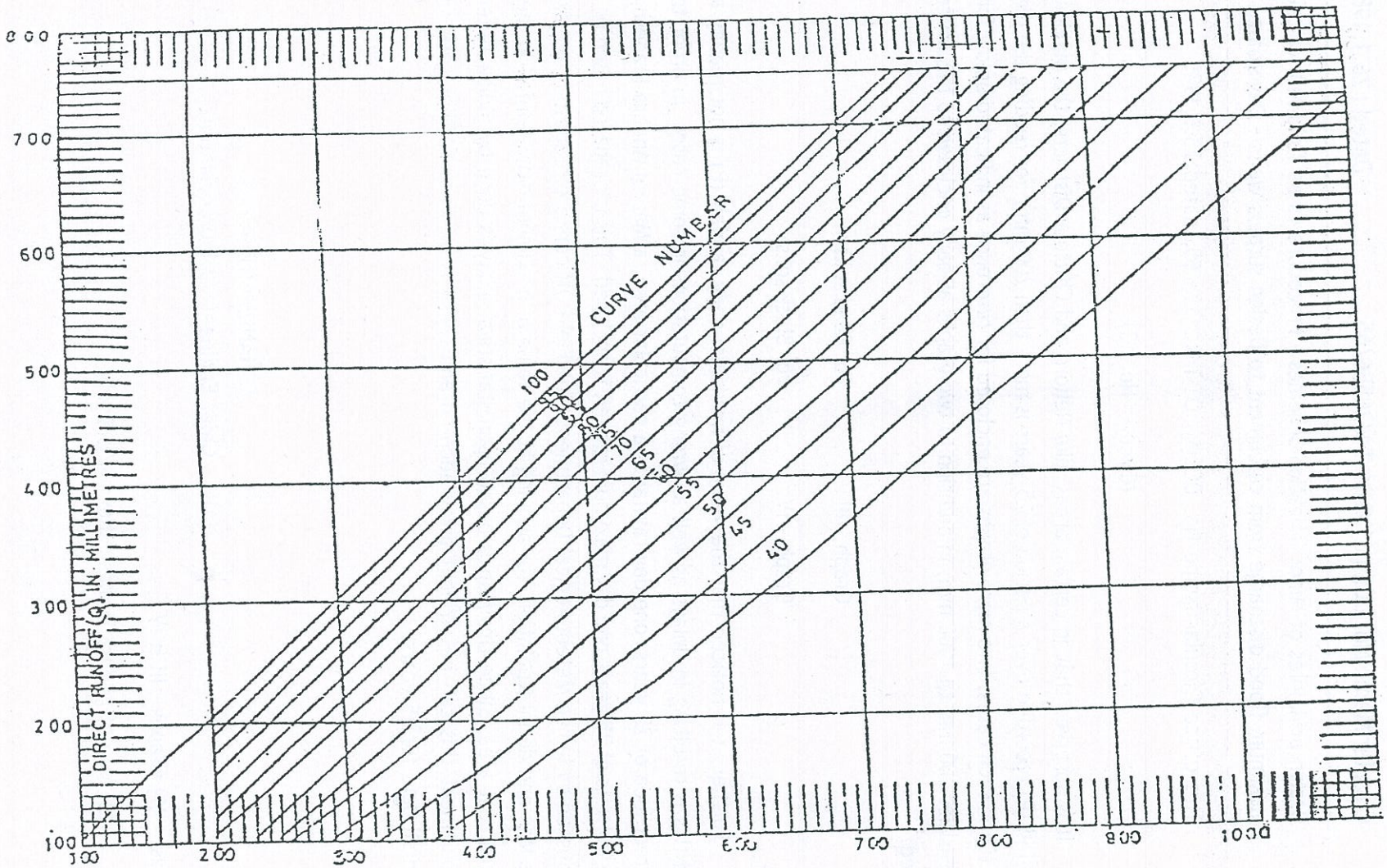
Chief Engineer : Minor Irrigation

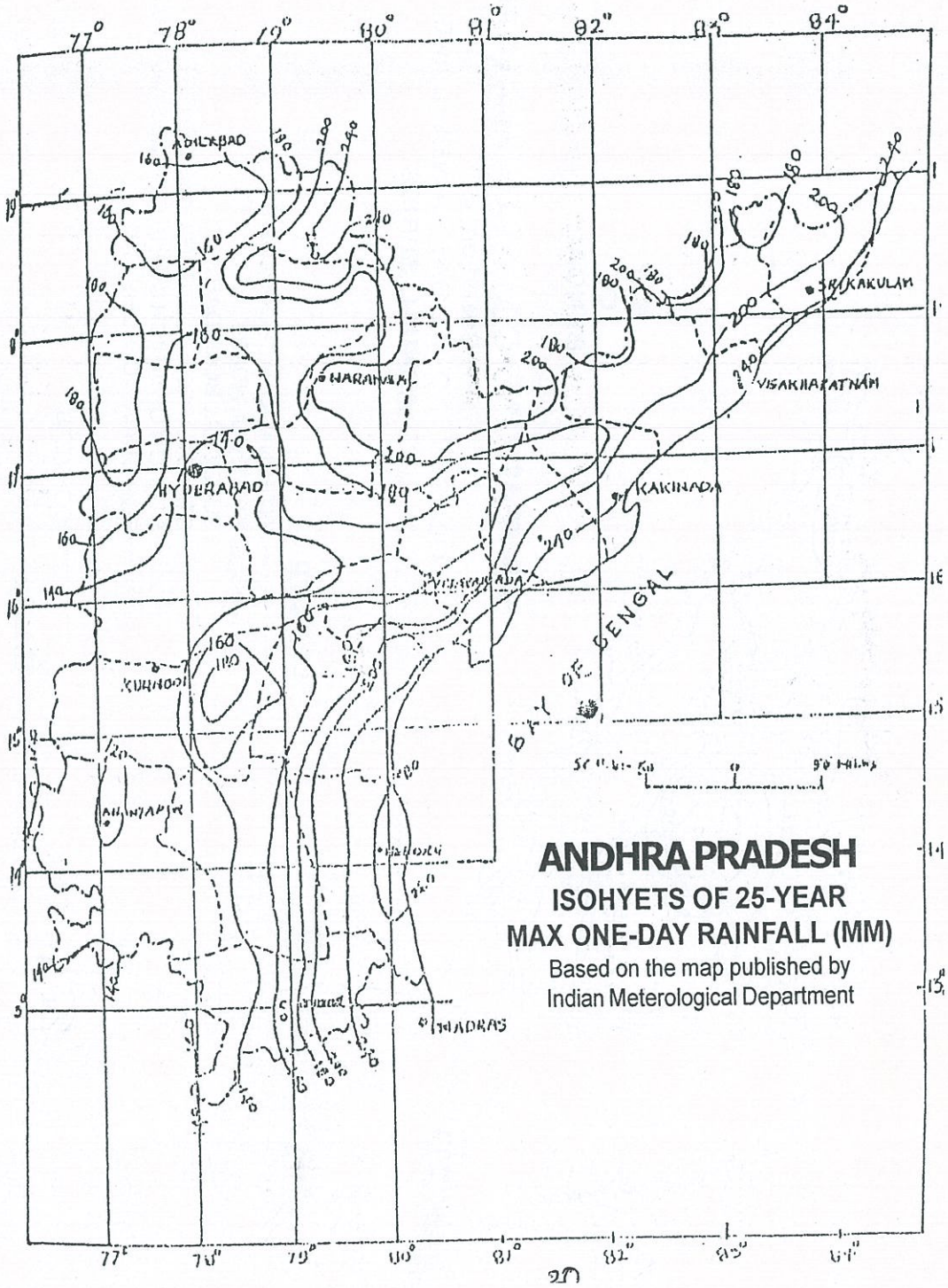
Encls: (1) Graphs - III & IV

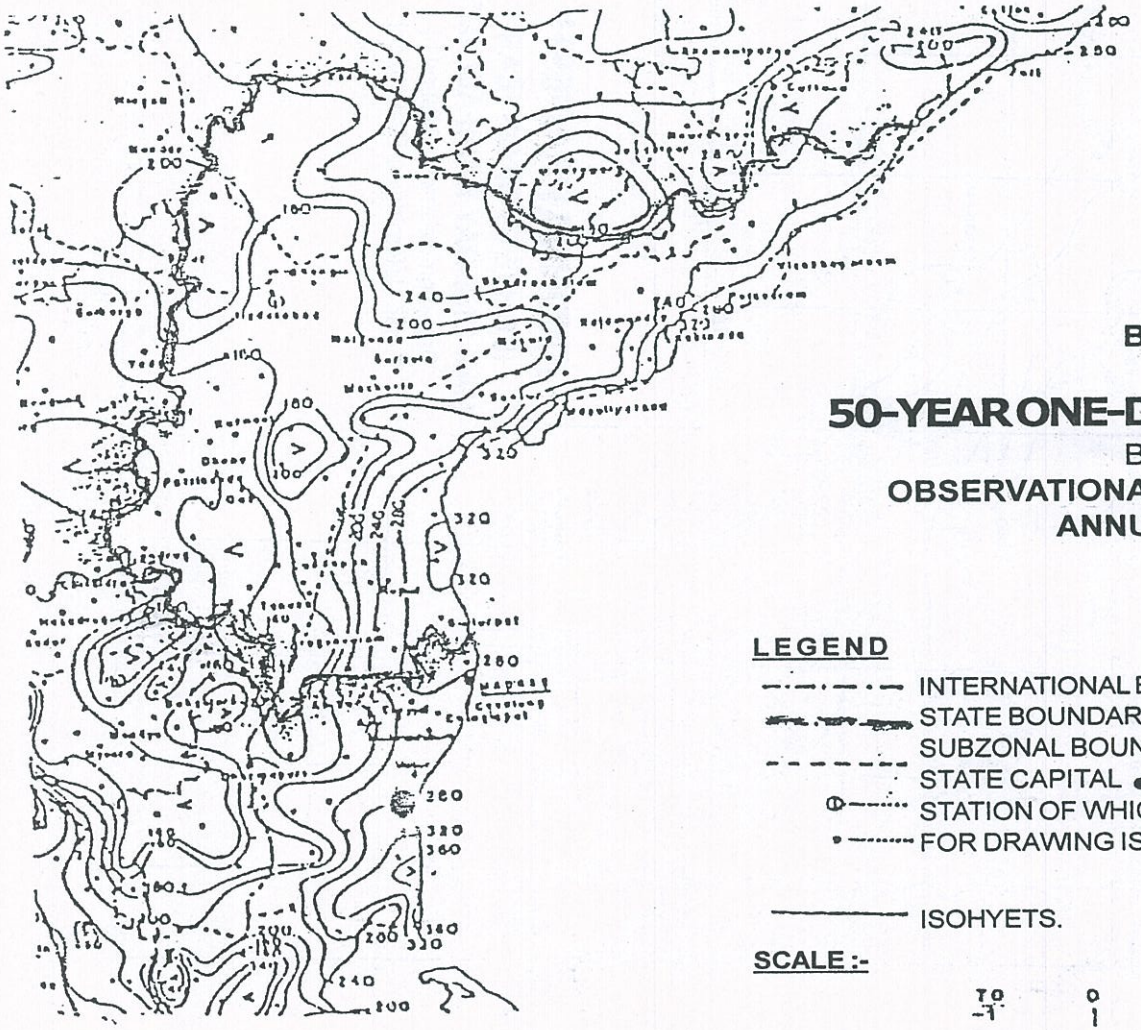
(2) Map of Andhra Pradesh showing Isohyets.



Rain Fall (P) in Millimetres

GRAPH - III RED-SOILS


ZAHEERABAD
SRIKAKULAM
VISAKHAPATNAM
KAKINADA
HYDERABAD
KURNOOL
MADRAS
BAY OF BENGAL
ANDHRA PRADESH
ISOHYETS OF 25-YEAR
MAX ONE-DAY RAINFALL (MM)
Based on the map published by
Indian Meterological Department



BAY
OF
BENGAL

50-YEAR ONE-DAY RAINFALL (mm)

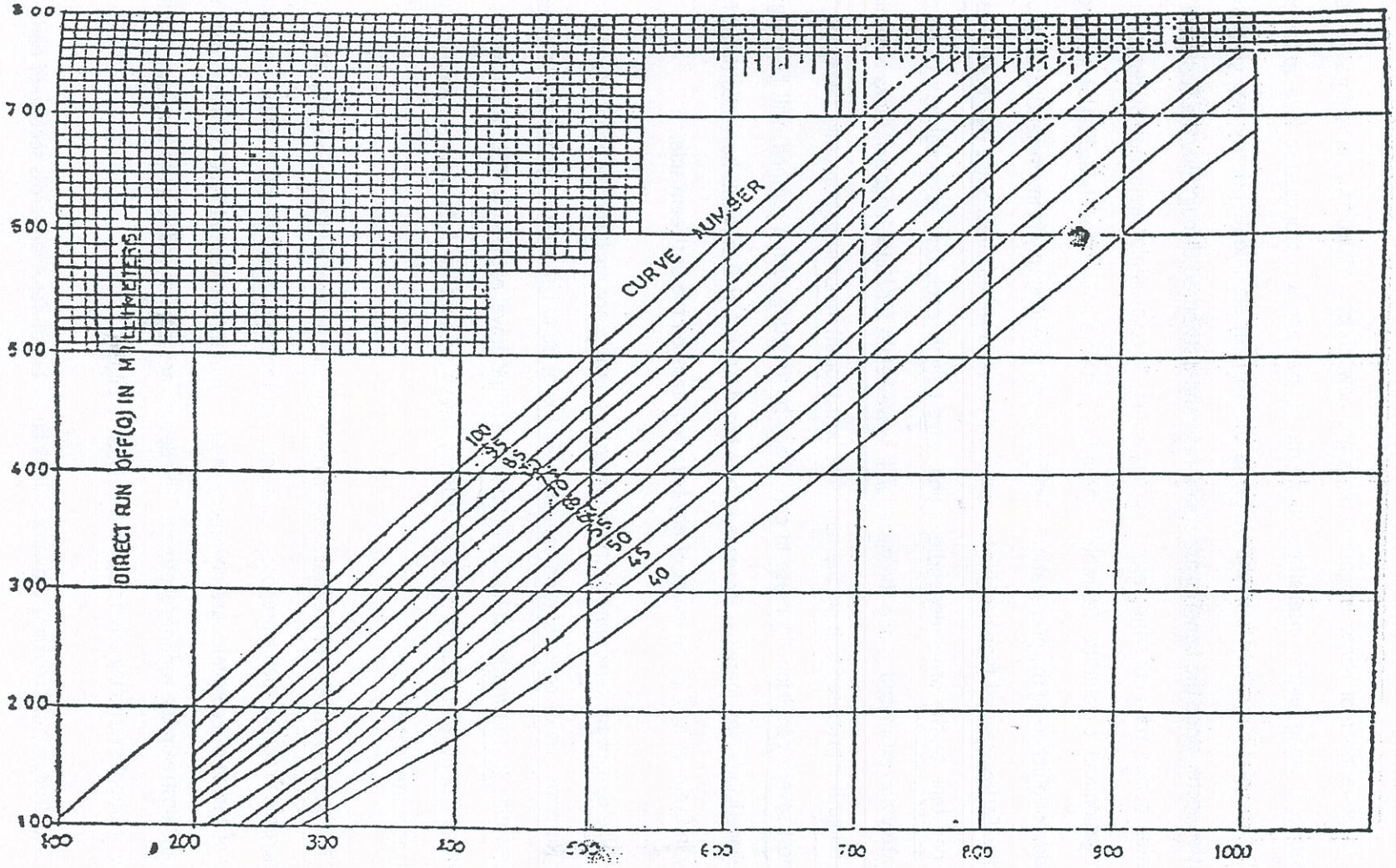
Based on
OBSERVATIONAL DAY RAINFALL AND ANNUAL SERIES

LEGEND

- INTERNATIONAL BOUNDARY
- STATE BOUNDARY
- SUBZONAL BOUNDARY
- STATE CAPITAL ●.....REGIONAL CENTRE
- STATION OF WHICH COMPUTERIZED ANALYSIS IS USED FOR DRAWING ISOHYETS
- ISOHYETS.

SCALE :-

70 0 70 140 210 MILES



Rain Fall (P) in Millimetres
GRAPH - IV BLOCK-SOILS

TYPE DESIGNS & READY RECKONER TABLES FOR SMALL DAMS

Large number of Minor Irrigation tanks are now under construction in Andhra Pradesh. This programme is being further intensified during the VII Plan and it is proposed to take up for execution most of the feasible schemes in the State. In the VII Plan document, priority was given for Minor Irrigation sector since the benefits are widespread and distributed throughtout the State and also the gestation period for achieving results is very short. Several Minior Irrigation Schemes are under investigation and it would be desirable if there is a certain amount of standardisation in designs. Also methods for quickening the preparation of estimates will go a long way in implementing the programme speadily. Earlier, several type designs for tank bund sections were issued. Since free board was varying from one tank to the other depending upon wave height, each tank proposal had to be designed separately and estimated. Since the variation in wave height for Minor Irrigation tanks is within a very small range,it is proposed to have the same free board for all minor irrigation tanks taking into account the most severe condition. Increase in cost if any by adopting such a method, will be marginal and hence negligible. Any marginal increase in free board (by 0.1 or 0.2m) will have additional factor of safety in Cyclones and in the event of any breach of tank on the upstream side.

Type designs for tank bund sections for various heights are enclosed for adoption. Importance is given for power roller consolidation of bund upto top of Bund Level (TBL), providing revetment upto TBL providing 3m top width and having 0.15m thick rolled gravel pathway at TBL. This is with a view to provide sufficient safety during times of Cyclones, heavy rains, etc and also will facilitate maintenance of TBL at a later date.

The pathway of TBL will facilitate easy maintenance inspections and conveyance facility to farmers. The increase in cost in such a proposal is marginal, but the benefits are far more when viewed from the safety of the dam. Economies are now made in sand chimney, horizontal sand blankets, rock toe, toe drain and upstream toe wall of revetment. The designs are economised so as to take care of the utility and yet without sacrificing any factor of safety or stability.

The drudgery of preparing drawing of tank bund section for every cross section of earthen bund at regular intervals computation of cross section areas, and the quantities can be saved by using ready reckoner tables. For various heights of dam in increments of 0.1 m (for 0 to 16 mts) tables of quantities

of various works involved have been prepared and enclosed herewith. These tables may be followed with advantage. It can be seen that for any particular height of bund, quantities pertaining to Earth Work Excavation, casing soils, hearting soils, rock toe, revetment, sand filter etc can be obtained directly from these tables. The same can be adopted straight away and quantities calculated. Thus a work which normally takes about one S.O. month is reduced to one S.O. hour. Apart from this savings in time, it facilitates accurate preparation of estimate since calculation errors are eliminated. This will also relief to the field staff from the monotony and drudgery of voluminous calculations and gives them sufficient to concentrate on other items of investigations thus speeding up preparation of project reports.

Average ground level for any particular cross section may be calculated and height of dam uptp TBL obtained. For this height the corresponding quantities may be read from the tabular statements. In case the soils met with at site are different from those noted in the type design drawings, given in the tabular statements 'A' & 'B' for the particular type of soil actually met with at site. For such altered slopes, quantities of various items of work will have to be calculated in the conventional manner, since the ready reckoner tables will not hold good for these altered slopes. Even in such cases where the slopes are altered, design, details of revetment, rock toe, filters etc., will be the same as shown in the type design.

It is hoped that the tabular statements and type designs now provided would facilitate works in the department and speed up preparation of project reports and at the same time will maintain accuracy and uniformity in standards.

T. HANUMANTHA RAO

HYDERABAD

Chief Engineer : Minor Irrigation .

Date : June 1986.

STANDARDS FOR EARTHEN EMBANKMENTS FOR MINOR IRRIGATION TANKS

Sl.No.	Description	Height of Bund in Metres				Remarks
		0.0 M to 3.40 M	3.50 M to 7.40M	7.50M to 10.40M	10.5M to 16.0M	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Top Width	3.00 M	3.00 M	3.00 M	3.00 M	
2.	Nature of Section	Homogenous	Homogenous	Zonal	Zonal	
3.	Free – Board	1.50M	1.50M	1.50M	1.50M	
4.	Slopes on U/S	2 : 1	2 : 1	2 : 1	2½ : 1	
	Slopes on D/S	2 : 1	2 : 1	2 : 1	2 : 1	
5.	Hearting – Zone					
	(a) Top Width			2.40 M	2.40 M	
	(b) Side Slopes			½ : 1	½ : 1	
	(c) Top – level			At M.W.L.	At M.W.L.	
6.	Cut off – Trench					
	(a) Bottom Width	3.00M	3.00M	3.00 M	3.00 M	
	(b) Side Slopes	½ : 1	½ : 1	½ : 1	½ : 1	
	(c) Depth	Half F.R.L. depth with a minimum of 0.60m. In case hard rock is met with at higher levels, the cut off trench will be limited to this level.				
7.	Revetment thickness	0.30 M	0.30M	0.30 M	0.30 M	Revetment along the bund should be restricted upto the section where MWL touches the ground level only.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
8	Gravel Cover under revetment	0.30M	0.30M	0.30M	0.30M	With power roller consolidation and trimmed to obtain the gravel face.
9.	Toe-Wall	0.60 M	0.60 M	0.60 M	0.60 M	From stripped level 0.60 M Depth
		X	X	X	X	
		0.60	0.60 M	0.60 M	0.60 M	
10.	Rock – Toe :					
	(a) Top – Width		1.00 M	1.00 M	1.00 M	
	(b) Height		1.20 M	1.20 M	1.50 M	
11.	Toe – Drain					
	(a) Bed – Width		1.00 M	1.00 M	1.00 M	
	(b) Depth		0.30 M	0.30 M	0.30 M	Below stripped level
	(c) Side Slopes		1 : 1	1 : 1	1 : 1	
	(d) Width of berms on either side		1.00 M	1.00 M	1.00 M	
	(e) Thickness of revetment		0.225 M	0.225 M	0.225 M	
12.	Horizontal Sand Blanket		0.90 M Depth	0.90 M Depth	0.90 M Depth	
13.	Sand Chimney			0.90 M Thick	0.90 M Thick	
14.	Inverted filter with graded metal of size 25 mm to 50 mm at the end of Horizontal filter adjoining the rock-toe		0.30 M Thick	0.30 M Thick	0.30 M Thick	
15.	150 mm thick Gravel cover for top of bund (Just below TBL)		Provided	Provided	Provided	

TABLE - A

RECOMMENDED SLOPES FOR SMALL HOMOGENEOUS EARTH FILL DAMS ON STABLE FOUNDATIONS

Soil Classification	Up-stream Slope	Down-stream slope
GW, GP,SW,SP	Previous, not suitable	
GC, GM, SC, SM	2 : 1 & 2 ½ : 1	2 : 1
CL, ML	2 ½ :1 & 3 : 1	2 ½ : 1
CL, MH	3 : 1 & 3 ½ : 1	2 ½ : 1

TABLE - B

RECOMMENDED SLOPES FOR SMALL ZONED EARTHFILL DAMS ON STABLE FOUNDATIONS

No.	Case	Casing Soil Classification	Hearting soil classification	Up-stream Slope	Down-stream slope
1.	Zonal section with ½ : 1 slopes for hearting soils	GW, GP, SW (Gravelly), SP (Gravelly), GC, SC	SC, SM, CL, ML, CH, MH	2 : 1	2 : 1
2.	Zonal section with 1 : 1 slopes for hearting soils	GW, GP, SW (Gravelly) SP (Gravelly), GC, SC	CH, MH CL, ML	3 : 1 2½ : 1	3: 1 2½ : 1

ANNEXURE - II

Districts	Division	Designation & Address	BSNL Phone No.	Jurisdiction (Section).	Circle / Division	Designation & Address	BSNL Phone No.	Jurisdiction
All Districts	All Division	The Chief Bridge Engineer, South Central Railway 5 th floor, Railnilayam, Secunderabad - 500071	040 27824284	South Central Railway		Chief Engineer, Minor Irrigation (I& CAD) Errramanzil, Hyderabad.	040 - 23391127 040- 23323623	A.P State Minor Irrigaiton.
Adilabad, Karimnagar, Khammam, Medak, Nalgonda, RR / Hyderabad Warangal & Krishna	SC	The Senior Divisional Engineer (Co-Ordination) south Central Railway Sanchalan Bhavan Secunderabad Division Secunderabad	040-27822896	Vijayawada - Kazipet Motumarri - Jaggaiahpet	Irrigation Circle, Warangal & IC, Vijayawada	Superintending Engineer Irrigation circle, at Warangal & Vijayaweda	0870 - 2577221	Khammam, Warangal & Krishna
				Kazipet - Balharshah	IC Warangal - IC Nirmal, MIP Circle Bellampally.	SE, IC, Warangal - SE, IC Nirmal, SE, MIPC Bellampally.	08735 - 222721 (MIPC Bellampally)	Khammam, Warangal, Karimnagar & Adilabad.
				Peddapalli - Karimnagar	IC Nirmal	SE, IC Nirmal	08734 - 242168	Karimnagar
				Dornakal - Karepalli - Manuguru	IC Warangal	SE, IC Warangal		Warangal
				Karepalli - Singareni Collieries	IC Warangal	SE, IC Warangal		Khammam, Warangal
				Secunderabad - Kazipet	IC Warangal, IC Hyderabad.	SE, IC Warangal, SE, IC Hyderabad.		Warangal & Nalgonda, Hyderabad.
				Vikarabad - Parlivijnath	IC Hyderabad IC Nizamabad	SE, IC Hyderabad, SE, IC Nizzmabad	040 - 23394218 / 23327041	Ranga Reddy District & Medak District.
				Secunderabad - Wadi	IC Hyderabad, IC Nizzmabad	SE, IC Hyderabad, SE, IC Nizzmabad		Hyderabad Dist. Ranga Reddy District & Medak District.
Kurnool, Mahboobnagar, Medak, Nizamabad, RR / Hyderabad.	HYB	The Senior Divisional Engineer (Co-Ordination) south Central Railway Sanchalan Bhavan Hyderabad Division	040-27820027	Secunderabad - Dronachallam	IC Hyderabad & IC Kurnool	SE, IC, Hyderabad & SE, IC Kurnool.	08518 - 220469 (Kurnool)	RR, Mahboobnagar & Kurnool
				Secunderabad - Nizamabad - Mudkhed	IC Hyderabad & IC Nizamabad	SE, IC Hyderabad SE, IC Nizamabad		RR Nizamabad & Medak
				Janakampet - Bodhan.	IC Nizamabad	SE, IC Nizamabad	08462 221403	Nizamabad.

Easet Godavari, Krishna, Guntur, Nellore, Prakasam, West Godavari, Visakhaptnam,	BZA	The Senior Divisional Engineer (Co-Ordination) south Central Railway Vijayawada Division Vijayawada	0866 - 2572133	Vijayawada - Gudivada - Machilipatnam	IC Vijayawada	SE, IC Vijaywada	0866 2575276	Krishna
				Gudivada - Bhimavaram - Narsapur	IC Eluru & IC Vijayawada	SE, IC Eluru & SE, IC Vijaywada		Krishna & West Godavari
				Nidadavolu - Bhimavaram	IC Eluru	SE, IC Eluru	08812 - 230267	West Godavari
				Vijayawada - Gudur	IC Vijayawada, IC Ongole & IC Guntur & IC Nellore	SE, IC Vijayawada, SE, IC Ongole & SE, IC Guntur, SE, IC Nellore	08592 - 233139 (Ongole)	Krishna, Guntur, Ongole & Nellore
				Vijayawada - visakhapatnam	IC Vijayawada, IC Eluru, IC Visakhapatnam & IC Dowlaishwaram	SE, IC Vijayawada, SE, IC Eluru, SE,IC Visakhapatnam & SE,IC Dowlaishwaram	0891 - 2706341 (Visakhapatnam)	Krishna, West Godavari, East Godavari & visakhaptnam
				Samalkot - Kotipalli	IC Dowlaishwaram	SE, IC Dowlaishwaram	0883 - 2417419	East Godavari
Adilabad Warangal & Krishna	GTL	The Senior Divisional Engineer (Co-oridination) South Central Railway Guntakal Division Guntakal	08552 - 226742	Gudur - Renigunta	IC Nellore & IC Chittoor	SE, IC Nellore & SE, IC Chittoor	0861 - 2327658 (Nellore)	Nellore & Chittoor
				Renigunta - Tirupati	IC Chittoor	SE, IC Chittoor		Chittoor
				Katpadi - Pakala - Tirupati	IC Chittoor	SE, IC Chittoor	08572 - 232932	Chittoor
Anantapur, chittoor, Kadapa, Kumool.				Renigunta - Guntakal	IC Chittoor & IC Ananthapur & IC Kadapa	SE, IC Chittoor, SE, IC Ananthapur & SE, IC Kadapa	08562 - 244871 (KDP)	Chittoor, Kadapa & Ananthapur
				Guntakal - Raichur - Wadi	IC Ananthapur, IC Kumool, & IC Hyderabad.	SE, IC Ananthapur, SE, IC Kumool, & SE, IC Hyderabad.		Ananthapur, Kurnool & Mahaboobnagar
				Guntakal - Dharmavaram	IC Ananthapur	SE, IC Ananthapur	08554 - 240279	Ananthapur
				Guntakal - Dronachallam - Nandyala	IC Ananthapur & IC Kumool	SE, IC Ananthapur & SE, IC Kumool		Ananthapur & Kumool
				Pendekallu - Gooty	IC Ananthapur	SE, IC Ananthapur		Ananthapur
				Dharmavaram - Pakala	IC Ananthapur & IC Chittoor	SE, IC Ananthapur & SE, IC Chittoor		Ananthapur & Chittoor
				Guntakal - Bellary.	IC Ananthapur	SE, IC Ananthapur		Ananthapur

Guntur, Kumool, nalgonda, Prakasam	GNT	The Senior Divisional Engineer (Co-oridination) South Central Railway Guntur Division Guntur		Vijayawada - Guntur	IC Vijaywawada & IC Guntur	SE, IC Vijaywawada & SE, IC Guntur		Krishna & Guntur
				Guntur - Tenali	IC Guntur	SE, IC Guntur	0863 - 2234554	Guntur
			0863-2234261	Tenali - Repalle	IC Guntur	SE, IC Guntur		Guntur
				Guntur - Macherla	IC Guntur	SE, IC Guntur		Guntur
				Guntur - Nandyal	IC Guntur, IC Ongole & IC Kumool	SE, IC Guntur, SE, IC Ongole & SE, IC Kumool		Guntur, Prakasam & Kumool
				Guntur - Miryalguda - Pagidipalli	IC Guntur, & IC Hyderabad	SE, IC Guntur, & SE, IC Hyderabad		Guntur & Nalgonda
Adilabad,	NED	The Senior Divisional Engineer (Co-ordination) South Central Railway Nanded Division Nanded	02462-224928	Mudkhed - Adilabad	IC Nirmal	SE, IC Nirmal		Adilabad

Note

1 The details pertaining to Southern Railway, south Western Railway and East Coast Railway are to be incorporated.
2 The details of Superintendent Engineers of Minor Irrigation & Panchayat Raj are to be incorporated.

Annexure - II

Jurisdiction of Divisional Engineers on Southern Railway					Jurisdiction of Superintending Engineers / Excutive Engineers of Irrigation Department			
Districts	Division	Designation & Address	BSNL Phone No.	Jurisdiction (Section).	Circle / Division	Designation & Address	BSNL Phone No.	Juris-diction
Nellore & Chittor	Chennai (MAS)	The Senior Divisional Engineer(Co-ordination), Southern Railway,Chennai Division,Park Town,Chennai-600003 (Engineering Control)	044-25353697 9884107041 (044-25359369)	Chennai-Gudur(between Arambakam&Gudur Stations) Arakkonam-Renigunta(between Ponpadi&Reni gunta Stationa)	Irrigation Circle,Nellore& Irrigation Circle,Chittoor	Superintending Engineer, Irrigation Circle,Nellore& Superintending Engineer Irrigation Circle,Chittoor	0861-2327658 (Nellore) 08572-232932 (Chittoor)	Nellore& Chittoor

ANNEXURE – III

STANDARD PROFORMA FOR PARTICULARS OF THE EXISTING R.A. TANKS AND OTHER R.A. WORKS

DISTRICT

Note : All levels to be given in G .S value

Sno	Name and particulars of Rly. Affecting tanks / works	Affected Rly. Location / Locations	State Official nominated for giving warning	Railway official / officials nominated for receiving the warning	Technical particulars of Rly. Affecting tanks / works	Details of surplussing arrangment	Ownership,inspecting authority and maintenance	History if any
	Name : Village Mandal : Between : Stations: Latitude: Longitude:	Section : Km. From: To: Br.No/ Location:	Designation : Department Village:	Designationsation ASM and duty :	Catchment area : Capacity: FTL : MWL: TBL: Danger Level: Lowest Bed Level:	Type : Length Design Discharge	Department : Inspection: Maintenance:	

ANNEXURE - IV

GOVERNMENT OF ANDHRA PRADESH

ABSTRACT

I & CAD Department - Minor Irrigation - Railway Affecting Tanks - Suggestions of the State Committee of Engineers for safety measures of Railway affecting tanks - Instructions - Regarding Inspection of tanks - Orders - Issued.

Irrigation & Command Area Development (Minor.IV) Department

G.O.Ms.No. 149 Dated: 12.12.05

Read:

From Chief Engineer, Minor Irrgn, Hyd Lr.No.DCE.II/OT4/SO1/87037/89 (23) VOL.II, Dated 6.10.05.

ORDER:

The Chief Engineer, Minor Irrigation in his letter read above has furnished the "Draft Manual of Instructions for Railway Affecting tanks and Works" finalised in the committee of Engineers and as recommended by the Committee, requested the Govenment for issue of suitable instructions regarding inspection and submission of reports on Railway Affecting tanks / works and also to issue instructions regarding inspection of Railway Affecting Tanks by the inspecting officers.

2. The Government after careful examination of the proposals of Chief Engineer, Minor Irrigation here by issue following instructions along with the questionnaire as annexed to this order for inspection of Railway Affecting Tanks in charge of Irrigation Department / the Administrative Departments concerned as the case may be:-

1. All the Railway Affecting Tanks / works under the jurisdiction of each Sub-division shall be thoroughly inspected by the Deputy Executive Engineer of Irrigation department concerned soon after the monsoon and submit their inspection report (in the prescribed pro-forma annexed to this order) through Superintending Engineer to the Chief Engineer, Minor Irrigation by the end of January every year. Two copies of these reports shall be sent to the respective Railway Divisional Engineers with intimation to the Chief Bridge Engineer of the concerned Railway.

2. All the Railway Affecting Tanks / works should further be test checked by a Gazetted officer of the status of a Deputy Executive Engineer once in a year. The tanks in charge of Irrigation Department and Private tanks shall be checked by the Deputy Executive Engineer, Irrigation department and they should also adopt the forms referred to above for their reports.

3. If on inspection, it is found that a Railway affecting tank / work is found to be defective the report shall at once be sent to the immediate superior of the inspecting officer and also to the following officers:

i) Chief Bridge Engineer of the concerned Railway.

ii) Chief Engineer, Minor Irrigation as Chairman of the Committee of Engineers for safety of Railway Bridges, Railway tracks and other Public works.

iii) District Collector concerned and

iv) Divisional Engineer of the concerned Railway.

The work shall then be jointly inspected as early as possible by Railway Assistant Executive Engineer and the Deputy Executive Engineer of Irrigation Department and prompt action taken by the Deputy Executive Engineer concemed to carry out repairs to the work and restore it to normal condition. In such cases, a quarterly progress report shall be submitted to Chief Engineer, Minor Irrigation and Chief Bridge Engineer of concerned Railway by the Deputy Executive Engineers concerned through Superintending Engineers.

3. The Chief Engineer, Minor Irrigation shall take necessary action in the matter.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

S.P. TUCKER,
PRINCIPAL SECRETARY TO GOVERNMENT.

To

The Cheif Engineer, Minor Irrigation, Hyderabad.

// FORWARDED :: BY ORDER//

R Sarita
SECTION OFFICER

ANNEXURE IV-A

(to G.O.Ms.No.149, I&CAD (Minor.IV) Department, dt. 12.12.05)

QUESTIONNAIRE FOR THE ANNUAL INSPECTION OF RAILWAY AFFECTING WORKS

1. District
2. Taluk (Mandal)
3. Name of tank or bunded water course
4. No. On the District map or Railway affecting tanks
5. Agency responsible for the maintenance viz., Minor Irrgn, Panchayat Raj or Private.
6. Railway line affected and mileage / Bridge No.
7. Railway mileage of crossing of surplus course of the tank or water course.
8. Date of Inspection.
9. Name and designation of the Inspecting Officer.
10. **BUND**

    a) Standards of the tank bund as per the railway affecting tank list

    b) Are the TBL stones or other permanent marks to verify whether top of bund is at prescribed level or not?

    c) Is the top of bund anywhere below to prescribed level? If so, specify changes and shortage in height?

    d) Are the top width and the slopes according to standards everywhere?

    Specify mileages where width is less and indicate extent by which it is less?

    e) Are there any dangerous gulleys and or cart tracks ruts, etc., which in your opinion must be repaired urgently ? If so, specify locations.

    f) Action taken to reactify defects noted in (b) to (e) above.

    g) Progress of work if any on hand and the probable date of completion of the work.

11. **SURPLUS WORKS**

    a) Length of surplus works as per the Railway affecting tank list.

    b) Whether the surplus works at the site are as per the list or not? Specify the variations if any.

c) Whether the MWL has exceeded or anything has happened to Indicate that the surplus works are inadequate or made inoperative by forming bunds in front side.

d) If so, the remedial measures contemplated and action taken.

12. SLUICES AND OTHER MASONARY WORKS:

Are the slulces and other masonry works in good order as not to endanger the safety of bunds ?

13. Special remarks if any by the Inspecting Officer ?

14. When this last test check was done by the Deputy Executive Engineer and what action was taken in the matter.

S.P. TUCKER,
PRINCIPAL SECRETARY TO GOVERNMENT.

ANNEXURE - V

GOVERNMENT OF ANDHRA PRADESH

ABSTRACT

I & CAD Department - Minor Irrigation - Safety of Railway Bridges and Railway track and other Public Works Coordination between Railways and Civil Authorities - Constitution of a Committee of Engineers - Orders - Issued.

Irrigation & Command Area Development (MI.IV) Department

G.O.Ms. No.148 Dated: 12.12.05

Read :

From Chief Engineer, Minor Irrgn, Hyd Lr.No.DCE.II/OT4/SO1/87037/89(23) VOL.II, Dated 6.10.05.

ORDER :

The Chief Engineer, Minor Irrigation in his letter read above has stated that reviewing periodically the position of Railway Affecting works, with a view to securing close coordination between the Railways and Civil authorities, it is considered necessary to have a committee of Engineers and accordingly the Government hereby constitute with immediate effect a committee consisting with following officers on the conditions stipulated below:

i) Chief Engineer (Minor Irrigation) (Chairman)

ii) Chief Engineer (Roads)

iii) Deputy Chief Engineer.II (Irrigation)(Secretary to the to Committee)

iv) Chief Engineer, Public Health Department

v) A Railway Engineer to represent the South Central Railway, Secunderabad.

Vi) A Railway Engineer to represent the Southern Railway, Chennai.

Vii) A Railway Engineer to represent the South Western Railway, Hubll.

Viii) A Railway Engineer to represent the East Cost Railway, Bhuvaneshwar.

The Chief Engineer, Minor Irrigation and the Deputy Chief Engineer II (Irrigation) shall be the chairman, and Secretary of the Committee respetively.

1. If the committee, after it begins to function, finds it necessary to have a representative from the Forest Department also, the committee shall co-opt members from the Department.

2. The functions of the above committee shall be :

a) Exchange of information about scheme envisaged by any one department ment and likely to affect the working or safety of assets of another department and consequential safequards to be adopted.

b) Keeping up to the date the list of railway affecting works, etc., naming the officials responsible for joint inspection of each such work immediately after monsoons and if possible, also in advance of monsoons, and watching that the department responsible for proper main tenance of such works promtly carries out the necessary repairs.

c) Evolving a procedure for :

i) Obtaining and broadcasting, by departments concerned, warnings or forecasts of heavy rains, floods storms etc as well as the actual heavy rainfall recorded and expected flood down stream to the officers concerned in the various departments and

ii) Inducing public cooperation for promptly conveying to the department concerned any ususual occurrence, i.e., breaches of tanks etc.

d) Assessing whether water ways, protection works, etc provided by any department in an area severely affected by floods have proved to be inadequate and the improvements needed for future.

e) Coordination of related schemes of the various departments represented.

2. The above committee of Chief Engineer, Minor Irrigation shall approve the conditions stipulated therin and committee shall frame its own procedural rules and should hold meetings at predetermined intervals, A record of the discussions at the meetings of the committee shall be maintained.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

S.P. TUCKER,
PRINCIPAL SECRETARY TO GOVERNMENT.

To
The Chief Engineer, Minor Irrigation, Hyderabad.
Copy to: The all other Chief Engineers concemed
through Chief Engineer, Minor Irrgn, Hyderabad.
The Accountant General, A.P. Hyderabad.
All Departments of Secretariat, A.P. Hyderabad.
All District Collectors in Andhra Pradesh.
The General Manager, South Central Railway, Secunderabad,
Southern Railway Channai,
South Western Railway, Hubli,
East Coast Railway, Bhuvaneswar.

All Sections in I & CAD Department
SF/SC.

// FORWARDED : : BY ORDER //

15/12/08
SECTION OFFICER.

ANNEXURE - VI

GOVERNMENT OF ANDHRA PRADESH

A B S T R A C T

FLOODS - Safety of Railways tracks and Bridges - Report on unusual occurrence of floods etc, by Village Servants and Village Assistants - Orders issued.

IRRIGATION AND COMMAND AREA DEVELOPMENT (DRAINAGE) DEPARTMENT

Read the following :

G.O.Ms.No. 136, PWD, dated 20.1.1960.

From the Chlul Engineer, Minor Irrigation, Lr, No. DCE.II/OT.4/SO/I/ 87037/78, dated 20.1.1988.

From the Commissioner of Land and Revenue, Lr.No. A4/1594/89, dated 4.8.1989.

ORDER :

1. In the Government Order first read above, orders were issued that the village headman should be made responsible to inform the nearest Station Mastor for the safety of railway bridges and tanks affected due to unusual occurence of flood, etc.,
2. The Chief Engineer, minor Irrigation has stated that, as per the present system, every village has got a Village Servant and for a group of 5 villages there one Village Assistant. Village Servant is generally an illiterate person whereas village Assistant is a responsible official. He has requested to issue modified orders fixing responsibility on the present Village Assistant instead of Village Servant.
3. The Commissioner of Land Revenue has in his letter third read above, suggested that the responsibility of informing the nearest Railway Station of any mishap of unusual occurence of floods may be entrusted to both village Servant and Village Assistants.
4. The Government after careful examination, accept the proposal of the commissioner of Land Revenue and direct that the Village Assistants and Village Servants should be made responsible to inform the nearest Railway Station Master, of any mishap or unusual occurence of floods.
5. The Commissioner of Land and Revenue is requested to include the above item of worm in the job chart, proposed to be drawn up for Village Assistant and village Servant.

(BY ORDER AND IN THE NAME OF GOVERNOR OF ANDHRA PRADESH)

K.P.V. SUBBAIAH,
Dy. Secretary to Government

To
The Chief Engineer, Minor Irrigation, Hyderabad.
Cc to;
The Commissioner of Land Revenue, Hyderabad, Revenue Department,
Stock File
Spare copies - 20

// FORWARDED :: BY ORDER//

Sd/-
SECTION OFFICER

ANNEXURE - VII

ANNEXURE - VII

GOVERNMENT OF ANDHRA PRADESH

Municipal Adminstration & Urban Development Dept.

Memo.No. 10596/A2/2001-1. Dt: 25-5-2001

SubL: - Railway affecting tanks - Request to take necessary action for proper maintaining of Railway affecting tanks - Reg.

Ref: - Draft Manual of the Instructions for Railway affecting tanks and other public works.

* * *

The attention of the Engineer-in-Chief, Public Health, Hyderabad is invited to the reference cited. He is requested to instruct the concerned Deputy Executive Engineers of Municipality and public Health to inspect the Railway Affecting tanks situated nearby tracks and maintain them in good condition well in advance of the commencement of the mosoon. He is also requested to submit their post monsoon inspaction reports to Govt. as-well as the respectiv Divisional Engineers with an intimation to the Chief Bridge Engineer of the concerned Railway.

This may be treated as most immediate.

B. Chandrasekhar Rao,
Deputy Secretary to Government

To
The Engineer-in-Chief,
Public Health,
Hyderabad.

Copy to:- The I&CAD (Irrgn.VI) Dept.

// Forwarded: : By order//

Section Officer

PR&RDDept. - Railway affecting tanks and bridges - Draft manual of instructions for railways affecting tanks prepared by Sub Committee of Engineers - Instructions regarding inspection of tanks - issued.

PANCHAYAT RAJ AND RURAL DEVELOPMENT (Progs. 1) DEPARTMENT

Read the following :

Ref: - 1. Form Chief Bridge Engineer, D.O.No.W.49/I/vol, II, Dt. 9.10.95.

2. From CE,MI, Hyd., Lr.No.DCE.II/OT.4/SO.I/83037/89(23), DT. 9.5.02.

ORDER

The Cheif Engineer Minor Irrigation, I&CAD & Chairman. State Committee of Engineers, Andhra Pradesh, on railway affecting tanks and bridges has prepared a draft manual of instructions for railway affecting tanks and Bridges Hyderabad which was accepted in the 9th Board of Engineers Meeting held on 18.9.99.

The Principal Chief Engineer, S.C., Railways has requested the Government for earty finalization and approval of the above said manual which is necessary for safety of railway track and bridges and also requested to issue unstructions to concerned authorities.

Government after careful examination of said manual, hereby issue the following instructions regarding inspection of railway effecting tanks and bridges both Major and Minor.

(I) The DEE OF Irrigation and PR Dept. shall inspect every Railway affecting Tanks in their jurisdiction soon after the monsoon and submit their post monsoon inspection reports to their heads of department by the end of January every year. These reports shall be submitted in proforma given in Annexure IV-A. two copies of these reports shall be sent to the respective Divisional Engineers with an intimate Chief Bridge Engineer of the concerned railway.

(2) In case of Private Tanks the Mandal Developmnet Officer/DEE., PR Dept. of that jurisdiction hsall inspect these Tanks and take action as stipulated in para I(i) above in consultation with Revenue authorities.

(3) The Irrigation and PR Dept. (represented by Deputy Executive Engineer Mandal Development Officer will take action to carry out necessary repair in Railway effecting Tanks as early as possible and maintain them in good condition well in advance of the commencement of the monsoon. The repairs should be taken up on priority basis.

The Chief Engineer, Panchayat Raj, Hyderabad is requested to submitted a list of railway affecting tanks and bridges and repairs to be taken if any, for take necessary action.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

V.NAGIREDDY,

SECRETARY TO GOVERNMENT.

ANNEXURE - IX

GOVERNMENT OF ANDHRPRADESH
ABSTRACT

PR&RDDept. - Railway affecting tanks and briages - Draft manual of instructions for railways affecting tanks prepared by Sub-committee of Engineers-Certain instructions to the Panchayat Secretaries/ Asst. Panchayat Secretaries- Orders issued.

PANCHAYAT RAJ & RURAL DEVLOPMENT (MDL.II) DEPARTMENT

G.O.Rt. No.1858 Dated: 02.11.2005

Read the following :

1. From the Chief Bridge Engineer D.O.Lr.No. 491/Vol.II/ dated; 09-10-1995
2. Extract taken from the Note file bearing C.No. 1341/Irrgn.VI 2/88 of I & CAD Dept.

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ORDER

The Cheif Engineer, Minor Irrigation, I & CAD & Chairman. State Committee of Engineers, Andhra Pradesh, on railway affecting tanks and bridges has prepared a draft manual of instructions for Railway Affecting Tanks and Bridges Hyderabad, which was accepted in the 9th Board of Engineers Meeting held on 18.9.99.

2. The Principal Chief Engineer has requested the Government for early finalization and approval of the above said manual, which is necessary for safety of railway track and bridges and also requested to issue instructions to concerned authorities.

3. Govt., after careful examination of the said manual hereby instruct that the Panchayat Secretaries / Assistant Panchayat secretaries shall also be made responsible to inform the concerned Divisional Railway Manager or Senior Divisional Railway Engineer or to the nearest Railway station Master of any Mishap of unusual occurence of floods, cyclone and other natural calamities etc., in time. For this purpose the H.F.L./M.W.L. at each Railway affecting Tank / work should be prominently displayed so that the nominated person can take immediate action. Irrespective of water levels, whenever the tank is in distress the Panchayat secretary /Assistant Panchayat Secretary/Asst. Executive Engineer/D.E.E. of the Dept.. concerned should inform the Railway authorities. The Dist.Collector concerned and the M.R.O should also be informed similarly. In case of other works the concerned authorities in charge of such works should inform the Railway Authorities of flood warnings as defined in annexure IX., Railway authority includes Station Master/ Gang man/ Gateman.

4. The District Collector concerned is requested to communicate instructions to all the Panchayat Secretaries under his jurisdiction and take action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

M. SAMUEL,

PRINCIPAL SECRETARY TO GOVERNMENT.

All the District Panchayat Officer's and Cheif Executive Officer's in the state
The Engineer in chief Minor Irrigation AP Hyderabad.

Copy to :

The Commissioner., P.R & R.E.,A.P., Hyderabad
The Engineer in Chief Panchayat Raj Department
P.S.to Principal Secretary (PR)
P.S. to Secy I&CAD Dett.
SF/SC
// Forwarded By Order//

K J. Subramanyam
SECTION OFFICER

GOVERNMENT OF ANDHRPRADESH
IRRIGATION & C.A.D. (MINOR. IV) DEPARTMENT

Circular Memo. 8416/Minor.IV/2005-57, Dated: 22.4.2006

Sub : I&CAD Department - Draft Manual of Instructions for Railway Affecting Tanks and works - Issued.

Ref: From Cheif Engineer, Minor Irrigation, Lr.No.DCE.II/OT4/SOI/ 87037/89(23)/Vol.III, dated 7.1.2006

>>>>>>>>>>

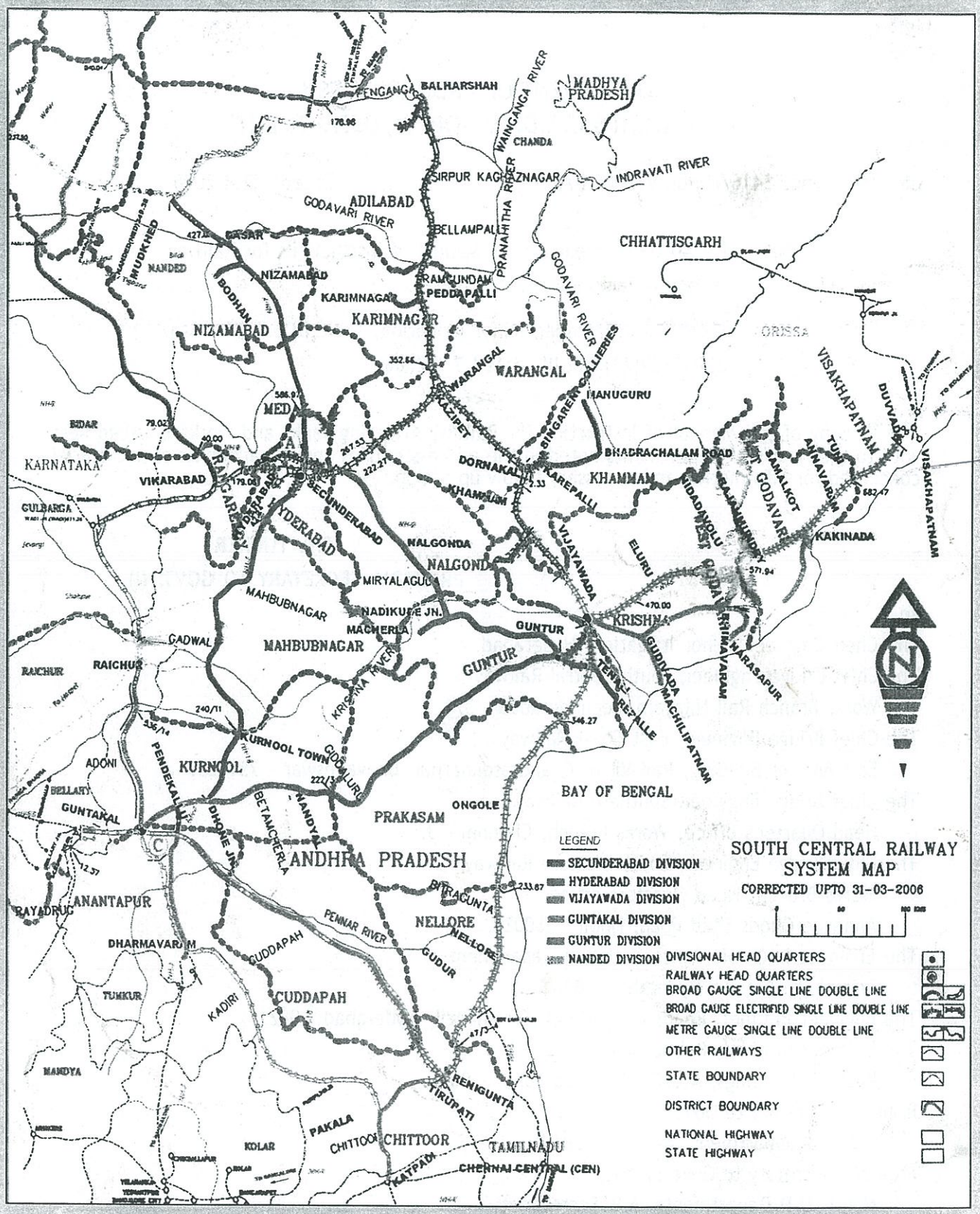
A copy of the Manual of Instruction for Railway Affecting Tanks and works is issued here with to the Head's of Departments noted in the address entries and Departments of Secretariat concerned for information and necessary follow up action.

S.P. TUCKER
PRINCIPAL SECRETARY TO GOVT. (I)

To
The Cheif Engineer, Minor Irrigation, Hyderabad.
The Chief Bridge Engineer, South Central Railway
Works Branch Rail Nilayam, Secunderabad - 371.
The Chief Bridge Engineer, East Coast Railways,
East Annexe Building, Rail Vihar, Chandrasekharpur, Bhuvaneswar - 751023.
The Chief Bridge Engineer, Southern Railway,
Head Quarter's office, Works Branch, Chennai - 3.
The Chief Bridge Engineer, South Western Railway,
Works Branch, Head Quarters office
Annexue Goods Shed Road, Hubil - 580020.
The Engineer-in-Chief, Panchayath Raj Department,
Erramanzil Colony, Hyderabad - 82.
The Engineer-in-Chief, Roads & Buildings, Erramanzil, Hyderabad - 082.
The Engineer-in-Chief, Public Health
Kashana Buildings, A.C.Gards, Hyderabad - 004.
Principal secretary to Govt.
T.R & B Department, A.P. Secretariat.
Principal Secretary to Government,
M.A & U.D Departments, A.P. Secretariat,
Principal Secretary to Govt.
P.R. & R.D Department, A.P. Secretariat
All District Collectors
Copy to P.S. To Prl. Secretary (I) Secreetary (I & CAD)

// Forwarded By Order//

R. Savitri
Section Officer



Government of Andhra Pradesh
Irrigation & CAD Dept.
Hyderabad