CITY OF
Albuquerque

January 6, 1997

Martin J. Chávez, Mayor

Ronald R. Bohannan
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

***RE: NATIONAL LIGHTING PHASE II (F16-D13). GRADING PLAN FOR BUILDING PERMIT AND SO #19 PERMIT APPROVALS. ENGINEER'S STAMP DATED 9-26-96.***

Dear Mr. Bohannan:

Based on the information provided on your December 30, 1996 submittal, the above referenced project is approved for Building Permit and SO #19 Permit.

A separate permit is required for construction within City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

An Engineer's Certification will be required for Certificate of Occupancy.

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

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Arlene Portillo
Andrew Garcia
File

*Tierra West Development*
*Management Services*

December 30, 1996

Ms. Lisa Ann Manwill
City of Albuquerque
Hydrology Department
Post Office Box 1293
Albuquerque, NM 87103

RE: National Lighting (F-16 / D13). Building Permit Approval

Dear Ms. Manwill:

This grading plan was approved under City Drainage number F-16/D-13 (Electrician's Union Hall), Phase I. At this time we are requesting Building Permit approval for Phase II (National Lighting building). The grading plan has not been changed from the approved grading plan with engineer's stamp date of 9-26-96.

Please contact me if there are any questions or concerns regarding this submittal.

Sincerely yours,

Shahab Biazar

Job No. 960023
sb



4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592

CITY OF
Albuquerque
Public Works Department

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

May 19,1997

Ron Bohannan
Tierra West Development Mgmt. Services
4421 McLeod Rd. NE Suite D
Albuquerque, New Mexico 87109

RE: REVISED ENGINEER CERTIFICATION FOR THE ELECTRICIANS UNION HALL
(F16-D13) CERTIFICATION STATEMENT DATED 5/16/97

Dear Mr. Bohannan:

Based on the information provided on your May 16,1997 resubmittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

CITY OF
Albuquerque

Public Works Department

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

April 10, 1997

Ronald Bohannan
Tierra West Development
4421 McLeod Road NE Suite D
Albuquerque , New Mexico 87109

RE: REVISED DRAINAGE PLAN FOR ELECTRICIAN'S UNION HALL (F15-D13)
REVISION DATED 4/7/97

Dear Mr. Bohannan:

Based on the information provided on your April 7,1997 resubmittal, the above referenced site is approved for Site Development for Building Permit,Building Permit, and Grading Permit.

Please attach a copy of this approved plan to construction sets prior to sign-off by Hydrology.

The Covenant is satisfactory, you may start the processing through DRC.

Also, prior to Certificate Of Occupancy release, the following must be submitted:

1. Engineer Certification per the DPM checklist will be required.

2. Hold harmless document for the nonfencing variance.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Engineering Associate

CITY OF
**Albuquerque**

October 14, 1996

**Martin J. Chávez, Mayor**

Ronald R. Bohannan
Tierra West Dev.
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

***RE: ELECTRICIAN'S UNION HALL (F16-D13). UPDATED GRADING PLAN FOR FINAL PLAT, BUILDING PERMIT, AND SO #19 PERMIT APPROVALS. ENGINEER'S STAMP DATED 9-26-96.***

Dear Mr. Bohannan:

Based on the information provided on your October 1, 1996 submittal, the above referenced project is approved for Final Plat, Building Permit, and SO #19 Permit. Prior to final sign off, you will need to show cross lot drainage easements and a vacation of the private roadway on the plat.

A copy of the approved plan must accompany the request for Excavation Permit.

An Engineer's Certification will be required for Certificate of Occupancy.

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

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Arlene Portillo
Andrew Garcia
(File)

**Tierra West Development**
**Management Services**

May 6, 1997

Mr. Bernie Montoya
City Public Works
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Final Certification of Occupancy for the IBEW Building (F-16/D-13)

Dear Bernie:

Enclosed please find one set of the as-built grading plans showing the grades around the building. The building and all of the parking lot has been constructed. The landscaping was being installed at the time of the inspection. The contractor verified that flow can reach the ponds and the drainage pipes, as designed. The grades around the building have been built in substantial accordance with the grading plan dated April 7, 1997.

Should you have any questions, please do not hesitate to contact our office.

Sincerely,

Ronald R. Bohannan, P.E.

Enclosure

cc: Roger Hendrick

JN: 960023
RRB/to

9623bm5697

# *VOLUME CALCULATIONS FOR 10-DAY STORM*

ZONE = 2

**DRAINAGE BASINS**

| BASIN | AREA (SF) | AREA (AC-FT) | AREA ($MI^2$) |
|---|---|---|---|
| 1 thru 7 | 226722.84 | 5.20484 | 0.008133 |

$$E = \frac{EA(AA) + EB(AB) + EC(AC) + ED(AD)}{AA + AB + AC + AD}$$

V-360 = E (AA + AB + AC + AD) / 12 in/ft

V-10 Day = V-360 + AD (P-10 Day - P-360) / 12 in/ft

EA = 0.53
EB = 0.78
EC = 1.13
ED = 2.12

AA = 0.00%
AB = 10.00%
AC = 0.00%
AD = 90.00%

P-60 = 2.01
P-360 = 2.35
P-1440 = 2.75
P-10 Day = 3.95

| | | |
|---|---|---|
| **E =** | **1.9860** | **IN** |
| **V-360 =** | **0.8614** | **AC-FT** |
| **AD =** | **4.6844** | **AC** |
| **V-10 Day =** | **1.4860** | **AC-FT** |
| **V-10 DAY =** | **64729.37** | **CF** |

V102.WK4

# RETENTION POND

| | BASIN 1 |
|---|---|
| | 220 x 165 4:1 slope |
| Area of Pond Top (SF) | 36300.00 |
| Area of Pond Bottom (SF) | 30396.00 |
| Depth of Pond (FT) | 2.00 |
| Volume (CF) | 66696.00 |
| Volume (AC-FT) | 1.5311 |
| Volume Required (CF) | 64729.37 |
| Volume Required (AC-FT) | 1.4860 |
| Volume Provided (CF) | 66696 |
| **Volume Provided (AC-FT)** | **1.5311** |

# Emergency Spillway

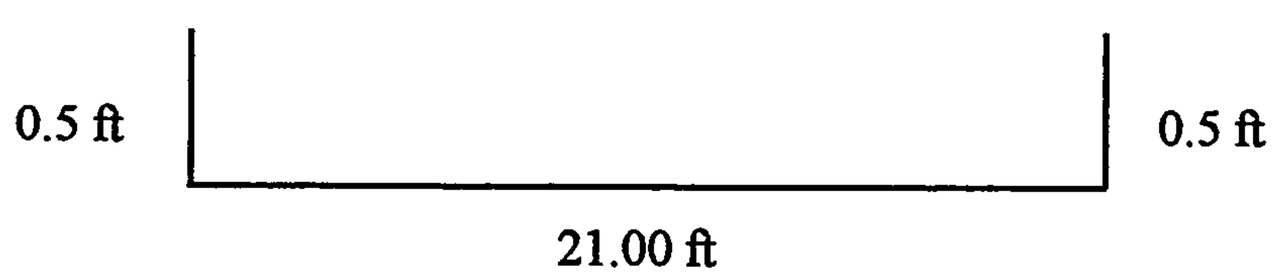
Weir Equation:

$$Q=CLH^{3/2}$$

Q= 21.30 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{21.30}{2.95(0.5)^{3/2}}$$

**L = 20.42 ft**
Use 21.00 feet for length of weir



960023

# PRIVATE FACILITY DRAINAGE COVENANT

This Drainage Covenant, between [state the name of the present real property owner exactly as shown on the real estate document conveying title to the present owner and state the legal status of the owner, for example, "single person," "husband and wife," "corporation of the State of _____," "partnership":] Union Pension Trust 93-2 NM ("Owner"), whose address is 4411 McLeod Rd, NE Albuquerque, NM 87109, and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner signs this Covenant.

1. Recital. The Owner is the owner of the following described real property located at [give legal description, and street address:] Tract 2a-1 Renaissance Center filed on March 20, 1987 in volume C33, folio 48. Located at Alexander and Renaissance Boulevards. in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain drainage facilities on the Property, and the parties wish to enter into this Covenant to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facility. The Owner shall construct the following "Drainage Facility" within the Property at the Owner's sole expense in accordance with the standards, plans and specifications approved by the City:

Temporary retention pond.

The Drainage Facility is more particularly described in Exhibit A attached hereto and made a part hereof.

3. Maintenance of Drainage Facility. The Owner shall maintain the Drainage Facility at the Owner's sole cost in accordance with the approved Drainage Report and plans.

4. Benefit to Property. The Owner acknowledges and understands that the Drainage Facility required herein to be constructed on the Owner's property is for the private benefit



APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

and protection of the Owner's property and that failure to maintain such facility could result in damage or loss to the Property.

5. Inspection of Drainage Facility. The City shall have no duty or obligation whatsoever to perform any inspection, maintenance or repair of the Drainage Facility, it being the duty of the Owner, its heirs, successors and assigns to construct and maintain the facility in accordance with approved plans and specifications.

6. Liability of City. The Owner understands and agrees that the City shall not be liable to the Owner, its heirs, successors or assigns, or to any third parties for any damages resulting from the Owner's failure to construct, maintain or repair the Drainage Facility.

7. Indemnification. The Owner owns and controls the Drainage Facility and shall not permit the Drainage Facility to constitute a hazard to the health or safety of the general public. The Owner agrees to indemnify, defend and hold harmless the City, its officials, agents and employees, from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of the Owner, its agents, representatives, contractors or subcontractors or arising from the failure of the Owner, its agents, representatives, contractors or subcontractors to perform any act or duty required of the Owner herein; provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the respective indemnitee, or the agents or employees of the respective indemnitee; or (2) the giving of or the failure to give direction or instructions by the respective indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

8. Assessment. Nothing in this Covenant shall be construed to relieve the Owner, its heirs, assigns and successors from an assessment against the Owner's Property for improvements to the Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

9. Binding on Owner's Property. The covenants and obligations of the Owner set forth herein shall be binding on the Owner, its heirs, assigns and successors and on the Owner's Property and constitute covenants running with the Owner's



APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

Property until released by the City. This Covenant can only be released by the City's Chief Administrative Officer with the concurrence of the City Engineer.

10. Entire Covenant. This Covenant contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

11. Changes to Covenant. Changes to this Covenant are not binding unless made in writing, signed by both parties.

12. Effective Date of Covenant. This Covenant shall be effective as of the date of signature of the Owner.

OWNER: Norwest Bank New Mexico NA Tr

By: George H. Kuhn
Its: SENIOR VICE PRESIDENT
Dated: 3/31/97

STATE OF New Mexico )
) ss
COUNTY OF Bernalillo )

~~The foregoing~~ This instrument was acknowledged before me on ~~this~~ 31st day of March, 19~~8~~97, by [name of person signing:] George H. Kuhn, [title or capacity, for instance, "President" or "Owner":] Senior Vice President of [name of the entity which owns the Property if other than the individual signing, for instance, the name of the corporation, partnership, or joint venture:] Norwest Bank New Mexico NA.

Donna J. Bohannan
Notary Public

My Commission Expires:
3-26-2000

CITY OF ALBUQUERQUE:

Accepted:

By: _____
Title: _____
Dated: _____

[EXHIBIT A ATTACHED]


APPROVED AS TO FORM
LEGAL DEPT. 8/19/88

**EASEMENT DESCRIPTION:**
**TEMPORARY PONDING EASEMENT FOR TRACT 2A-1, RENAISSANCE CENTER.**
**PAGE 1 OF 1**

**SAID EASEMENT SITUATED WITHIN LOT 2A-1B OF TRACT 2A-1, RENAISSANCE CENTER, WITHIN THE ELENA GALLEGOS GRANT PROJECTED SECTION 34, TOWNSHIP 11 NORTH, RANGE 3 EAST, N.M.P.M., CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS SHOWN AND DESIGNATED ON SAID PLAT FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO, NEW MEXICO, ON MARCH 20, 1987, IN VOLUME C33, FOLIO 48, AND BEING MORE DESCRIBED AS FOLLOWS:**

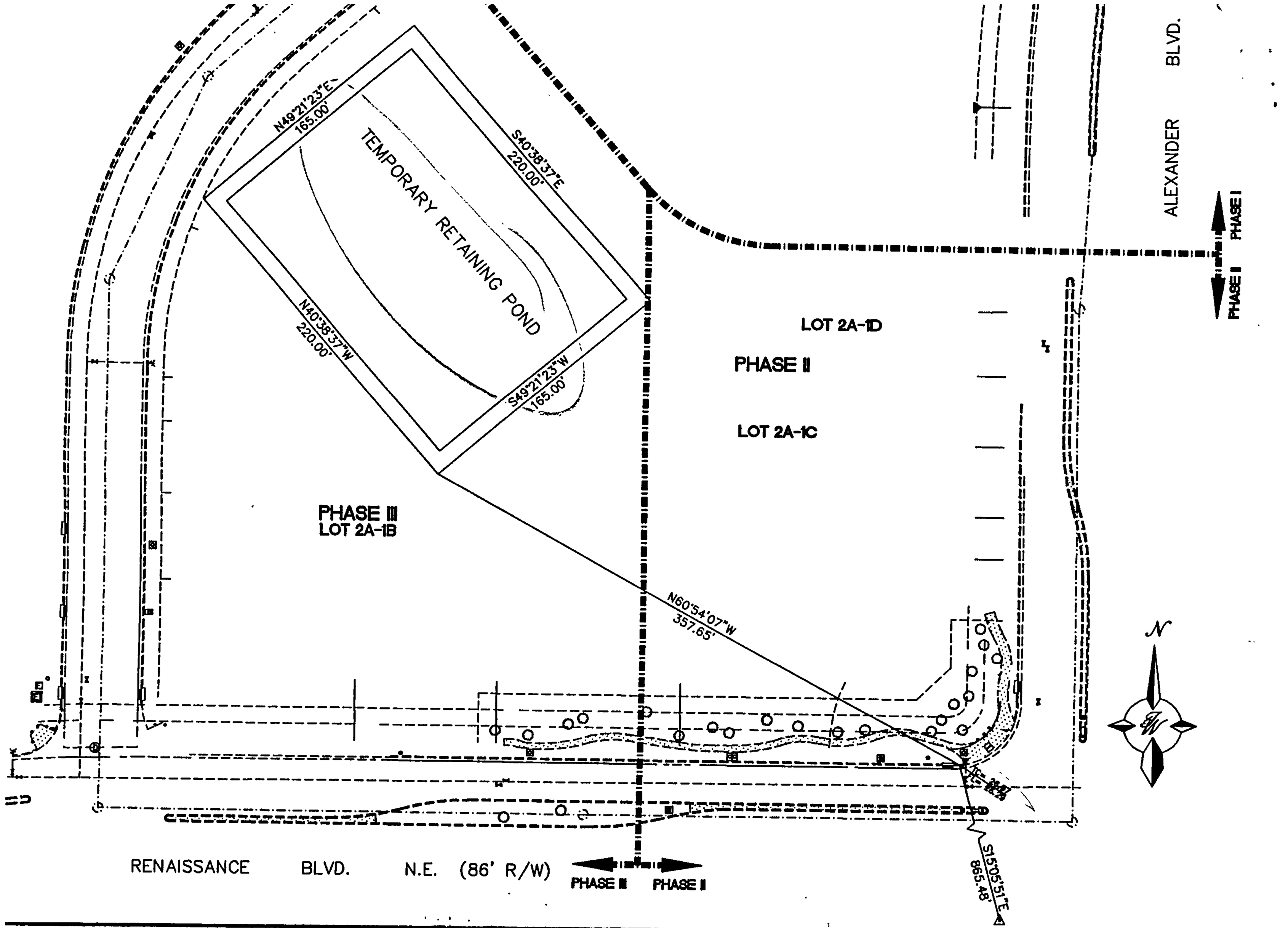
**BEGINNING AT THE SOUTHEAST CORNER OF TRACT 2A-1, PROJECT BENCHMARK, FROM WHENCE A TIE TO MONUMENT "2-F16" BEARS S15°05'51"E, 865.48 FEET;**

**THENCE, N60°54'07"W, 357.65 FEET TO THE SOUTHWEST CORNER OF SAID PONDING EASEMENT;**

**THENCE, N49°21'23"E, 165.00 FEET TO THE NORTHWEST CORNER OF SAID PONDING EASEMENT;**

**THENCE, S40°38'37"E, 220.00 FEET TO THE NORTHEAST CORNER OF SAID PONDING EASEMENT;**

**THENCE, S49°21'23"W, 165.00 FEET TO THE SOUTHEAST CORNER OF SAID PONDING EASEMENT, POINT OF BEGINNING OF PONDING EASEMENT DESCRIBED HEREIN, CONTAINING ±0.8276 ACRES MORE OR LESS.**


TEMPORARY RETAINING POND
N49°21'23"E
165.00'
S40°38'37"E
220.00'
N40°38'37"W
220.00'
S49°21'23"W
165.00'
ALEXANDER BLVD.
PHASE I
PHASE II
LOT 2A-1D
PHASE II
LOT 2A-1C
PHASE III
LOT 2A-1B
N60°54'07"W
357.65'
S15°05'51"E
865.48'
RENAISSANCE BLVD. N.E. (86' R/W)
PHASE II
PHASE II
N
W

# EXHIBIT 'A'

# DRAINAGE REPORT

for

# Electricians Union Hall

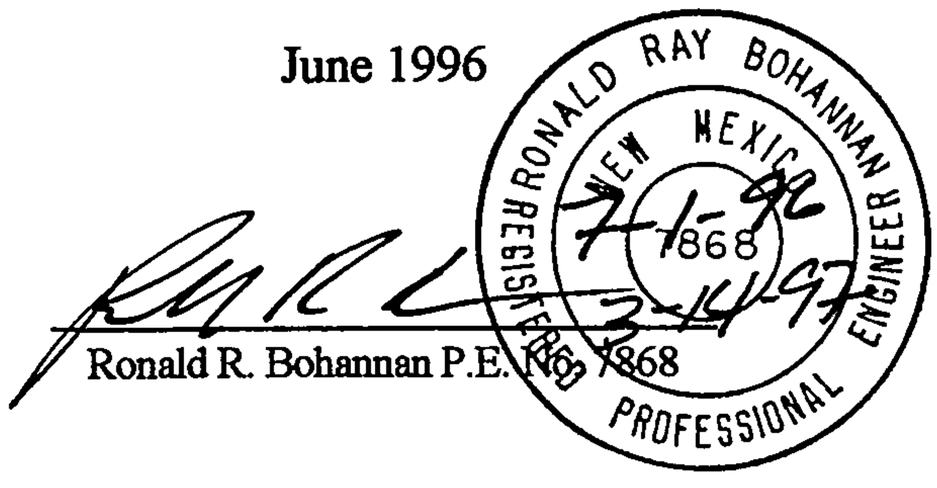
Prepared by

Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

James K. Trump, Jr.
Build New Mexico
1516 San Pedro Ne
Albuquerque, New Mexico 87110

June 1996




Ronald R. Bohannan P.E. No. 7868

**Location**

Tract 2A-1 is located in the North Renaissance Center west of Alexander Boulevard, north of Renaissance Boulevard. A vacated easement is located to the west which will be dedicated back to the City under the proposed name Union Hall Boulevard. The site has been highlighted as shown on the attached Zone Atlas Map F-16 contains approximately 6.377 acres.

The proposed project has two phases of development, a retail use in Phase 2 and a Union Hall or office development in Phase 1. Phase 1 will comprise of the construction of the IBEW Union Hall which is approximately 18,500 SF and will occupy 2.077 acres on the north end of the site. Phase 2 is a retail center containing approximately 36,000 SF located on the balance of the property and occupying 4.30 acres.

**Existing Drainage Conditions**

The site is currently undeveloped. There is one existing basin on the site. This basin has an undeveloped runoff flow of 14.7 cfs and sheet flows southeast to the corner of Alexander and Renaissance Blvd. The site is part of the Renaissance Master Drainage Plan which states that only 0.1 cfs/acre can be discharged from the site. The site is 6.377 acres total, consequently, 0.638 cfs of runoff is allowed for the site.

**FEMA Map and Soil Conditions**

The site is located on FEMA Map section 350002 panel 16 as shown on the attached excerpt. The map shows the site does not lie within any 100 year flood plains.

According to the Soil Conservation Service Survey of Bernalillo County Sheet Number 21 the site contains two soil types. These are a Wink-Embudo complex and a Bluepoint-Kokan

association. The Wink-Embudo complex has a moderate hazard of water erosion and medium runoff. The Bluepoint-Kokan association has slow runoff and moderate to severe hazard of water erosion. However, the site is the location of an old gravel pit and the existing soils are a blend of native materials.

**On-Site Drainage Management Plan**

The site has been divided into seven proposed basins in order to pond and control the rate of runoff. The basin delineation is shown on the attached basin layout and on the Grading and Drainage plan. Two proposed storm drain lines collect the flows from the seven ponds and convey the runoff to the existing storm sewer in Renaissance Boulevard. The release rate will be controlled by orifice plates on each pond. The combined discharge for the two routes is 0.53 cfs which is less than 0.638 cfs and within the guidelines established by the Renaissance Master Drainage Plan.

The site is being developed in three phases. Phase 1 will build the northern section of the site and the accompanying storm sewer lines. The entire storm sewer will not be built until phases II and III are constructed. In the interim, a temporary retention pond will be built on Phase III. The storm drain from the IBEW portion of the site will discharge to the retention pond. The pond was designed using the 100-year, 10-day volume. The pond will have capacity for 1.5311 ac-ft which is more than the 1.4860 ac-ft required.

*Overall*

There are seven basins in the overall drainage plan. Each basin will have an accompanying pond. The ponds will control the release rate to less than or equal to 0.638 cfs. All the pipes will have a velocity of at least 2.0 fps to allow scouring to occur. In case of events larger than an 100

year storm the water will overflow out the entrances into Union Hall and Alexander Boulevards.

Shown on the attached figure is a schematic of the pond locations and routing.

The following is a tabulation of the routing used to collect the flows:

Route 1

Pond 1 will drain to pond 2 at a rate of 0.05 cfs limited by a 2" orifice plate on a 4" pipe.

Pond 2 will drain to pond 3 at a rate of 2.29 cfs limited by a 6" pipe.

Pond 7 will drain to pond 6 at a rate of 0.17 cfs limited by a 2" orifice plate on a 4" pipe.

Pond 6 will drain to pond 3 at a rate of 1.60 cfs limited by a 5" orifice plate on a 6" pipe.

Pond 3 will drain to pond 4 at a rate of 3.59 cfs limited by a 7" orifice plate on a 8" pipe.

Pond 4 will drain to a proposed drop inlet at a rate of 0.33 cfs limited by a 2" orifice plate on a 8" pipe.

Route 2

Pond 5 will drain to a proposed drop inlet at a rate of 0.2 cfs limited by a 2" orifice plate on a 4" pipe.

Pond 4 and pond 5 will discharge into a proposed drop inlet which will be connected to an existing drop inlet in Renaissance Boulevard by a 12" RCP pipe. The combined discharge from the two ponds is 0.53 cfs which is less than the allowable discharge of 0.638 cfs.

*Phase 1*

Phase 1 will consist of Basin 1 and portions of Basins 2, 5, and 6. Basin 1 will drain to catch basin 1. Basins 2, 5 and 6 will drain from the developed portion of the basin to the undeveloped portion into catch basins 2, 5, and 6. The grate at the catch basins within the undeveloped section of the site will be six inches above the bottom of the pond in order for the runoff to drop all the sediment prior to discharging into the storm sewer system. A 50%

clogging factor was used in the design of the catch basins.

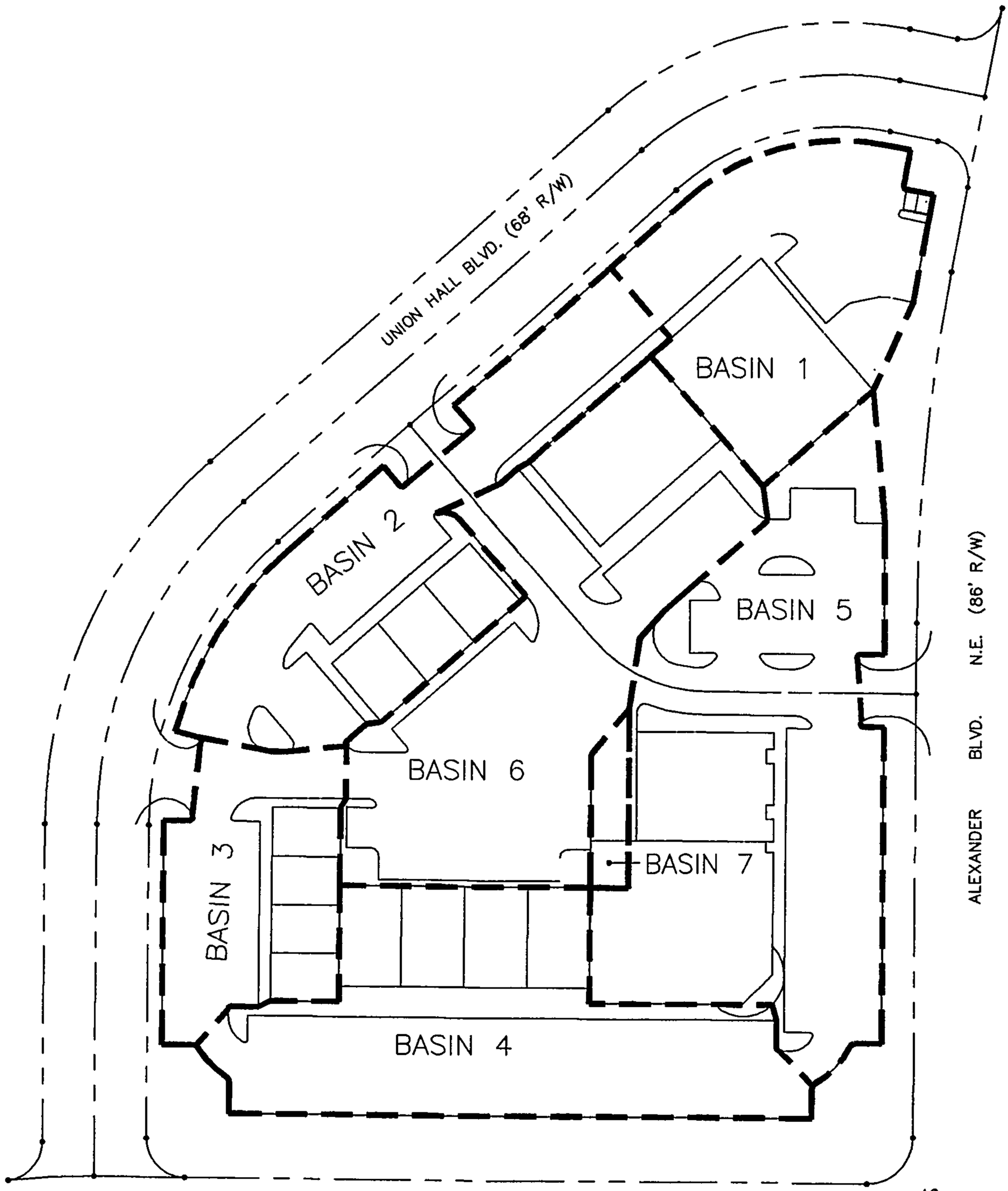
**Summary**

*Phase 1*

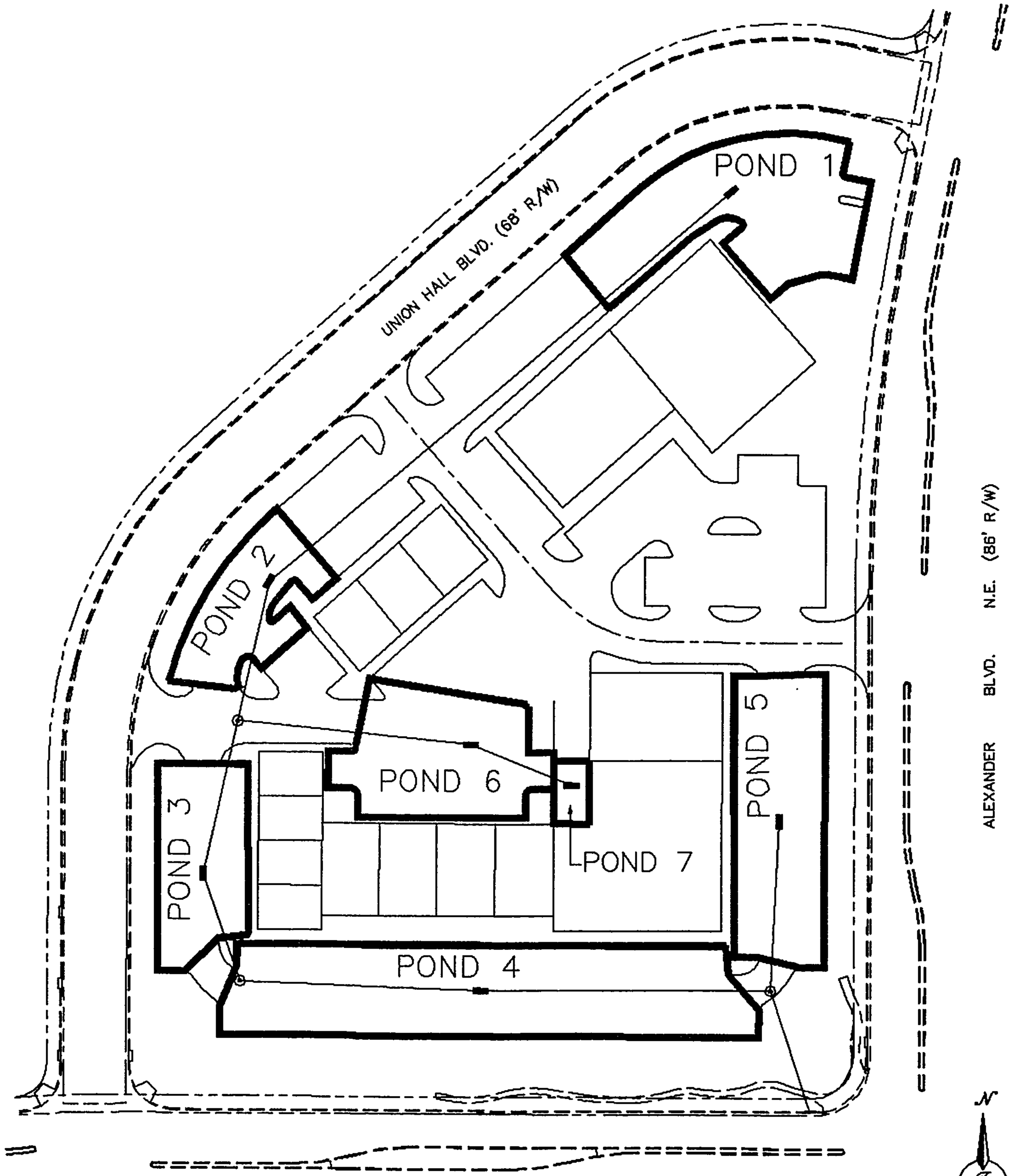
Basin 1 will drain into the proposed storm drain system. The remainder of the developed portion of Phase 1 will drain to the undeveloped (Phase III) portion of the project and collected in a temporary retention pond. The pond will have capacity of 1.5311 ac-ft and was designed using the 100-year, 10-day storm.

*Phase 2*

The entire storm drain system will be built and the temporary retention pond removed. The site will be divided into seven basins. There will be two different storm drain routes. The routes will have a combined discharge of 0.53 cfs which is within the guidelines of the Renaissance Master Drainage Plan.




# PROPOSED BASINS




# PROPOSED PONDS

## RUNOFF CALCULATIONS

The site is @ Zone 2

## LAND TREATMENT

*Existing*
B = 100 %

*Proposed*
Phase 1
Varies with each basin

Phase 2
D = 90 %
B = 10 %

## DEPTH (INCHES) @ 100-YEAR STORM

$P_{60}$ = 2.01 inches

$P_{360}$ = 2.35 inches

$P_{1440}$ = 2.75 inches

## DEPTH (INCHES) @ 10-YEAR STORM

$P_{60}$ = 2.01 x 0.667
= 1.34 inches

$P_{360}$ = 1.57

$P_{1440}$ = 1.83

See the summary output from AHYMO calculations.

Also see the following summary tables.

# DRAINAGE BASINS

## EXISTING

Undeveloped:

*DRAINAGE BASINS*

| BASIN | AREA (SF) | AREA (AC) | AREA ($MI^2$) |
|---|---|---|---|
| 1 | 277768.00 | 6.3767 | 0.009964 |

*BASINS RUNOFF CALCULATION RESULTS*

| BASIN | Q-100 CFS | Q-10 CFS | V-100 AC-FT | V-10 AC-FT |
|---|---|---|---|---|
| 1 | 14.7 | 6.02 | 0.414 | 0.148 |

## PROPOSED

Developed:

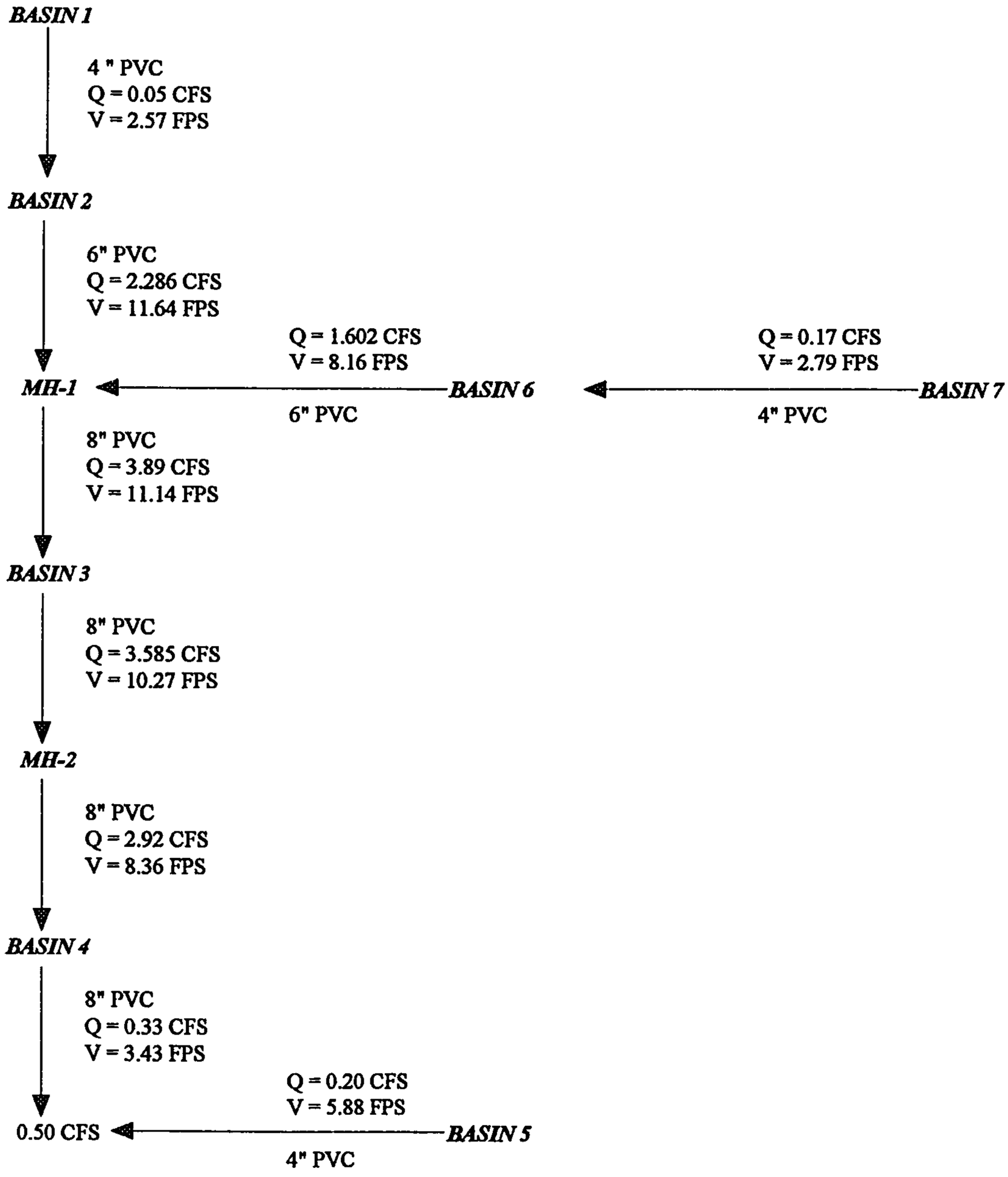
*DRAINAGE BASINS*

| BASIN | AREA (SF) | AREA (AC) | AREA ($MI^2$) |
|---|---|---|---|
| 1 | 29028.64 | 0.6664 | 0.001041 |
| 2 | 33461.28 | 0.7682 | 0.001200 |
| 3 | 19198.62 | 0.4407 | 0.000689 |
| 4 | 39847.89 | 0.9148 | 0.001429 |
| 5 | 56321.58 | 1.2930 | 0.002020 |
| 6 | 46363.40 | 1.0644 | 0.001663 |
| 7 | 2501.43 | 0.0574 | 0.000090 |

*BASINS RUNOFF CALCULATION RESULTS*

| BASIN | Q-100 CFS | Q-10 CFS | V-100 AC-FT | V-10 AC-FT |
|---|---|---|---|---|
| 1 | 3.01 | 1.95 | 0.120 | 0.075 |
| 2 | 3.46 | 2.24 | 0.138 | 0.086 |
| 3 | 2.00 | 1.29 | 0.080 | 0.050 |
| 4 | 3.65 | 2.67 | 0.146 | 0.103 |
| 5 | 4.12 | 3.77 | 0.165 | 0.145 |
| 6 | 4.79 | 3.10 | 0.192 | 0.120 |
| 7 | 0.27 | 0.17 | 0.010 | 0.006 |

# ***RUNOFF FLOW PATH***



Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: SAMPLE VELOCITY FOR PIPE NOT FLOWING FULL

Solve For Actual Depth

Given Input Data:

| | |
|---|---|
| Diameter..... | 0.33 ft |
| Slope..... | 0.0511 ft/ft |
| Manning's n..... | 0.010 |
| Discharge..... | 0.20 cfs |

Computed Results:

| | |
|---|---|
| Depth..... | 0.14 ft |
| Velocity..... | 5.88 fps |
| Flow Area..... | 0.03 sf |
| Critical Depth.... | 0.25 ft |
| Critical Slope.... | 0.0079 ft/ft |
| Percent Full..... | 41.94 % |
| Full Capacity..... | 0.54 cfs |
| QMAX @.94D..... | 0.59 cfs |
| Froude Number..... | 3.20 (flow is Supercritical) |

Open Channel Flow Module, Version 3.12 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

# *SAMPLE VELOCITY CALCULATIONS*

<u>Sample velocity calculation for storm drain lines running full.</u>

Storm drain line between Basin 1 and Basin 2:
Q = 2.286 cfs (from AHYMO ponding output)
A = 0.196 $ft^2$

**V = Q/A**
**V = 2.286/0.196**
**V = 11.64 ft/s**

# *DROP INLET CALCULATIONS*

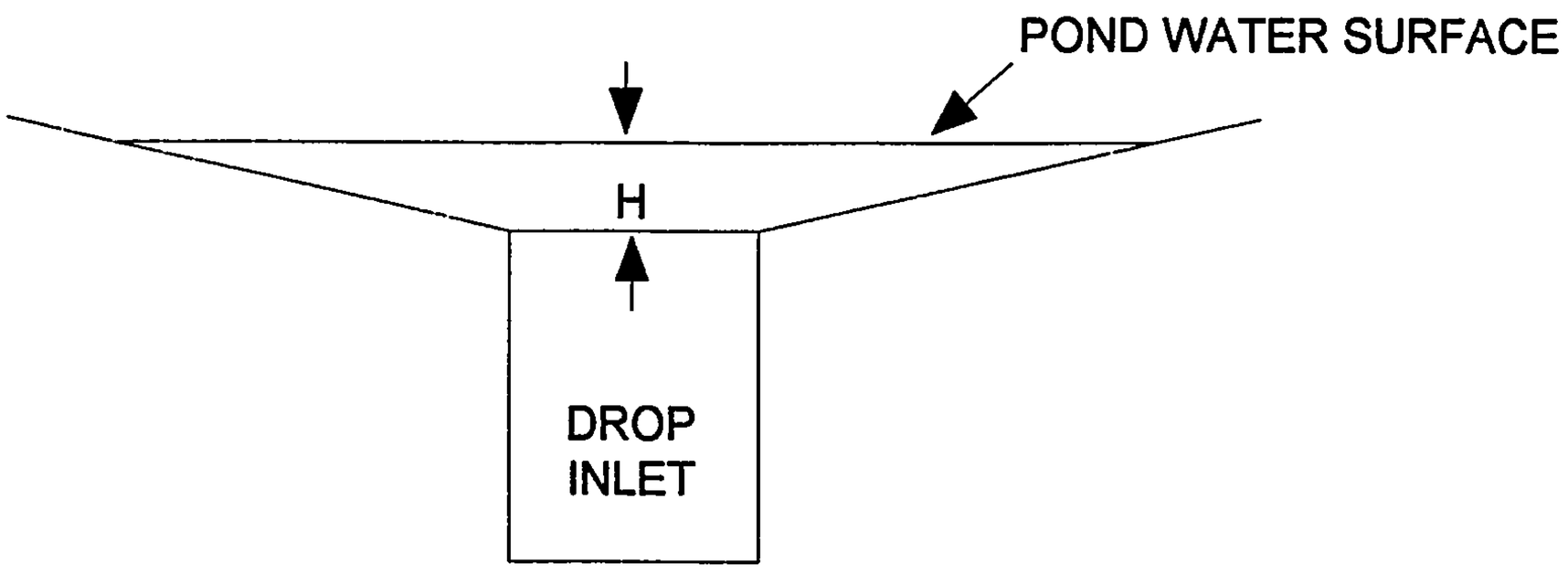
ORIFICE EQUATION
(DPM, SECTION 22.3)

$$Q = CA\ \sqrt{2gH}$$

C = 0.6
g = 32.2

## OVERALL

| POND | AREA (SF) | Q (CFS) | H (FT) | H ALLOW (FT) |
|---|---|---|---|---|
| 1 | 2.30 | 3.01 | 0.0739 | 1.2 |
| 2 | 2.30 | 3.46 | 0.0976 | 0.65 |
| 3 | 2.30 | 2 | 0.0326 | 0.7 |
| 4 | 2.30 | 3.65 | 0.1086 | 1.8 |
| 5 | 2.30 | 4.12 | 0.1384 | 1.4 |
| 6 | 2.30 | 4.79 | 0.1871 | 0.88 |
| 7 | 2.30 | 0.27 | 0.0006 | 0.18 |




SKETCH OF DROP INLET

STORM DRAIN INLET- EFFECTIVE AREA
(SINGLE 'D')

Area at the grate:

L = 38.375" - 7 (1/2") $_{\text{middle bars}}$
= 34.875 inches
= 2.906 feet

W = 25.5" - 13 (1/2") $_{\text{middle bars}}$
= 19 inches
= 1.583 feet

Area = 1.583 x 2.906
= 4.601 $ft^2$

Effective Area = 4.601 - 0.5 (4.601) $_{\text{Clogging Factor}}$
= 2.30 $ft^2$ at the grate

# *PROPOSED PONDS*

## OVERALL

| POND | AREA (SF) | AREA (AC) | AREA ($MI^2$) |
|---|---|---|---|
| 1 | 15233.30 | 0.3497 | 0.000546 |
| 2 | 7053.24 | 0.1619 | 0.000253 |
| 3 | 8429.28 | 0.1935 | 0.000302 |
| 4 | 23400.35 | 0.5372 | 0.000839 |
| 5 | 12710.35 | 0.2918 | 0.000456 |
| 6 | 11449.68 | 0.2628 | 0.000411 |
| 7 | 1094.91 | 0.0251 | 0.000039 |

| POND | DROP INLET | ORIFICE DIAMETER (IN) | MAX WT. HEIGHT (FT) | OUTFLOW (CFS) |
|---|---|---|---|---|
| 1 | Single 'D' | 1 | 42.656 | 0.048 |
| 2 | Single 'D' | 6 | 35.706 | 2.286 |
| 3 | Single 'D' | 7 | 35.793 | 3.585 |
| 4 | Single 'D' | 2 | 35.679 | 0.330 |
| 5 | Single 'D' | 2 | 35.310 | 0.203 |
| 6 | Single 'D' | 5 | 36.278 | 1.602 |
| 7 | Single 'D' | 2 | 33.005 | 0.167 |

# ***POND 1 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 15,233.30 |
| Dt = | 1.20 |
| C = | 12688.75 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 39.33 | 0 | 0 | 0.0000 |
| 41.83 | 2.5 | 0.0004 | 0.0412 |
| 41.93 | 2.6 | 0.0018 | 0.0420 |
| 42.03 | 2.7 | 0.0062 | 0.0428 |
| 42.13 | 2.8 | 0.0135 | 0.0436 |
| 42.23 | 2.9 | 0.0237 | 0.0444 |
| 42.33 | 3 | 0.0368 | 0.0452 |
| 42.43 | 3.1 | 0.0528 | 0.0459 |
| 42.53 | 3.2 | 0.0718 | 0.0467 |
| 42.63 | 3.3 | 0.0936 | 0.0474 |
| 42.73 | 3.4 | 0.1184 | 0.0481 |
| 42.83 | 3.5 | 0.1460 | 0.0488 |
| 42.93 | 3.6 | 0.1766 | 0.0495 |
| 43.03 | 3.7 | 0.2101 | 0.0502 |

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 1 |
| Area (ft^2)= | 0.005454 |
| g = | 32.2 |
| H (ft) = | Depth of water above center of orifice |
| Q (cfs)= | Flow |

# ***POND 2 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 7,053.24 |
| Dt = | 0.65 |
| C = | 10840.68 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 29.61 | 0 | 0 | 0.000 |
| 35.40 | 5.79 | 0.0009 | 2.225 |
| 35.50 | 5.89 | 0.0021 | 2.245 |
| 35.60 | 5.99 | 0.0059 | 2.265 |
| 35.70 | 6.09 | 0.0121 | 2.285 |
| 35.80 | 6.19 | 0.0208 | 2.304 |
| 35.90 | 6.29 | 0.0320 | 2.323 |
| 36.00 | 6.39 | 0.0457 | 2.343 |
| 36.05 | 6.44 | 0.0535 | 2.352 |

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 6 |
| Area (ft^2)= | 0.19635 |
| g = | 32.2 |
| H (Ft) = | Depth of water above center of orifice |
| Q (CFS)= | Flow |

# ***POND 3 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 8,429.28 |
| Dt = | 0.70 |
| C = | 12032.11 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 27.74 | 0 | 0 | 0.000 |
| 35.15 | 7.41 | 0.0012 | 3.433 |
| 35.25 | 7.51 | 0.0025 | 3.457 |
| 35.35 | 7.61 | 0.0067 | 3.481 |
| 35.45 | 7.71 | 0.0136 | 3.505 |
| 35.55 | 7.81 | 0.0233 | 3.528 |
| 35.65 | 7.91 | 0.0357 | 3.552 |
| 35.75 | 8.01 | 0.0509 | 3.575 |
| 35.85 | 8.11 | 0.0688 | 3.598 |

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 7 |
| Area (ft^2)= | 0.267254 |
| g = | 32.2 |
| H (ft) = | Depth of water above center of orifice |
| Q (cfs)= | Flow |

# ***POND 4 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 23,400.35 |
| Dt = | 1.80 |
| C = | 12996.42 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 25.73 | 0 | 0 | 0.000 |
| 33.90 | 8.17 | 0.0013 | 0.299 |
| 34.10 | 8.37 | 0.0072 | 0.302 |
| 34.30 | 8.57 | 0.0251 | 0.306 |
| 34.50 | 8.77 | 0.0550 | 0.310 |
| 34.70 | 8.97 | 0.0967 | 0.313 |
| 34.90 | 9.17 | 0.1505 | 0.317 |
| 35.10 | 9.37 | 0.2161 | 0.320 |
| 35.30 | 9.57 | 0.2937 | 0.324 |
| 35.50 | 9.77 | 0.3832 | 0.327 |
| 35.70 | 9.97 | 0.4846 | 0.330 |

<u>Orifice Equation</u>
$Q = CA\ SQRT(2gH)$

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 2 |
| Area (ft^2)= | 0.021817 |
| g = | 32.2 |
| H (Ft) = | Depth of water above center of orifice |
| Q (CFS)= | Flow |

# ***POND 5 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 12,710.35 |
| Dt = | 1.40 |
| C = | 9073.97 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 31.5 | 0 | 0 | 0.000 |
| 34.00 | 2.5 | 0.0004 | 0.163 |
| 34.10 | 2.6 | 0.0014 | 0.167 |
| 34.20 | 2.7 | 0.0046 | 0.170 |
| 34.30 | 2.8 | 0.0098 | 0.173 |
| 34.40 | 2.9 | 0.0171 | 0.176 |
| 34.50 | 3 | 0.0264 | 0.179 |
| 34.60 | 3.1 | 0.0379 | 0.182 |
| 34.70 | 3.2 | 0.0514 | 0.185 |
| 34.80 | 3.3 | 0.0670 | 0.188 |
| 34.90 | 3.4 | 0.0848 | 0.191 |
| 35.00 | 3.5 | 0.1045 | 0.194 |
| 35.10 | 3.6 | 0.1264 | 0.197 |
| 35.20 | 3.7 | 0.1504 | 0.200 |
| 35.30 | 3.8 | 0.1764 | 0.203 |
| 35.40 | 3.9 | 0.2045 | 0.205 |

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 2 |
| Area (ft^2)= | 0.021817 |
| g = | 32.2 |
| H (ft) = | Depth of water above center of orifice |
| Q (cfs)= | Flow |

# ***POND 6 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 11,449.68 |
| Dt = | 0.75 |
| C = | 15257.18 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 30.11 | 0 | 0 | 0.000 |
| 35.69 | 5.58 | 0.0009 | 1.522 |
| 35.79 | 5.68 | 0.0026 | 1.536 |
| 35.89 | 5.78 | 0.0079 | 1.550 |
| 35.99 | 5.88 | 0.0166 | 1.564 |
| 36.09 | 5.98 | 0.0289 | 1.577 |
| 36.19 | 6.08 | 0.0447 | 1.591 |
| 36.29 | 6.18 | 0.0639 | 1.604 |
| 36.39 | 6.28 | 0.0867 | 1.618 |
| 36.44 | 6.33 | 0.0994 | 1.624 |

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 5 |
| Area (ft^2)= | 0.136354 |
| g = | 32.2 |
| H (Ft) = | Depth of water above center of orifice |
| Q (CFS)= | Flow |

# ***POND 7 VOLUME CALCULATIONS***

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

$$Volume = Ab * D + 0.5 * C * D^2$$

$$C = (At - Ab) / Dt$$

| | |
|---|---|
| Ab = | 6.80 |
| At = | 1,094.91 |
| Dt = | 0.18 |
| C = | 6045.06 |

| ACTUAL ELEV. | DEPTH (FT) | VOLUME (AC-FT) | Q (CFS) |
|---|---|---|---|
| 30.39 | 0 | 0 | 0.000 |
| 32.89 | 2.5 | 0.0004 | 0.163 |
| 32.99 | 2.6 | 0.0011 | 0.167 |
| 33.07 | 2.68 | 0.0026 | 0.169 |

Orifice Equation
Q = CA SQRT(2gH)

| | |
|---|---|
| C = | 0.6 |
| Diameter (in | 2 |
| Area (ft^2)= | 0.021817 |
| g = | 32.2 |
| H (Ft) = | Depth of water above center of orifice |
| Q (CFS)= | Flow |

# *VOLUME CALCULATIONS FOR 10-DAY STORM*

ZONE = 2

**DRAINAGE BASINS**

| BASIN | AREA (SF) | AREA (AC-FT) | AREA ($MI^2$) |
|---|---|---|---|
| 1 thru 7 | 226722.84 | 5.20484 | 0.008133 |

$$E = \frac{EA(AA) + EB(AB) + EC(AC) + ED(AD)}{AA + AB + AC + AD}$$

V-360 = E (AA + AB + AC + AD) / 12 in/ft

V-10 Day = V-360 + AD (P-10 Day - P-360) / 12 in/ft

EA = 0.53
EB = 0.78
EC = 1.13
ED = 2.12

AA = 0.00%
AB = 10.00%
AC = 0.00%
AD = 90.00%

P-60 = 2.01
P-360 = 2.35
P-1440 = 2.75
P-10 Day = 3.95

| | | |
|---|---|---|
| **E =** | **1.9860** | **IN** |
| **V-360 =** | **0.8614** | **AC-FT** |
| **AD =** | **4.6844** | **AC** |
| **V-10 Day =** | **1.4860** | **AC-FT** |
| **V-10 DAY =** | **64729.37** | **CF** |

V102.WK4

# RETENTION POND

| | BASIN 1 |
|---|---|
| | 220 x 165 4:1 slope |
| Area of Pond Top (SF) | 36300.00 |
| Area of Pond Bottom (SF) | 30396.00 |
| Depth of Pond (FT) | 2.00 |
| Volume (CF) | 66696.00 |
| Volume (AC-FT) | 1.5311 |
| Volume Required (CF) | 64729.37 |
| Volume Required (AC-FT) | 1.4860 |
| Volume Provided (CF) | 66696 |
| **Volume Provided (AC-FT)** | **1.5311** |

# Emergency Spillway

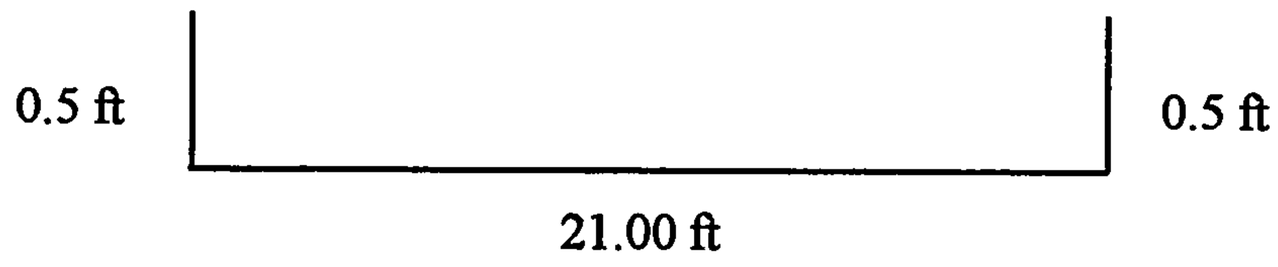
Weir Equation:

$$Q=CLH^{3/2}$$

Q= 21.30 cfs
C = 2.95
H = 0.5 ft
L = Length of weir

$$L=\frac{21.30}{2.95(0.5)^{3/2}}$$

**L = 20.42 ft**
Use 21.00 feet for length of weir



AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =05/24/1996

INPUT FILE = a:e.dat USER NO.= R_BOHANN.I01



| COMMAND | HYDROGRAPH IDENTIFICATION | FROM ID NO. | TO ID NO. | AREA (SQ MI) | PEAK DISCHARGE (CFS) | RUNOFF VOLUME (AC-FT) | RUNOFF (INCHES) | TIME TO PEAK (HOURS) | CFS PER ACRE | NOTATION | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| START | | | | | | | | | | TIME= | .00 |
| RAINFALL TYPE= 2 | | | | | | | | | | RAIN24= | 2.750 |
| COMPUTE NM HYD | 100.10 | - | 1 | .00996 | 14.70 | .414 | .77901 | 1.532 | 2.305 | PER IMP= | .00 |
| START | | | | | | | | | | TIME= | .00 |
| RAINFALL TYPE= 2 | | | | | | | | | | RAIN24= | 1.830 |
| COMPUTE NM HYD | 110.10 | - | 1 | .00996 | 6.02 | .148 | .27917 | 1.532 | .945 | PER IMP= | .00 |
| FINISH | | | | | | | | | | | |

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =07/01/1996

INPUT FILE = A:P.DAT USER NO.= R_BOHANN.I01

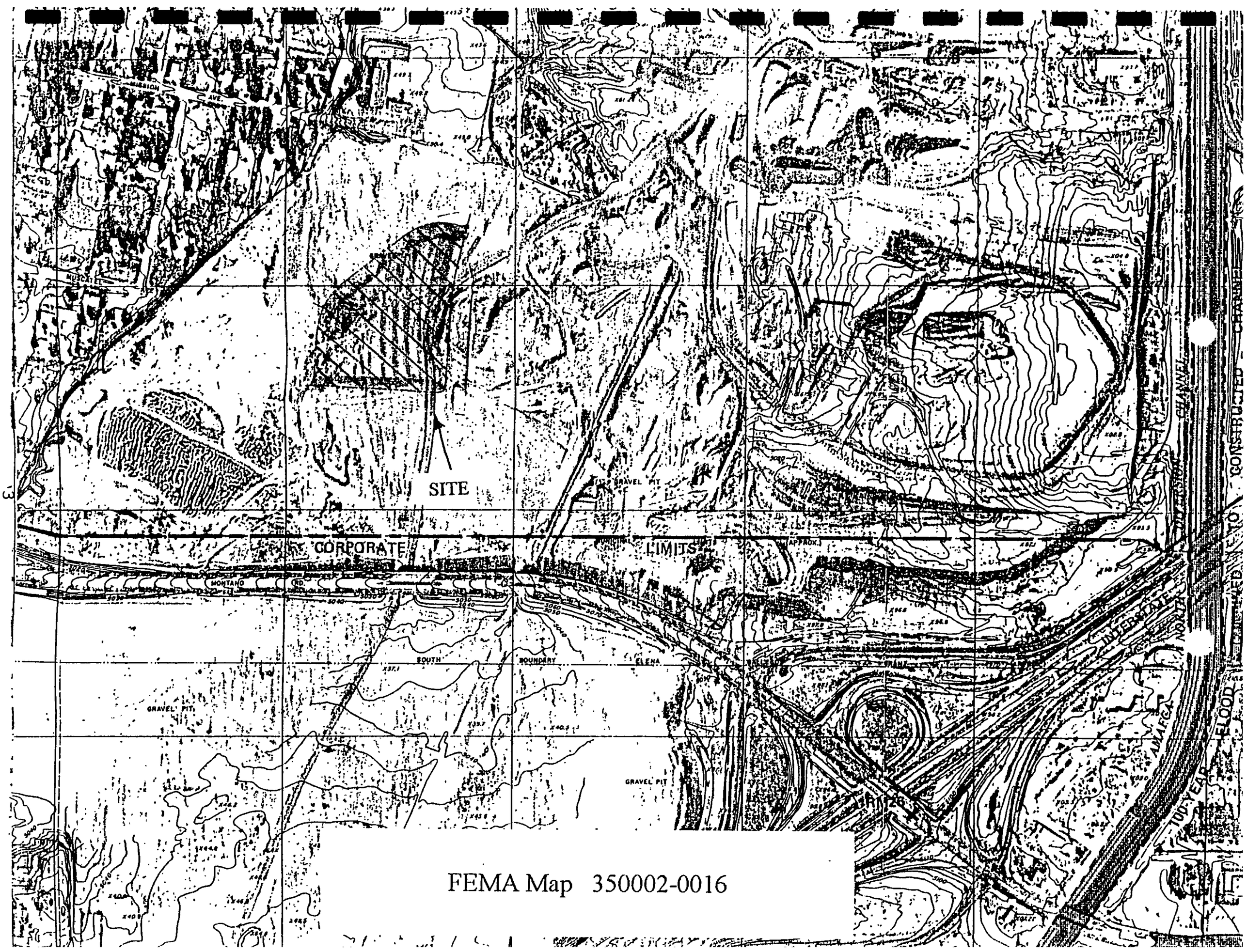


| COMMAND | HYDROGRAPH IDENTIFICATION | FROM ID NO. | TO ID NO. | AREA (SQ MI) | PEAK DISCHARGE (CFS) | RUNOFF VOLUME (AC-FT) | RUNOFF (INCHES) | TIME TO PEAK (HOURS) | CFS PER ACRE | NOTATION | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| START | | | | | | | | | | TIME= | .00 |
| RAINFALL TYPE= 2 | | | | | | | | | | RAIN24= | 2.750 |
| COMPUTE NM HYD | 100.10 | - | 1 | .00104 | 3.01 | .120 | 2.16385 | 1.510 | 4.514 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.20 | - | 1 | .00120 | 3.46 | .138 | 2.16384 | 1.510 | 4.509 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.30 | - | 1 | .00069 | 2.00 | .080 | 2.16388 | 1.510 | 4.529 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.40 | - | 1 | .00126 | 3.65 | .146 | 2.16384 | 1.510 | 4.509 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.50 | - | 1 | .00143 | 4.12 | .165 | 2.16383 | 1.510 | 4.506 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.60 | - | 1 | .00166 | 4.79 | .192 | 2.16382 | 1.510 | 4.503 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 100.70 | - | 1 | .00009 | .27 | .010 | 2.16424 | 1.510 | 4.681 | PER IMP= | 90.00 |
| START | | | | | | | | | | TIME= | .00 |
| RAINFALL TYPE= 2 | | | | | | | | | | RAIN24= | 1.830 |
| COMPUTE NM HYD | 110.10 | - | 1 | .00104 | 1.95 | .075 | 1.35010 | 1.510 | 2.921 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.20 | - | 1 | .00120 | 2.24 | .086 | 1.35009 | 1.510 | 2.919 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.30 | - | 1 | .00069 | 1.29 | .050 | 1.35012 | 1.510 | 2.929 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.40 | - | 1 | .00143 | 2.67 | .103 | 1.35009 | 1.510 | 2.917 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.50 | - | 1 | .00202 | 3.77 | .145 | 1.35008 | 1.510 | 2.913 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.60 | - | 1 | .00166 | 3.10 | .120 | 1.35008 | 1.510 | 2.915 | PER IMP= | 90.00 |
| COMPUTE NM HYD | 110.70 | - | 1 | .00009 | .17 | .006 | 1.35035 | 1.510 | 3.026 | PER IMP= | 90.00 |
| FINISH | | | | | | | | | | | |

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =07/01/1996

INPUT FILE = A:POND.DAT USER NO.= R_BOHANN.I01

| COMMAND | HYDROGRAPH IDENTIFICATION | FROM ID NO. | TO ID NO. | AREA (SQ MI) | PEAK DISCHARGE (CFS) | RUNOFF VOLUME (AC-FT) | RUNOFF (INCHES) | TIME TO PEAK (HOURS) | CFS PER ACRE | PAGE = 1 NOTATION |
|---|---|---|---|---|---|---|---|---|---|---|
| START | | | | | | | | | | TIME= .00 |
| RAINFALL TYPE= 2 | | | | | | | | | | RAIN24= 2.750 |
| COMPUTE NM HYD | 101.10 | - | 1 | .00104 | 2.99 | .127 | 2.27933 | 1.500 | 4.485 | PER IMP= 90.00 |
| ROUTE RESERVOIR | 501.10 | 1 | 2 | .00104 | .05 | .073 | 1.30741 | 2.733 | .071 | AC-FT= .099 |
| COMPUTE NM HYD | 101.20 | - | 3 | .00120 | 3.44 | .146 | 2.27932 | 1.500 | 4.480 | PER IMP= 90.00 |
| ADD HYD | 101.20 | 2& 3 | 1 | .00224 | 3.49 | .218 | 1.82784 | 1.500 | 2.430 | |
| ROUTE RESERVOIR | 501.20 | 1 | 2 | .00224 | 2.29 | .218 | 1.82765 | 1.600 | 1.594 | AC-FT= .013 |
| COMPUTE NM HYD | 101.70 | - | 3 | .00009 | .27 | .011 | 2.27964 | 1.500 | 4.660 | PER IMP= 90.00 |
| ROUTE RESERVOIR | 501.70 | 3 | 4 | .00009 | .17 | .011 | 2.23738 | 1.633 | 2.906 | AC-FT= .001 |
| COMPUTE NM HYD | 101.60 | - | 3 | .00166 | 4.76 | .202 | 2.27930 | 1.500 | 4.473 | PER IMP= 90.00 |
| ADD HYD | 107.60 | 4& 3 | 3 | .00175 | 4.93 | .213 | 2.27713 | 1.500 | 4.390 | |
| ROUTE RESERVOIR | 501.60 | 3 | 4 | .00175 | 1.60 | .213 | 2.27833 | 1.866 | 1.428 | AC-FT= .062 |
| COMPUTE NM HYD | 101.30 | - | 5 | .00069 | 1.98 | .084 | 2.27934 | 1.500 | 4.497 | PER IMP= 90.00 |
| ADD HYD | 102.60 | 4& 2 | 1 | .00399 | 3.88 | .431 | 2.02546 | 1.633 | 1.518 | |
| ADD HYD | 101.30 | 1& 5 | 1 | .00468 | 5.82 | .515 | 2.06281 | 1.500 | 1.942 | |
| ROUTE RESERVOIR | 501.30 | 1 | 2 | .00468 | 3.58 | .515 | 2.06270 | 1.833 | 1.196 | AC-FT= .059 |
| COMPUTE NM HYD | 101.40 | - | 3 | .00143 | 4.09 | .174 | 2.27931 | 1.500 | 4.475 | PER IMP= 90.00 |
| ADD HYD | 103.40 | 2& 3 | 1 | .00611 | 7.61 | .689 | 2.11334 | 1.500 | 1.946 | |
| ROUTE RESERVOIR | 501.40 | 1 | 2 | .00611 | .33 | .504 | 1.54493 | 2.666 | .084 | AC-FT= .474 |
| COMPUTE NM HYD | 101.50 | - | 3 | .00202 | 5.78 | .246 | 2.27930 | 1.500 | 4.470 | PER IMP= 90.00 |
| ROUTE RESERVOIR | 501.50 | 3 | 4 | .00202 | .20 | .246 | 2.27883 | 2.466 | .157 | AC-FT= .179 |
| FINISH | | | | | | | | | | |




FEMA Map 350002-0016

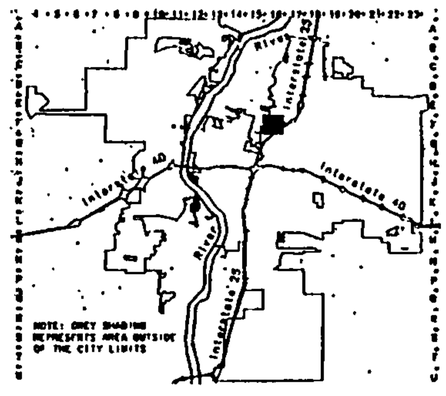
SCALE IN FEET

250 0 500 1000

PHOTOCOPY--NOT TO SCALE

North






LEGAL DESCRIPTION

T11N
R3E
SEC 34

UNIFORM PROPERTY CODE

1-016-061

# F-16-Z