HYDROLOGY

L21/D5

DAVID DAVIS

PLUMBING

DRAINAGE REPORT

L 21- D 5

1 PLAN

ARMSTRONG ENGINEERING, INC.
CONSULTING ENGINEERS
JOHN ARMSTRONG P.E.
2709-A PAN AMERICAN N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 345-2133
(505) 345-8463

February 9, 1982

Brian G. Burnett
City of Albuquerque
Engineering Division
P.O. Box 1293
Albuquerque, New Mexico 87103

RECEIVED
FEB 09 1982
CITY ENGINEER

RE: David Davis Plumbing Drainage Report.

Dear Brian:

The following is our response to the numbered questions in your letter dated December 14, 1981.

1. The offsite flows to this property come from a gravel parking lot for a mobile home sales operation. See the attached copy of a portion of map L-21 from the Master Drainage Study.

2. Pond volume calculations:

   Consider the pond area only, disregard the area in the parking lot.

   Area of 21.0 contour = 614 ft^2
   Area of 21.0 contour (overflow elev) = 837 ft^2
   Area of tree as shown (12 ft dia. circle) = 113 ft^2
   Volume between 21.0 contour and outlet (20.7):
   (614 - 113)(0.3/3) = 50.1 ft^3
   Volume between 21.6 and 21.0 contours:
   (837- 614)(.6/2)+(614- 113)(0.6)= 367.5 ft^3
   Total pond volume= 417.6 ft^3

3. Temporary bench mark: See attached drawing.

4. Additional spot elevations: See attached drawing.

5. Swale & splashblock details: See Attached Drawing.

6. The project owner is:
   Davis Plumbing & Heating
   Drawer 280
   Aztec, New Mexico 87410

   The Architect is:
   Rupley & Associates, Inc.
   2651-E Pan American NE
   Albuquerque, New Mexico 87107

If I can answer any questions concerning the above, please call.

Thank You,

John Armstrong, P.E.

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

L21 - D5

December 14, 1981

Mr. John Armstrong
Armstrong Engineering, Inc.
2709-A Pan American N.E.
Albuquerque, N.M. 87107

RE: DAVID DAVIS PLUMBING DRAINAGE REPORT

Dear John:

A review of the referenced drainage report has resulted in the comments listed below. The numbers indicated refer to the Drainage Report (DR) and Construction Plan (CP) checklists.

Please supply the following information:

1. DR # 10 - Description of existing off-site conditions or drainage facilities.

2. DR # 15B1 - Pond volume calculations.

3. DR # 19C - CP # 5 - Temporary benck mark.

4. DR # 20C & CP #8 - Additional spot elevations along Southern boundary of property.

5. DR # 21M & CP #22 - Details of swale along Southern edge of the building and of splash block.

6. A completed copy of the Drainage Report Information Sheet.

If I can answer any questions concerning the above matters, please call.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

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

February 23, 1982

Mr. John Armstrong
Armstrong Engineering, Inc.
2709-A Pan American N.E.
Albuquerque, N.M. 87107

RE: DAVID DAVIS PLUMBING DRAINAGE REPORT

Dear John:

The referenced report is approved. Please see that the revised plans are placed in the construction sets. Mr. Fred Aguirre will sign off for Hydrology when this is done.

Very truly yours,

BGB

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

DRAINAGE REPORT
FOR
DAVID DAVIS PLUMBING
11,600 LINN AVENUE N.E.
ALBUQUERQUE, NEW MEXICO

JOHN T ARMSTRONG
NEW MEXICO
6556
REGISTERED PROFESSIONAL ENGINEER

RECEIVED
NOV 20 1981
ENGINEERING

ARMSTRONG ENGINEERING, INC.
2709- A PAN AMERICAN N.E.
ALBUQUERQUE, NEW MEXICO
PHONE (505) 345-2133
NOVEMBER 1981

DISCUSSION

This report addresses the grading and drainage for David Davis Plumbing located at 11,600 Linn Avenue N.E. on the north 100 feet of lots 36 and 36, East Central Business Addition.

To meet the Interim Drainage Guidelines this plan proposes to pond the difference between the 100-yr developed and undeveloped run-offs at the northwest corner of the property, in a landscaped area. Further, it proposes to control release, at the 5-yr undeveloped rate, through a "Drainline Through Curb" (city standard drawing K-15) and handle the 100-yr onsite developed run-off, as well as the offsite run-off, over a curb(weir) into the street.

The property is zoned C-2 and there was no special planning history discovered which would affect this plan.

It was felt that an erosion control plan was not needed as this site is small and construction time should be short.

CALCULATIONS

Drainage Area (onsite) = 10,000 ft^2 = 0.23 Acres

Existing Coefficient of Run-off:
- Existing Building (to be removed) , 1346 ft^2 @ c= 0.9
- Remaining Site, 8654 ft^2 @ c= 0.5
- Composite c= 0.55

Proposed Coefficient of Run-off:
- Building and Paving, 6095ft^2 @ c= 0.9
- Remaining Site, 3905 ft^2 @ c= 0.5
- Composite c= 0.74

100 year- 6 hr Precipitation = 2.6 inches

Existing and Proposed Time-of-Concentration less than 5 Min.

POND VOLUME

$V = (0.74-0.55)(2.6/12)(10,000) = 412\ ft^2$

Pond volume as shown on the drawing is in excess of this quantity.

POSITIVE DISCHARGE

5 year- 1 hr precipitation = 1.1 inch
5 year- 5 min precipitation = (0.29)(1.1)= 0.319 inches

i = (3.19)(12)= 3.83 in/hr

Q_5 undeveloped= ciA=(0.55)(3.83)(0.23)= 0.5 cfs

4"Ø PVC Pipe (assume flowing full) see section below.

A= 0.0873 ft^2
R= 0.0833 ft
Q= 0.5 cfs
V= Q/A= 5.73 ft/sec

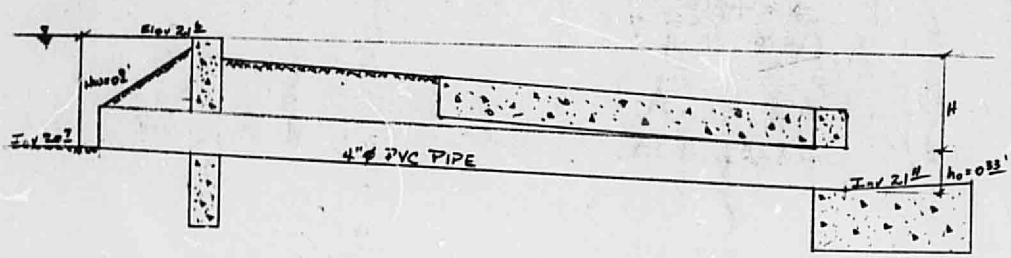
$V^2/2g$= 0.50
Friction loss, H_f= $(29\ n^2\ L/\ R^{1.33})\ V^2/2g$= 0.9877 $V^2/2g$

Inlet loss, H_i= 0.5 $V^2/2g$

H= (1.0+0.5+0.9877) $V^2/2g$= 1.24ft

HW= H+ h_o- Ls_o= 1.24+0.33+0.25= 1.32ft greater than 0.9ft, ok

Therefore maximum flow through pipe is less than 0.5 cfs when the headwater depth is 0.9 ft.



POND EMERGENCY SPILLWAY

Time of concentration less than 5 minuets

100 year- 1 hr precipitation = 2.05 inches

100 year- 5 min precipitation= (0.29)(2.05)= 0.5945 inches

i= (0.5945)(12)= 7.13 in/hr

Site drainage area= 0.23 acres @ c= 0.74

Offsite drainage area= 0.96 acers @ c= 0.5

Total drainage area= 1.19 acres @ c= 0.55 (composite)

Q_{100} developed= ciA= (0.55)(7.13)(1.19)= 4.67 cfs

Overflow weir (level @ 5521.6 ; 38 ft long)

Assume 4" Ø PVC pipe to be plugged

$Q_{over\ weir}$= 4.67 cfs= (0.577)(38) $d^{1.5}$

Depth of water over weir d= 0.36 ft = 4.25 in

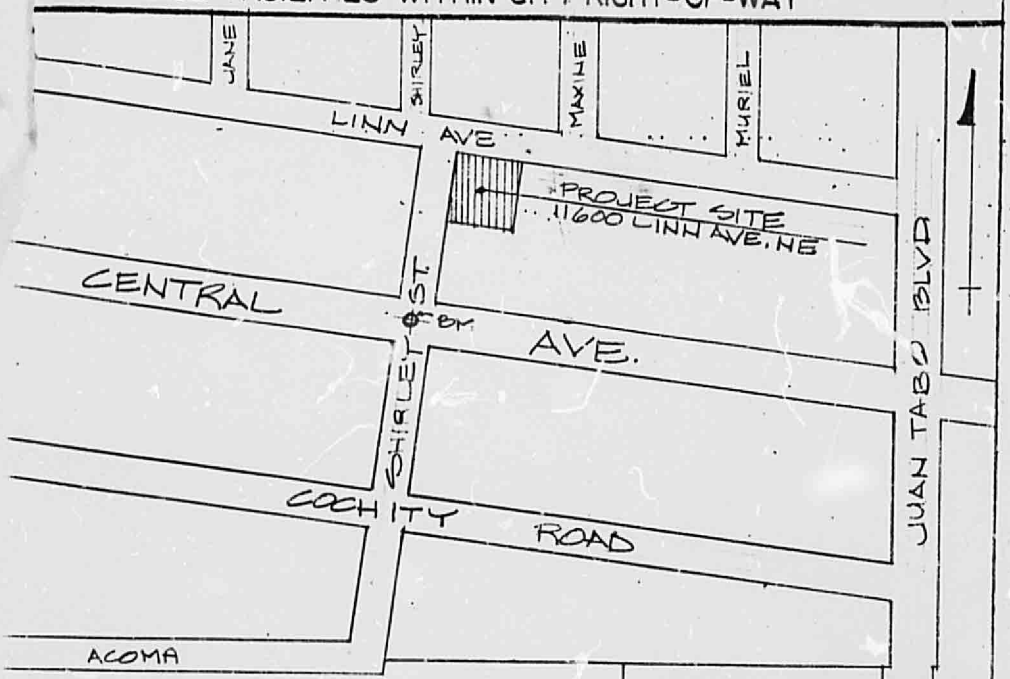
Maximum water elevation on site= 5521.6+ 0.36= 5521.96 ft

Maximum depth of water on site= 15 inches @ outlet pipe

Velocity of water over weir= 4.67/(38)(0.36)= 0.34 ft/sec

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



CONTACT: JOHN ARMSTRONG
345-0111 FOR INFORMATION

LEGAL:
N 100' OF L35 & L36 EAST CENTRAL BUSINESS ADDITION, FILED MARCH 20, 1939 - BERNALILLO COUNTY CLERK

OWNER: DAVIS PLUMBING & HEATING
DRAWER 280
AZTEC, NEW MEXICO 87410

JOHN T. ARMSTRONG
NEW MEXICO
6556
REGISTERED PROFESSIONAL ENGINEER

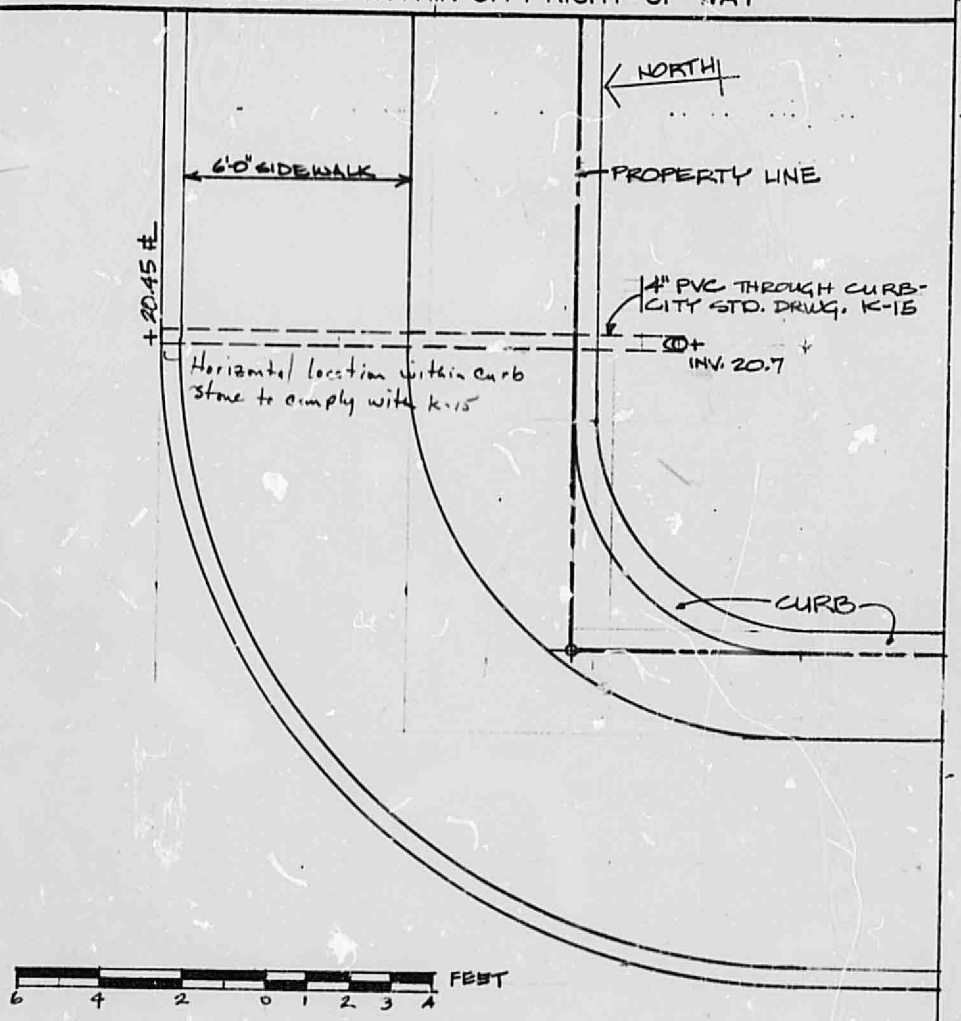
NOTICE TO CONTRACTOR

1. An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with "Contract Documents for City-Wide Utilities and Cash Paving No. 30 "
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to RESIDENTIAL street use.

APPROVALS	NAME	DATE	TITLE: PLUMBING FACILITY FOR MR. DAVID DAVIS
A.C.E./DESIGN	[illegible]	9 Dec 82	
INSPECTOR	[illegible]	8-29-83	PERMIT NO.
A.C.E./FIELD	[illegible]	9-6-83	SHEET 1 OF 2 — MAP NO. L-21

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



APPROVALS	NAME	DATE	TITLE: PLUMBING FACILITY FOR MR. DAVID DAVIS
A.C.E./DESIGN	[illegible]	9 Dec 81	
INSPECTOR	W. Salas	8-29-83	PERMIT NO.
A.C.E./FIELD			SHEET 1 OF 2 — MAP NO. L-21

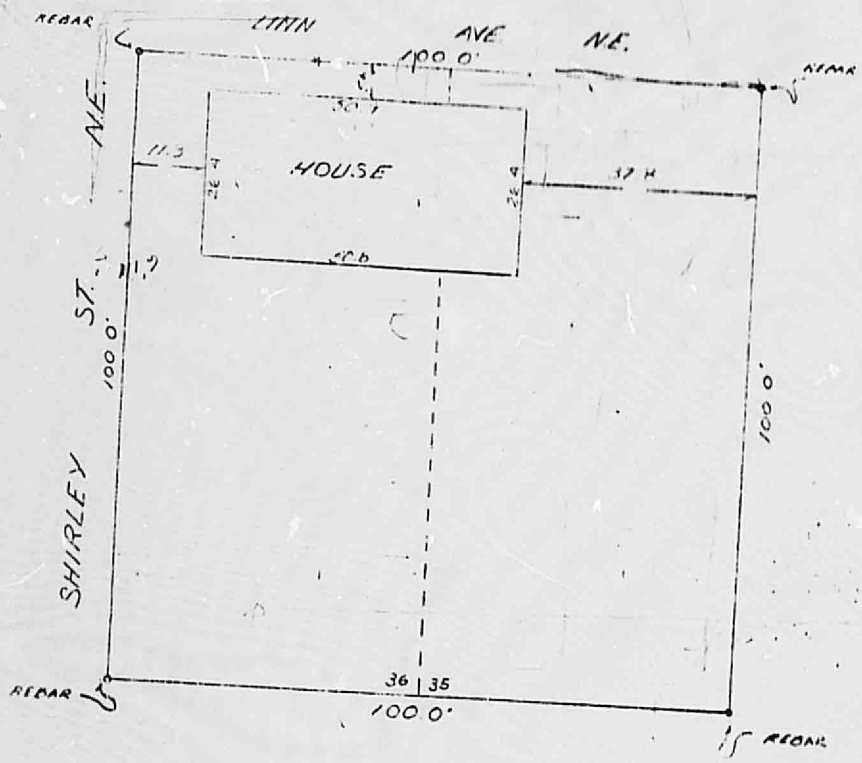
National Bank

RECEIVED

FEB 14 1981

ASSOCIATED LAND SURVEYORS
1071 SAN MATEO, N.E.
ALBUQUERQUE, NEW MEXICO
PHONE 255-7531

ASSOCIATES



Unless otherwise indicated, unrecorded easements, overhang of eaves, private and community walls, driveways, steps, and other improvements subject to conformation, but not shown on the plat of record, are not covered by this certificate.

I, Frank G. Benavidez, New Mexico Registered Land Surveyor No. 4252, do hereby certify that I have checked the location of the buildings and improvements on the following described real estate:

The North 100 feet of Lot numbered Thirty-Five (35) and Thirty-Six (36) in Block numbered Six (6) of the EAST CENTRAL BUSINESS, an Addition to the City of Albuquerque New Mexico, as the same is shown and designated on the Plat of said addition filed in the office of the County Clerk of Bernalillo, County, New Mexico, on July 15, 1946

I further certify that the location of said buildings and improvements on said real estate are as shown on the above drawing and that the location of the utility easements as shown on the plat of the above addition are also as shown on the above drawing and that there are NO *encroachments on the above described real estate and the same is true and correct to the best of my belief and knowledge.*

IN WITNESS WHEREOF, this certificate is executed at Albuquerque, New Mexico on this 30 *day of* APRIL *19* 74.

Frank G. Benavidez
Land Surveyor

CS –

1065