RAINAGE INFORMATION SHEET

PROJECT TITLE: TORATOLLA ACRES ZONE ATLAS/DRNG. FILE #: H-10/D12

DRB #: 93-300 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TR. 322-324, TOWN OF ATRISCO GRANT, UNIT 8

CITY ADDRESS: _____

ENGINEERING FIRM: ISAACSON & ARFMAN, P.A. CONTACT: FRED C. ARFMAN

ADDRESS: 128 MONROE ST. NE PHONE: 268-8828

OWNER: TORATOLLA PARTNERS CONTACT: PHIL WARD

ADDRESS: C/O C3 COMMERCIAL PHONE: 837-4999

ARCHITECT: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH

ADDRESS: _____ PHONE: 884-1990

CONTRACTOR: FRANKIN EARTHMOVING CONTACT: JOHN ELLIS

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- X ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- X YES
- ___ NO
- X COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAT APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S.A.D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- X OTHER S/D ACCEPTANCE (SPECIFY)

NOV - 9 1994

DATE SUBMITTED: NOV. 08, 1994

BY: FRED C. ARFMAN, P.E.

FOR: ISAACSON & ARFMAN, P.A.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 19, 1995

CERTIFICATE OF COMPLETION AND ACCEPTANCE

Toratolla Partners, LTD. Partnership
5555 Pan American Pkwy NE
Albuquerque, NM 87110

RE: PROJECT NO. 4950.80, TORATOLLA ACRES, UNIT I
(MAP H-10-Z)

Dear Sir:

This is to certify that the City of Albuquerque accepts Project No. 4950.80 as being completed according to approved plans and construction specifications.
Please be advised this certificate of completion and acceptance shall only become effective upon final plat approval and filing in the office of the Bernalillo County Clerk's Office.

The project is described as follows:

- The project consisted of constructing waterlines, sanitary sewer lines, drainage facilities. Also installed, paving, curb and gutter.

The contractor's correction period begins the date of this letter and will be effective for a period of one (1) year.

Sincerely,

Rick Roybal, P.E.
City Engineer,
Engineering Group
Public Works Department

Sincerely,

Russell B. Givler, P.E.
Chief Construction Engineer,
Engineering Group
Public Works Department

cc: Terry Brown
Carlos Spiess, Sundance Mechanical
Fred Aguirre, Engineering Group, PWD
Lynda Michelle DeVanti, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Martin Barker, Engineering Group, PWD
Steve Gonzales, Special Assessments, DFM
Sam Hall, Operations Group, PWD
Jim Fink, Operations Group, PWD
Dean Wall, Engineering Group, PWD
Stuart Reeder, Water/Wastewater Group, PWD
Ray Chavez, Traffic Engineering, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Richard Zamora, Engineering Group, PWD
f/Project No. 4950.80
f/Readers
f/Warranty:Contract

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 22, 1994

Fred C. Arfman
Isaacson & Arfman, PA
128 Monroe St. NE
Albuquerque, NM 87108

RE: ENGINEER'S CERTIFICATION FOR TORATOLLA ACRES (H10-D12)
ENGINEER'S STAMP DATED 11/8/94.

Dear Mr. Arfman:

Based upon your 11/9/94 submittal, Engineer's Certification for the referenced project is acceptable.

If I can be of further assistance, I can be reached at 768-3622.

Sincerely,

Scott Davis, P.E.
PWD/Hydrology Division

SD/dl/WPHYD/8575

c: LyndaMichelle DeVanti
Andrew Garcia
File

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 8, 1994

Mr. Fred Arfman
Isaacson & Arfman, PA
128 Monroe St. NE
Albuquerque, NM 87108

RE: PRELIMINARY PLAT, GRADING PERMIT & WORK ORDER FOR TORATOLLA ACRES (H-10/D12) ENGINEER'S STAMP DATED 6/1/94

Dear Mr. Arfman:

Based upon your revised submittal, received by this office on 3/3/94, the referenced project is approved for Preliminary Plat, Grading Permit and Work Order. Please remember to submit the Work Order drawings with your DRC submittal. Prior to commencing with the grading of the site, it will be necessary to obtain a Topsoil Disturbance Permit from Environmental Health.

To obtain Certificate of Occupancy release, we will need Engineer's Certification per the DPM Certification Checklist. Also, a Work Order Acceptance letter for the work within City right-of-way should accompany the Certification submittal.

Be sure and attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, feel free to contact me at 768-3622.

Cordially,

Scott Davis
PWD, Hydrology Division

(WP+8575)
c: Larry Caudill
Andrew Garcia
File

DRAINAGE REPORT

FOR

TORATOLLA ACRES

A 96 LOT (PHASE ONE) SINGLE FAMILY LOT RESIDENTIAL SUBDIVISION

SUPPLEMENTAL HYDROLOGICAL INFORMATION

APRIL, 1994

PREPARED BY:
ISAACSON & ARFMAN, P.A.
128 MONROE STREET NE
ALBUQUERQUE, NEW MEXICO
(505) 268-8828
ATTN: FRED C. ARFMAN, P.E.

LEGAL DESCRIPTION: TRACT 322, UNIT NO. 8, TOWN OF ATRISCO GRANT, FILED IN VOL. D, FOLIO 117 ON DECEMBER 5, 1944; TRACTS 323A, 323B, 324A, AND 324B, FILED IN VOL. B11, FOLIO 168 AND TOGETHER WITH A VACATED PORTION OF 68TH STREET BETWEEN MIAMI ROAD NW AND JUNIPER ROAD NW (V-93-71A).

ENGINEER: ISAACSON & ARFMAN, P.A.
128 MONROE STREET NE
ALBUQUERQUE, NM 87108

SURVEYOR: ALDRICH LAND SURVEYING
ATTN: TIM ALDRICH, NMPLS NO. 7719
(505) 884-1990

BENCHMARK: ACS "2-H10" LOCATED ALONG THE NORTHERLY RIGHT-OF-WAY OF MIAMI ROAD APPROXIMATELY 837 FT EAST OF THE SUBDIVISION NORTHEAST CORNER.
ELEVATION: 5108.81

TBM: SAS MH RIM (SOUTH PT.) AT JUNIPER ROAD AND 68TH STREET.
ELEVATION: 5110.31

ZONING: RD (15 DU/AC MAX.).

PROPOSED: 96 SINGLE FAMILY RESIDENTIAL LOTS.

AREA: 15.73 AC (PHASE ONE).

FLOOD HAZARD: NO PART OF THIS DEVELOPMENT IS AFFECTED BY ANY FLOOD HAZARD DESIGNATIONS AS DETERMINED BY PANEL NO. 350002-0021 OF THE OCTOBER 14, 1983 EDITION OF THE F.E.M.A. MAPS.

LOCATION & DESCRIPTION: THE 15.73 ACRE SITE IS UNDEVELOPED AND UNDISTURBED LAND WITH TYPICAL WEST SIDE GROUND COVER OR SAGE AND NATIVE GRASSES. JUNIPER ROAD NW BORDERING ON THE SOUTH IS FULLY DEVELOPED WHILE MIAMI ROAD BORDERING ON THE NORTH IS UNDEVELOPED. THE TWO ADJACENT TRACTS TO THE EAST AND WEST ARE ALSO UNDEVELOPED.

EXISTING CONDITIONS: THE SITE IS COMPRISED OF TWO DISTINCT DRAINAGE BASINS AS DEFINED BY THE MASTER DRAINAGE STUDY OF S.A.D. 218. THE SOUTHERLY 9 ACRES (+1-) LIES WITHIN BASIN A-2. AS SUCH, THE STORM WATERS OVERLAND SHEETFLOW TO THE PAVING SURFACE OF JUNIPER ROAD ALONG THE SOUTH PROPERTY LINE.

THE FLOWS ARE CONVEYED SOUTHERLY WITHIN THE IMPROVED PAVING SURFACE OF 68TH STREET AND ACCEPTED BY A BATTERY OF CATCH BASINS AT ILIFF ROAD. THE NORTHERLY 20% OF THE SITE ALSO HAS AN OVERLAND FLOW CHARACTERISTIC. STORM WATERS WILL SHEET FLOW TO THE NORTH WHERE THEY ARE CAPTURED BY A PLAYA APPROXIMATELY 500 FEET TO THE NORTH.

THE PROPOSED SUBDIVISION DOES NOT ACCEPT ANY OFFSITE STORM WATERS. 72ND STREET IS IMPROVED AND INTERCEPTS ALL OF THE LAUERLWOOD OVERFLOW RUNOFF. THE TWO UNDEVELOPED TRACTS BETWEEN 72ND STREET AND THE WESTERLY BOUNDARY OF PHASE ONE ARE OWNED BY THE DEVELOPERS AND SHALL BE DEVELOPED AS PHASE TWO OF THIS DEVELOPMENT. THOSE STORM WATER FLOWS ARE CONSIDERED AS PART OF THIS STUDY.

PROPOSED IMPROVEMENTS

THE 96 LOT SUBDIVISION IS PRIMARILY SITUATED WITHIN DRAINAGE BASIN A-2 AS DEFINED BY THE DRAINAGE REPORT OF SPECIAL ASSESSMENT DISTRICT NO. 218, DATED JANUARY 13, 1989 AND PREPARED BY WILSON & COMPANY. THE BASIN COMPRISES 40.63 ACRES WHICH INCLUDES THE MAJORITY OF THE SUBJECT SUBDIVISION, 72ND STREET BETWEEN JUNIPER ROAD AND MIAMI ROAD, JUNIPER ROAD BETWEEN 72ND STREET AND 68TH STREET AND 68TH STREET FROM 150 FT. SOUTH OF MIAMI ROAD TO ILIFF ROAD. THE DRAINAGE BASIN ANALYSIS POINT (A.P. 2) FOR THE 100-YEAR EVENT WAS COMPUTED AS 58.5 CFS.

THE MASTERPLAN CALLED FOR ALL DEVELOPED STORM WATER FLOWS TO STREET FLOW TO THE SOUTH WHERE THEY WILL BE ACCEPTED BY THE STORM DRAIN SYSTEM CONSTRUCTED AS PART OF S.A.D. 218.

AS IN THE UNDEVELOPED CONDITION, THE DEVELOPED SITE WILL NOT ACCEPT ANY STORM WATERS FROM OFFSITE. THE SITE ACCESS OFF OF MIAMI ROAD WILL HAVE A SUFFICIENT WATER BAR TO DEFLECT THOSE MINOR FLOWS ALONG THE SOUTHERLY CURB LINE OF MIAMI ROAD. THE MIAMI ROAD STORM WATER SHALL BE ROUTED WITHIN UNDEVELOPED PUBLIC RIGHT-OF-WAY EASTERLY TO 64TH STREET AND THEN SOUTHERLY TO JUNIPER ROAD BY AN EARTHEN BAR DITCH. CATCH BASINS AND A 30" DIAMETER. RCP STUB WERE CONSTRUCTED AT THE INTERSECTION OF 64TH STREET AND JUNIPER ROAD THE 30" STORM DRAIN WILL EVENTUALLY BE EXTENDED TO THE NORTH AS FURTHER DEVELOPMENT OCCURS IN THE AREA. THE MENTIONED EXISTING CATCH BASIN WILL ACCEPT THE STORM WATERS FROM MIAMI ROAD.

HYDROLOGY (EXISTING CONDITIONS)

THE PROPOSED SUBDIVISION IS WITHIN THE BOUNDARIES OF PRECIPITATION ZONE NO. 1 (WEST OF RIO GRANDE BLVD.): AS SUCH, THE P360 (6 HR., 100-YEAR STORM) HAS A DEPTH OF 2.2 INCHES. THE DRAINAGE BASIN CONSIST OF 16.8 ACRES OF VACANT AND UNDISTURBED LAND AND HAS A CORRESPONDING LAND TREATMENT "A" CLASSIFICATION.

PEAK DISCHARGE (TC = 12 MIN.)
100-YEAR, ZONE 1 (TABLE 9) = 1.15 CFS/AC

TOTAL Q_P = QPA AA
= (1.15 CFS/AC)(16.8 AC)
= 19.3 CFS

HYDROLOGY (PROPOSED IMPROVEMENTS)

THE COMPLETED 96 LOT SUBDIVISION WILL HAVE A SINGLE ONSITE DRAINAGE BASIN EXTENDING FROM JUNIPER ROAD NORTH TO MIAMI ROAD. ALL ONSITE DEVELOPED STORM WATERS WILL BE ACCEPTED BY THE PUBLIC STREET AND STREET FLOW TO THE SOUTH WHERE THEY WILL DISCHARGE ACROSS JUNIPER ROAD AT THE EXISTING 68TH STREET STREET CROSSING.

THE OFFSITE AREA TO THE WEST (PHASE TWO OF THIS DEVELOPMENT) WILL HAVE THOSE UNDEVELOPED STORM WATER INTERCEPTED BY A NORTH-SOUTH RUNNING DRAINAGE SWALE WHICH WILL DIVERT STORM WATERS AWAY FROM PHASE ONE AND ROUTE THEM TO THE SOUTH WHERE THEY WILL BE INTERCEPTED BY JUNIPER ROAD.

THE ANALYSIS FOR DETERMINING THE MAXIMUM PEAK DISCHARGE OF THESE BASINS ARE BASED ON LAND TREATMENTS AS FOLLOWS:

LAND TREATMENT CLASSIFICATION	DEVELOPED SUBD (AC)	UNDEVELOPED PHASE TWO (AC)
A	0	10 AC
B	6.25	0
C	2.05	0
D	8.50	0

FROM TABLE 9, EQUATION (A-10), DETERMINE TOTAL Q_{100} (DEVELOPED PHASE ONE):

$$Q_{100} = Q_P B_{AB} + Q_P C_{AC} + Q_P D_{AD}$$

$$= (2.03 \text{ CFS/AC})(6.25 \text{ AC}) + (2.87 \text{ CFS/AC})(2.05 \text{ AC}) + (4.37 \text{ CFS/AC})(8.5 \text{ AC})$$

$$= 54.7 \text{ CFS}$$

TOTAL Q_{100} (PHASE TWO)

$$Q_{100} = (1.15 \text{ CFS/AC})(10 \text{ AC})$$

$$= 11.5 \text{ CFS}$$

VOLUME OF RUNOFF (CU. FT.):

WEIGHTED E (EXCESS PRECIPITATION):

$$E = \frac{(0.67 \text{ IN/AC})(6.25) + (0.99 \text{ IN/AC})(2.05 \text{ AC}) + (1.97 \text{ IN/AC})(8.5 \text{ AC})}{(16.8 \text{ AC})}$$

$$= 1.37 \text{ INCHES}$$

VOLUME = $\frac{1.37 \text{ INCHES}}{12 \text{ IN/FT}}$ (16.8 AC)(43.560 SF/AC)

= 83,352 CU. FT. (PHASE ONE-DEVELOPED)

VOLUME (PHASE TWO) = WEIGHTED E = 0.44 INCHES

VOLUME = $\frac{0.44 \text{ INCHES}}{12 \text{ IN/FT}}$ (10 AC)(43,560 SF/AC) = 15.972 CU. FT.

STREET STORM WATER CARRYING CAPACITY

TORATOLLA DRIVE (32' FF) ACCEPTS THE GENERATED STORM WATER RUNOFF FROM ALL THE SUBDIVISION ROADWAYS WITH THE EXCEPTION OF MARIGOT ROAD.

MAXIMUM FLOW RATE ON TORATOLLA DRIVE

54.7 CFS X 83% = 45.4 CFS

FROM PLATE 22.3 D-1, STREET CAPACITY WHERE 32' STREET (F-F), 2% CROWN 8" CURB, 17 = 0.017, SLOPE = 0.5%

D = 0.66' = 7.9 INCHES --- O.K.

Barely ??

Find new Q @ Juniper Rd & 64th St. when Toratolla Unit 1 is re-routed to this intersection & south on 64 st to the detention pond. Then verify capacity of 64th st to see if they will handle the extra flow.

Hydrological data for Toratolla Unit 1 => Area = 15.73 Ac
= 0.0246 sq. mi.

% Land treatments (from drainage report): %A = 0
%B = 37.2
%C = 12.2
%D = 50.6

Precipitations => P_{60} = 1.90"
P_{360} = 2.20"
P_{1440} = 2.68"

From AHYMO, Q_{100} = 52.9 cfs.

Route Q_{100} in a 40' F-F std section of Juniper Rd @ 1.0% approx 850' to the intersection of Juniper Rd & 64th St.

Routed Q = 48.0 cfs

Find Q_{100} for the remainder of tract A-3 that is planned to drain to the same intersection. Assume the density will be the same as Toratolla Unit 1, flows split between 64th & Juniper

---

From AHYMO, Q_{100} = 61.7 cfs

Add the two hydrographs to get the total flow @ the intersection. Q_{Total} = 109.7 cfs

JUN - 3 1994

Find street + storm drain capacity at 64th St.

From COA as-builts, 30" RCP @ 1.0%. $A = 4.91\,ft^2$
$WP = 7.85'$

$Q_{cap} = \frac{1.49}{0.015}(4.91)\left(\frac{4.91}{7.85}\right)^{2/3}(0.01)^{1/2} =$ <u>35.7 cfs</u>

<u>Assume for Q_{100}</u>, SD is under 2' of pressure head

$V^2/2(32.2) = 2'$ $V = 11.3$ fps $Q = 11.3(4.91) =$ <u>55.6 cfs</u>, <u>OK</u>

<u>Street capacity</u> => 40' F-F, std C&G, slope = 0.008 ft/ft

$A = 2[\frac{1}{2}(20)(0.40) + 20(0.27)] =$ (18.8 ft^2)

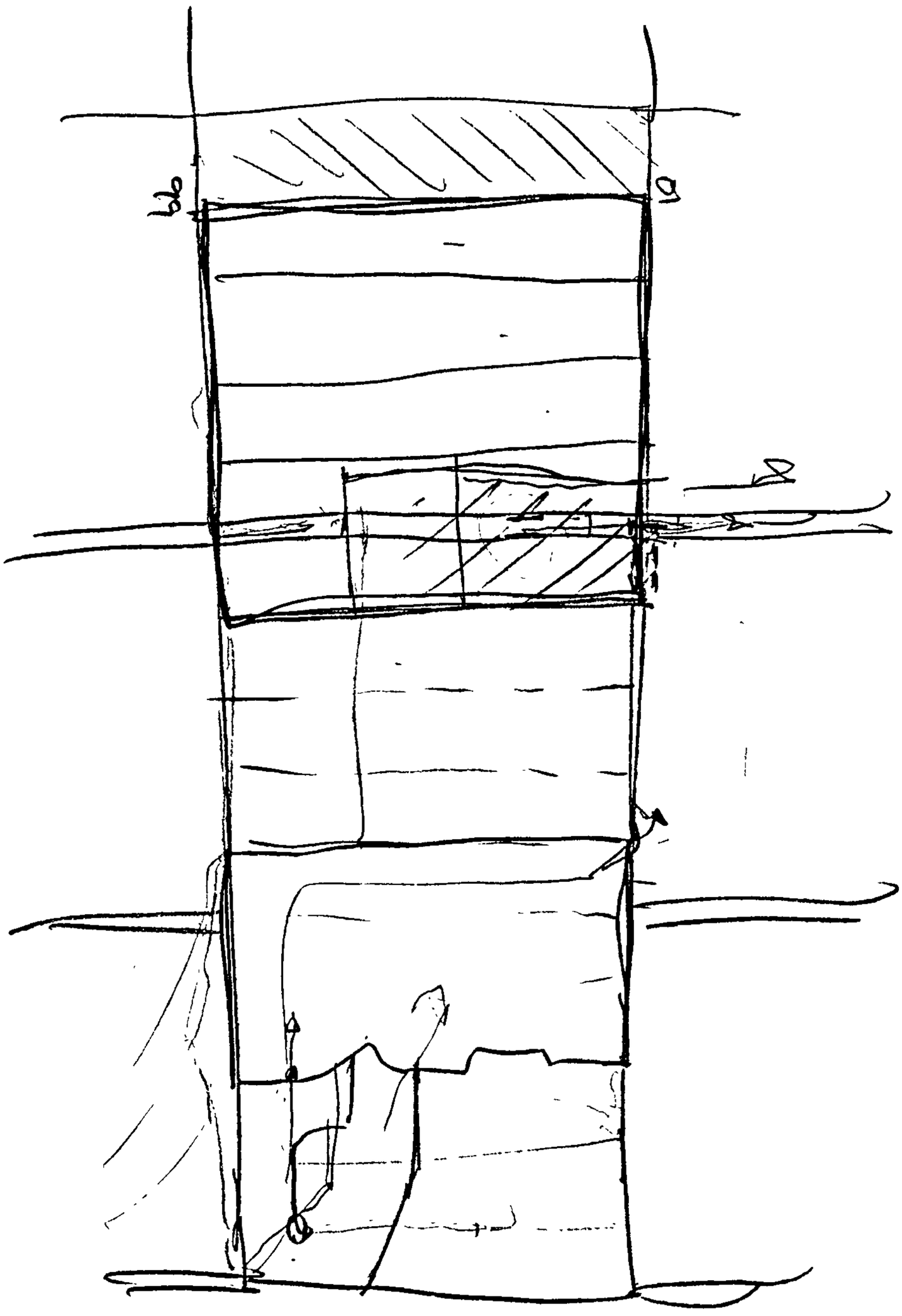
$WP = 2[0.67 + 20] =$ (41.34')

$Q_{cap} = \frac{1.49}{0.017}(18.8)\left(\frac{18.8}{41.34}\right)^{2/3}(0.008)^{1/2} =$ <u>87.2 cfs</u>,

Combine the two capacitities. $Q = 35.7 + 87.2 =$ <u>122.9 cfs</u>

122.9 cfs > 109.7 cfs, <u>OK</u>

∴ Toratolla Unit 1 can safely be accepted by 64th St.


b0
D

ILETS

IMPROVED 50 Y2
MIAMI RD

MIAMI RD

X 18.6

X 23.4

20

X 19.9

X 16.9

X 17.1

X 15.1

X 13.1

X 13.2

X 10.2

X 09.5

X 09.6

5110

04

X 15.3

X 13.8

X 09.8

64th ST.

09.2

PORTION OF BASIN A-2 CONTRIBUTING TO BASIN A-3

1000

5120

X 19.9

H: 40 AC-FT
9.03 AC

5.9 X

X 11.5

X 09.0

2.98 AC-FT

2.64 AC-FT

X 12.1

X 14

X 13.9

A-2
40.63 ACRES

A-3
27.48 ACRES

99 ANYMO RUN
Qcap (30" RLP) = 35.7 cfs
Qcap (64th St.) = 87.2 cfs
Qcap (Total) = 122.9 cfs
Qreq'd = 109.7 < 122.9 cfs. OK

44.6 CFS D100=0.63'
0.1 CFS D10=0.50'

13.8 X
VALLEY GUTTER

2 DOUBLE 'A' INLETS

STUB

JUNIPER RD

10ms

A'OFF

X 11.5

2' C' INLETS

X 15.8

5110

X 08.

07.

Q10
D10
Q10
D10

```
      AHYMO PROGRAM (AHYMO392(   AMAFCA VERSION OF HYMO - MARCH, 1(  ?
           RUN DATE (MON/DAY/.  .· = 05/09/1994
           START TIME (HR:MIN:SEC) = 15:27:48     USER NO.= S_MCGEE_.S92 .
           INPUT FILE = TT2.DAT


START                          0.0 HRS
*
*                    FILE:  TT.DAT - TORATOLLA
*                    / / / / / / / / / / / / / / / / / /
*
*
*
*
RAINFALL                TYPE=1 ' RAIN QUARTER=0.0
                        RAIN ONE=1.90 IN  RAIN SIX=2.20 IN
                        RAIN DAY=2.68 IN  DT=0.033333 HR

                   COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                   DT =     .033333 HOURS        END TIME =     5.999940 HOURS
                      .0000   .0013   .0027   .0041   .0055   .0069   .0084
                      .0099   .0115   .0131   .0147   .0164   .0181   .0199
                      .0217   .0236   .0256   .0276   .0296   .0318   .0340
                      .0363   .0387   .0412   .0438   .0465   .0493   .0523
                      .0554   .0587   .0622   .0675   .0731   .0791   .0920
                      .1209   .1653   .2291   .3162   .4306   .5765   .7582
                      .9799  1.1849  1.2707  1.3432  1.4077  1.4663  1.5203
                     1.5704  1.6173  1.6612  1.7025  1.7415  1.7783  1.8132
                     1.8462  1.8775  1.9072  1.9354  1.9622  1.9681  1.9737
                     1.9789  1.9839  1.9887  1.9933  1.9976  2.0019  2.0059
                     2.0098  2.0136  2.0172  2.0208  2.0242  2.0276  2.0308
                     2.0340  2.0371  2.0401  2.0430  2.0458  2.0486  2.0514
                     2.0541  2.0567  2.0592  2.0618  2.0642  2.0667  2.0690
                     2.0714  2.0737  2.0759  2.0781  2.0803  2.0825  2.0846
                     2.0867  2.0887  2.0908  2.0927  2.0947  2.0966  2.0986
                     2.1004  2.1023  2.1041  2.1060  2.1077  2.1095  2.1113
                     2.1130  2.1147  2.1164  2.1180  2.1197  2.1213  2.1229
                     2.1245  2.1261  2.1277  2.1292  2.1308  2.1323  2.1338
                     2.1353  2.1367  2.1382  2.1396  2.1411  2.1425  2.1439
                     2.1453  2.1466  2.1480  2.1494  2.1507  2.1520  2.1534
                     2.1547  2.1560  2.1573  2.1585  2.1598  2.1611  2.1623
                     2.1636  2.1648  2.1660  2.1672  2.1684  2.1696  2.1708
                     2.1720  2.1731  2.1743  2.1755  2.1766  2.1777  2.1789
                     2.1800  2.1811  2.1822  2.1833  2.1844  2.1855  2.1866
                     2.1876  2.1887  2.1898  2.1908  2.1919  2.1929  2.1939
                     2.1950  2.1960  2.1970  2.1980  2.1990  2.2000

*S **BASIN 100 IS PHASE OF TORATOLLA SD
*S   WILL BE AT A DENSITY OF 6 DU/AC, %B=37.2, %C=12.2, %D=50.6
COMPUTE NM HYD          ID=1 HYD NO=100 AREA=0.0246 SQ MI
                        PER A=0 PER B=37.2 PER C=12.2 PER D=50.6
                        TP=-0.1333 HR  MASS RAIN=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   49.144    CFS   UNIT VOLUME =    .9991       B =   526.28      P60 = 1.9000
    AREA =      .012448 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033333


    K =   .124696HR    TP =   .133300HR    K/TP RATIO =   .935456     SHAPE CONSTANT, N =  3.780775
    UNIT PEAK =   31.022    CFS   UNIT VOLUME =    .9998       B =   340.28      P60 = 1.9000
    AREA =      .012152 SQ MI    IA =    .46296 INCHES    INF =   1.14628 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  .033333

PRINT HYD               ID=1   CODE=1

                                PARTIAL HYDROGRAPH   100.00


    RUNOFF VOLUME =     1.36652 INCHES     =       1.7929 ACRE-FEET
    PEAK DISCHARGE RATE =     52.86 CFS  AT   1.500 HOURS   BASIN AREA =   .0246 SQ. MI.


COMPUTE RATING CURVE CID=-1  VS NO=1  NO SEG=1 MIN EL=100.0  MAX EL=100.67
                     CH SLOPE=0.01  FP SLOPE=0.01 N=0.017 DIST=40
                     DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                      0   100.67 0.10 100.00 20.0 100.40 39.9 100.00
                     40.0 100.67
COMPUTE TRAVEL TIME  ID=2  REACH NO=1 NO VS=1 LENGTH=850 FT  SLOPE=0.01
```

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET -	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.035	.062	.04	.4034
.071	.248	.23	.2541
.106	.558	.68	.1939
.141	.993	1.46	.1601
.176	1.551	2.65	.1380
.212	2.234	4.32	.1222
.247	3.040	6.51	.1102
.282	3.971	9.30	.1008
.317	5.026	12.73	.0932
.353	6.205	16.86	.0869
.388	7.508	21.74	.0816
.423	8.908	28.30	.0743
.458	10.316	36.10	.0675
.494	11.725	44.63	.0620
.529	13.134	53.86	.0576
.564	14.543	63.75	.0539
.599	15.953	74.29	.0507
.635	17.363	85.46	.0480
.670	18.773	97.23	.0456

```
ROUTE                ID=2 HYD NO=100.1 INFLOW ID=1  DT=0.0
PRINT HYD            ID=2 CODE=1
```

PARTIAL HYDROGRAPH 100.10

```
    RUNOFF VOLUME =      1.36653 INCHES          =        1.7929 ACRE-FEET
    PEAK DISCHARGE RATE =     47.96 CFS  AT    1.533 HOURS   BASIN AREA =    .0246 SQ. MI.


*S **COMPUTE A-3 AS IF IT COVERED THE WHOLE BLOCK UP TO MIAMI RD,
*S ASSUMING THE DENSITY IS THE SAME AS TORATOLLA UNIT ONE
COMPUTE NM HYD       ID=3  HYD NO=101 AREA=0.0320 SQ MI
                     PER A=0 PER B=37.2 PER C=12.2 PER D=50.6
                     TP=-0.1333 HR MASS RAIN=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   63.927    CFS   UNIT VOLUME =    .9992       B =   526.28      P60 = 1.9000
    AREA =       .016192 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333


    K =    .124696HR    TP =    .133300HR    K/TP RATIO =    .935456     SHAPE CONSTANT, N =  3.780775
    UNIT PEAK =   40.354    CFS   UNIT VOLUME =    .9999       B =   340.28      P60 = 1.9000
    AREA =       .015808 SQ MI    IA =     .46296 INCHES    INF =    1.14628 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

PRINT HYD            ID=3 CODE=1
```

PARTIAL HYDROGRAPH 101.00

20 Ac. BLOCK (INCLUDES OUT OF DRNG. BASIN AREAS)

```
    RUNOFF VOLUME =      1.36652 INCHES          =        2.3322 ACRE-FEET
    PEAK DISCHARGE RATE =      68.76 CFS  AT    1.500 HOURS   BASIN AREA =    .0320 SQ. MI.
```

61.67 cfs (A-3 LIMITS)

```
*S ADD THE TWO FLOWS TOGETHER TO GET THE TOTAL FLOW AT THE INTERSECTION
ADD HYD              ID=4 HYD NO=101.1  ID=2  ID=3
PRINT HYD            ID=4  CODE=1
```

PARTIAL HYDROGRAPH 101.10

```
    RUNOFF VOLUME =      1.36651 INCHES          =        4.1250 ACRE-FEET
    PEAK DISCHARGE RATE =     114.40 CFS  AT    1.533 HOURS   BASIN AREA =    .0566 SQ. MI.
```

47.96+61.67 = (109.63 cfs - ACTUAL

```
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:27:49
```