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APPENDIX "A"

DOMESTIC HOUSEHOLD DAILY WATER ALLOWANCES

USE	PWD drought allowances L/cap	PWD normal allowances L/cap	AWRC Tech. Paper No.20 L/cap average values
Shower/bath, washing hands, etc.	24	55	54
Food preparation, Cooking and drinking	8	10	8
Household Cleaning	1	5	
Washing dishes, etc.	9	15	17
Flushing Toilet	24	60	37
Laundry	18	35	33
Car Washing	Nil	2	4
Leakage	10%	10%	16%
TOTAL	95	200	185

APPENDIX "B"

THE EXTENT OF THE GWYDIR RIVER CATCHMENT UPSTREAM OF BUNDARRA

A written description using Local Names.

The catchment extends from Bundarra to Kingstown in the south, Uralla in the east and Ben Lomond in the north.

Its boundaries may be roughly described as follows:-

South from Bundarra, through Sentry Box Hill, then south along the Nandewar Range to the west of Kingstown.

South-east along the Nandewar Range, just to the north of the MacDonald River, Retreat and Sailor's Flat, across the New England Highway and southerly to Wollum Vale.

North from Wollun Vale, north of Wollun, through Kentucky and Mt. Harnham, to the east of Uralla, through Mt. Uralla.

North from Uralla through Mt. Butler and Mt. Mitchell.

North from Mt Mitchell, to the west of Saumarez Creek and the north of Dumaresq, to Black Mountain.

North from Black Mountain to Guyra, through Mt. Llangothlin, to just south of Ben Lomond.

South-west from Ben Lomond, along Pepperbox Ridge, through Tenderden.

West from Tenderden, north of George's Creek and Clerkness to Bundarra.

The catchment includes the following significant creeks and streams:-

1. Bundarra Area

Emu Gully, Harpers Gully, George's Creek, Laura Creek.

2. Abington Area

King John's Creek, Cameron's Creek, Potholes Creek, Abington Creek, Sheepstation Creek, Cachs Creek, Basin Creek, Two Mile Creek.

3. Torryburn Area

Stoney Batter Creek, Bald Knob Creek, Roumalla Creek, Burke's Gully, Green Swamp Gully, Back Creek.

4. Kingstown Area

Tea-Tree Creek, Ponds Creek, Molong Creek, Purlieu Creek.

5. Uralla Area

Reedy Creek, Kentucky Creek, Chilcott's Creek, Church Gully, Wilsons Creek, Rocky Creek, Rocky River, Uralla Creek, Dangar's Lagoon.

6. Armidale Area

Mitchell's Gully. Blackfellow's Gully.

7. Dumaresq Area

Toms Creek, Booralong Creek.

8. Guyra Area

Elderbury Creek, Roggery Creek, Happy Valley Creek.

9. Tenderden Area

Black Gully, Brushy Creek, Falls Station Creek, Louisa Creek, Bullock Creek, Winter Station Creek, Lockyer Creek, Whiskey Creek, Dry Creek,

10. Balala Area

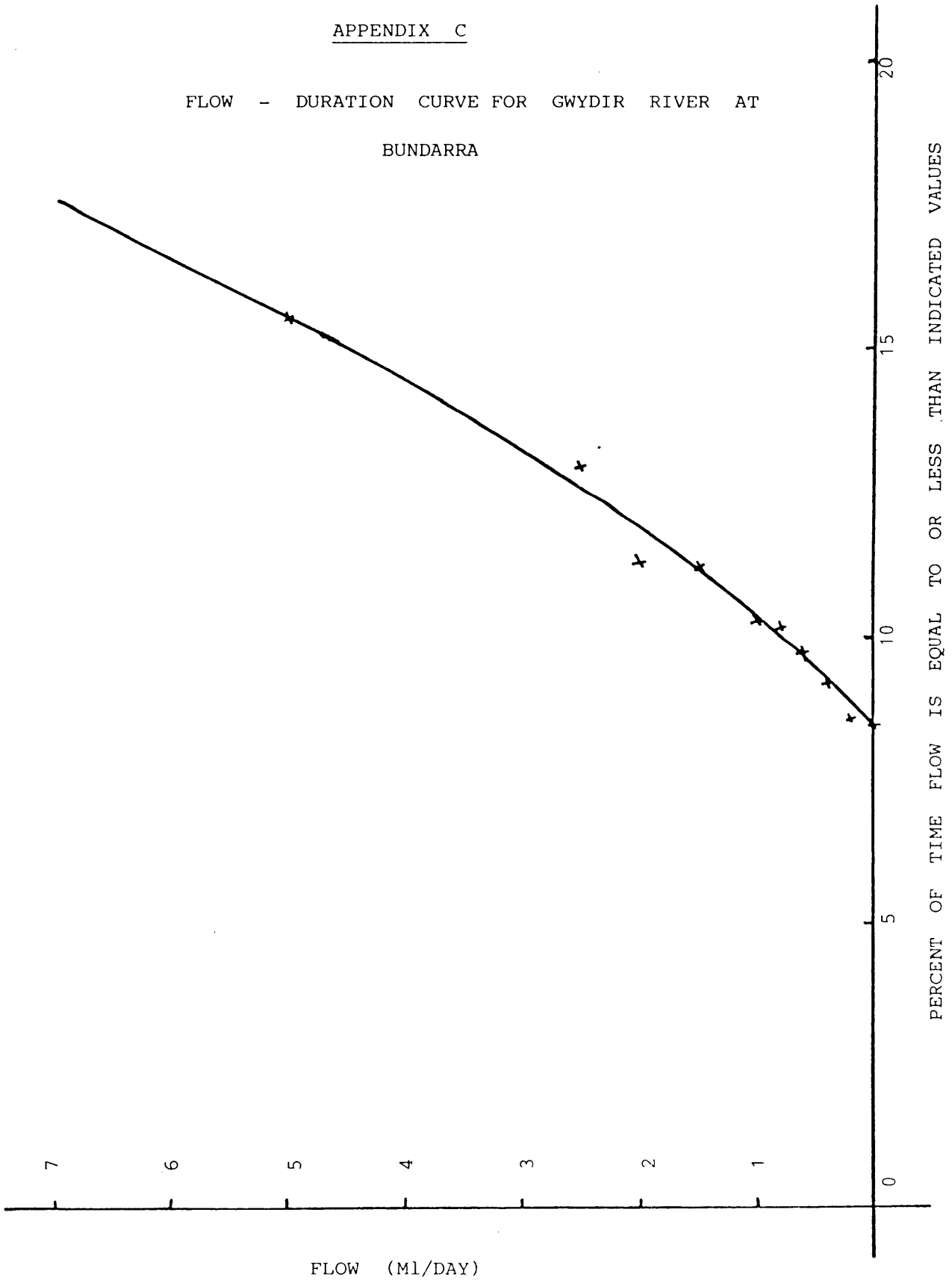
Long Swamp, Honeysuckle Creek, Scrubby Gully Creek, Morses Creek.

11. Yarrowyck Area

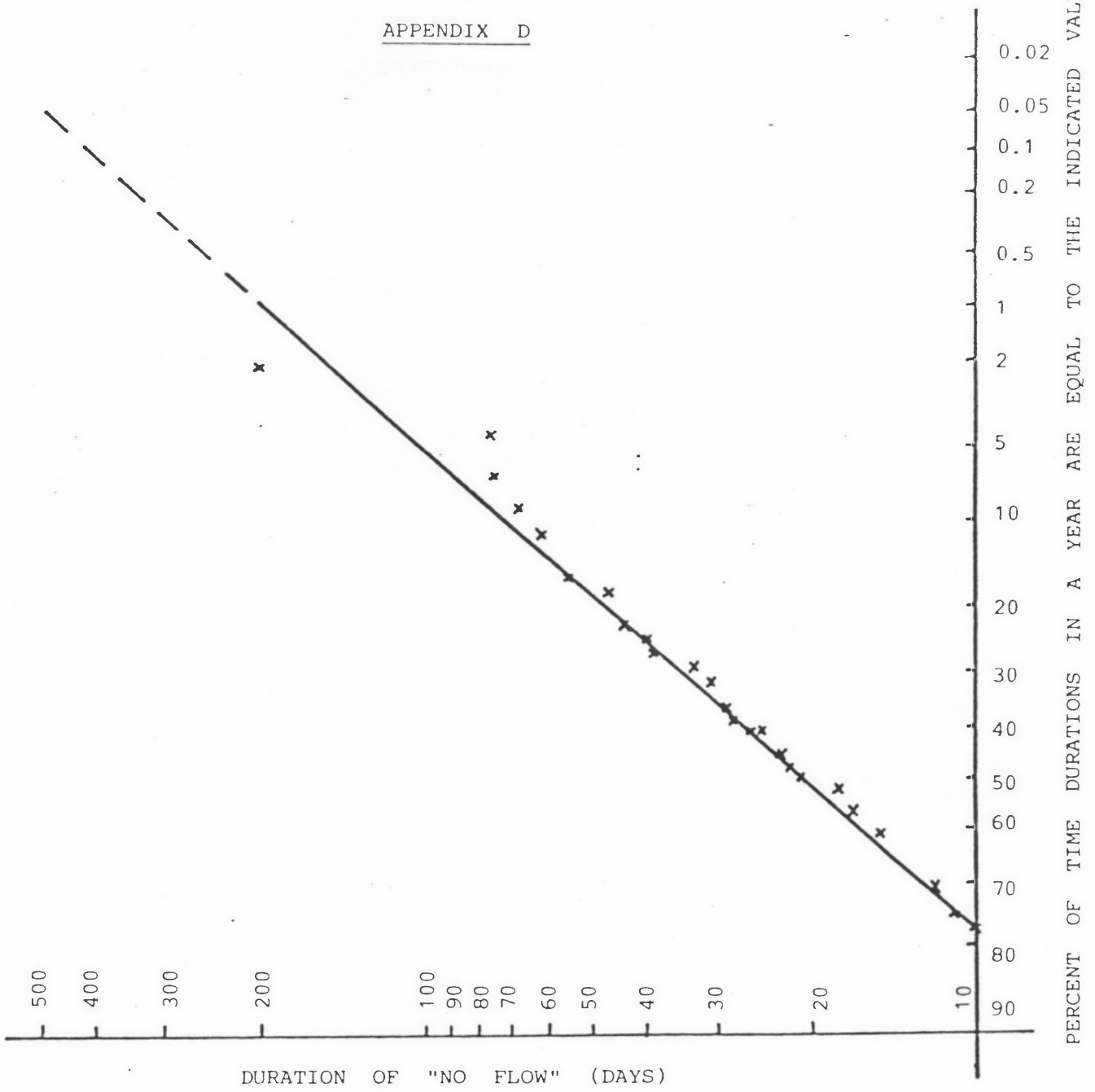
Old School Creek, Spring Creek, Haylock's Creek.

APPENDIX C

FLOW - DURATION CURVE FOR GWYDIR RIVER AT BUNDARRA



APPENDIX D



DURATION OF "NO FLOW" VERSUS PERCENT OF TIME DURATIONS IN A YEAR ARE EQUAL TO THE INDICATED VALUE

APPENDIX "E"

FORTRAN PROGRAMME

"GRISB. FOR"

```
100             SUBROUTINE IRRIG
200     C       THIS SUPPOUTINE ALLOWS FOR IRRIGATION TO PROCEED INDEPENDE
300     C       NTLY FROM BOTH PONDS WHILE QOUTT=0 DOWN TO DEFINED
400     C       VALUES OF WT AND VT
500             COMMON QOUTT,WT,SF,TIIF,MM,TIIC,NOINT,NLINT,NDINT,INT,MINT,
600             1YEARR(15,12),NX,I,NDL,REST,I10T(12),I20T(12),I10W(12),I20W(12),
700             1N5INT,N10INT,N20INT,VT,SM,DIF,DIC,NOINW,NLINW,NDINW,INW,MINW,
800             2N5INW,N10INW,N20INW,SIMC,PIM1,SIMF,DC,CIR,ACW,ACT,DF,FIR,AFW,
900             3AFT,TII,DI,B,BT,BW,BJ,W,BG1,NLG1B,NDG1B,NOG1B,NG1B,MG1B,N5G1B,
000             4N10G1B,N20G1B,BK,NOG2B,NLG2B,BG2,NDG2B,NG2B,MG2B,N5G2B,N10G2B,
100             5N20G2B,BH,NOG3B,NLG3B,BG3,NDG3B,NG3B,MG3B,N5G3B,N10G3B,N20G3B,
200             6NOG4B,NLG4B,BI,BG4,NFB,NDG4B,NG4B,MG4B,N5G4B,N10G4B,N20G4B,NY,MM
300             IF (QOUTT) 501,501,138
400     C       REACH 501 IF THERE IS NO FLOW OUT OF THE PONDS
500       501   IF (WT-SF) 503,503,502
600       502   TIIF=YEARR(15,MM)
700             TIIC=YEARR(14,MM)
800       560   NOINT=NOINT+NLINT
900             NLINT=0
000             GO TO 504
100       503   NLINT=1
200             TIIF=0.0
300             TIIC=0.0
400     C       REACH 503 MEANS IRRIGATION IS NOT PERMITTED FROM TAYLORS P
500     C       OND ONTHIS PARTICULAR DAY
600             NDINT=NDINT+1
700       504   IF (NLINT-1) 506,505,506
800     C       GO TO 505 IF WE ARE IN A PERIOD OF NO IRRIGATION FROM
900     C       TAYLORS POND
000       505   INT=INT+1
100             GO TO 508
200     C       GO TO 506 IF NLINT=0
300       506   IF (INT) 507,508,507
400
500     C       GO TO 507 IF JUST LEFT THE LOOP OF A PERIOD WHEN IRRIGN
600     C       WAS NOT PERMITTED FROM TAYLORS POND
700       507   IF (INT-MINT) 510,510,509
800       509   MINT=INT
900       510   IF (INT-5) 512,512,511
000       511   N5INT=N5INT+1
100             WRITE (23,*) N5INT,NY,INT,MM
200       512   IF (INT-10) 514,514,513
300       513   N10INT=N10INT+1
400             I10T(MM)=I10T(MM)+1
500       514   IF (INT-20) 516,516,515
600       515   N20INT=N20INT+1
700             I20T(MM)=I20T(MM)+1
800       516   INT=0
900             IF (I-1) 508,139,508
000       508   IF (VT-SM) 521,521,520
100       520   DIF=YEARR(13,MM)
200             DIC=YEARR(12,MM)
300       561   NOINW=NOINW+NLINW
400             NLINW=0
500             GO TO 522
600       521   NLINW=1
700             DIF=0.0
800             DIC=0.0
900     C       REACH 521 IF IRRIGN NOT PERMITTED FROM WORRABINDA TODAY
000             NDINW=NDINW+1
100       522   IF (NLINW-1) 523,524,523
200     C       GO TO 524 IF IN A PERIOD OF NO IRRIGN FROM WORRABINDA
```

```
00      524 INW=INW+1
00            GO TO 525
00
00      523 IF (INW) 526,525,526
00    C     GO TO 526 IF YESTERDAY WAS THE LAST DAY OF A PERIOD IN
00    C     WHICH IRRIGN WAS NOT PERMITTED FROM WORRABINDA POND
00      526 IF (INW-MINW) 528,528,527
00      527 MINW=INW
00      528 IF (INW-5) 530,530,529
00      529 N5INW=N5INW+1
00            WRITE (24,*) N5INW,NY,INW,MM
00      530 IF (INW-10) 532,532,531
00      531 N10INW=N10INW+1
00            I10W(MM)=I10W(MM)+1
00      532 IF (INW-20) 534,534,533
00      533 N20INW=N20INW+1
00            I20W(MM)=I20W(MM)+1
00      534 INW=0
00            IF (I-1) 525,500,525
00      138 I=1
00            IF (NLINT-1) 139,560,139
00      139 IF (NLINW-1) 500,561,500
00      500 DIF=YEARR(13,MM)
00            DIC=YEARR(12,MM)
00            TIIF=YEARR(15,MM)
00            TIIC=YEARR(14,MM)
00    C     IRRIGN VOLUMES WHICH HAVE NOW BEEN ESTABLISHED NEXT
00    C     NEED TO BE MODIFIED TO ALLOW FOR THE EFFECT OF RECENT
00    C     RAINFALLS
00    C     SOIL MOISTURE STATES ARE ASSUMED TO BE SIMILAR IN THE AREAS
00    C     OF ONE PROPERTY IRRIGATED FROM EITHER POND
00      525 SIMC=SIMC+PIM1
00            SIMF=SIMF+PIM1
00            IF (SIMC) 586,587,586
00    C     GO TO 587 IF TODAYS IRRIGN IS UNAFFECTED BY RAINFALL
00    C     FOR CLEPKNESS
00      587 GO TO 592
00      586 DC=YEARR(10,MM)
00            IF (SIMC-DC) 589,589,588
00      588 SIMC=DC
00      589 CIR=DC/(YEARR(8,MM))
00            IF (SIMC-CIR) 590,591,591
00      590 IF (DIC) 553,550,553
00      553 DIC=DIC-((ACW*SIMC*0.8)/100.0)
00            IF (DIC) 313,550,550
00      313 DIC=0.0
00      550 IF (TIIC) 554,562,554
00      554 TIIC=TIIC-((ACT*SIMC*0.8)/100.0)
00            IF (TIIC) 314,562,562
00      314 TIIC=0.0
00      562 SIMC=0
00            GO TO 592
00    C     GO TO 591 IF INCREASE IN SOIL MOISTURE CONTENT EXCEEDS
00    C     IRRIGN REQUIREMENT FOR THE DAY
00      591 SIMC=SIMC-CIR
00            DIC=0.0
00            TIIC=0.0
00    C     GO TO 592 WITH APPROPRIATELY MODIFIED VALUES OF DIC AND TIIC
00      592 IF (SIMF) 573,574,573
00    C     GO TO 574 IF TODAYS IRRIGN IS UNAFFECTED BY RAIN
00    C     FOR FLEMINGTON
00      574 GO TO 575
```

```
      573 DF=YEARR(11,MM)
            IF (SIMF-DF) 577,577,576
      576 SIMF=DF
      577 FIR=DF/(YEARR(9,MM))
            IF (SIMF-FIR) 578,579,579
      578 IF (DIF) 555,552,555
      555 DIF=DIF-((AFW*SIMF*0.8)/100.0)
            IF (DIF) 315,552,552
      315 DIF=0.0
      552 IF (TIIF) 556,570,556
      556 TIIF=TIIF-((AFT*SIMF*0.8)/100.0)
            IF (TIIF) 316,570,570
      316 TIIF=0.0
      570 SIMF=0
            GO TO 575
      579 DIF=0.0
            TIIF=0.0
            SIMF=SIMF-FIR
C     GO TO 575 WITH APPROPRIATE VALUES OF DIF AND TIIF
      575 TII=TIIF+TIIC
            DI=DIF+DIC
            RETURN
            END
C     CONTROL IS NOW RETURNED TO THE SUPERIOR PROGRAM WITH
C     VALUES OF TII AND DI AND UPDATED ANALYSIS OF THE
C     PERIODS IN WHICH IRRIGN IS NOT PERMITTED FROM EITHER
C     OR BOTH PONDS
            SUBROUTINE TOWN
C     THIS SUBROUTINE DETERMINES APPROPRIATE VALUES OF BT
C     AND BW DEPENDING ON THE MONTH OF THE YEARR, THE WATER
C     RESTRICTIONS IN FORCE AND THE MANAGEMENT PLAN CONCERNING
C     THE USE OF THE TWO PONDS
            COMMON QOUTT,WT,SF,TIIF,MM,TIIC,NOINT,NLINT,NDINT,INT,MINT,
           1YEARR(15,12),NX,I,NDL,REST,I10T(12),I20T(12),I10W(12),I20W(12),
           1N5INT,N10INT,N20INT,VT,SM,DIF,DIC,NOINW,NLINW,NDINW,INW,MINW,
           2N5INW,N10INW,N20INW,SIMC,PIM1,SIMF,DC,CIR,ACW,ACT,DF,FIR,AFW,
           3AFT,TII,DI,B,BT,BW,BJ,W,BG1,NLG1B,NDG1B,NOG1B,NG1B,MG1B,N5G1B,
           4N10G1B,N20G1B,BK,NOG2B,NLG2B,BG2,NDG2B,NG2B,MG2B,N5G2B,N10G2B,
           5N20G2B,BH,NOG3B,NLG3B,BG3,NDG3B,NG3B,MG3B,N5G3B,N10G3B,N20G3B,
           6NOG4B,NLG4B,BI,BG4,NFB,NDG4B,NG4B,MG4B,N5G4B,N10G4B,N20G4B,NY,MM
            IF (WT-REST) 602,117,117
C     GO TO 117 IF THE TOWN SUPPLY IS UNRESTRICTED
      117 NX=5
            IF (NLG1B-1) 114,604,114
      114 IF (NLG2B-1) 115,621,115
      115 IF (NLG3B-1) 116,641,116
      116 IF (NLG4B-1) 601,661,601
C     IF NLGYB=1 THEN WE HAVE JUST LEFT A LOOP OF GYB
      601 B=YEARR(3,MM)
            BT=B
            BW=0.0
            GO TO 600
C     GO TO 602 IF THE TOWN SUPPLY IS RESTRICTED
      602 NX=0
            NDL=NDL+1
            IF (WT-BJ) 604,603,603
C     GO TO 603 IF BG1 APPLIES
      603 BG1=YEARR(4,MM)
            NLG1B=1
            BT=BG1
            BW=0.0
            NDG1B=NDG1B+1
```

```
18700              GO TO 605
18800        604 NDG1B=NDG1B+NLG1B
18900              NLG1B=0
19000        605 IF (NLG1B-1) 606,607,606
19100        607 NG1B=NG1B+1
19200              GO TO 600
19300        606 IF (NG1B) 609,608,609
19400        609 IF (NG1B-MG1B) 611,611,610
19500        610 MG1B=NG1B
19600        611 IF (NG1B-5) 613,613,612
19700        612 N5G1B=N5G1B+1
19800        613 IF (NG1B-10) 615,615,614
19900        614 N10G1B=N10G1B+1
20000        615 IF (NG1B-20) 617,617,616
20100        616 N20G1B=N20G1B+1
20200        617 NG1B=0
20300              IF (NX-5) 608,601,608
20400        608 IF (WT-BK) 621,620,620
20500        621 NDG2B=NDG2B+NLG2B
20600              NLG2B=0
20700              GO TO 622
20800        620 BG2=YEARR(5,MM)
20900              NLG2B=1
21000              BT=BG2
21100              BW=0.0
21200              NDG2B=NDG2B+1
21300        622 IF (NLG2B-1) 623,624,623
21400        624 NG2B=NG2B+1
21500              GO TO 600
21600        623 IF (NG2B) 625,626,625
21700        625 IF (NG2B-MG2B) 628,628,627
21800        627 MG2B=NG2B
21900        628 IF (NG2B-5) 630,630,629
22000        629 N5G2B=N5G2B+1
22100        630 IF (NG2B-10) 632,632,631
22200        631 N10G2B=N10G2B+1
22300        632 IF (NG2B-20) 634,634,633
22400        633 N20G2B=N20G2B+1
22500        634 NG2B=0
22600              IF (NX-5) 626,601,626
22700        626 IF (WT-BH) 641,640,640
22800        641 NDG3B=NDG3B+NLG3B
22900              NLG3B=0
23000              GO TO 642
23100        640 BG3=YEARR(6,MM)
23200              NLG3B=1
23300              BT=BG3
23400              BW=0.0
23500              NDG3B=NDG3B+1
23600        642 IF (NLG3B-1) 643,644,643
23700        644 NG3B=NG3B+1
23800              GO TO 600
23900        643 IF (NG3B) 646,645,646
24000        646 IF (NG3B-MG3B) 649,649,648
24100        648 MG3B=NG3B
24200        649 IF (NG3B-5) 651,651,650
24300        650 N5G3B=N5G3B+1
24400        651 IF (NG3B-10) 653,653,652
24500        652 N10G3B=N10G3B+1
24600        653 IF (NG3B-20) 655,655,654
24700        654 N20G3B= N20G3B+1
24800        655 NG3B=0
```

```
00              IF (NX-5) 645,601,645
00        645 IF (WT-BH) 660,661,661
00      C       WHEN WT IS LESS THAN BH LEVEL G4 OF RESTRICTIONS
00      C       APPLIES AND WE DRAW UPON THE VOLUME OF STORAGE
00      C       IN WORRABINDA POND BY LETTING IT DOWN INTO TAYLORS
00      C       POND (GRAVITY OR PUMP)
00        661 NOG4B=NOG4B+NLG4B
00              NLG4B=0
00              GO TO 662
00        660 IF (VT-BI) 664,663,663
00      C       GO TO 663 IF VT IS MORE THAN OR EQUAL TO BI AND THERE IS
00      C       SUFFICIENT WATER LEFT IN WORRABINDA POND.GO TO 664 IF
00      C       SUPPLY FOR THE TOWN HAS FAILED
00        663 BG4=YEARR(7,MM)
00              BT=0.0
00              BW=BG4
00              GO TO 665
00        664 BT=0.0
00              BW=0.0
00              NFB=NFB+1
00        665 NLG4B=1
00              NDG4B=NDG4B+1
00        662 IF (NLG4B-1) 666,667,666
00        667 NG4B=NG4B+1
00              GO TO 600
00        666 IF (NG4B) 668,600,668
00        668 IF (NG4B-MG4B) 700,700,669
00        669 MG4B=NG4B
00        700 IF (NG4B-5) 702,702,701
00        701 N5G4B=N5G4B+1
00        702 IF (NG4B-10) 704,704,703
00        703 N10G4B=N10G4B+1
00        704 IF (NG4B-20) 706,706,705
00        705 N20G4B=N20G4B+1
00        706 NG4B=0
00              IF (NX-5) 600,601,600
00        600 RETURN
00              END
00      C       NOW HAVE APPROPRIATE VALUES OF BT AND BW TOGETHER WITH
00      C       AN ANALYSIS OF THE PERIODS OF THE VARIOUS LEVELS
00      C       OF WATER RESTRICTIONS . CONTROL IS NOW RETURNED TO
00      C       THE SUPERIOR PROGRAM
00              COMMON QOUTT,WT,SF,TIIF,MM,TIIC,NOINT,NLINT,NDINT,INT,MINT,
00             1YEARR(15,12),NX,I,NDL,REST,I10T(12),I20T(12),I10W(12),I20W(12),
00             1N5INT,N10INT,N20INT,VT,SM,DIF,DIC,NOINW,NLINW,NDINW,INW,MINW,
00             2N5INW,N10INW,N20INW,SIMC,PIM1,SIMF,DC,CIR,ACW,ACT,DF,FIR,AFW,
00             3AFT,TII,DI,B,BT,BW,BJ,W,BG1,NLG1B,NDG1B,NOG1B,NG1B,MG1B,N5G1B,
00             4N10G1B,N20G1B,BK,NOG2B,NLG2B,BG2,NDG2B,NG2B,MG2B,N5G2B,N10G2B,
00             5N20G2B,BH,NOG3B,NLG3B,BG3,NDG3B,NG3B,MG3B,N5G3B,N10G3B,N20G3B,
00             6NOG4B,NLG4B,BI,BG4,NFB,NDG4B,NG4B,MG4B,N5G4B,N10G4B,N20G4B,NY,MM
00      C       WE NOW SET INITIAL VALUES FOR THE COUNTER TYPE VARIABLES
00      C       USED IN THE PROGRAM
00              DATA NS,NT,NIT,NDINT,NLINT,NOINT,MINT,INT,NDINW,NLINW,
00             1NOINW,MINW,INW,N75W,N50W,N25W,N25LW,N75V,N50V,N25V,
00             2N25LV,N5INT,N10INT,N20INT,N5INW,N10INW,N20INW,NLG1B,
00             3NDG1B,NOG1B,NG1B,MG1B,N5G1B,N10G1B,N20G1B,NLG2B,NDG2B,
00             4NOG2B,NG2B,MG2B,N5G2B,N10G2B,N20G2B,NLG3B,NDG3B,
00             5NOG3B,NG3B,MG3B,N5G3B,N10G3B,N20G3B,NLG4B,NDG4B,NOG4B,
00             6NG4B,MG4B,N5G4B,N10G4B,N20G4B,ND,BR,BF,
00             7NFB,NX,I,NDL,MMM/67*0/
00              DATA PIM1,PI,SIMC,SIMF/4*0.0/
00              DATA (I10T(I),I=1,12)/12*0/
```

```
      DATA (I20T(I),I=1,12)/12*0/
      DATA (I10W(I),I=1,12)/12*0/
      DATA (I20W(I),I=1,12)/12*0/
C     SINCE PIM1 AND PI ARE SET AT ZERO AT THE START OF THE
CC    PROGRAM, THE ANALYSIS MUST START AT A PERIOD OF NO RAIN
CC    EITHER THAT DAY OR THE DAY BEFORE. WE NOW READ IN
C     MANAGEMENT DECISION VARIABLES FROM THE FILE MGT.DAT
      OPEN(UNIT=23,ACCESS='SEQOUT',FILE='NIDT.DAT')
      OPEN(UNIT=24,ACCESS='SEQOUT',FILE='NIDW.DAT')
      OPEN(UNIT=20,ACCESS='SEQIN',FILE='MGT.DAT')
      READ (20,*) V,W,SM,SF,BH,BI,ACW,AFW,ACT,AFT,REST,BJ,BK,NPRINT
C     V,W,SM,SF,BH,BI,REST,BJ,BK ARE IN ML, ACW,AFW,ACT,AFT ARE IN HA
CCC   NPRINT IS USED TO CONTROL THE OUTPUT DEVICE FOR RESULTS
CCC   DATA FOR MGT.DAT CONSISTS OF ALTERNATE CONSTANTS AND
C     DELIMETERS SEE PAGE 10-7 FOR DETAILS
      QOUTT=1.0
      NY=1
      VT=V
      WT=W
      OPEN(UNIT=22,ACCESS='SEQIN',FILE='ARRAY.DAT')
      READ (22,*)((YEARR(I,J),J=1,12),I=1,15)
C     WE NOW READ IN DAILY FLOW AND RAINFALL INFORMATION
      OPEN(UNIT=21,ACCESS='SEQIN',FILE='WTHR.DAT')
  140 READ (21,*) QIN,PI,MM
C     QIN IS IN ML, PI IN MM AND MM IS THE MONTH NUMBER (1 TO 12)
CCC   AT THE END OF WTHR.DAT THERE IS A DATA RECORD 0,0,0 THIS
CCC   RECORD SIGNIFIES THE END OF INPUT DATA AND IS USED TO EXIT
CCC   FROM THE LOOP COMMENCING AT STATEMENT 140
CCC   THE THIRD LAST SET OF DATA IS 999999,0,MM, THE SECOND
CCC   LAST SET OF DATA IS 0,0,MM, THESE TWO LINES OF DUMMY DATA
CCC   ALLOW EXIT FROM ANY RESTRICTIONS LOOP SO THAT THESE CAN BE
CCC   ANALYSED BEFORE FINALISING ALL DATA INPUT. THEY ENSURE THE WHOLE
C     ANALYSIS ENDS WITH ALL CRISES PAST.
      IF (MM) 199,1000,199
  199 ND=ND+1
      IF (MM-12) 435,434,435
  434 MMM=12
  435 IF (MM-1) 436,436,438
  436 IF (MMM-12) 438,437,438
  437 NY=NY+1
      MMM=0
  438 IF (QIN) 100,198,100
  198 NIT=NIT+1
C     WE NOW READ IN THE VALUES OF THE ELEMENTS OF THE MATRIX
CC    YEARR(15,12). THESE VALUES DEFINE THE VARIOUS DEMANDS ON
CC    THE RIVER, WHICH VARY ON A MONTHLY BASIS BECAUSE OF
CC    WEATHER CONDITIONS. IN ASCENDING ROW ORDER THE ROWS
CC    REPRESENT MONTHLY VALUES OF MM,E,B,BG1,BG2,BG3,BG4,TC,TF,
CC    DC,DF,DIC,DIF,TIIC AND TIIF.THE ARRAY IS READ IN ROW BY
CC    ROW AND EACH LINE OF THE FILE ARRAY.DAT IS ONE ROW OF
CC    YEARR(15,12)
CC    DIF,DIC,TIIF,TIIC ARE IN ML, DC,DF,E ARE IN MM, TC,TF
C     ARE IN DAYS, B,BG1,BG2,BG3,BG4 ARE IN ML/DAY
  100 CALL IRRIG
C     RETURN TO THE MAIN PROGRAM WITH APPROPRIATE VALUES OF
C     TII AND DI
      CALL TOWN
C     RETURN TO THE MAIN PROGRAM WITH APPROPRIATE VALUES OF
C     BT AND BW.
      BR=BT+BW
      IF (YEARR(3,MM)-BR) 730,730,731
  731 BF=BF+(YEARR(3,MM)-BR)
```

```
C       NOW CALC. THE VOLUME LOST BY EVAPORATION
  730 E=YEARR(2,MM)
C       WORK ON TAYLORS POND FIRST
          IF (WT-29.0) 201,200,200
  201 DT=EXP((ALOG(WT)-ALOG(1.17))/4.1310)
          GO TO 400
  200 DT=EXP((ALOG(WT)-ALOG(5.10))/2.2302)
  400 DT=DT-YEARR(2,MM)
C       EWT IS VALUE OF WT CORRESPONDING TO DEPTH (DT-E)
          IF (DT-2.20) 202,300,300
  202 EWT=EXP(4.1310*ALOG(DT)+ALOG(1.17))
          GO TO 203
  300 EWT=EXP(2.2302*ALOG(DT)+ALOG(5.10))
  203 VET=WT-EWT
C       NOW WORK ON WORRABINDA POND
          IF (VT-27.0) 204,998,998
  204 DW=EXP((ALOG(VT)-ALOG(1.60))/3.9889)
          GO TO 999
  998 DW=EXP((ALOG(VT)-ALOG(4.42))/2.5379)
  999 DW=DW-YEARR(2,MM)
C       EVT IS VALUE OF VT CORRESPONDING TO DEPTH (DW-E)
          IF (DW-2.04) 205,997,997
  205 EVT=EXP(3.9889*ALOG(DW)+ALOG(1.60))
          GO TO 996
  997 EVT=EXP(2.5379*ALOG(DW)+ALOG(4.42))
  996 VEW=VT-EVT
C       NOW HAVE VALUES OF VET AND VEW FOR USE IN DRAUGHT
C       CALCULATIONS. NOW UPDATE VALUES OF VT AND WT AS A RESULT
C       OF THE DAILY INPUTS AND DEMANDS. ALSO UPDATE THE
C       COUNTERS NS,NT AND NIT
          IF (VT-V) 207,206,206
  207 DEF=V-VT
          IF (QIN-DEF) 800,800,900
  800 VT=VT+QIN
          QOUTW=0.0
          GO TO 101
  900 VT=V
          QIN=QIN-DEF
          GO TO 102
  206 VT=V
  102 QOUTW=QIN-(DI+VEW+BW)
          IF (QOUTW) 104,104,103
C       GO TO 103 IF FLOW INTO WORRABINDA POND EXCEEDS DEMAND
C       AND WATER FLOWS INTO TAYLORS POND
  103 QINT=QOUTW
          GO TO 105
C       GO TO 104 IF FLOW INTO WORRABINDA POND IS LESS THAN
C       DEMAND AND WE DRAW ON THE STORED VOLUME VT
  104 NS=NS+1
          VT=V+QOUTW
          QINT=0.0
          GO TO 105
  101 VT=VT-(DI+VEW+BW)
          NS=NS+1
          QINT=0.0
C       NOW HAVE UPDATED VALUES OF VT,QINT AND NS
  105 IF (WT-W) 107,106,106
  106 WT=W
          GO TO 110
  107 DEF=W-WT
          IF (QINT-DEF) 108,108,109
  108 WT=WT+QINT
```

```
43100              GO TO 111
43200        109 WT =W
43300              QINT=QINT-DEF
43400        110 QOUTT=QINT-(TII+VET+BT)
43500              IF (QOUTT) 113,113,112
43600        113 NT=NT+1
43700              WT=W+QOUTT
43800              QOUTT=0.0
43900              GO TO 112
44000        111 WT=WT-(TII+VET+BT)
44100              NT=NT+1
44200              QOUTT=0.0
44300        C     WHEN WE REACH THIS POINT WE HAVE DETERMINED THE END OF DAY
44400        C     VALUE OF QIN,QOUTW,QINT,QOUTT,VT,WT,NS,NT AND NIT. WE NOW
44500        C     ANALYSE THESE RESULTS BEFORE RETURNING TO READ THE
44600        C     NEXT DAYS INPUT
44700        112 PIM1=PI
44800              IF((W-WT)*(WT-0.75*W)) 1500,2000,2000
44900       2000 N75W=N75W+1
45000              GO TO 125
45100       1500 IF(0.75*W-WT) 121,121,1201
45200       1201 IF(WT-0.50*W) 121,120,120
45300        120 N50W=N50W+1
45400              GO TO 125
45500        121 IF(0.5*W-WT) 123,123,1221
45600       1221 IF(WT-0.25*W) 123,122,122
45700        122 N25W=N25W+1
45800              GO TO 125
45900        C     REACH 123 IF WT IS LESS THAN 0.25*W
46000        123 N25LW=N25LW+1
46100        125 IF((V-VT)*(VT-0.75*V)) 126,127,127
46200        127 N75V=N75V+1
46300              GO TO 135
46400        126 IF(0.75*V-VT) 128,128,1291
46500       1291 IF(VT-0.5*V) 128,129,129
46600        129 N50V=N50V+1
46700              GO TO 135
46800        128 IF (0.5*V-VT) 131,131,1301
46900       1301 IF (VT-0.25*V) 131,130,130
47000        130 N25V=N25V+1
47100              GO TO 135
47200        C     REACH 131 IF VT IS LESS THAN 0.25*V
47300        131 N25LV=N25LV+1
47400        C     WE NOW HAVE ANALYSED DEPTH V DURATION FOR EACH
47500        C     POND. IF THIS IS NOT THE END OF THE DATA FILE WE
47600        C     RETURN AND READ IN THE NEXT DAYSDATA. IF THE NEXT
47700        C     DAYS DATA IS 0.0,0 THEN THAT IS THE END OF THE
47800        C     DATA AND WE ARE INSTRUCTED TO GO TO 1000
47900        135 GO TO 140
48000       1000 CLOSE(UNIT=20,ACCESS='SEQIN',FILE='MGT.DAT')
48100              CLOSE(UNIT=21,ACCESS='SEQIN',FILE='WTHR.DAT')
48200              CLOSE(UNIT=22,ACCESS='SEQIN',FILE='ARRAY.DAT')
48300              CLOSE(UNIT=23,ACCESS='SEQOUT',FILE='NIDT.DAT')
48400              CLOSE(UNIT=24,ACCESS='SEQOUT',FILE='NIDW.DAT')
48500              OPEN(UNIT=23,ACCESS='SEQIN',FILE='NIDT.DAT')
48600              OPEN(UNIT=24,ACCESS='SEQIN',FILE='NIDW.DAT')
48700        C     NPRINT IDENTIFIES THE LOGICAL UNIT FOR DATA OUTPUT.
48800        C     WHEN NPRINT IS 05 OUTPUT IS TO THE USERS TERMINAL,
48900        C     WHEN IT IS 03 OUTPUT IS TO THE LINEPRINTER
49000              WRITE(NPRINT,301) W,V,SF,SM,BH,BI,REST,BJ,BK
49100        301 FORMAT(44H THIS ANALYSIS HAS USED THE FOLLOWING VALUES/
49200              138H FOR THE MANAGEMENT DECISION VARIABLES//
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300           243H VOLUME OF WATER IN TAYLORS POND WHEN FULL=,F9.3,3H ML//
400           346H VOLUME OF WATER IN WORRABINDA POND WHEN FULL=,F9.3,3H ML//
500           455H VOLUME OF WATER IN TAYLORS POND BELOW WHICH IRRIGATION/
600           518H IS NOT PERMITTED=,F9.3,3H ML//
700           647H VOLUME OF WATER IN WORRABINDA POND BELOW WHICH/
800           729H IRRIGATION IS NOT PERMITTED=,F9.3,3H ML//
900           835H VOLUME OF WATER IN TAYLORS POND AT/
000           914H DEAD STORAGE=,F9.3,3H ML//
100           138H VOLUME OF WATER IN WORRABINDA POND AT/
200           214H DEAD STORAGE=,F9.3,3H ML//
300         346H VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G1/
400         431H OF WATER RESTRICTIONS APPLIES=,F9.3,3H ML//
500           346H VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G2/
600           431H OF WATER RESTRICTIONS APPLIES=,F9.3,3H ML//
700           546H VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G3/
800           631H OF WATER RESTRICTIONS APPLIES=,F9.3,3H ML//
900           841H LEVEL G4 APPLIES WHEN WORRABINDA POND IS/
000           928H DRAWN ON TO SUPPLY THE TOWN// )
100           WRITE (NPRINT,302) ACT,AFT,ACW,AFW
200     302 FORMAT(37H AREA OF IRRIGATION FROM TAYLORS POND/
300           114H BY CLERKNESS=,F9.3,3H HA//
400           237H AREA OF IRRIGATION FROM TAYLORS POND/
500           315H BY FLEMINGTON=,F9.3,3H HA//
600           440H AREA OF IRRIGATION FROM WORRABINDA POND/
700           514H BY CLERKNESS=,F9.3,3H HA//
800           640H AREA OF IRRIGATION FROM WORRABINDA POND/
900           715H BY FLEMINGTON=,F9.3,3H HA// )
000           WRITE (NPRINT,303)
100     303 FORMAT (50H LEVEL G1 MEANS HAND HELD HOSES ONLY ARE PERMITTED//
200           148H LEVEL G2 MEANS HAND HELD HOSES MAY ONLY BE USED/
300           220H FOR 3 HOURS PER DAY//
400           348H LEVEL G3 MEANS HAND HELD HOSES MAY ONLY BE USED/
500           419H FOR 1 HOUR PER DAY//
600           533H LEVEL G4 MEANS DOMESTIC USE ONLY///
700           653H **** THE RESULTS OF THE ANALYSIS ARE AS FOLLOWS ****/
800           753H **********************************************/)
900           WRITE (NPRINT,304) ND,NIT,NS,NT
000     304 FORMAT (30H TOTAL NUMBER OF DAYS OF DATA=,I6//
100           125H NO OF DAYS OF NO INFLOW=,I6//
200           246H NO OF DAYS OF NO FLOW OUT OF WORRABINDA POND=,I6//
300           343H NO OF DAYS OF NO FLOW OUT OF TAYLORS POND=,I6// )
400           WRITE (NPRINT,305) NDINT,NOINT,MINT,N5INT,N10INT,N20INT
500     305 FORMAT (48H TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT/
600           129H PERMITTED FROM TAYLORS POND=,I6//
700           258H TOTAL NUMBER OF SEPARATE OCCASIONS IN WHICH IRRIGATION IS/
800           333H NOT PERMITTED FROM TAYLORS POND=,I6//
900           455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
000           547H IRRIGATION IS NOT PERMITTED FROM TAYLORS POND=,I6//
100           651H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
200           754H PERMITTED FROM TAYLORS POND FOR A PERIOD IN EXCESS OF/
300           812H (A) 5 DAYS=,I6//
400           812H (B)10 DAYS=,I6//
500           812H (C)20 DAYS=,I6 )
600           WRITE (NPRINT,306) NDINW,NOINW,MINW,N5INW,N10INW,N20INW
700     150 FORMAT (51H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
800           144H PERMITTED FROM TAYLORS POND FOR A PERIOD IN/
900           240H EXCESS OF 10 DAYS IN WHICH THE LAST DAY/
000           326H OF THAT OCCASION FALLS IN/
100           411H   JANUARY=,I6//
200           411H  FEBRUARY=,I6//
300           611H     MARCH=,I6//
400           711H     APRIL=,I6//
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     811H        MAY=,I6//
     911H       JUNE=,I6//
     111H       JULY=,I6//
     211H     AUGUST=,I6//
     311H SEPTEMBER=,I6//
     411H    OCTOBER=,I6//
     511H   NOVEMBER=,I6//
     611H   DECEMBER=,I6 )
     WRITE (NPRINT,150) (I10T(I),I=1,12)
306  FORMAT (48H TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT/
     132H PERMITTED FROM WORRABINDA POND=,I6//
     258H TOTAL NUMBER OF SEPARATE OCCASIONS IN WHICH IRRIGATION IS/
     336H NOT PERMITTED FROM WORRABINDA POND=,I6//
     455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
     550H IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND=,I6//
     651H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
     757H PERMITTED FROM WORRABINDA POND FOR A PERIOD IN EXCESS OF/
     812H (A) 5 DAYS=,I6//
     912H (B)10 DAYS=,I6//
     912H (C)20 DAYS=,I6 )
151  FORMAT (51H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
     144H PERMITTED FROM TAYLORS POND FOR A PERIOD IN/
     240H EXCESS OF 20 DAYS IN WHICH THE LAST DAY/
     326H OF THAT OCCASION FALLS IN/
     411H   JANUARY=,I6//
     511H  FEBRUARY=,I6//
     611H     MARCH=,I6//
     711H     APRIL=,I6//
     811H       MAY=,I6//
     911H      JUNE=,I6//
     111H      JULY=,I6//
     111H    AUGUST=,I6//
     311H SEPTEMBER=,I6//
     411H   OCTOBER=,I6//
     511H  NOVEMBER=,I6//
     611H  DECEMBER=,I6 )
     WRITE (NPRINT,151) (I20T(I),I=1,12)
152  FORMAT (51H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
     147H PERMITTED FROM WORRABINDA POND FOR A PERIOD IN/
     240H EXCESS OF 10 DAYS IN WHICH THE LAST DAY/
     326H OF THAT OCCASION FALLS IN/
     411H   JANUARY=,I6//
     511H  FEBRUARY=,I6//
     611H     MARCH=,I6//
     711H     APRIL=,I6//
     811H       MAY=,I6//
     911H      JUNE=,I6//
     111H      JULY=,I6//
     211H    AUGUST=,I6//
     311H SEPTEMBER=,I6//
     411H   OCTOBER=,I6//
     511H  NOVEMBER=,I6//
     611H  DECEMBER=,I6 )
     WRITE (NPRINT,152) (I10W(I),I=1,12)
153  FORMAT (51H THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT/
     147H PERMITTED FROM WORRABINDA POND FOR A PERIOD IN/
     240H EXCESS OF 20 DAYS IN WHICH THE LAST DAY/
     326H OF THAT OCCASION FALLS IN/
     411H   JANUARY=,I6//
     511H  FEBRUARY=,I6//
     611H     MARCH=,I6//
     711H     APRIL=,I6//
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00            811H       MAY=,I6//
00            911H      JUNE=,I6//
00            111H      JULY=,I6//
00            211H    AUGUST=,I6//
00            311H SEPTEMBER=,I6//
00            411H   OCTOBER=,I6//
00            511H  NOVEMBER=,I6//
00            611H  DECEMBER=,I6 )
00            WRITE (NPRINT,153) (I20W(I),I=1,12)
00            WRITE (NPRINT,307) N75W,N50W,N25W,N25LW
00      307 FORMAT (47H NO OF DAYS IN WHICH THE VOLUME IN TAYLORS POND/
00            148H WAS IN THE FOLLOWING QUARTILES OF FULL CAPACITY/
00            216H (A) 100 TO 75%=,I6//
00            316H (B)  75 TO 50%=,I6//
00            416H (C)  50 TO 25%=,I6//
00            516H (D)  25 TO  0%=,I6 )
00            WRITE (NPRINT,308) N75V,N50V,N25V,N25LV
00      308 FORMAT (50H NO OF DAYS IN WHICH THE VOLUME IN WORRABINDA POND/
00            148H WAS IN THE FOLLOWING QUARTILES OF FULL CAPACITY/
00            216H (A) 100 TO 75%=,I6//
00            316H (B)  75 TO 50%=,I6//
00            416H (C)  50 TO 25%=,I6//
00            516H (D)  25 TO  0%=,I6//)
00            WRITE (NPRINT,309) NDG1B,NOG1B,MG1B,N5G1B,N10G1B,N20G1B
00      309 FORMAT (44H TOTAL NO OF DAYS IN WHICH LEVEL G1 OF WATER/
00            122H RESTRICTIONS APPLIES=,I6//
00            252H TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G1 OF/
00            328H WATER RESTRICTIONS APPLIES=,I6//
00            455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
00            518H LEVEL G1 APPLIES=,I6//
00            658H THE NUMBER OF OCCASIONS IN WHICH LEVEL G1 OF RESTRICTIONS/
00            734H APPLIES FOR A PERIOD IN EXCESS OF/
00            812H (A) 5 DAYS=,I6//
00            912H (B)10 DAYS=,I6//
00            912H (C)20 DAYS=,I6//)
00            WRITE (NPRINT,310) NDG2B,NOG2B,MG2B,N5G2B,N10G2B,N20G2B
00      310 FORMAT (44H TOTAL NO OF DAYS IN WHICH LEVEL G2 OF WATER/
00            122H RESTRICTIONS APPLIES=,I6//
00            252H TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G2 OF/
00            328H WATER RESTRICTIONS APPLIES=,I6//
00            455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
00            518H LEVEL G2 APPLIES=,I6//
00            658H THE NUMBER OF OCCASIONS IN WHICH LEVEL G2 OF RESTRICTIONS/
00            734H APPLIES FOR A PERIOD IN EXCESS OF/
00            812H (A) 5 DAYS=,I6//
00            912H (B)10 DAYS=,I6//
00            912H (C)20 DAYS=,I6//)
00            WRITE (NPRINT,311) NDG3B,NOG3B,MG3B,N5G3B,N10G3B,N20G3B
00      311 FORMAT (44H TOTAL NO OF DAYS IN WHICH LEVEL G3 OF WATER/
00            122H RESTRICTIONS APPLIES=,I6//
00            252H TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G3 OF/
00            328H WATER RESTRICTIONS APPLIES=,I6//
00            455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
00            518H LEVEL G3 APPLIES=,I6//
00            658H THE NUMBER OF OCCASIONS IN WHICH LEVEL G3 OF RESTRICTIONS/
00            734H APPLIES FOR A PERIOD IN EXCESS OF/
00            812H (A) 5 DAYS=,I6//
00            912H (B)10 DAYS=,I6//
00            912H (C)20 DAYS=,I6//)
00            WRITE (NPRINT,312) NDG4B,NOG4B,MG4B,N5G4B,N10G4B,N20G4B,NFB
00      312 FORMAT (44H TOTAL NO OF DAYS IN WHICH LEVEL G4 OF WATER/
00            122H RESTRICTIONS APPLIES=,I6//
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00            252H IOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G4 OF/
00            328H WATER RESTRICTIONS APPLIES=,I6//
00            455H THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH/
00            518H LEVEL G4 APPLIES=,I6//
00            658H THE NUMBER OF OCCASIONS IN WHICH LEVEL G4 OF RESTRICTIONS/
00            734H APPLIES FOR A PERIOD IN EXCESS OF/
00            812H (A) 5 DAYS=,I6//
00            912H (B)10 DAYS=,I6//
00            912H (C)20 DAYS=,I6//
00            948H THE TOTAL NO OF DAYS IN WHICH THE BUNDARRA TOWN/
00            921H WATER SUPPLY FAILED=,I6//)
50            WRITE (NPRINT,732) BF
75      732 FORMAT (43H TOTAL VOLUME OF WATER FOREGONE IN BUNDARRA/
87            138H TOWN AS A RESULT OF THE IMPOSITION OF/
93            221H WATER RESTRICTIONS =,F9.3,3H ML//)
00            WRITE (NPRINT,480)
00      480 FORMAT (7X,38H HISTORY OF OCCASIONS OF INTERRUPTIONS,
00         114H TO IRRIGATION/18X,23H IN EXCESS OF FIVE DAYS/)
00            WRITE (NPRINT,481)
00      481 FORMAT (18X,18H FROM TAYLORS POND//)
00            WRITE (NPRINT,482)
00      482 FORMAT (7X,38H **************************************,
00         114H**************/
00         29H OCCASION,4X,12H YEAR NUMBER,6X,18H NUMBER OF DAYS IN,4X,
00         315H MONTH IN WHICH/7H NUMBER,6X,13H OF OCCURENCE,5X,
00         414H THIS OCCASION,8X,14H THIS OCCASION/53X,6H ENDED//)
00            DO 490 NUMB=1,N5INT
00            READ (23,*) MA,MB,MC,MD
00      C      MA,MB,MC,MD ARE SUBSTITUTES FOR N5INT,NY,INT,MM
00            WRITE (NPRINT,483) MA,MB,MC,MD
00      483 FORMAT(1X,I6,I14,I19,I19/)
00      490 CONTINUE
00      C     END OF LOOP
00            WRITE (NPRINT,480)
00            WRITE (NPRINT,484)
00      484 FORMAT (17X,21H FROM WORRABINDA POND//)
00            WRITE (NPRINT,482)
00            DO 491 NUMB=1,N5INW
00            READ (24,*) MA,MB,MC,MD
00            WRITE (NPRINT,483) MA,MB,MC,MD
00      491 CONTINUE
00      C     END OF LOOP
00            END
```

APPENDIX "F"

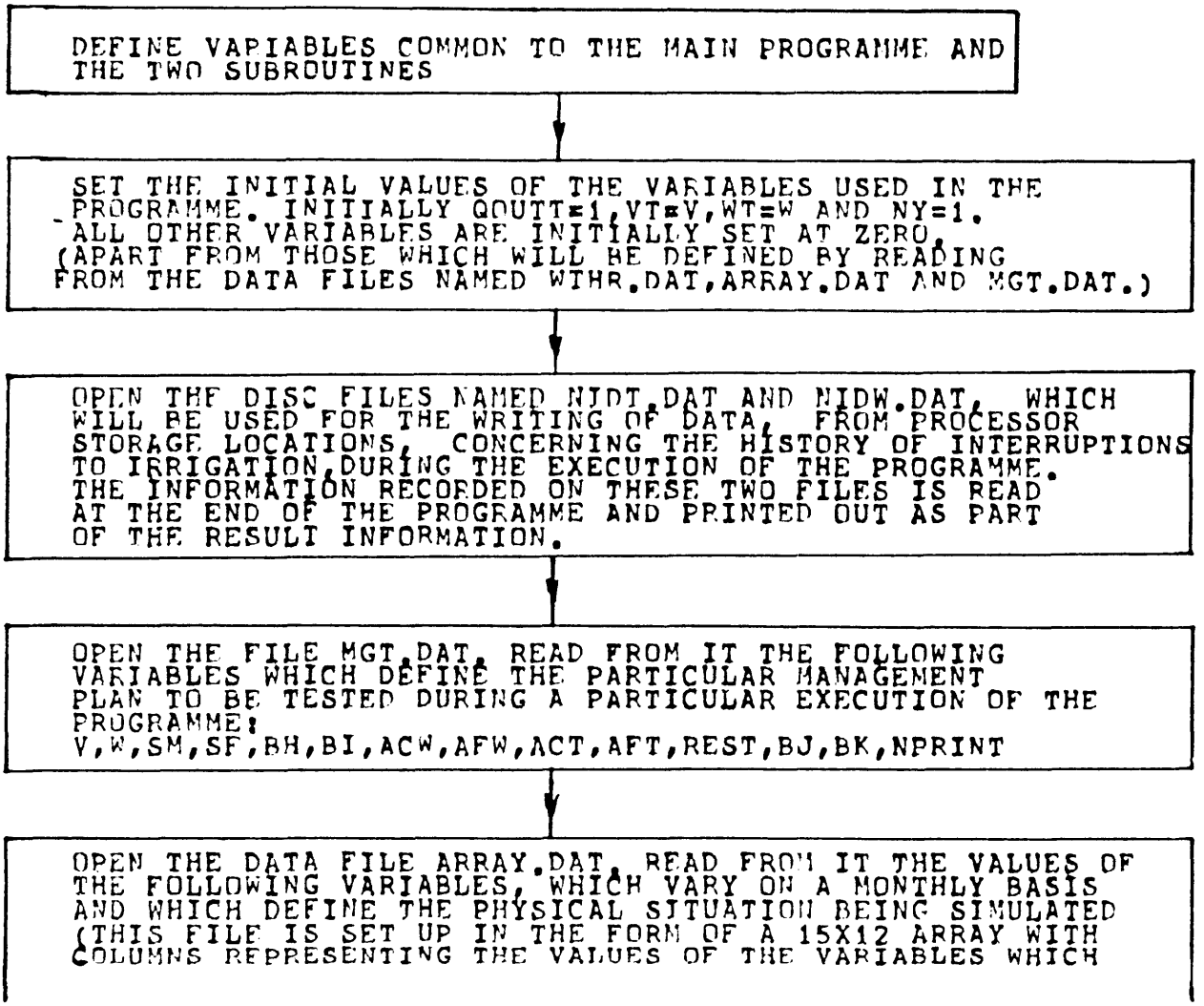
DETAILED FLOW CHART AND SUPPORTING INFORMATION FOR THE SIMULATION PROGRAMME GRISB. FOR

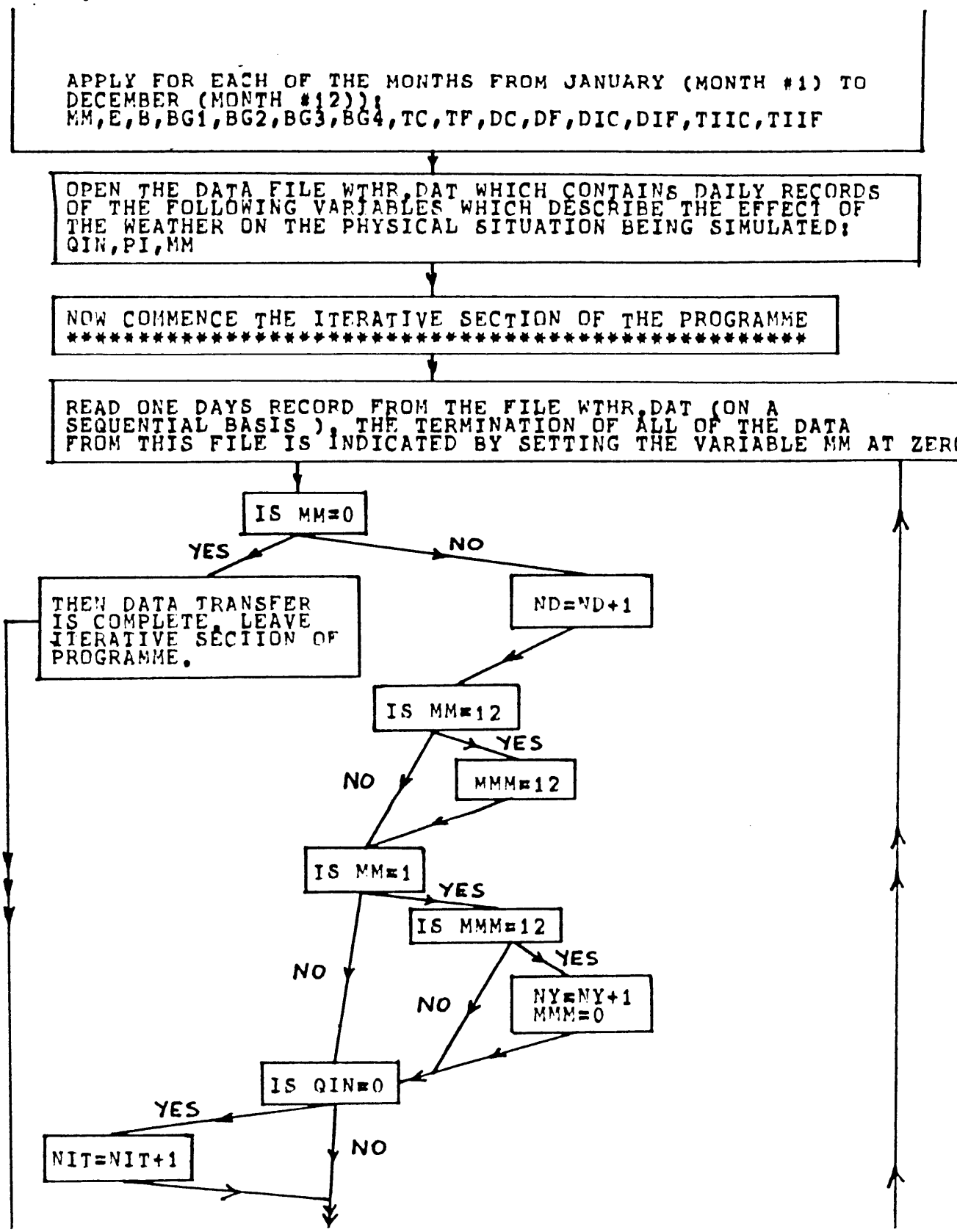
FLOW CHART FOR THE SIMULATION PROGRAMME GRISB.FOR
****

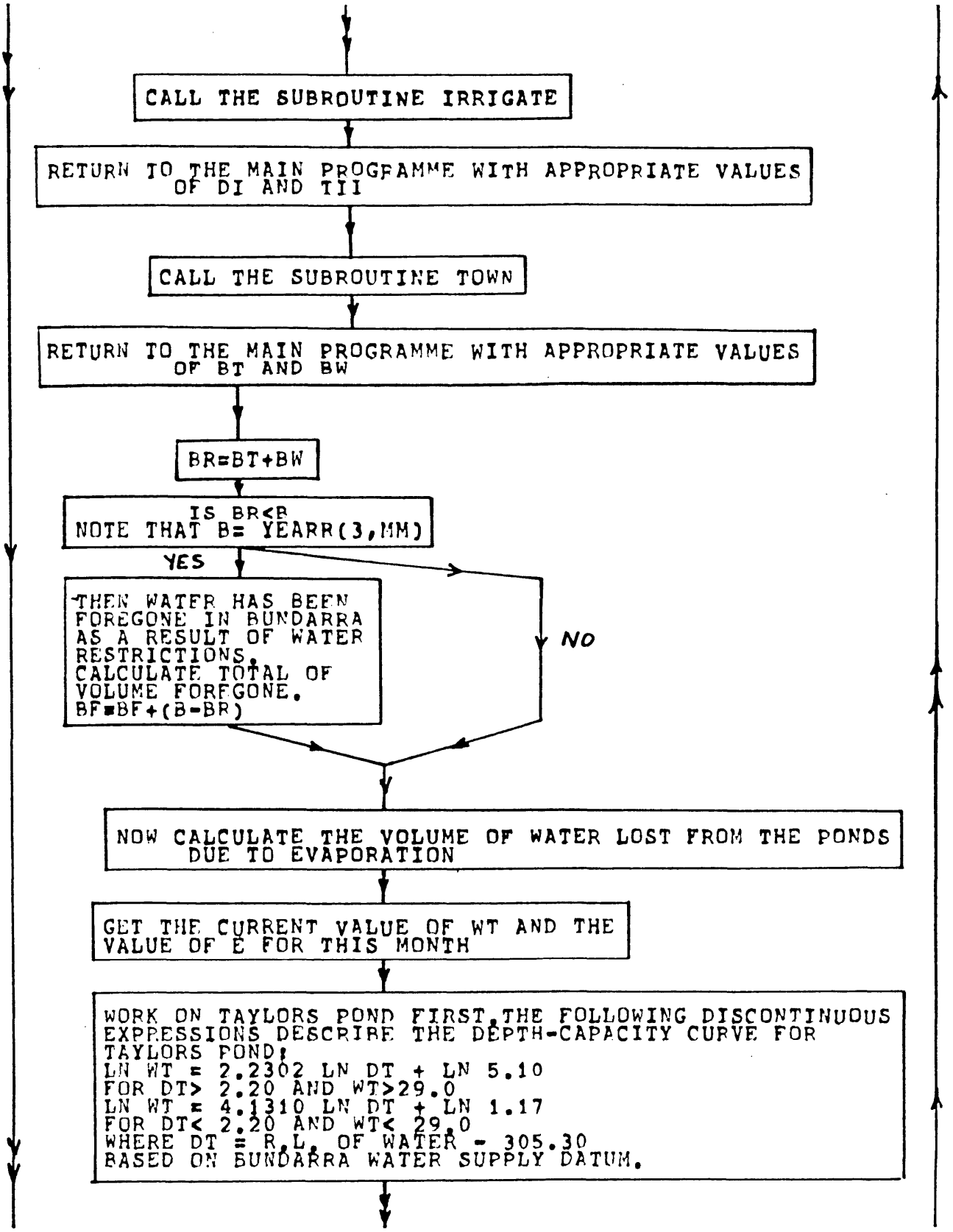
THIS COMPUTER PROGRAMME IS USED TO CALCULATE A WATER BALANCE ON A DAILY BASIS IN A SECTION OF THE GWYDIR RIVER AT BUNDARRA. IT MUST COMMENCE AT A TIME WHEN THERE IS A FLOW IN THE RIVER AND BOTH TAYLORS POND AND WORRABINDA POND ARE FULL. FURTHER, IT MUST NOT HAVE RAINED ON THE DAY PRECEDING THE COMMENCEMENT OF THE TIME PERIOD BEING ANALYSED.

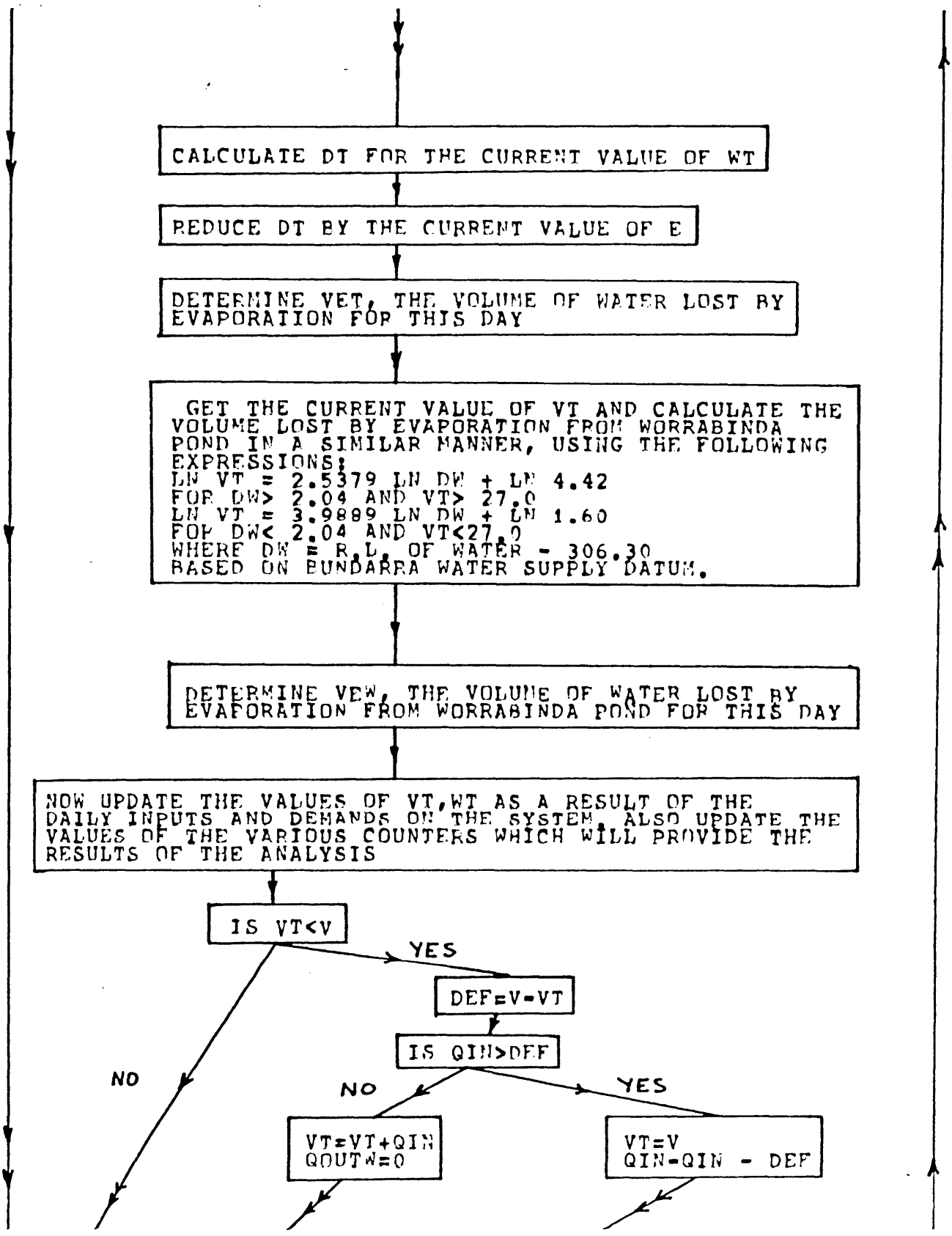
THE PROGRAMME USES TWO SUBROUTINES; ONE IS CALLED IRRIGATE THE OTHER IS CALLED TOWN. THIS FLOW CHART PROVIDES THE LOGIC INFORMATION FOR THE TWO SUBROUTINES SEPARATELY AT THE END OF THE SECTION DEALING WITH THE MAIN PROGRAMME. IN THE FORTRAN VERSION OF THE PROGRAMME THE FORTRAN STATEMENTS FOR THE SUBROUTINES ARE LISTED AT THE START OF THE PROGRAMME, AS REQUIRED BY THE STRUCTURE OF THAT LANGUAGE.

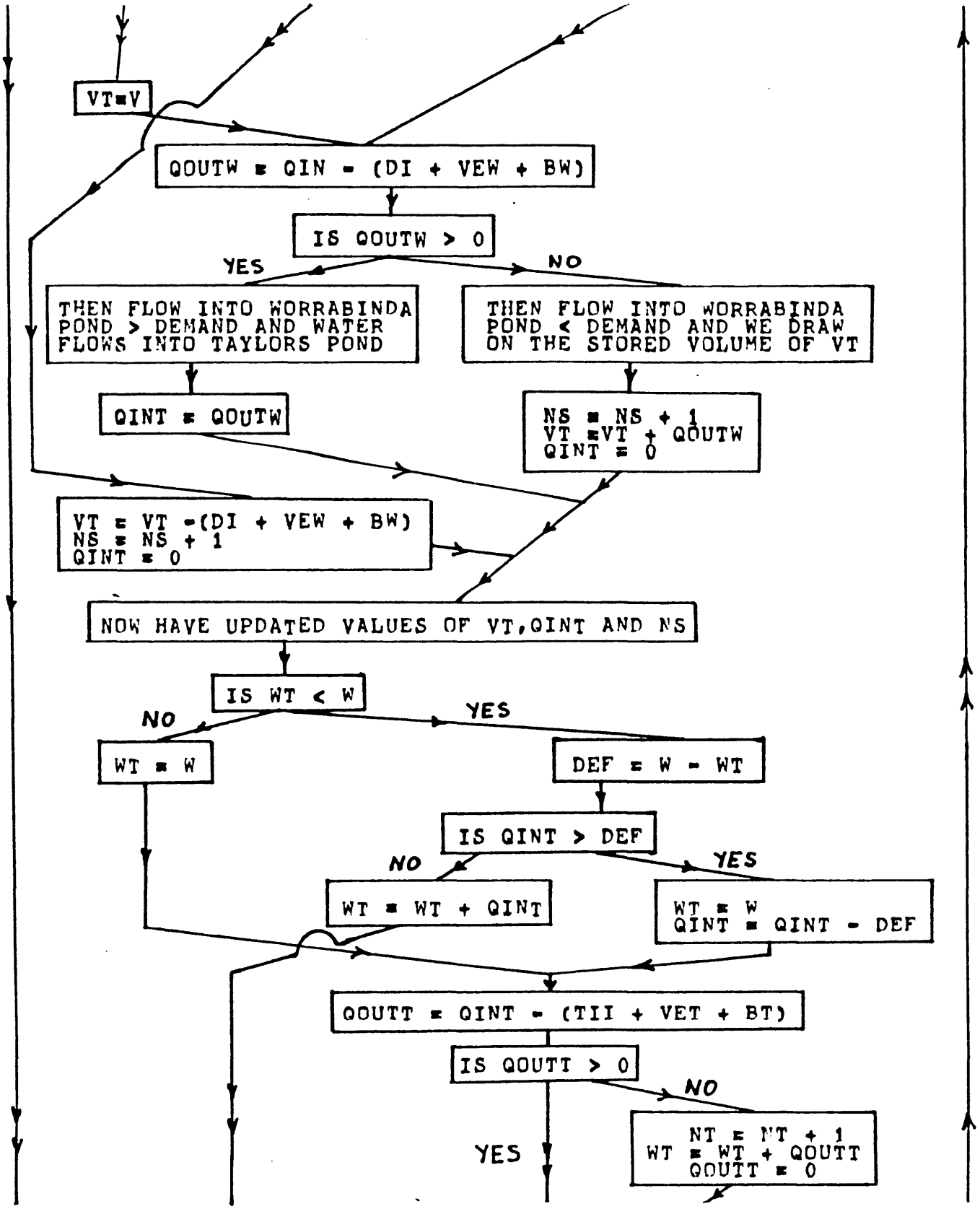
****
A. FLOW CHART FOR THE MAIN PROGRAMME
****

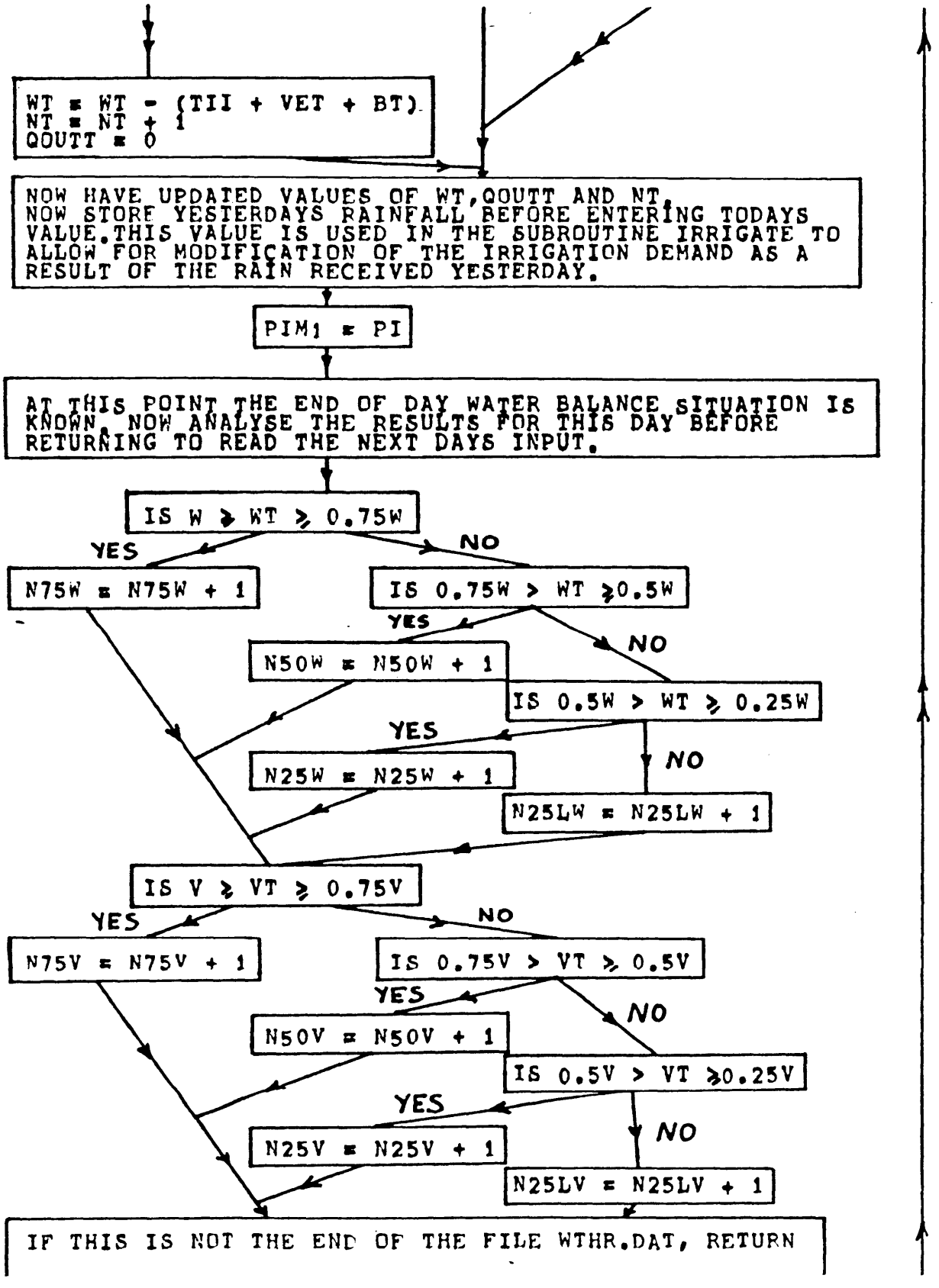





CALL THE SUBROUTINE IRRIGATE
RETURN TO THE MAIN PROGRAMME WITH APPROPRIATE VALUES OF DI AND TII
CALL THE SUBROUTINE TOWN
RETURN TO THE MAIN PROGRAMME WITH APPROPRIATE VALUES OF BT AND BW
BR=BT+BW
IS BR<B
NOTE THAT B= YEARR(3,MM)
YES
NO
THEN WATER HAS BEEN FOREGONE IN BUNDARRA AS A RESULT OF WATER RESTRICTIONS.
CALCULATE TOTAL OF VOLUME FORFGONE.
BF=BF+(B-BR)
NOW CALCULATE THE VOLUME OF WATER LOST FROM THE PONDS DUE TO EVAPORATION
GET THE CURRENT VALUE OF WT AND THE VALUE OF E FOR THIS MONTH
WORK ON TAYLORS POND FIRST.THE FOLLOWING DISCONTINUOUS EXPRESSIONS DESCRIBE THE DEPTH-CAPACITY CURVE FOR TAYLORS POND:
LN WT = 2.2302 LN DT + LN 5.10
FOR DT> 2.20 AND WT>29.0
LN WT = 4.1310 LN DT + LN 1.17
FOR DT< 2.20 AND WT< 29.0
WHERE DT = R.L. OF WATER - 305.30
BASED ON BUNDARRA WATER SUPPLY DATUM.


CALCULATE DT FOR THE CURRENT VALUE OF WT
REDUCE DT BY THE CURRENT VALUE OF E
DETERMINE VET, THE VOLUME OF WATER LOST BY EVAPORATION FOR THIS DAY
GET THE CURRENT VALUE OF VT AND CALCULATE THE VOLUME LOST BY EVAPORATION FROM WORRABINDA POND IN A SIMILAR MANNER, USING THE FOLLOWING EXPRESSIONS:
LN VT = 2.5379 LN DW + LN 4.42
FOR DW> 2.04 AND VT> 27.0
LN VT = 3.9889 LN DW + LN 1.60
FOR DW< 2.04 AND VT<27.0
WHERE DW = R.L. OF WATER - 306.30
BASED ON BUNDARRA WATER SUPPLY DATUM.
DETERMINE VEW, THE VOLUME OF WATER LOST BY EVAPORATION FROM WORRABINDA POND FOR THIS DAY
NOW UPDATE THE VALUES OF VT,WT AS A RESULT OF THE DAILY INPUTS AND DEMANDS ON THE SYSTEM. ALSO UPDATE THE VALUES OF THE VARIOUS COUNTERS WHICH WILL PROVIDE THE RESULTS OF THE ANALYSIS
IS VT<V
YES
NO
DEF=V-VT
IS QIN>DEF
NO
YES
VT=VT+QIN
QOUTW=0
VT=V
QIN=QIN - DEF



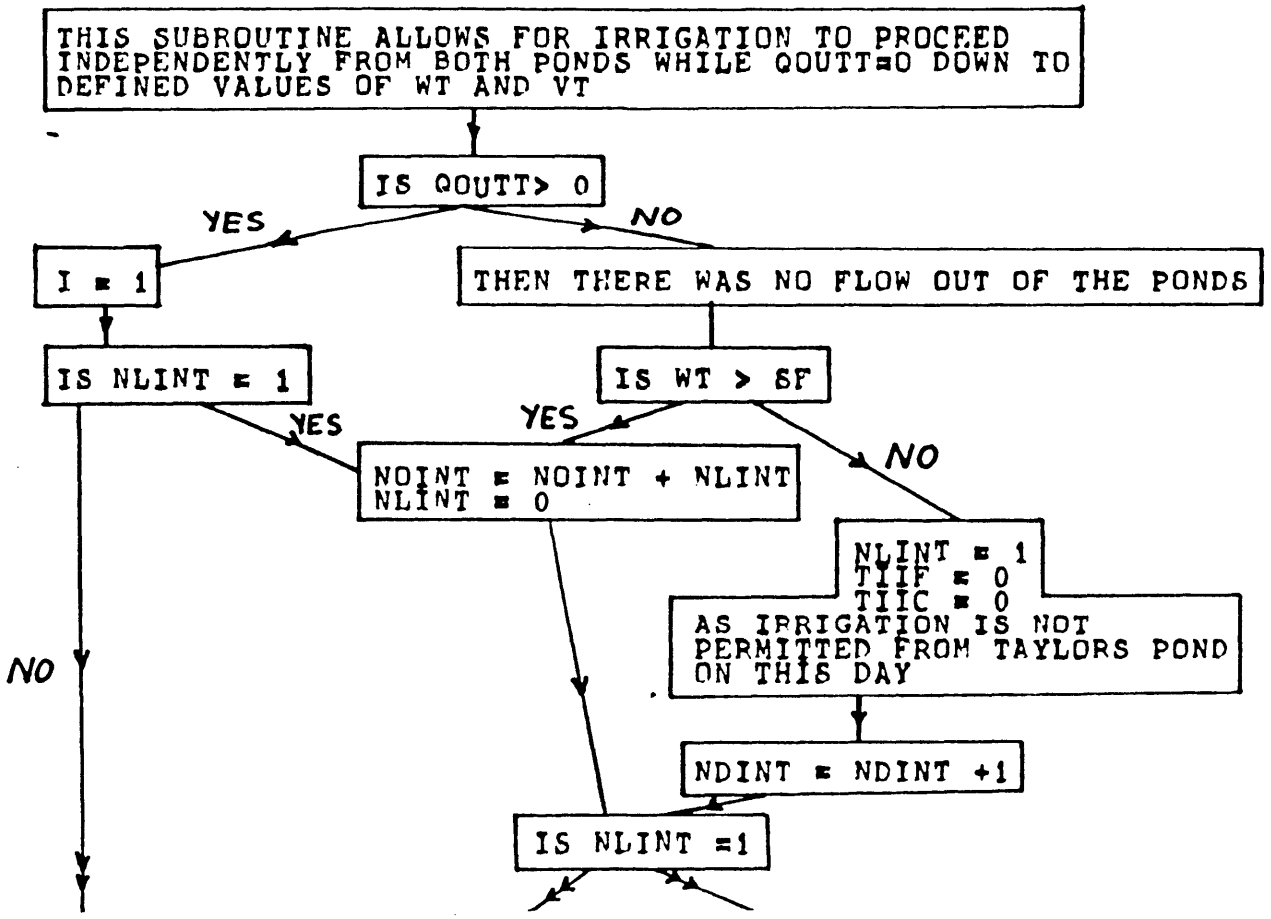


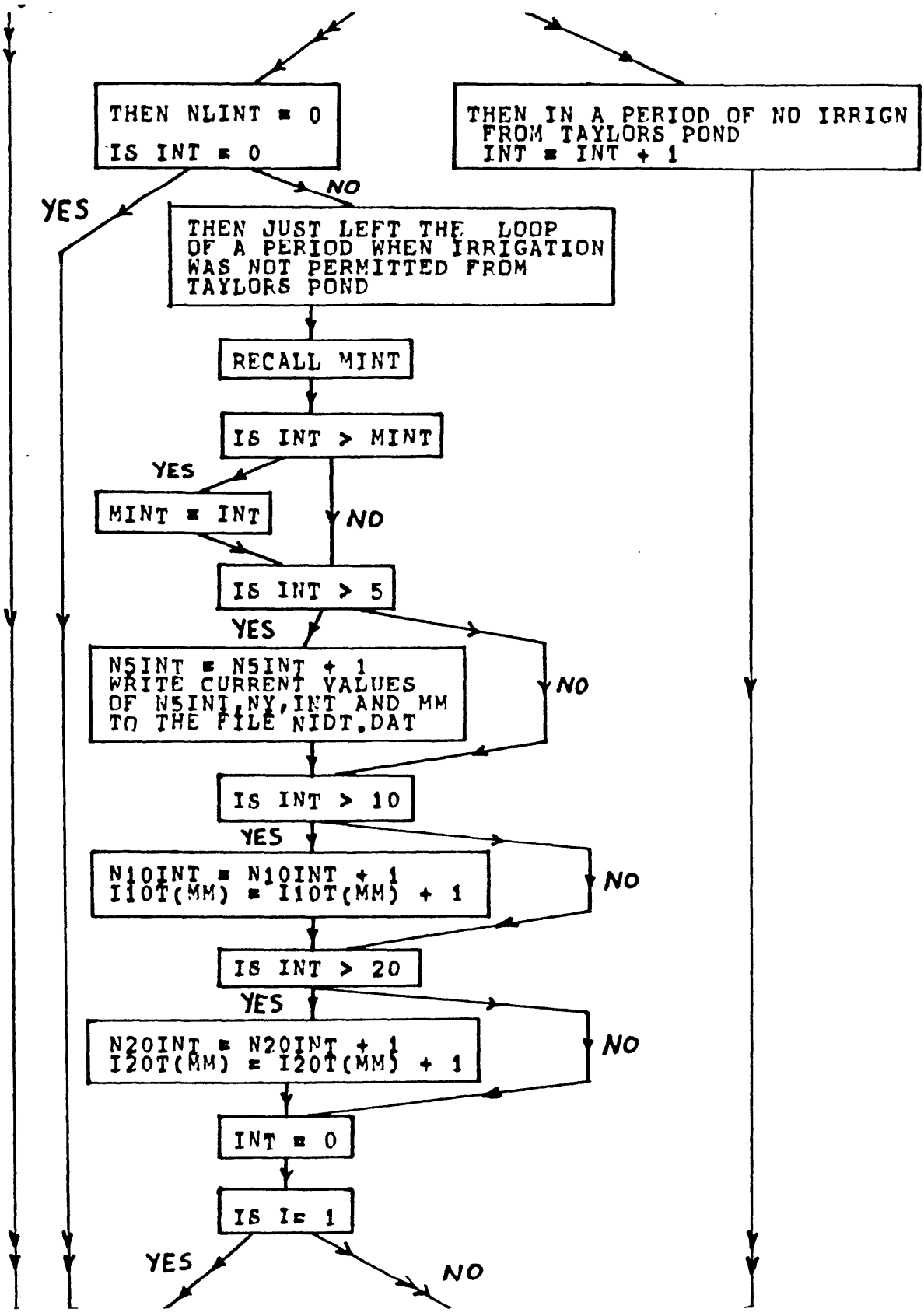
AND READ IN THE NEXT DAY'S DATA.IF THIS IS THE LAST DAY OF THE FILE WTHR.DAT, THEN PROCEED TO CLOSE AND OPEN THE FILES NECESSARY FOR READING AND THEN PRINTING OUT THE RESULTS OF THE ANALYSIS FOR THE PARTICULAR MANAGEMENT PLAN BEING INVESTIGATED.
THE RESULTS OF THE ANALYSIS ARE PRECEDED BY A DESCRIPTION OF THE MANAGEMENT PLAN UNDER CONSIDERATION. REFERENCE TO A PRINTOUT OF THE RESULTS OF AN ANALYSIS WILL PROVIDE INFORMATION ON THE COMPREHENSIVE NATURE OF THE EXTENSIVE LIST OF PLANNING VARIABLES. THE RESULTS PROVIDE INFORMATION ON THE DIRECT EFFECT OF THE MANAGEMENT PLAN BEING TESTED ON THE IRRIGATORS AND ON THE TOWN SUPPLY. THE RESULTS OF TESTING SEVERAL PLANS WILL ALLOW SELECTION OF A PLAN WHICH IS SEEN TO EQUITABLY SHARE THE WATER BETWEEN THE COMPETING USERS.

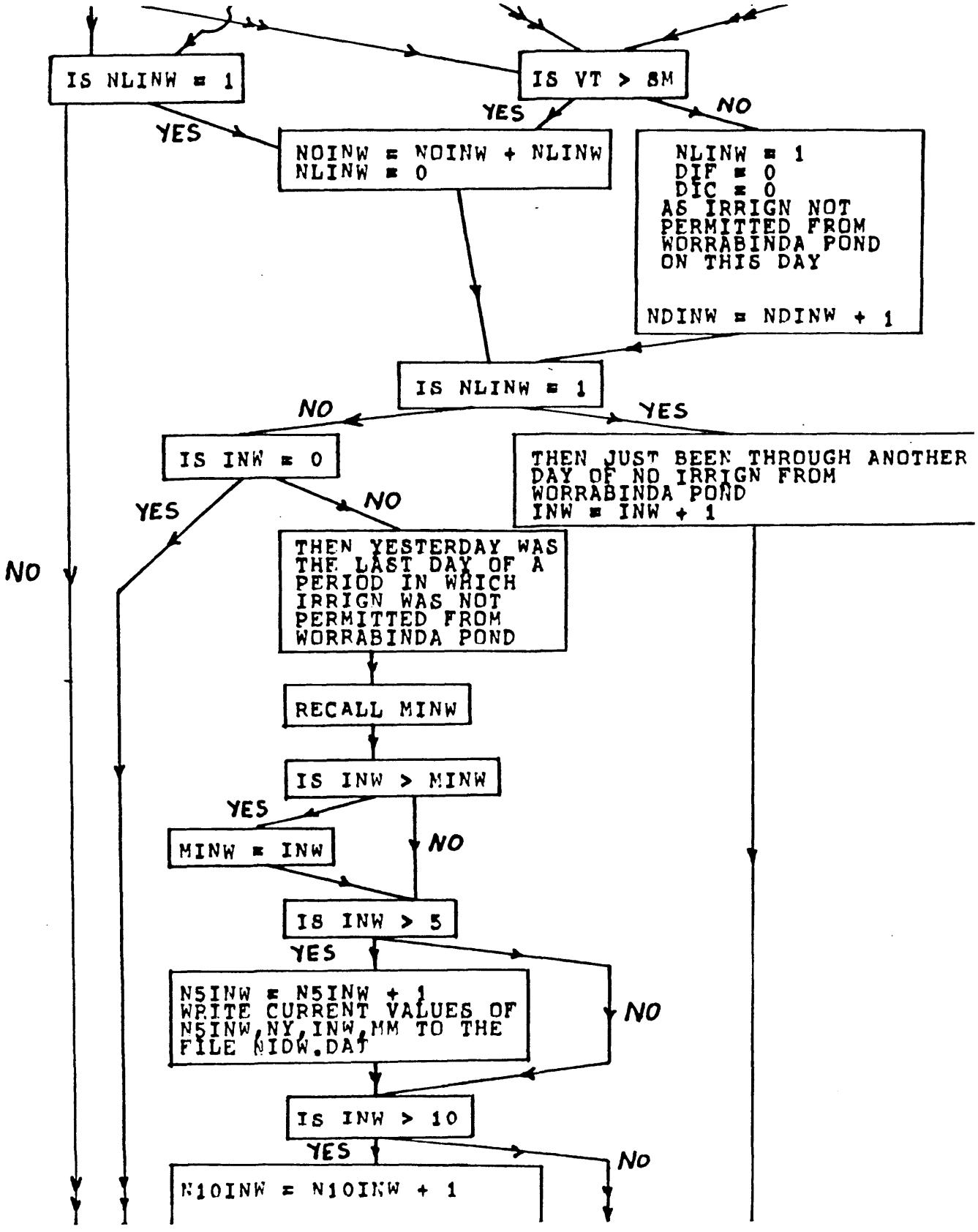
END OF THE MAIN PROGRAMME
****

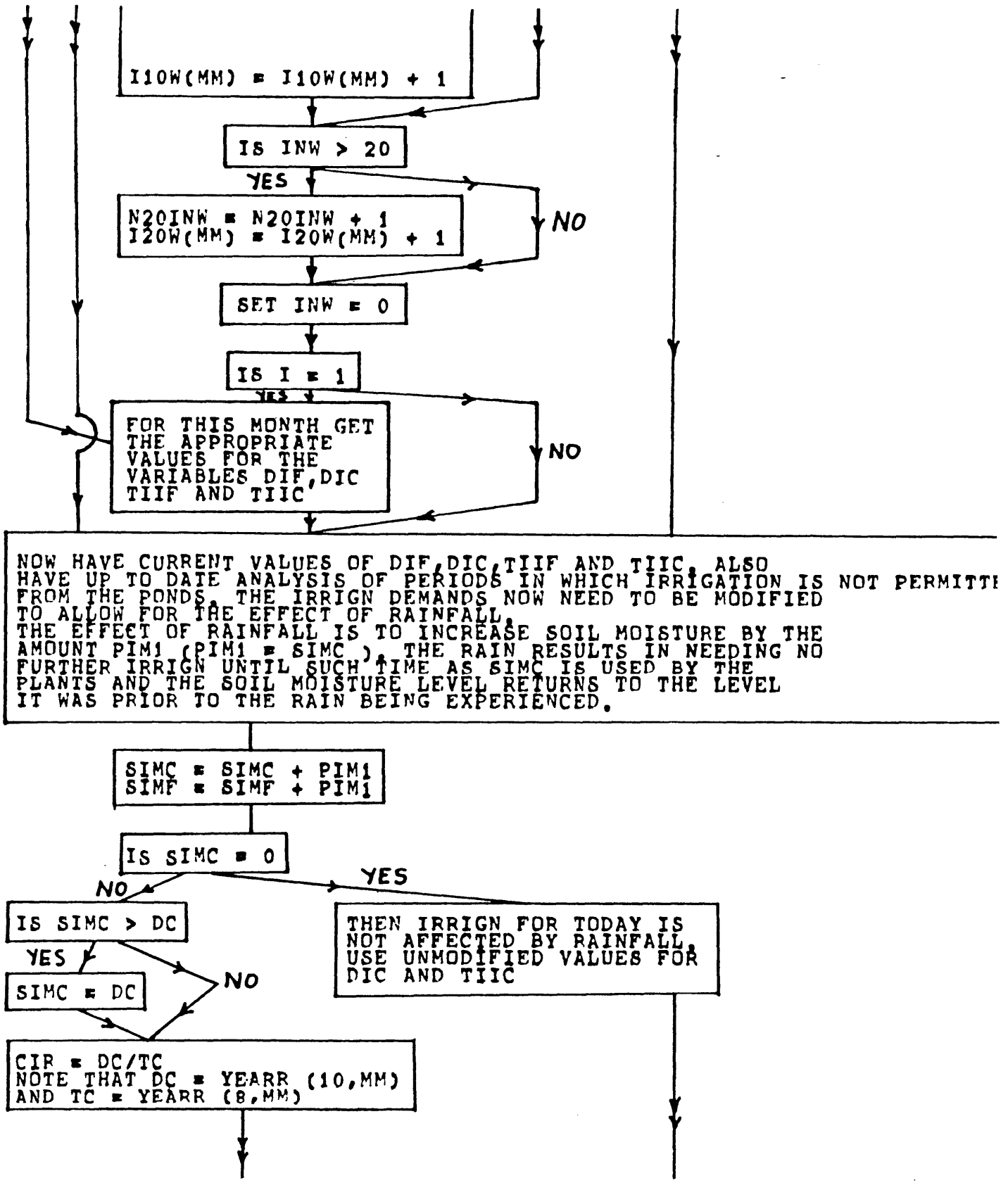
****

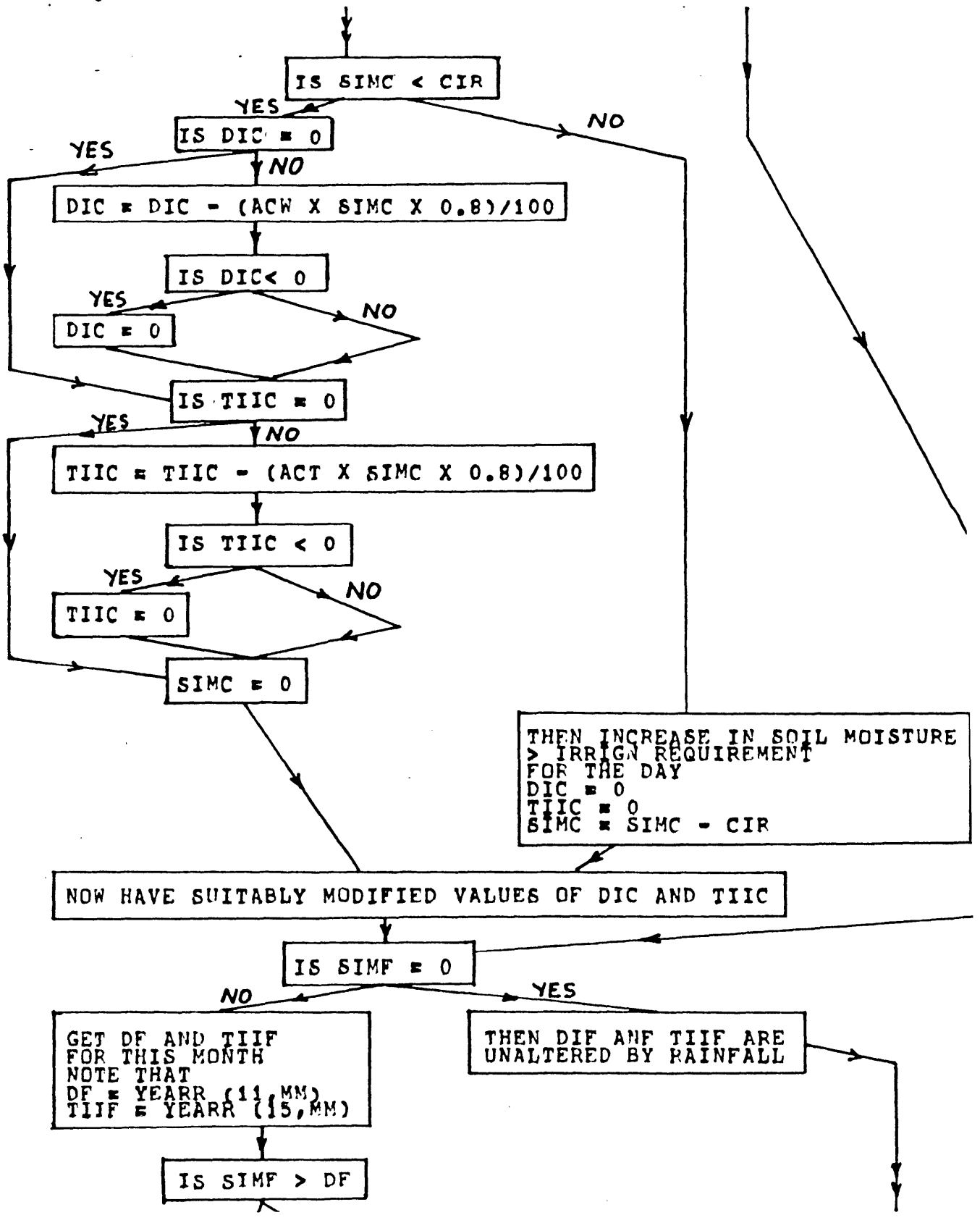
B. FLOW CHART FOR THE SUBROUTINE IRRIGATE
****

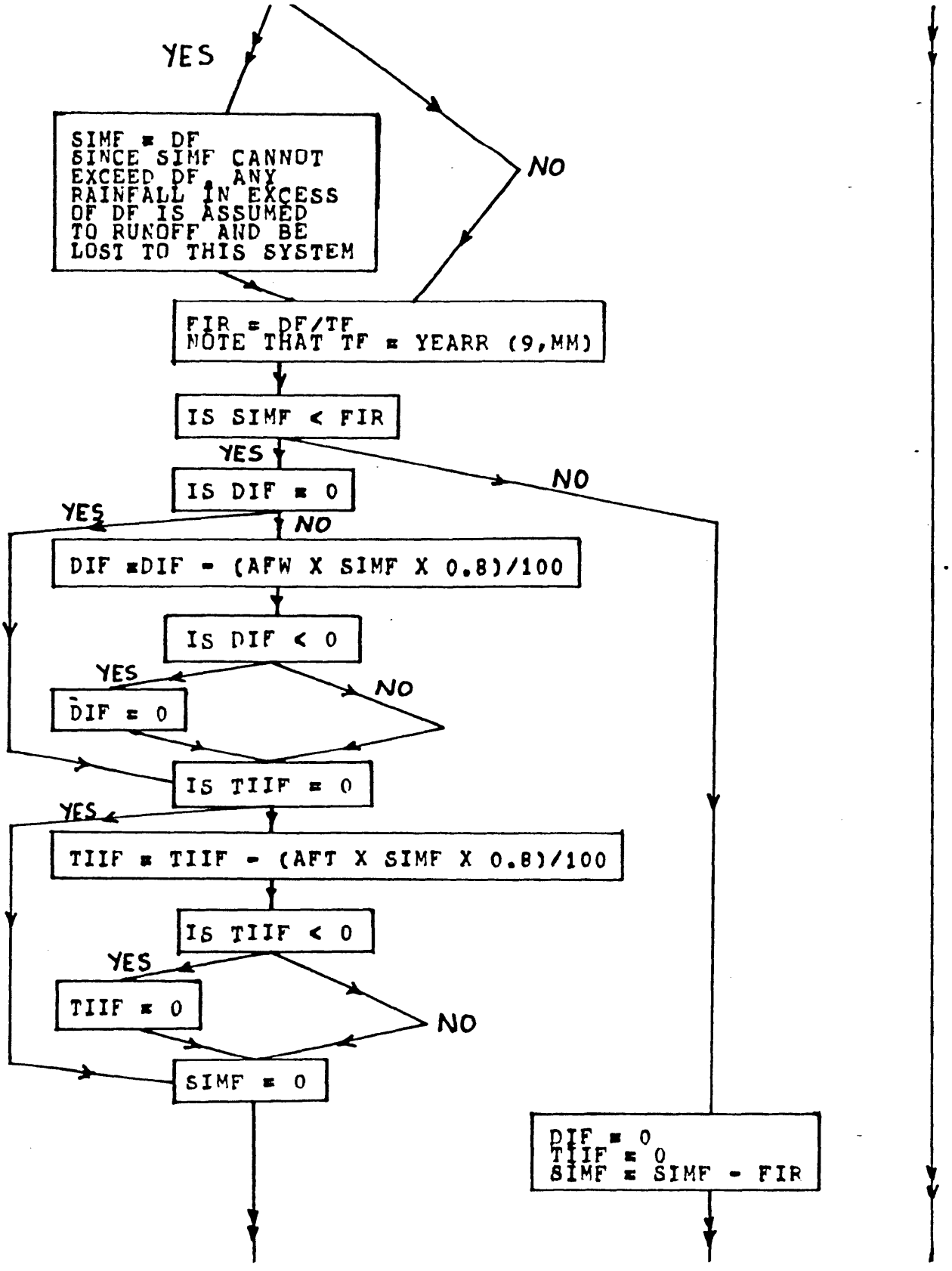


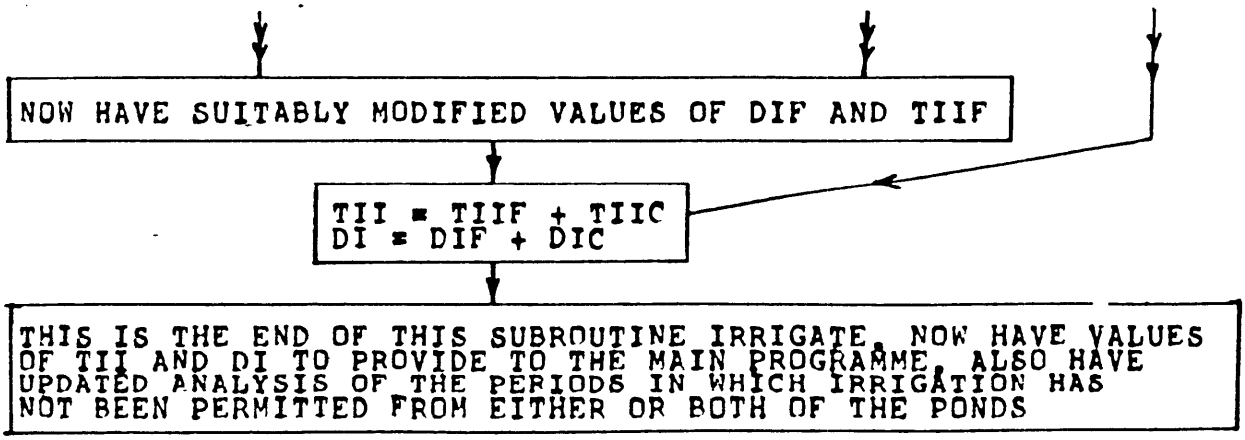




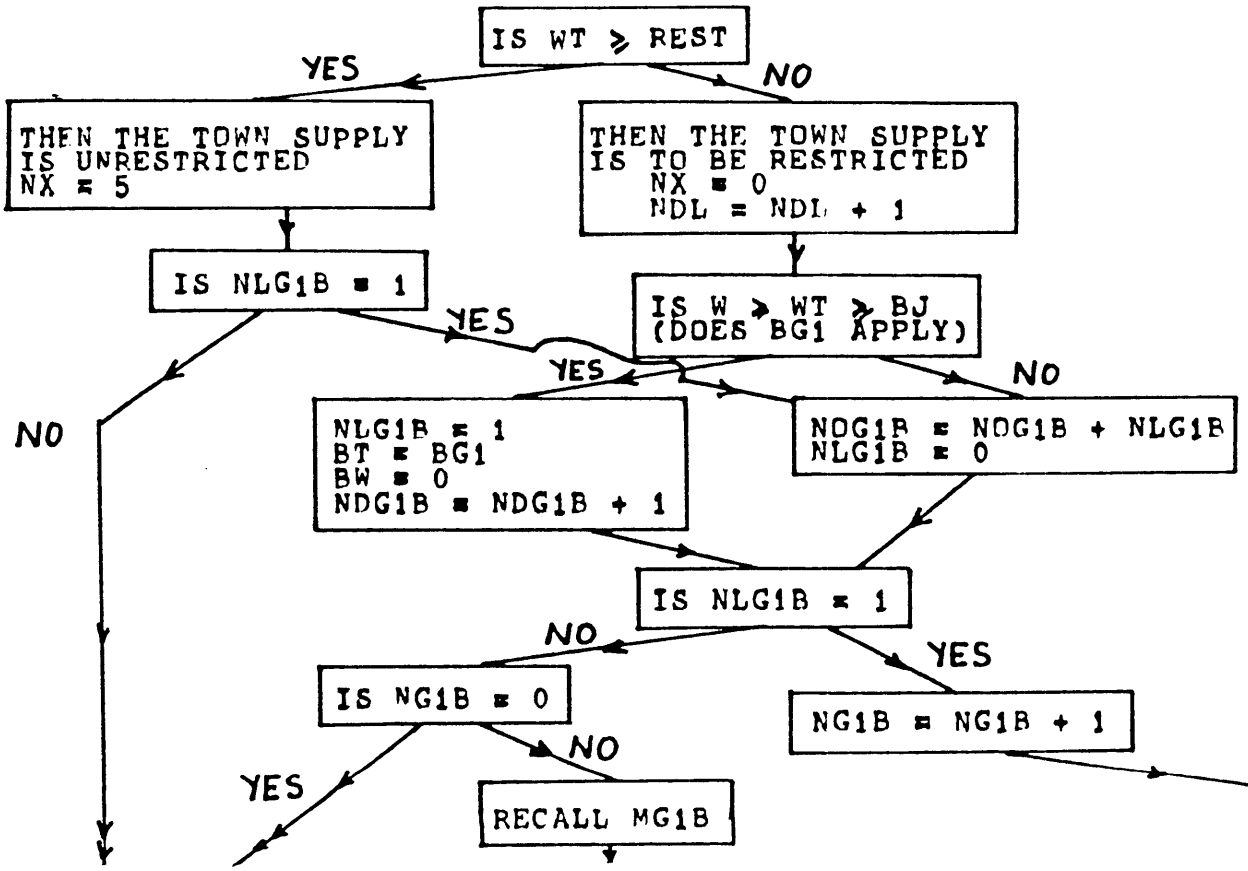

I10W(MM) = I10W(MM) + 1
IS INW > 20
YES
N20INW = N20INW + 1
I20W(MM) = I20W(MM) + 1
NO
SET INW = 0
IS I = 1
YES
FOR THIS MONTH GET THE APPROPRIATE VALUES FOR THE VARIABLES DIF,DIC TIIF AND TIIC
NO
NOW HAVE CURRENT VALUES OF DIF,DIC,TIIF AND TIIC. ALSO HAVE UP TO DATE ANALYSIS OF PERIODS IN WHICH IRRIGATION IS NOT PERMITTE FROM THE PONDS. THE IRRIGN DEMANDS NOW NEED TO BE MODIFIED TO ALLOW FOR THE EFFECT OF RAINFALL.
THE EFFECT OF RAINFALL IS TO INCREASE SOIL MOISTURE BY THE AMOUNT PIM1 (PIM1 = SIMC). THE RAIN RESULTS IN NEEDING NO FURTHER IRRIGN UNTIL SUCH TIME AS SIMC IS USED BY THE PLANTS AND THE SOIL MOISTURE LEVEL RETURNS TO THE LEVEL IT WAS PRIOR TO THE RAIN BEING EXPERIENCED.
SIMC = SIMC + PIM1
SIMF = SIMF + PIM1
IS SIMC = 0
NO
YES
IS SIMC > DC
YES
SIMC = DC
NO
THEN IRRIGN FOR TODAY IS NOT AFFECTED BY RAINFALL, USE UNMODIFIED VALUES FOR DIC AND TIIC
CIR = DC/TC
NOTE THAT DC = YEARR (10,MM)
AND TC = YEARR (8,MM)

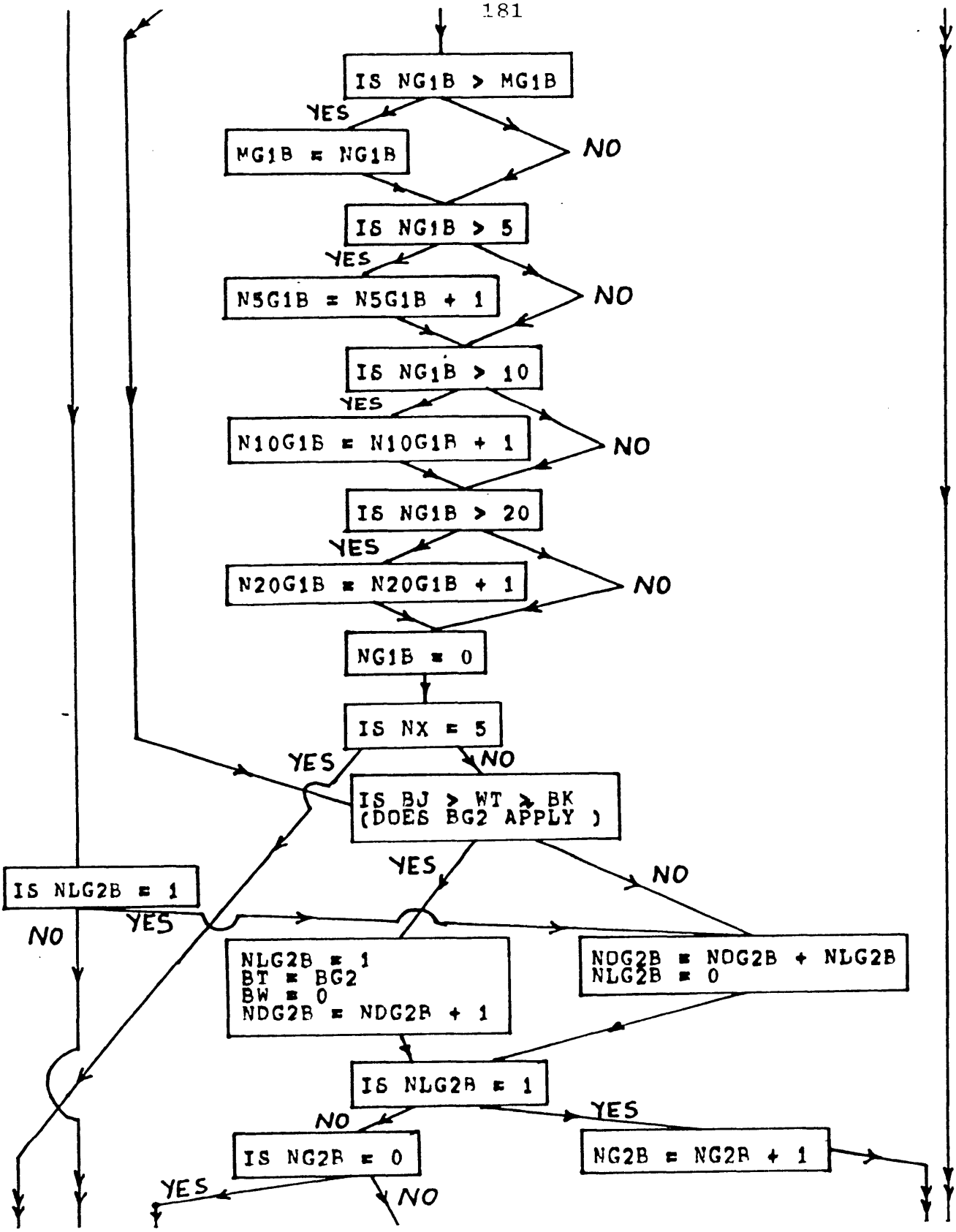


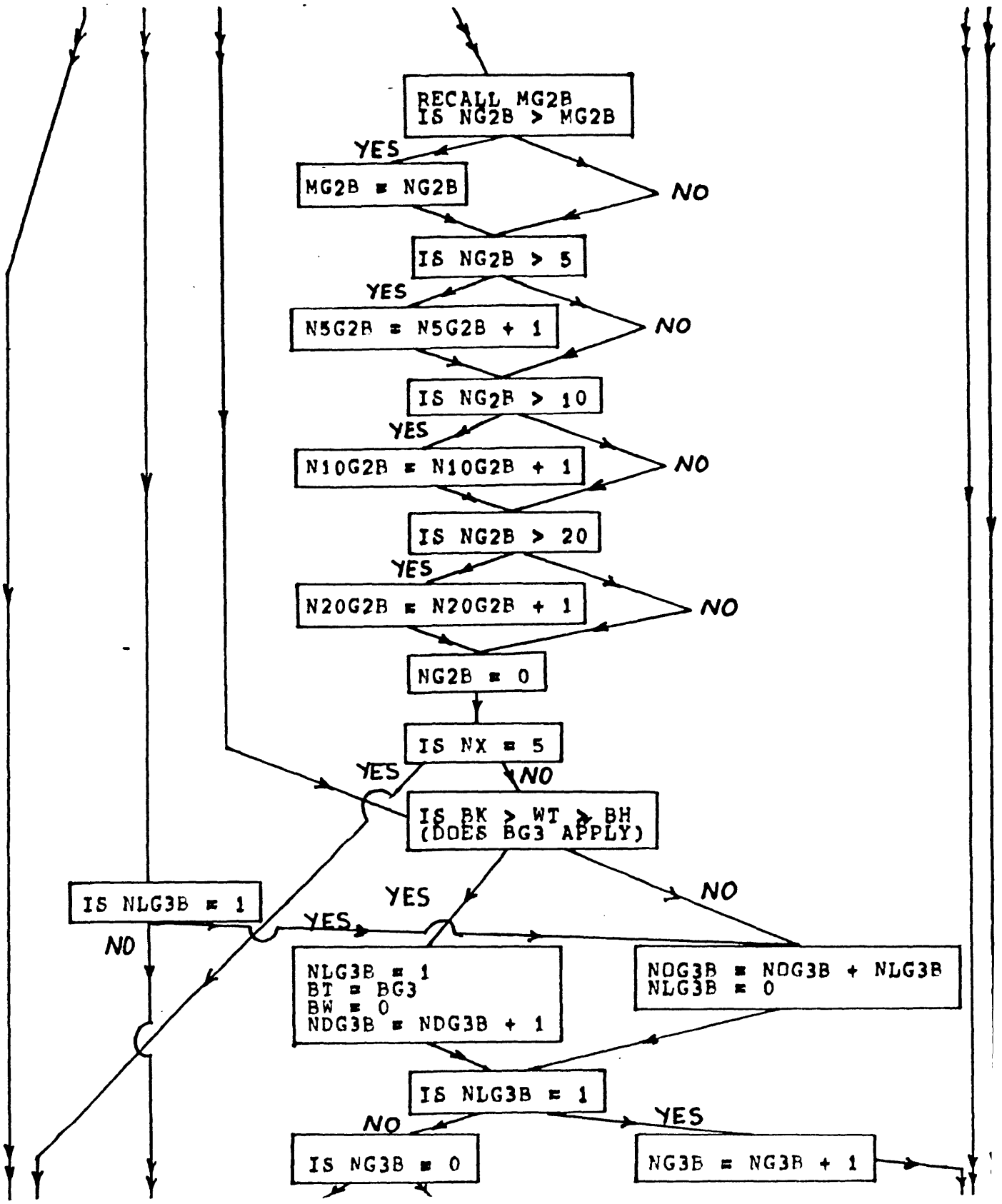


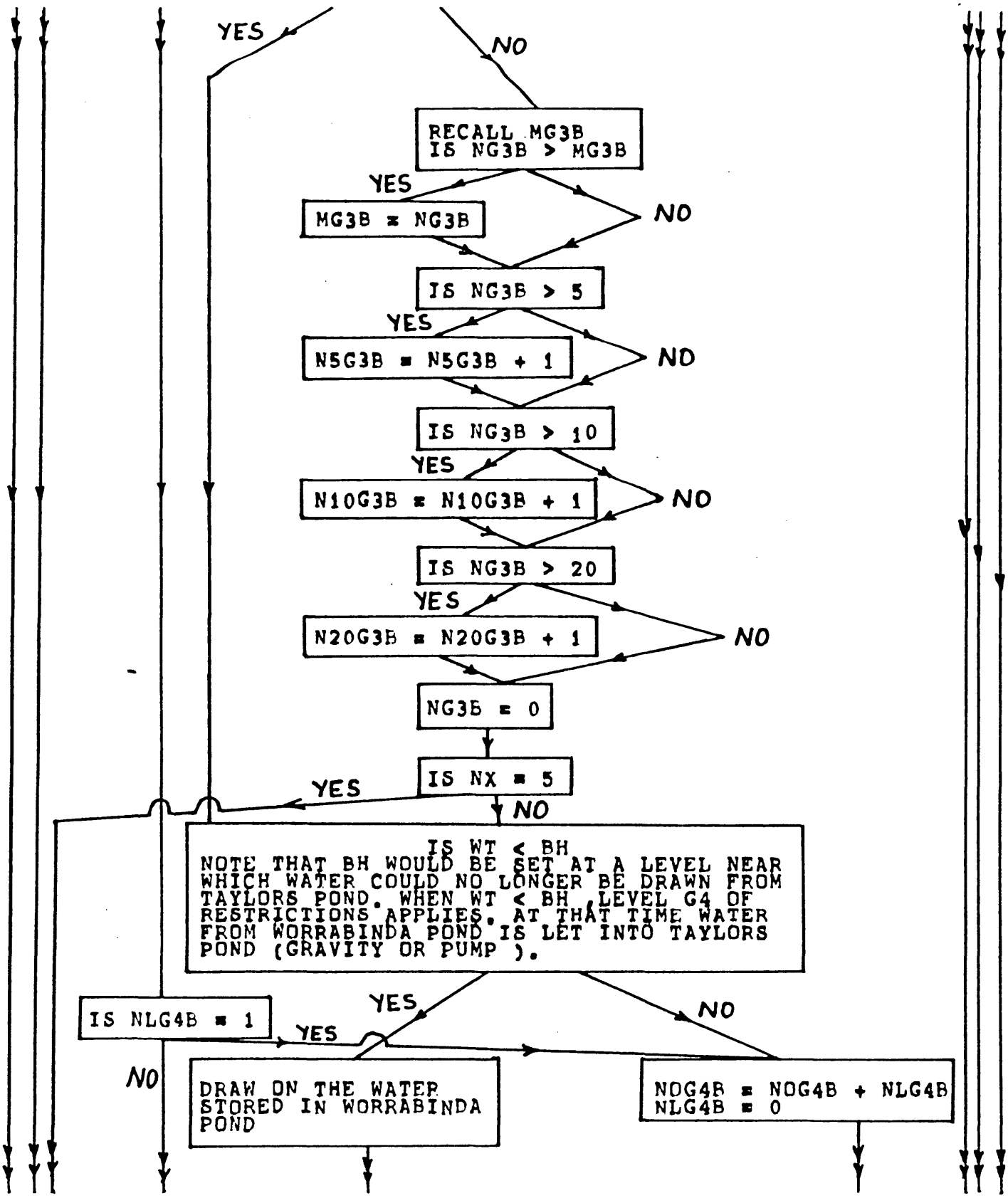


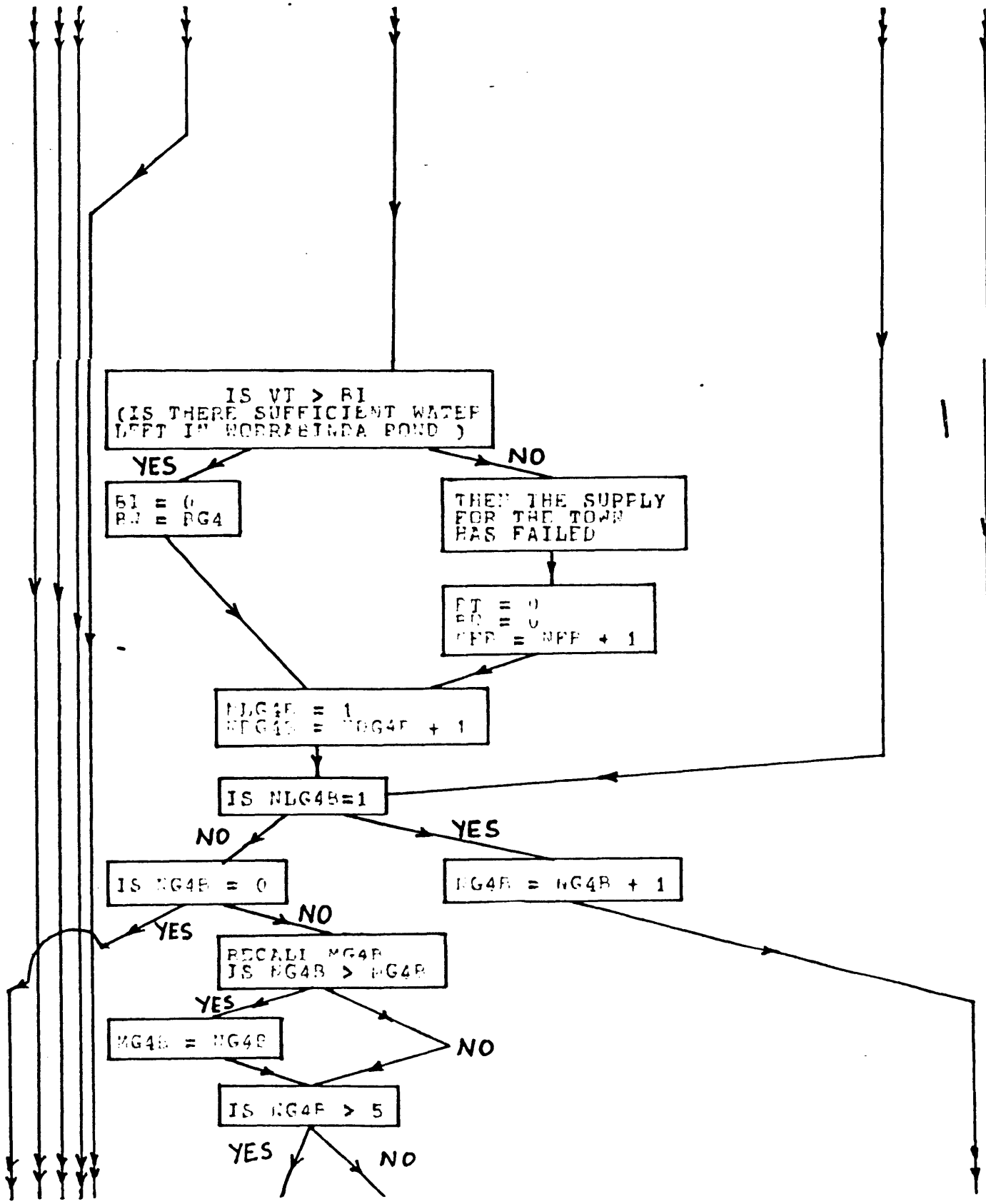
****
C. FLOW CHART FOR THE SUBROUTINE TOWN
****
THIS SUBROUTINE DETERMINES APPROPRIATE VALUES OF BT AND BW, DEPENDING ON THE MONTH OF THE YEAR, THE PARTICULAR WATER RESTRICTIONS IN FORCE AND THE MANAGEMENT PLAN BEING TESTED. IT ALLOWS THE ENFORCEMENT OF VARIOUS LEVELS OF WATER RESTRICTIONS WHEN WT < REST.
IT ALLOWS THE TOWN WATER SUPPLY TO BE DRAWN FROM TAYLORS POND UNTIL SUCH TIME AS WT = BH, AND THEN FROM WORRABINDA POND UNTIL VT = BI, EITHER BY DRAINING BY GRAVITY OR PUMPING FROM WORRABINDA POND INTO TAYLORS POND.

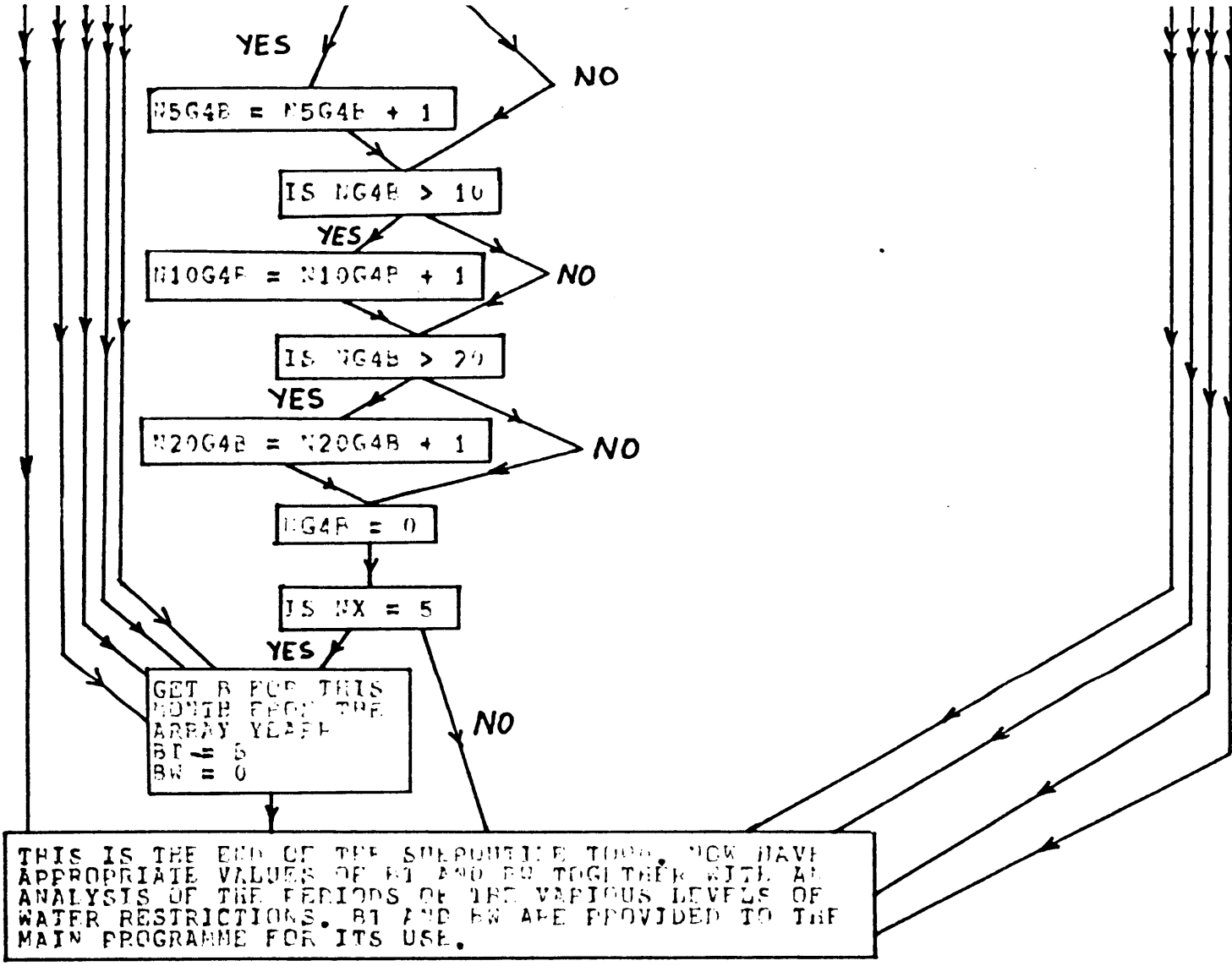



IS NG1B > MG1B
YES
NO
MG1B = NG1B
IS NG1B > 5
YES
NO
N5G1B = N5G1B + 1
IS NG1B > 10
YES
NO
N10G1B = N10G1B + 1
IS NG1B > 20
YES
NO
N20G1B = N20G1B + 1
NG1B = 0
IS NX = 5
YES
NO
IS BJ > WT > BK
(DOES BG2 APPLY)
YES
NO
IS NLG2B = 1
NO
YES
NLG2B = 1
BT = BG2
BW = 0
NDG2B = NDG2B + 1
NDG2B = NDG2B + NLG2B
NLG2B = 0
IS NLG2B = 1
NO
YES
IS NG2B = 0
NG2B = NG2B + 1
YES
NO









****
D. DEFINITION OF THE VARIABLES USED IN THE PROGRAMME
****

THE FOLLOWING IS A LIST OF ALL THE SIGNIFICANT VARIABLES USED IN THE PROGRAMME. THE ONLY VARIABLES NOT LISTED ARE INSIGNIFICANT WITH RESPECT TO THE LOGIC OF THIS FLOW CHART AND ARE VARIABLES USED IN THE PROGAMME CODING SOLELY FOR THE PURPOSE OF SWITCHES.

ACT = AREA OF IRRIGATION FROM TAYLORS POND BY CLERKNESS (HA)
ACW = AREA OF IRRIGATION FROM MORRABINDA POND BY CLERKNESS (HA)
AFT = AREA OF IRRIGATION FROM TAYLORS POND BY FLEMINGTON (HA)
AFW = AREA OF IRRIGATION FROM MORRABINDA POND BY FLEMINGTON (HA)

```
B    = AVERAGE DAILY RATE OF WATER CONSUMPTION FOR
       BUNDARRA TOWN, ON A MONTHLY BASIS (ML), WHEN
       NO WATER RESTRICTIONS ARE IN FORCE
BF   = VOLUME OF WATER FOREGONE IN BUNDARRA TOWN AS A
       RESULT OF THE IMPOSITION OF WATER RESTRICTIONS (ML),
       KEPT AS A RUNNING TOTAL FOR THE PERIOD OF THE SIMULATION.
BG1  = B, WHEN SUBJECT TO THE RESTRICTION THAT ONLY
       HAND HELD HOSES MAY BE USED FOR OUTSIDE WATERING
       AT ANY TIME (ML)
BG2  = B, WHEN BG1 APPLIES TO RESTRICT OUTSIDE WATERING
       TO ONLY 3 HOURS PER DAY (ML)
BG3  = B, WHEN BG1 APPLIES TO RESTRICT OUTSIDE WATERING
       TO ONLY 1 HOUR PER DAY (ML)
BG4  = B, WHEN SUBJECT TO THE RESTRICTION THAT WATER
       MAY ONLY BE USED FOR DOMESTIC PURPOSES
BH   = VOLUME OF WATER STORED IN TAYLORS POND AT THE LEVEL
       AT WHICH WATER CANNOT BE DRAWN FROM IT FOR THE
       TOWN SUPPLY, DEAD STORAGE. (ML)
BI   = VOLUME OF WATER STORED IN WOOLABINDA POND AT THE LEVEL
       AT WHICH WATER CANNOT BE DRAWN FROM IT FOR THE
       TOWN SUPPLY, DEAD STORAGE. (ML)
BJ   = VOLUME OF WATER IN TAYLORS POND ABOVE WHICH WATER
       CONSUMPTION IS RESTRICTED TO THE VALUE BG1 (ML).
BK   = VOLUME OF WATER IN TAYLORS POND ABOVE WHICH WATER
       CONSUMPTION IS RESTRICTED TO THE VALUE BG2 (ML).
BP   = THE VOLUME OF WATER ACTUALLY USED IN BUNDARRA TOWN
       ON ANY PARTICULAR DAY (ML).
BT   = DAILY VOLUMES DRAWN FROM TAYLORS POND TO SUPPLY BUNDARRA
       (AVERAGE FIGURE - VARIABLE MONTHLY) IN ML.
BW   = DAILY VOLUMES DRAWN FROM WOOLABINDA POND TO SUPPLY
       BUNDARRA (AVERAGE FIGURE - VARIABLE MONTHLY) IN ML.
CIR  = THE DAILY WATER DEMAND FOR IRRIGATION BY CLERKNESS.
       CIR=DC/IC IN MM/DAY.
DC   = THE NET DEPTH OF IRRIGATION APPLICATION BY CLERKNESS.
       DC=S*Y FOR CLERKNESS IN MM (SAME UNITS AS PI).
DF   = THE NET DEPTH OF IRRIGATION APPLICATION BY FLEMINGTON.
       DF=S*Y FOR FLEMINGTON IN MM (SAME UNITS AS PI).
DI   = DAILY VOLUME DRAWN FROM WOOLABINDA POND FOR
       IRRIGATION (ML).
DIC  = DAILY VOLUME DRAWN FROM WOOLABINDA POND FOR
       IRRIGATION BY CLERKNESS (ML).
DIF  = DAILY VOLUME DRAWN FROM WOOLABINDA POND FOR
       IRRIGATION BY FLEMINGTON (ML).
DT   = R.L. OF WATER IN TAYLORS POND LESS 305.3 METRES.
DW   = R.L. OF WATER IN WOOLABINDA POND LESS 306.3 METRES.
OTE CHECK THESE ABOVE TWO LINES!!!!
E    = AVERAGE DAILY RATE OF EVAPORATION (ON A MONTHLY
       BASIS) IN ML
FIR  = THE DAILY WATER DEMAND FOR IRRIGATION BY FLEMINGTON
       FIR = DF/TF IN MM/DAY
INT  = NUMBER OF DAYS IN A PARTICULAR PERIOD IN WHICH
       IRRIGATION IS NOT PERMITTED FROM TAYLORS POND.
       USED AS A COUNTER.
INW  = NUMBER OF DAYS IN A PARTICULAR PERIOD IN WHICH
       IRRIGATION IS NOT PERMITTED FROM WOOLABINDA POND.
       USED AS A COUNTER.
I10T(MM) = THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS
       NOT PERMITTED FROM TAYLORS POND FOR PERIODS IN EXCESS
       OF 10 DAYS, DURING THE MONTH MM (M=1 TO 12)
       SIMILARLY FOR I20T(MM) FOR PERIODS IN EXCESS OF 20
       DAYS. BOTH OF THESE ARE VECTOR ARRAY VARIABLES.
I10W(MM) = THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS
```

NOT PERMITTED FROM MORRABINDA POND FOR PERIODS IN EXCESS OF 10 DAYS, DURING THE MONTH MM (MM=1 TO 12). SIMILARLY FOR I20W(MM) FOR PERIODS IN EXCESS OF 20 DAYS. BOTH OF THESE ARE VECTOR ARRAY VARIABLES.

MG1B = THE NUMBER OF DAYS IN THE LONGEST PERIOD IN WHICH LEVEL G1 OF WATER RESTRICTIONS APPLIES IN TOWN. SIMILARLY FOR MG2B, MG3B AND MG4B WHICH APPLY TO LEVELS G2, G3 AND G4 OF WATER RESTRICTIONS IN TOWN.

MINT = THE NUMBER OF DAYS IN THE LONGEST PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND.

MINW = THE NUMBER OF DAYS IN THE LONGEST PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM MORRABINDA POND.

MM = THE NUMBER OF THE MONTH OF THE YEAR. MM=1 MEANS JANUARY, MM=12 MEANS DECEMBER.

MMM = A COUNTER USED IN DETERMINING THE YEAR NUMBER IN THE TOTAL PERIOD OF THE SIMULATION.

ND = THE NUMBER OF DAYS OF DATA IN THE SIMULATION.

NDL = ?

NDINT = THE TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND.

NDINW = THE TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT PERMITTED FROM MORRABINDA POND.

NDG1B = THE TOTAL NUMBER OF DAYS IN WHICH WATER RESTRICTIONS AT THE LEVEL G1 APPLY IN BUNDARRA. SIMILARLY FOR NDG2B, NDG3B AND NDG4B FOR THE LEVELS G2, G3 AND G4.

NFB = THE TOTAL NUMBER OF DAYS IN WHICH THE BUNDARRA TOWN SUPPLY FAILED (RT=0 AND BU=0). NFB IS A NUMBER WITHIN THE VALUE OF NDG4B, SINCE G4B LEVEL OF WATER RESTPICTIONS WOULD STILL APPLY AFTER THE FAILURE OF THE TOWN SUPPLY, NO MATTER WHAT ALTERNATIVE EMERGENCY SUPPLY SYSTEMS WERE INTRODUCED.

NG1B = THE NUMBER OF DAYS IN ANY PARTICULAR PERIOD IN WHICH G1 LEVEL OF WATER RESTRICTIONS APPLIES. A COUNTER. SIMILARLY FOR NG2B, NG3B AND NG4B WHICH APPLY TO LEVELS G2, G3 AND G4 OF WATER RESTRICTIONS RESPECTIVELY.

NIDT.DAT = A DATA FILE USED TO RECORD DATA RELATING TO THE OCCASIONS IN WHICH THERE IS NO IRRIGATION PERMITTED FROM TAYLORS POND.

NIDW.DAT = A DATA FILE USED TO RECORD DATA RELATING TO THE OCCASIONS IN WHICH THERE IS NO IRRIGATION PERMITTED FROM MORRABINDA POND.

NIT = A COUNTER OF THE NUMBER OF DAYS ON WHICH QIN (A DATA VARIABLE) WAS ZERO.

NLG1B = A COUNTER USED TO INCREASE NOG1B. SIMILARLY FOR NLG2B, NLG3B AND NLG4B WHICH INCREASE NOG2B, NOG3B AND NOG4B RESPECTIVELY.

NLINT = A COUNTER USED TO INCREASE NOINT, SET AT 1 EACH TIME YOU GO THROUGH THE LOOP OF A PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND AND BACK TO 0 WHEN THE LOOP IS BYPASSED.

NLINW = A COUNTER USED TO INCREASE NOINW, SET AT 1 EACH TIME YOU GO THROUGH THE LOOP OF A PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM MORRABINDA POND AND BACK TO 0 WHEN THE LOOP IS BYPASSED.

NOINT = THE NUMBER OF SEPARATE OCCASIONS WHEN IRRIGATION IS NOT PERMITTED FROM TAYLORS POND.

NOINW = THE NUMBER OF SEPARATE OCCASIONS WHEN IRRIGATION IS NOT PERMITTED FROM MORRABINDA POND.

NOG1B = THE NUMBER OF SEPARATE OCCASIONS WHEN WATER RESTRICTIONS AT LEVEL G1 APPLY IN THE TOWN OF BUNDARRA. SIMILARLY FOR NOG2B, NOG3B AND NOG4B WHICH APPLY TO LEVELS G2, G3 AND G4 OF WATER RESTRICTIONS RESPECTIVELY.

NS = A COUNTER OF THE TOTAL NUMBER OF DAYS WHEN GOUTT IS ZERO.

NT = A COUNTER OF THE TOTAL NUMBER OF DAYS WHEN GOUTT IS ZERO.

NX = USED AS A SWITCH IN THE SUBROUTINE TOWN. IT ALLOWS FOR ANALYSIS OF A PERIOD IN WHICH WATER RESTRICTIONS APPLIED IN BUNDARRA AT THE END OF SUCH A PERIOD NO MATTER WHAT THE LEVEL OF RESTRICTIONS WAS WHEN THE RESTRICTIONS WERE LIFTED.

NY = THE YEAR NUMBER OF THE PERIOD OF DATA USED IN THE SIMULATION. IT STARTS AT 1 FOR THE FIRST YEAR OF THE SIMULATION.

N5G1B = THE NUMBER OF OCCASIONS ON WHICH WATER RESTRICTIONS AT LEVEL G1 ARE APPLIED AT BUNDARRA FOR A PERIOD OF MORE THAN 5 CONSECUTIVE DAYS. SIMILARLY FOR N5G2B, N5G3B AND N5G4B WHICH APPLY TO LEVELS G2,G3 AND G4 OF RESTRICTIONS.

N5INT = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND FOR A PERIOD OF MORE THAN 5 CONSECUTIVE DAYS.

N5INW = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND FOR A PERIOD OF MORE THAN 5 CONSECUTIVE DAYS.

N10G1B = THE NUMBER OF OCCASIONS ON WHICH WATER RESTRICTIONS AT LEVEL G1 ARE APPLIED AT BUNDARRA FOR A PERIOD OF MORE THAN 10 CONSECUTIVE DAYS. SIMILARLY FOR N10G2B, N10G3B AND N10G4B WHICH APPLY TO LEVELS G2,G3 AND G4 OF RESTRICTIONS.

N10INT = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND FOR A PERIOD OF MORE THAN 10 CONSECUTIVE DAYS.

N10INW = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND FOR A PERIOD OF MORE THAN 10 CONSECUTIVE DAYS.

N20G1B = THE NUMBER OF OCCASIONS ON WHICH WATER RESTRICTIONS AT LEVEL G1 ARE APPLIED AT BUNDARRA FOR A PERIOD OF MORE THAN 20 CONSECUTIVE DAYS. SIMILARLY FOR N20G2B, N20G3B AND N20G4B WHICH APPLY TO LEVELS G2,G3 AND G4 OF RESTRICTIONS.

N20INT = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND FOR A PERIOD OF MORE THAN 20 CONSECUTIVE DAYS.

N20INW = THE NUMBER OF OCCASIONS ON WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND FOR A PERIOD OF MORE THAN 20 CONSECUTIVE DAYS.

N25V = THE NUMBER OF DAYS IN WHICH WORRABINDA POND IS MORE THAN OR EQUAL TO 25% FULL, BUT LESS THAN 50% FULL.

N25W = THE NUMBER OF DAYS IN WHICH TAYLORS POND IS MORE THAN OR EQUAL TO 25% FULL, BUT LESS THAN 50% FULL.

N25LV = THE NUMBER OF DAYS IN WHICH WORRABINDA POND IS LESS THAN 25% FULL.

N25LW = THE NUMBER OF DAYS IN WHICH TAYLORS POND IS LESS THAN 25% FULL.

N50V = THE NUMBER OF DAYS IN WHICH WORRABINDA POND IS MORE THAN OR EQUAL TO 50% FULL, BUT LESS THAN 75% FULL.

N50W = THE NUMBER OF DAYS IN WHICH TAYLORS POND IS MORE THAN OR EQUAL TO 50% FULL, BUT LESS THAN 75% FULL.

N75V = THE NUMBER OF DAYS IN WHICH WORRABINDA POND IS

```
      MORE THAN 75% FULL.
N75W = THE NUMBER OF DAYS IN WHICH TAYLORS POND IS
      MORE THAN 75% FULL.
PI   = DAILY PRECIPITATION ON IRRIGATED AREAS (MM).
PIM1 = THE AMOUNT OF PRECIPITATION RECEIVED ON THE DAY
      BEFORE ANY PARTICULAR DAY BEING ANALYSED. YESTERDAY'S
      RAIN AFFECTS TODAY'S DECISION CONCERNING THE
      DEPTH OF IRRIGATION WATER TO BE APPLIED.
QIN  = THE DAILY VOLUME OF FLOW INTO MORRABIDDA POND
      IN ML, TAKEN FROM GWYDIR RIVER FLOW RECORDS AT
      BUNDARRA.
QOUTT = THE CALCULATED DAILY VOLUME OF FLOW OUT OF
      TAYLORS POND (ML).
QOUTW = THE CALCULATED DAILY VOLUME OF FLOW OUT OF
      MORRABIDDA POND (ML).THIS VALUE EQUALS THE
      DAILY VOLUME OF FLOW INTO TAYLORS POND.
REST = VOLUME OF WATER IN TAYLORS POND BELOW WHICH
      WATER RESTRICTIONS AT LEVEL G1 APPLY AND ABOVE
      WHICH NO RESTRICTIONS APPLY (ML).
SF   = STORAGE VOLUME IN TAYLORS POND, IN ML, BELOW
      WHICH IRRIGATION IS NOT PERMITTED TO PROCEED.
      A MANAGEMENT DECISION VARIABLE.
SIMC = THE INCREASE IN SOIL MOISTURE IN THE PROPERTY
      CLERKNESS, AS A RESULT OF RAINFALL EXPERIENCED
      ON THE DAY BEFORE ANY PARTICULAR DAY BEING
      ANALYSED (MM).
SIMF = THE INCREASE IN SOIL MOISTURE IN THE PROPERTY
      FLEMINGTON, AS A RESULT OF RAINFALL EXPERIENCED
      ON THE DAY BEFORE ANY PARTICULAR DAY BEING
      ANALYSED (MM).
SM   = STORAGE VOLUME IN MORRABIDDA POND, IN ML, BELOW
      WHICH IRRIGATION IS NOT PERMITTED TO PROCEED.
      A MANAGEMENT DECISION VARIABLE.
TC   = THE DESIGN TIME PERIOD BETWEEN IRRIGATION WATERING
      OF CROPS ON THE PROPERTY CLERKNESS (DAYS). VARIABLE
      ON A MONTHLY BASIS.
TF   = THE DESIGN TIME PERIOD BETWEEN IRRIGATION WATERING
      OF CROPS ON THE PROPERTY FLEMINGTON (DAYS). VARIABLE
      ON A MONTHLY BASIS.
TII  = DAILY VOLUME ORDERED FROM TAYLORS POND FOR
      IRRIGATION (ML).
TIIC = DAILY VOLUME DRAWN FROM TAYLORS POND FOR
      IRRIGATION BY CLERKNESS (ML).
TIIF = DAILY VOLUME DRAWN FROM TAYLORS POND FOR
      IRRIGATION BY FLEMINGTON (ML).
V    = VOLUME OF WATER IN MORRABIDDA POND WHEN FULL (ML).
VET  = VOLUME OF WATER LOST ON ANY PARTICULAR DAY
      FROM TAYLORS POND (ML).
VEW  = VOLUME OF WATER LOST ON ANY PARTICULAR DAY
      FROM MORRABIDDA POND (ML).
VT   = VOLUME OF WATER IN MORRABIDDA POND ON ANY
      PARTICULAR DAY (ML).
W    = VOLUME OF WATER IN TAYLORS POND WHEN FULL (ML).
WT   = VOLUME OF WATER IN TAYLORS POND ON ANY
      PARTICULAR DAY (ML).
YEARR(15,12) = AN ARRAY VARIABLE INTO WHICH THE DATA
      FILE ARRAY, DAT IS READ. THE ROWS OF THIS ARRAY
      REPRESENT THE VALUES OF THE FOLLOWING VARIABLES
      WHICH THEMSELVES VARY ON A MONTHLY BASIS ACROSS
      THE 12 COLUMNS OF THE ARRAY:
      M1,B,S,FG1,FG2,FG3,FG4,TC,TF,DC,DF,DIC,DIF,TIIC,TIIF
**************************************************************
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APPENDIX "G"

RESULT SHEET OF THE ANALYSIS OF THE EFFECTS OF A PARTICULAR MANAGEMENT PLAN BY THE SIMULATION PROGRAMME "GRISB. FOR"

THIS ANALYSIS HAS USED THE FOLLOWING VALUES
FOR THE MANAGEMENT DECISION VARIABLES

VOLUME OF WATER IN TAYLORS POND WHEN FULL= 120.000 ML

VOLUME OF WATER IN WORRABINDA POND WHEN FULL= 90.000 ML

VOLUME OF WATER IN TAYLORS POND BELOW WHICH IRRIGATION
IS NOT PERMITTED= 60.000 ML

VOLUME OF WATER IN WORRABINDA POND BELOW WHICH
IRRIGATION IS NOT PERMITTED= 30.000 ML

VOLUME OF WATER IN TAYLORS POND AT
DEAD STORAGE= 20.000 ML

VOLUME OF WATER IN WORRABINDA POND AT
DEAD STORAGE= 10.000 ML

VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G1
OF WATER RESTRICTIONS APPLIES= 60.000 ML

VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G2
OF WATER RESTRICTIONS APPLIES= 35.000 ML

VOLUME OF WATER IN TAYLORS POND WHEN LEVEL G3
OF WATER RESTRICTIONS APPLIES= 25.000 ML

LEVEL G4 APPLIES WHEN WORRABINDA POND IS
DRAWN ON TO SUPPLY THE TOWN

AREA OF IRRIGATION FROM TAYLORS POND
BY CLERKNESS= 22.260 HA

AREA OF IRRIGATION FROM TAYLORS POND
BY FLEMINGTON= 9.170 HA

AREA OF IRRIGATION FROM WORRABINDA POND
BY CLERKNESS= 0.000 HA

AREA OF IRRIGATION FROM WORRABINDA POND
BY FLEMINGTON= 5.670 HA

LEVEL G1 MEANS HAND HELD HOSES ONLY ARE PERMITTED

LEVEL G2 MEANS HAND HELD HOSES MAY ONLY BE USED
FOR 3 HOURS PER DAY

LEVEL G3 MEANS HAND HELD HOSES MAY ONLY BE USED
FOR 1 HOUR PER DAY

LEVEL G4 MEANS DOMESTIC USE ONLY

**** THE RESULTS OF THE ANALYSIS ARE AS FOLLOWS ****
****

TOTAL NUMBER OF DAYS OF DATA= 18545

NO OF DAYS OF NO INFLOW= 1434

NO OF DAYS OF NO FLOW OUT OF WORRABINDA POND= 1746

NO OF DAYS OF NO FLOW OUT OF TAYLORS POND= 2444

TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND= 572

TOTAL NUMBER OF SEPARATE OCCASIONS IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND= 16

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND= 169

THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND FOR A PERIOD IN EXCESS OF
(A) 5 DAYS= 12

(B)10 DAYS= 9

(C)20 DAYS= 6

TOTAL NUMBER OF DAYS IN WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND= 0

TOTAL NUMBER OF SEPARATE OCCASIONS IN WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND= 0

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND= 0

THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT PERMITTED FROM WORRABINDA POND FOR A PERIOD IN EXCESS OF
(A) 5 DAYS= 0

(B)10 DAYS= 0

(C)20 DAYS= 0

THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT PERMITTED FROM TAYLORS POND FOR A PERIOD IN EXCESS OF 10 DAYS IN WHICH THE LAST DAY OF THAT OCCASION FALLS IN

JANUARY=	0
FEBRUARY=	1
MARCH=	1
APRIL=	1
MAY=	1
JUNE=	1
JULY=	0
AUGUST=	1
SEPTEMBER=	0
OCTOBER=	0
NOVEMBER=	0

DECEMBER= 3
THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT
PERMITTED FROM TAYLORS POND FOR A PERIOD IN
EXCESS OF 20 DAYS IN WHICH THE LAST DAY
OF THAT OCCASION FALLS IN
JANUARY= 0
FEBRUARY= 0
MARCH= 0
APRIL= 1
MAY= 1
JUNE= 1
JULY= 0
AUGUST= 1
SEPTEMBER= 0
OCTOBER= 0
NOVEMBER= 0
DECEMBER= 2
THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT
PERMITTED FROM WORRABINDA POND FOR A PERIOD IN
EXCESS OF 10 DAYS IN WHICH THE LAST DAY
OF THAT OCCASION FALLS IN
JANUARY= 0
FEBRUARY= 0
MARCH= 0
APRIL= 0
MAY= 0
JUNE= 0
JULY= 0
AUGUST= 0
SEPTEMBER= 0
OCTOBER= 0
NOVEMBER= 0
DECEMBER= 0
THE NUMBER OF OCCASIONS IN WHICH IRRIGATION IS NOT
PERMITTED FROM WORRABINDA POND FOR A PERIOD IN
EXCESS OF 20 DAYS IN WHICH THE LAST DAY
OF THAT OCCASION FALLS IN
JANUARY= 0
FEBRUARY= 0

MARCH= 0

APRIL= 0

MAY= 0

JUNE= 0

JULY= 0

AUGUST= 0

SEPTEMBER= 0

OCTOBER= 0

NOVEMBER= 0

DECEMBER= 0

NO OF DAYS IN WHICH THE VOLUME IN TAYLORS POND WAS IN THE FOLLOWING QUARTILES OF FULL CAPACITY

(A) 100 TO 75%= 17393

(B) 75 TO 50%= 580

(C) 50 TO 25%= 517

(D) 25 TO 0%= 55

NO OF DAYS IN WHICH THE VOLUME IN WORRABINDA POND WAS IN THE FOLLOWING QUARTILES OF FULL CAPACITY

(A) 100 TO 75%= 18478

(B) 75 TO 50%= 67

(C) 50 TO 25%= 0

(D) 25 TO 0%= 0

TOTAL NO OF DAYS IN WHICH LEVEL G1 OF WATER RESTRICTIONS APPLIES= 433

TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G1 OF WATER RESTRICTIONS APPLIES= 17

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH LEVEL G1 APPLIES= 87

THE NUMBER OF OCCASIONS IN WHICH LEVEL G1 OF RESTRICTIONS APPLIES FOR A PERIOD IN EXCESS OF

(A) 5 DAYS= 12

(B)10 DAYS= 9

(C)20 DAYS= 6

TOTAL NO OF DAYS IN WHICH LEVEL G2 OF WATER RESTRICTIONS APPLIES= 139

TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G2 OF WATER RESTRICTIONS APPLIES= 3

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH LEVEL G2 APPLIES= 80

THE NUMBER OF OCCASIONS IN WHICH LEVEL G2 OF RESTRICTIONS APPLIES FOR A PERIOD IN EXCESS OF
(A) 5 DAYS= 3

(B)10 DAYS= 3

(C)20 DAYS= 2

TOTAL NO OF DAYS IN WHICH LEVEL G3 OF WATER RESTRICTIONS APPLIES= 0

TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G3 OF WATER RESTRICTIONS APPLIES= 0

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH LEVEL G3 APPLIES= 0

THE NUMBER OF OCCASIONS IN WHICH LEVEL G3 OF RESTRICTIONS APPLIES FOR A PERIOD IN EXCESS OF
(A) 5 DAYS= 0

(B)10 DAYS= 0

(C)20 DAYS= 0

TOTAL NO OF DAYS IN WHICH LEVEL G4 OF WATER RESTRICTIONS APPLIES= 0

TOTAL NO OF SEPARATE OCCASIONS IN WHICH LEVEL G4 OF WATER RESTRICTIONS APPLIES= 0

THE MAXIMUM NUMBER OF DAYS IN A SINGLE PERIOD IN WHICH LEVEL G4 APPLIES= 0

THE NUMBER OF OCCASIONS IN WHICH LEVEL G4 OF RESTRICTIONS APPLIES FOR A PERIOD IN EXCESS OF
(A) 5 DAYS= 0

(B)10 DAYS= 0

(C)20 DAYS= 0

THE TOTAL NO OF DAYS IN WHICH THE BUNDARRA TOWN WATER SUPPLY FAILED= 0

TOTAL VOLUME OF WATER FOREGONE IN BUNDARRA TOWN AS A RESULT OF THE IMPOSITION OF WATER RESTRICTIONS = 102.491 ML

HISTORY OF OCCASIONS OF INTERRUPTIONS TO IRRIGATION IN EXCESS OF FIVE DAYS

FROM TAYLORS POND

OCCASION NUMBER	YEAR NUMBER OF OCCURENCE	NUMBER OF DAYS IN THIS OCCASION	MONTH IN WHICH THIS OCCASION ENDED
1	2	19	3
2	7	9	1
3	11	87	12
4	13	9	1
5	18	18	2
6	28	11	12
7	36	169	8
8	39	7	2
9	40	24	5
10	51	78	6
11	51	36	12
12	52	92	4

HISTORY OF OCCASIONS OF INTERRUPTIONS TO IRRIGATION IN EXCESS OF FIVE DAYS

FROM WORRABINDA POND

OCCASION NUMBER	YEAR NUMBER OF OCCURENCE	NUMBER OF DAYS IN THIS OCCASION	MONTH IN WHICH THIS OCCASION ENDED

APPENDIX "H"

ADOPTED VALUES FOR PARAMETERS TO DESCRIBE THE IRRIGATION PROCESS AT BUNDARRA.

1. "FLEMINGTON"

Area of irrigation = 5.67 ha of oats from Worrabinda Pond
= 9.17 ha of lucerne from Taylor's Pond

soil type = sandy loam

crop type = lucerne - 9.17 ha
oats - .67 ha

Month of Year	Crop Type	TF (days)	DF (mm)	DIF (Ml)	TIIF (Ml)
January	Lucerne	13	66	0	0.584
February	"	17	66	0	0.447
March	"	18	66	0	0.422
April	"	33	79	0	0.270
May	Oats	19	33	0.124	0
June	"	36	33	0.065	0
July	"	39	33	0.060	0
August	"	20	33	0.117	0
September	Lucerne	36	79	0	0.253
October	"	27	79	0	0.338
November	"	15	66	0	0.507
December	"	11	66	0	0.691

These values describe the current situation where the peak daily pumping capacity of the present plant is 691 kl/day. This capacity restricts the area of irrigation possible.

The values can easily be altered and provided to the programme to cater for any proposed change in the irrigation programme.

2. "CLERKNESS"

Area of irrigation = 30.35 ha from Taylor's Pond (lucerne and oats)
= 0 ha from Worrabinda Pond

soil type = sandy loam

Month of Year	Crop Type	TC (days)	DC (mm)	DIC (Ml)	TIIC (Ml)
January	Lucerne	13	66	0	1.935
February	"	17	66	0	1.480
March	"	18	66	0	1.397
April	"	33	79	0	0.915
May	Oats	19	33	0	0.662
June	"	36	33	0	0.349
July	"	39	33	0	0.322
August	"	20	33	0	0.629
September	Lucerne	36	79	0	0.838
October	"	27	79	0	1.118
November	"	15	66	0	1.677
December	"	11	66	0	2.287

APPENDIX "I"

ADOPTED VALUES FOR PARAMETERS TO DESCRIBE THE TOWN WATER DEMAND AT BUNDARRA.

Month of Year	Daily Water Consumption (kl)				
	Level of Water Restrictions				
	No Restrictions (B)	Hand Held Hoses any Time (BG1)	Hand Held Hoses 3 hours only (BG2)	Hand Held Hoses 1 hour only (BG3)	Domestic Use Only (BG4)
January	650	315	230	220	150
February	650	320	220	210	130
March	500	250	210	200	110
April	190	120	120	110	85
May	150	90	90	80	75
June	145	90	90	80	75
July	145	90	90	80	70
August	140	90	90	80	70
September	415	200	150	110	100
October	450	220	160	200	110
November	460	232	187	210	120
December	600	290	220	215	150

APPENDIX "J"

1. TAYLOR'S POND CAPACITY CURVE,

AS AT MARCH 1981

2. WORRABINDA POND CAPACITY CURVE,

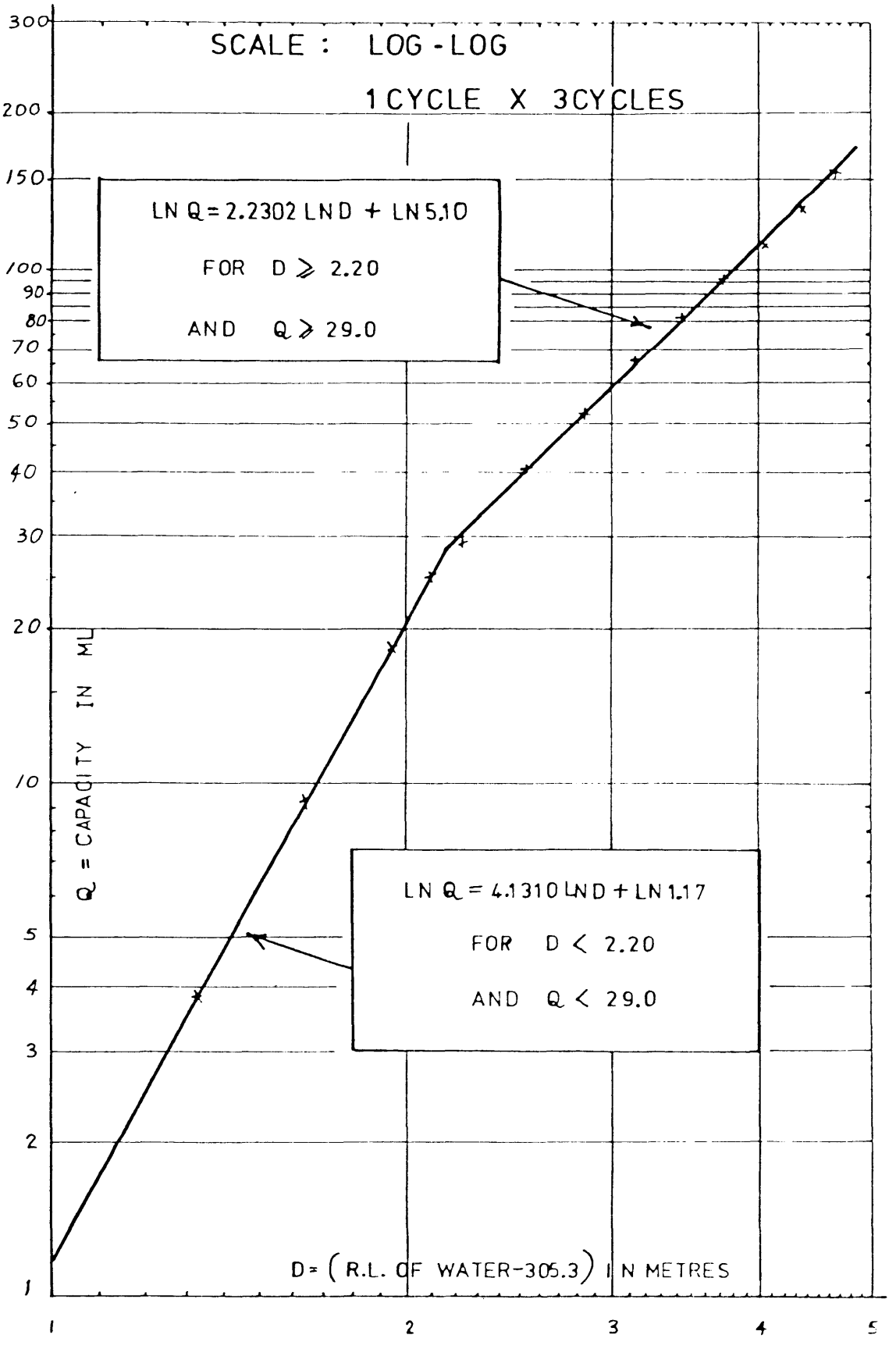
AS AT JULY 1981

1.

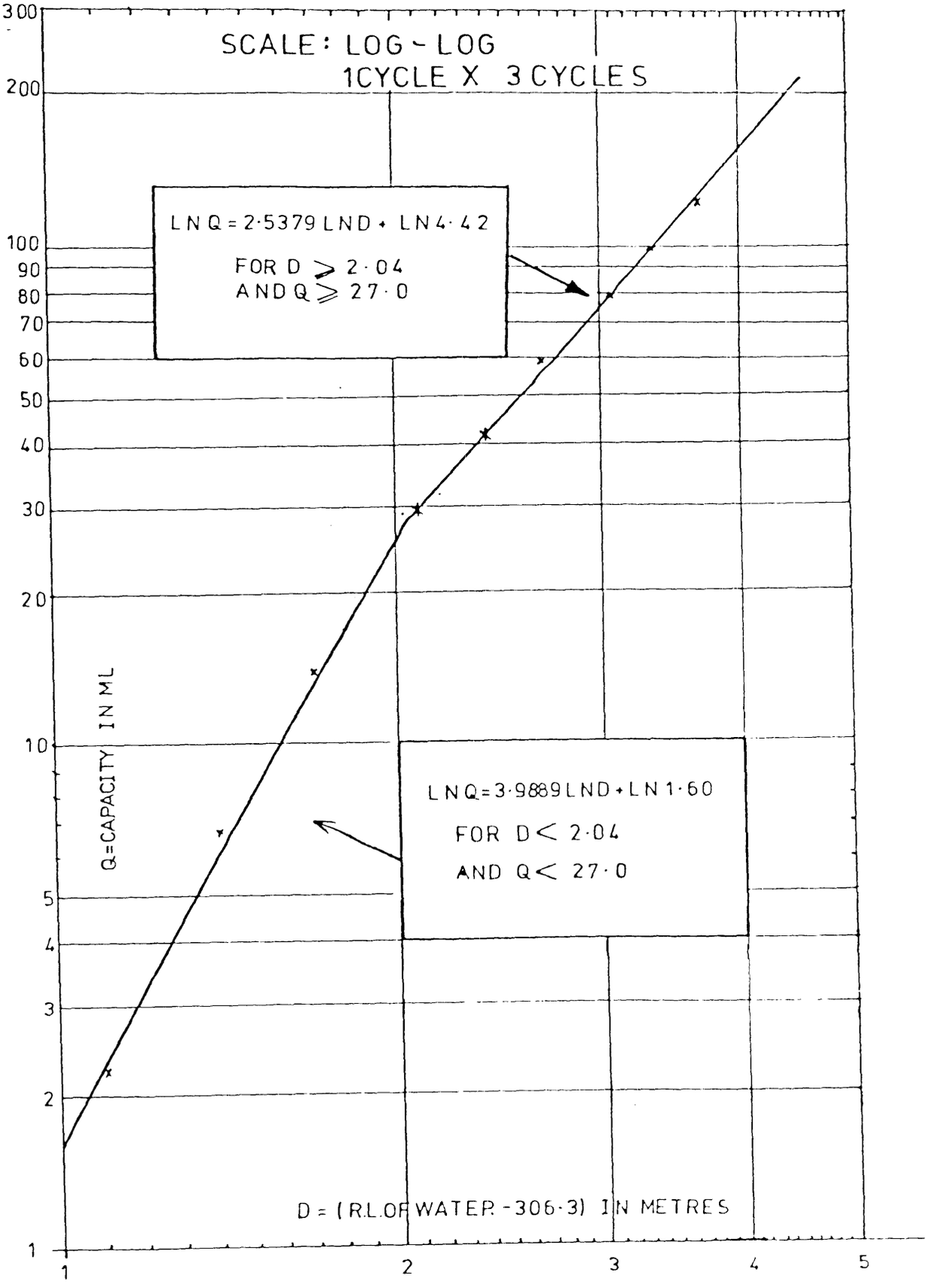
BUNDARRA WATER SUPPLY

TAYLOR'S POND CAPACITY CURVE

MARCH 1981



BUNDARRA WATER SUPPLY
WORRABINDA'S POND CAPACITY CURVE
JULY 1981



APPENDIX "K"

DOCUMENTATION USED IN THE SURVEY OF WATER USERS AT BUNDARRA

COVERING LETTER

RGF.BN

W-2

13th. October, 1982.

Dear Sir/Madam,

Water Supply - Bundarra

Uralla Shire Council is looking at ways of improving the Bundarra Water Supply. The current drought has highlighted many of the shortcomings of the storage position in the Gwydir River. Council is concerned at the need to impose severe water restrictions during dry summers and seeks your assistance and advice in ways to improve the situation. Your advice is sought in the form of answers to questions detailed on the enclosed Form B.

Naturally, any plan to improve the water supply will cost money. Council's aim is to supply the people of Bundarra with a sound water supply at a suitable price. It is seeking your comments on many aspects of your water supply. Your answers to the questions asked in the attached forms are very important. They will guide the Council when it considers what measures it should take to help meet your water needs.

I therefore sincerely request you to take a few minutes to:-

1. Read Form A which provides important background information;

2. Complete Form B as indicated by the directions;

3. Return Form B to the Council, by delivering it to Mr. Pat Brennan of Tomline Street in Bundarra, in the enclosed envelope.

I wish to point out that your name does not appear on Form B. Your answers will therefore be confidential.

If you have any questions or comments at all on this matter, do not hesitate to contact the Shire Engineer, Mr. R. Fulcher, who will be pleased to discuss the details with you. Please try to complete the form and return it as soon as possible and not later than Friday, 29th. October, 1982.

I thank you in anticipation.

Yours faithfully,

L.F. Handley,
SHIRE CLERK.

Encl.

FORM A

BACKGROUND INFORMATION

FORM A

BUNDARRA WATER SUPPLY - BACKGROUND INFORMATION

Please Read This Carefully Before Filling Out Form B

1. HOW MUCH WATER DO WE USE?

There is some variation in the rate at which people use water. Some average water use rates are listed below and these rates will help you to answer some of the questions in Form B. Your own usage in your home may be different from these rates, however they do represent a good guide for most householders.

TABLE OF WATER USAGE

Activity	Average Number of Litres Used Per Person, Per Day		Average Number of Kilolitres Used Per Year, Per Person		Percentage of Total Water Used
1. SO CALLED ESSENTIAL USES					
Dishwashing	17		6.2		10
Clotheswashing	33		12		19
Toilet Flushing	37		13.5		21
Showering	34		12.4		19
Bathing	20		7.3		11
Food Preparation, Cooking and Drinking	8		2.9		4
Car Washing	4		1.5		2
Leakages	25		9.2		14
Sub-Total	178	Litres	65	Kilolitres	100
2. GARDENS, LAWNS ETC. (NO RESTRICTIONS)					
Sub-Total	100	Litres	35	Kilolitres	
TOTAL	278	Litres	100	Kilolitres	

A family of four people would expect to use 400 kilolitres of water in a year, on average. Only 260 to 290 kilolitres of this water would be for so called "essential uses", the rest would be used on lawn, garden and shrub watering and other associated garden uses. In Bundarra, 400 residents are estimated to use about 40,000 kilolitres per year. A further 40,000 to 50,000 kilolitres is used by specific users such as the school, hotel, shops, hospital, small industry and the like.

2. HOW MUCH DOES OUR WATER COST?

The minimum water rate per household in Bundarra in 1982 was $210. For that "price", each household is entitled to use 500 kilolitres of water, before being required to pay excess water charges. You could say that $210 buys 500 kilolitres of water, at an average price of 42 cents per kilolitre. (Excess water charges are 60 cents for every kilolitre used in excess of 500 kilolitres).

3. HOW MUCH DO WE VALUE OUR WATER?

Even though we pay 42 cents per kilolitre, on average, for 500 kilolitres of water in Bundarra, we each value water differently. We usually value "essential" water more highly per unit, than we do lawn sprinkling water.

There is no current proposal to charge users simply on the basis of the water

they use. However, if a user wished to reduce his yearly usage (and perhaps his water costs) he might consider the following ways of doing so:-

Method	Saving in Kilolitres per Year for an Average Household of Four People
1. Water garden by hand held hose only.	60 to 80 Kilolitres
2. Have short showers rather than long showers or baths.	50 Kilolitres
3. Wash car only by bucket (not hose). (12 washes per year).	1½ Kilolitres
4. Don't "waste" sprinkling water (like letting it flow into the gutter)	10 Kilolitres
5. Don't use water outside at all.	140 Kilolitres

On the other hand, you may be prepared to pay slightly more for the advantage of using water as you please to have deep baths, automatic washing machines, green lawns, flower and vegetable gardens and the like.

This survey wants to find out your own preferences in these matters.

4. ENCLOSURES

This envelope should contain

(1) A letter from the Shire Clerk, Uralla Shire Council.

(2) Form A.

(3) Form B.

(4) Another envelope addressed to the Shire Clerk, for returning the questionnaire to Council, which should be returned to Mr. P. Brennan of Tomline Street, in Bundarra.

FORM B

QUESTIONNAIRE

PART A - GENERAL

PART B - WATER USE

PART C - VALUE OF WATER

FORM B

BUNDARRA WATER SUPPLY - SURVEY

Please answer all questions carefully by ticking the appropriate box.

A. GENERAL

1. How many people normally live permanently in your house.

1 to 2 ☐

3 to 4 ☐

5 to 8 ☐

More than 8 ☐

2. Do you have in your household

(a) an automatic dishwasher Yes ☐ No ☐

(b) an automatic washing machine Yes ☐ No ☐

(c) a septic toilet system Yes ☐ No ☐

3. Are you or your family (tick the appropriate box)

(a) keen gardeners ☐

(b) average gardeners ☐

(c) not interested in gardens ☐

4. How many vehicles are normally garaged at your house

1 ☐ 2 ☐ 3 ☐

4 ☐ 5 ☐ More than 5 ☐

Nil ☐

5. Do you find the water restrictions Council has had to impose recently

A severe burden ☐

A nuisance ☐

or No problem ☐

6. How many wages come into your household at present

Nil (i.e. unemployed or pensioner or similar) ☐

1 ☐

2 ☐

3 ☐

More than 3 ☐

F O R M B

7. Is your house owned ☐

or rented ☐

B. WATER USE

1. Do you think your household uses

☐ More than 500 kilolitres per year

☐ Less than 500 kilolitres per year

☐ Close to 500 kilolitres per year

2. Do you use town water for drinking and cooking

☐ Yes, always

☐ No, never

☐ Often

☐ Not often

3. Does the town water taste, smell or look unpleasant

☐ All the time

☐ Often

☐ Sometimes

☐ Not often

☐ Hardly ever

4. Is your water pressure

☐ Good

☐ Satisfactory

☐ Too low

☐ Too high

C. VALUE OF WATER

Council has no proposal to charge for water at a price per unit used; the next set of eight questions is asked simply to find out how you value your water. If water was cheap you might buy more than you would if it was costly.

F O R M B

The following table lists eight separate prices for water and asks you to tick, for each price, the volume of water you would choose to buy for your household, if it was to be sold at that price. The last column of the table lists the total cost per year you would face for your household for each price and each volume listed.

You are asked to answer each of the next eight questions. You need only to place a tick in the box next to the volume of water you would choose to buy for each of the eight prices. You need to provide a total of only eight ticks to answer the eight questions in this section.

If water cost me the following price per kilolitre, I would choose to buy for my household, the volume per year indicated by the tick in the appropriate box.

Question No.	Price of Water	Volume per year I would choose to buy for my household	Cost per year f each volume ran at this price f water
	Cents/Kilolitre (Given Information)	Kilolitre You make your choice in this column. Tick one box for each question	$ (Guide Informati
1	10	☐ Less than 301	30
		☐ 301 - 400	40
		☐ 401 - 500	50
		☐ 501 - 600	60
		☐ 601 - 700	70
		☐ More than 700	
2	20	☐ Less than 301	60
		☐ 301 - 400	80
		☐ 401 - 500	100
		☐ 501 - 600	120
		☐ 601 - 700	140
		☐ More than 700	

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F O R M B

Question No.	Price of Water	Volume per year I would choose to buy for my household	Cost per year fo each volume rang at this price fo water
	Cents/Kilolitre (Given Information)	Kilolitre You make your choice in this column. Tick one box for each question	$ (Guide Informat
3	30	☐ Less than 301	90
		☐ 301 - 400	120
		☐ 401 - 500	150
		☐ 501 - 600	180
		☐ 601 - 700	210
		☐ More than 700	
4	40	☐ Less than 301	120
		☐ 301 - 400	160
		☐ 401 - 500	200
		☐ 501 - 600	240
		☐ 601 - 700	280
		☐ More than 700	
5	50	☐ Less than 301	150
		☐ 301 - 400	200
		☐ 401 - 500	250
		☐ 501 - 600	300
		☐ 601 - 700	350
		☐ More than 700	
6	60	☐ Less than 301	180
		☐ 301 - 400	240
		☐ 401 - 500	300
		☐ 501 - 600	360
		☐ 601 - 700	420
		☐ More than 700	

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F O R M B

Question No.	Price of Water	Volume per year I would choose to buy for my household	Cost per year f each volume ran at this price f water
	Cents/Kilolitre (Given Information)	Kilolitre You make your choice in this column, Tick one box for each question	$ (Guide Informatio
7	70	☐ Less than 301	210
		☐ 301 - 400	280
		☐ 401 - 500	350
		☐ 501 - 600	420
		☐ 601 - 700	490
		☐ More than 700	
8	80	☐ Less than 301	240
		☐ 301 - 400	320
		☐ 401 - 500	400
		☐ 501 - 600	480
		☐ 601 - 700	560
		☐ More than 700	

D. CONCLUSION

Thank you for filling out this questionnaire. Please now arrange to return it to Council, by putting Form B in the enclosed envelope and delivering it to Mr. Pat Brennan, of Tomline Street, Bundarra, who will arrange for it to be returned to the Shire Clerk of Uralla Shire Council.

Your assistance is gratefully acknowledged. If you wish to discuss any of th questions or others with Council staff, please contact the Shire Engineer, who would be pleased to discuss the matter with you.