E21/D28A

2 PLANS

INFORMATION SHEET

PROJECT TITLE RETIREMENT CENTER TYPE OF SUBMITTAL DRAINAGE REPORT

ZONE ATLAS PAGE NO. E-21 028 CITY ADDRESS ACADEMY ROAD + ROLLING HILLS DR. SW CORNER

LEGAL DESCRIPTION A PORTION OF THE MEADOWS

ENGINEERING FIRM BOHANNAN HUSTON INC CONTACT DAVE WOODS

ADDRESS 4012 CARLISLE BLVD NE PHONE 881-2000

OWNER FORUM GROUP CONTACT ROYCE HARRELL

ADDRESS 8900 KEYSTONE CROSSING SUITE 120 INDIANAPOLIS IN 46240 PHONE

ARCHITECT H.A.D.C. CONTACT ART COLANGELO

ADDRESS 4515 HARDING RD NASHVILLE TN 87205 PHONE

SURVEYOR CONTACT

ADDRESS PHONE

CONTRACTOR CONTACT

ADDRESS PHONE

PRE-DESIGN MEETING:

___ YES
_X_ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
_X_ OTHER DRAINAGE REPORT APPR (SPECIFY)

DATE SUBMITTED: 7/3/84

BY:

RECEIVED
JUL 03 1984
HYDROLOGY SECTION

RECEIVED
JUL 03 1984
HYDROLOGY SECTION

BOHANNAN-HUSTON INC.
ENGINEERS PLANNERS PHOTOGRAMMETRISTS
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

July 2, 1984

Mr. Fred Aguirre
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Retirement Center/Nursing Home at Academy Road and Rolling Hills Drive

Dear Fred:

Enclosed is a copy of the referenced drainage report. It is in conformance with ***The Meadows Conceptual Grading and Drainage Plan*** prepared by Community Science Corp.

Please review this report for drainage approval. If you have any questions, please call Dave Woods or me.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Joe Vance
Mr. Art Colangelo
Mr. Cleve Matthews

DWW/mw
Job No. 4 183 1

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JUL 03 1984
HYDROLOGY SECTION

RECEIVED
JUL 03 1984
HYDROLOGY SECTION

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHAL M. EMERY, P.E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

August 6, 1984

Mr. Dave Woods
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: DRAINAGE REPORT FOR MEADOWS RETIREMENT CENTER (E21-D28) RECEIVED JULY 3, 1984

Dear Dave:

I have reviewed the above referenced drainage report and the concept of the drainage scheme seems appropriate. However, prior to final approval the following items will need to be addressed:

1. An easement will be required for the discharge at the southwest corner.

2. The downstream capacity has not been quantified to justify the statement that sufficient capacity exists.

3. City approved street grades are required for the dedicated unimproved City streets that abut the site.

4. What will be the 100-year pond elevation should the storm drain for Basin B become plugged? Ponding within 15 feet of a structure is not allowed without an appropriate soils report.

5. Will your client's engineer provide certification of the site because of the .5% slopes in the asphalt areas? This section cannot provide the control required for slopes of this nature and it may result in an added cost to redo areas that don't comply. Otherwise the owner may have to contend with ponding depressions in the asphalt areas.

6. Prior to sign-off of any construction or permit plans, an approved detailed grading plan per the DPM with other appropriate details for swales, rundowns, ponds, inlets, etc. will be required.

Should you have any questions, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:mrk

cc: Forum Group, 8900 Keystone Crossing, Suite 1200 - Indianapolis, IN 46240

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

January 10, 1985

Dave Woods
Bohannan-Huston, Inc.
4125 Carlisle Boulevard, NE
Albuquerque, New Mexico 87107

RE: ALVARADO RETIREMENT CENTER GRADING PLAN (E-21/D28A)
LOCATED AT ACADEMY ROAD & ROLLING HILLS DRIVE, NE
RECEIVED DECEMBER 10, 1984

Mr. Woods:

The referenced plan dated December 12, 1984, is approved.

Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities Within City Right-of-Way" document to the construction set prior to hydrology sign-off.

If I can be of further assistance, please call me at 766-7644.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, C.E.
Design Hydrology Section

BJG/bsj

DRAINAGE INFORMATION SHEET
RESUBMITTAL

PROJECT TITLE: Retirement Center ZONE ATLAS/DRNG. FILE #: E21-D28

LEGAL DESCRIPTION: Tract A-2, The Meadows

CITY ADDRESS: SW corner Academy Road and Rolling Hills Drive

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Dave Woods

ADDRESS: 4125 Carlisle NE, Albuq.NM 87107 PHONE: 881-2000

OWNER: Park West Development CONTACT: Randy Cooper

ADDRESS: 1500 E. Bethany Home Road Phoenix, AZ 85014 PHONE: 602/264-1300

ARCHITECT: Sverdrup and Parcel CONTACT: Jeff McCall

ADDRESS: 1650 W. Alameda Tempe, AZ 85282 PHONE: 602/968-9048

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: Page and Wertz CONTACT: Gary Newhouse

ADDRESS: 5001 Los Angeles NE, Albuq, NM PHONE: 291-9523

RECEIVED
JUL 08 1985
HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____
EPC NO. _____
PROJ. NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
_x_ GRADING PLAN Revised
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
_X_ BUILDING PERMIT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 7/8/85

BY: _____
DAVID WOODS

BOHANNAN-HUSTON INC.
ENGINEERS PLANNERS PHOTOGRAMMETRISTS
4125 CARLISLE BLVD. N. E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N. M. 87509 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

July 2, 1985

RECEIVED
JUL 08 1985
HYDROLOGY SECTION

Mr. Billy Goolsby
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Retirement Center Grading Plan Revisions (E21-D28)

Dear Billy:

Enclosed is a copy of the revised grading plan for the referenced project. Due to architectural changes the grading has been modified. This plan is being submitted for your approval.

The changes include grading on the west side to accomodate a truck high loading dock, a separate retaining wall off the northwest wing of the building, and a spa deck to the east of the building. The addition of the spa does not adversely impact the ponding maximum water surface elevation.

If you have any questions, please call Dave Woods.

Truly yours,

Brian G. Burnett

Brian G. Burnett, P.E.
Vice President

Enclosure

cc: Mr. Randy Cooper
Mr. Jeff McCall

DWW/mls
Job No. 4 276 6

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L. S.
LARRY W. HUSTON
MICHIAL M. EMERY, P. E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

August 1, 1985

David Woods
Bohannan-Huston, Inc.
4125 Carlisle NE
Albuquerque, NM 87107

REF: REVISED DRAINAGE PLAN FOR RETIREMENT CENTER (E21-D28A) REVISION BLOCK DATED JUNE/85

Dear David:

Based on the information provided on your July 8, 1985 resubmittal, the revisions indicated on your revised plan are acceptable.

Please attach a copy of this approved plan along with the appropriately approved "Drainage Facilities Within City Right-of-Way" document to the construction set prior to Hydrology sign-off.

If you have any questions or comments, please feel free to call me at 766-7644.

Sincerely,

Billy J. Goolsby

Billy J. Goolsby, PE
Design Hydrologist

BJG:BJM:mrk

DRAINAGE REPORT
FOR
RETIREMENT CENTER/NURSING HOME

June 1984

PREPARED FOR:

FORUM GROUP INC.
8900 KEYSTONE CROSSING
INDIANAPOLIS, IN 46240

PREPARED BY:

BOHANNAN–HUSTON INC.
4125 CARLISLE BLVD. NE
ALBUQUERQUE, NM 87107

Brian G. Burnett, P.E.
N.M.P.E. No. 6541

RECEIVED
JUL 03 1984
HYDROLOGY SECTION

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Plate 1 — Bernalillo County Soils Map
Plate 2 — Flow Rate Computations
Plate 3 — Flood Hazard Boundary Map
Plate 4 — Drainage and Preliminary Grading Plan
Plate 5 — Basin B Hydraulic Calculations

PURPOSE AND SCOPE

This report addresses the on-site and off-site drainage impacts of development of a retirement/nursing facility. The site is located in the Meadows Residential/Office Complex being develcped by AmeriWest Corporation and is in conformance with its Master Drainage Plan and the City of Albuquerque's Development Process Manual (DPM), Chapter 22, entitled "Drainage and Flood Control". It contains recommendations for satisfactory treatment of upland flows and flows generated on-site.

LOCATION

The site is located in the northeast heights of Albuquerque, New Mexico, at the southwest corner of the intersection of Academy Road and Rolling Hills Drive (see Plate 4). It will be bounded on the west and south by office developments. It contains approximately 8 acres which slope generally to the west at 2-3%.

The soils on the site consist of both Embudo and Tijeras complexes which are both gravelly fine sandy loam and separately gravelly sandy loam and sandy clay loam, respectively. These areas are indicated on Sheet 22 of the Soil Conservation Service's Soil Survey for Bernalillo County and Parts of Sandoval and Valencia Counties (see Plate 1). Both soil types are classified as Hydrologic Soil Group 'B'.

METHOD OF ANALYSIS

The peak flow rates for the undeveloped and developed conditions were established using the rational method as outlined in the DPM. The time of concentration was found to be less than 10 minutes for all basins. Therefore, 10 minutes was used in all computations.

Rainfall intensities were determined by applying Plates 22.2 D-1 and 22.2 D-2 of the DPM. The 100-year intensity was determined to be 5.28 inches/hour and the 10-year intensity is 3.47 inches/hour.

The runoff coefficient was determined independently for each basin based on the impervious area (see Plate 2).

Flow depths and velocities in the paved areas were determined using a Mannings 'n' of 0.017. The depth of flow on-site was found to be below the top of curb in the worst case. Therefore, individual computations are not included in the report.

EXISTING CONDITIONS

As shown in the Meadows conceptual grading and drainage plan, no runoff reaches the site from any upland basins. The site is not in any flood hazard area (see Plate 3). Academy Road intercepts runoff from the north and conveys it to the west where the 10-year flow is picked up by a series of inlets. Any runoff in excess of the 10-year flow is conveyed north in the Eubank Blvd. right-of-way. Rolling Hills Drive intercepts the runoff from the east and conveys it south to Eubank Blvd. which discharges south to the Bear Canyon Tributary Arroyo.

The undeveloped site is divided into two basins. The northern basin (Basin 1) discharges 9.5 cfs northwest to the intersection of Eubank Blvd. and Academy Road where it is conveyed north to the Pino Arroyo within the graded extension of Eubank Blvd. The southern basin (Basin 2) discharges 4.8 cfs as sheet flow west to Eubank Blvd. (see Plate 4). This runoff is conveyed south in Eubank Blvd. to the Bear Canyon Tributary Arroyo.

DEVELOPED CONDITIONS

This report assumes the improvements specified by SAD 205 and the Meadows construction drawings are in place prior to completion of the project.

In the developed condition, no significant on-site ponding will take place. The direction of developed runoff will be substantially similar to that of the undeveloped runoff (see Plate 4).

The 100-year discharge to Academy Road will be increased to 20.8 cfs. The site is sufficiently near the inlets in Academy Road that the majority of this runoff should enter the storm drain prior to the arrival of the Academy Road peak runoff.

The 100-year discharge from Basin C is decreased from the undeveloped runoff to 4.3 cfs. It will be discharged from the site's south access road and be conveyed over undeveloped land to Eubank Blvd. Upon completion of the improvements to the west, this runoff will be contained within paved areas on its course to Eubank Blvd.

INTERNAL DRAINAGE

All the on-site runoff will be directed away from the building and collected and conveyed within the drive areas to the discharge points.

Basin A

The runoff within Basin A (Q_{100}= 18.6 cfs) will be conveyed north and west within the drive areas and discharged to Academy Road through an appropriately sized concrete rundown. The runoff from Basin B will combine with the Basin A runoff for a peak flow rate of 20.8 cfs.

Basin B

Since the building covers most of the site and is required to be at a single grade, it will be necessary to install a small private storm drain to collect the runoff east of the building (Basin B). The basin size has been minimized to keep the size of the storm drain to a minimum. The storm drain will accept runoff at the circle drive east of the building, convey it under the building, and discharge it to the west drive area (Basin A). The capacity of the storm drain (2.2 cfs) is less than the peak runoff created by the basin. Some minor ponding (561 cf) will occur during the 100-year storm (see Plate 5 for computations). This ponding will be very localized and drain off within 33 minutes. During the 10-year storm, no ponding will occur since the pipe capacity is greater than 10-year peak flow rate. A larger pipe size will eliminate the ponding altogether.

Basin C

The runoff from Basin C (Q_{100}=4.3 cfs) will be conveyed south and west within the drive areas and will discharge south to currently undeveloped land through the south access road.

EROSION CONTROL

During the construction phase of the project, an 18" high wind row should be constructed across the south entrance to desilt the runoff from Basin C. This wind row may be removed upon completion of the on-site paving. To prevent erosion of the end of the completed south access road, a cutoff wall and a 1-foot deep by 10-foot wide pit run gravel blanket should be installed at the end of the asphalt.

Prior to installation of the rundown to Academy Road, a temporary swale shall be constructed to convey the runoff from Basins A and B to the small existing arroyo near the road. Upon completion of the rundown and prior to installation of the pavement on-site, the subgrade at the rundown shall be 6" below the invert of the rundown to create a temporary desilting basin. No detention facility will be required upon completion of the paved facilities.

The site will be landscaped with non-erosive surfaces consisting of gravels and sod.

CONCLUSIONS AND RECOMMENDATIONS

This study indicates the project may be designed to drain effectively and economically. The capacity of the downstream facilities is adequate to allow free discharge from the site. To provide an effective drainage solution, the following recommendations should be implemented:

1. Provide 8" high water blocks at the northern and two eastern entrances.

2. Grade the site similar to Plate 3 using .5% slopes and 1% slopes as the minimum slopes in the paved areas and unpaved areas respectively. Grades should be controlled very closely on these slopes.

3. Install the 12" DIP storm drain in Basin B along with the project rough grading. A larger pipe may be installed if the slight ponding within Basin B is considered undesirable. This pipe shall be maintained by the developer.

4. Install a 1' 10'x 30' pit run gravel mat and a 2' deep cut-off wall at the south end of the south access road.

5. Install an appropriately sized concrete rundown in the northwest corner of the site to convey runoff to Academy Road. This rundown should incorporate City standard sidewalk culverts at the sidewalk crossing. This rundown shall be maintained by the developer. The sidewalk culverts shall be maintained by the City.

PLATES

DEVELOPED FLOW RATES

$I_{10} = 3.47$ $I_{100} = 5.25$

BASIN	AREA	% IMPERVIOUS	C	Q_{10}	Q_{100}
A	5.424	50%	.65	12.2	18.6
B	1.212	26%	.50	2.1	3.2
C	1.393	39%	.59	2.8	4.3
TOTAL	8.024	45%	.62	17.1	26.1

UNDEVELOPED FLOW RATES

1	5.3	0	.34	6.3	9.5
2	2.7	0	34	3.2	4.8
TOTAL	8.0	0	.34	9.5	14.3

PLATE 2

PROJECT NAME RETIREMENT CENTER SHEET ____ OF ____

PROJECT NO. 41831 BY [illegible] DATE 4/26/84

SUBJECT FLOW RATE COMPUTATIONS CH'D ____ DATE ____

BASIN B

Q_{100} = 3.2 CFS Q_{10} = 2.1 CFS

12" DIP PIPE CAPACITY

n=.013 S=.0050 Q= 2.19 CFS V= 2.79 FPS

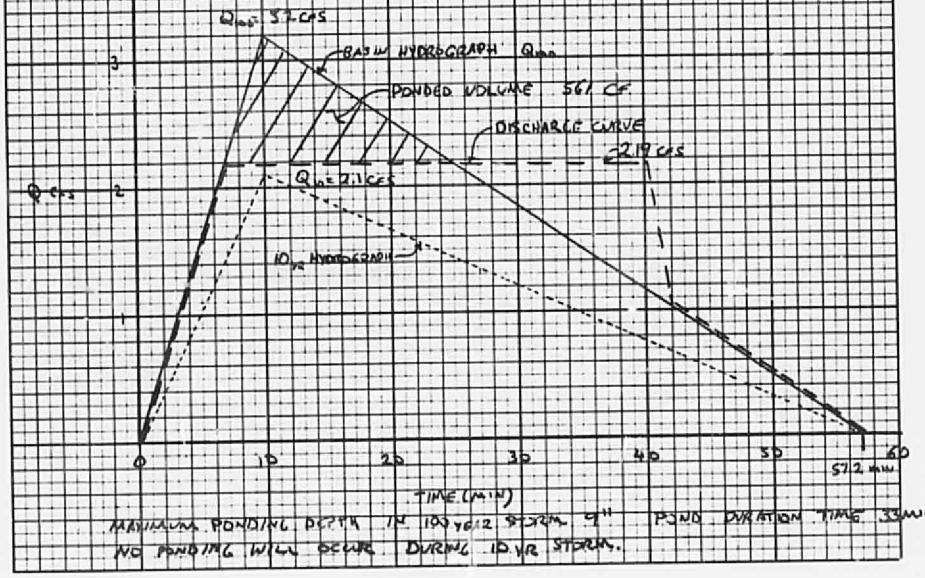
RULES DEPTH BY MANNING EQ 0.335' C= .6

PIPE SLOPE CONTROLS

V_{100} DETERMINATION = HYDROGRAPH

SHR VOLUME 2.5" A= 1.212 AC C= .50 Q_{100}= 3.2 CFS

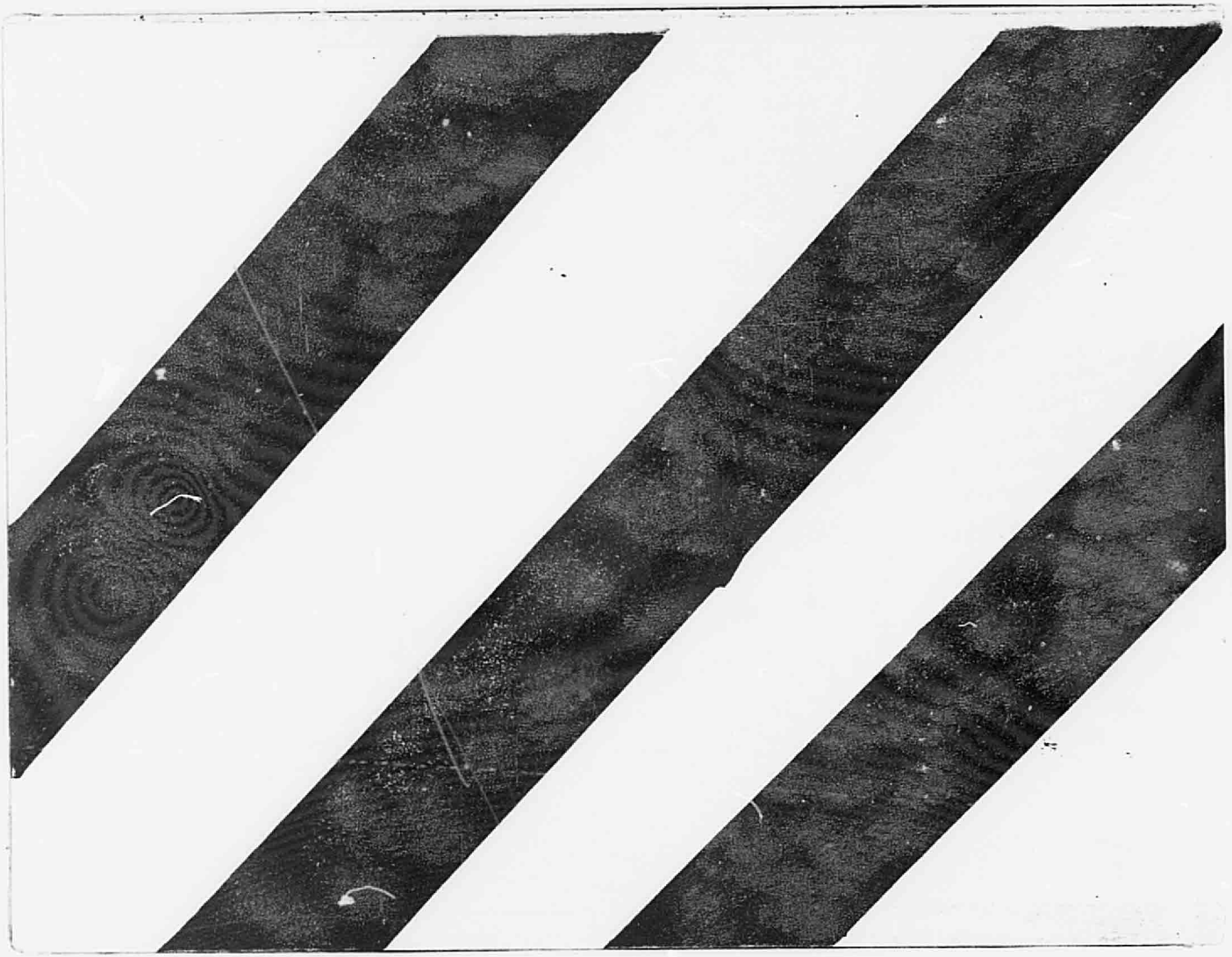
V_{100} = 1.515 AC IN = 5499 CF



MAXIMUM PONDING DEPTH IN 100 YR/2 STORM 9" POND DURATION TIME 33 MIN.
NO PONDING WILL OCCUR DURING 10 YR STORM.

PLATE 5

PROJECT NAME RETIREMENT CENTER2 SHEET ____ OF ____

PROJECT NO. 41831 BY DM DATE 6/27/84

SUBJECT BASIN B DISCHARGE CH'D ____ DATE ____