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

JOHN ARMSTRONG P.E.

January 24, 1983

Fred Aquirre, P.E.
City of Albuquerque
P.O. Box 1293
Albuquerque, N.M. 87103

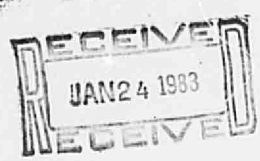
Re: Hamilton Test Facilities at 1500 Broadway N.E. and 9805 Central N.E. - Certificates of Occupancy.

Dear Fred:

Please find attached the As-Built drawings for the Broadway site.

I hereby certify that substantial compliance has been met on this project with regard to grading and drainage.

The Central Ave. site still has a few minor problems complying with the approved plan and we hereby request a six week extension of the temporary Certificate of Occupancy.



Thank You

John Armstrong

INFORMATION SHEET

PROJECT TITLE Hamilton Test Systems TYPE OF SUBMITTAL Cert. of Occupancy

ZONE ATLAS PAGE NO. J-14-D2 CITY ADDRESS 1500 Broadway N.E.

LEGAL DESCRIPT.ON Tract "K" of Romero Acres, filed June 22, 1960 Vol. B3, Pg 149

ENGINEERING FIRM Armstrong Engineering CONTACT John Armstrong

ADDRESS 2709 C Pan American N.E. PHONE 345-2133

OWNER Hamilton Test Systems CONTACT

ADDRESS 1500 Broadway N.E. PHONE

ARCHITECT Rupley & Associates CONTACT John Rupley

ADDRESS 2709 C Pan American N.E. PHONE 345-7949

SURVEYOR Adam, Hamlyn, Anderson CONTACT Jean Bordenave

ADDRESS 4055 Montgomery N.E. PHONE 881-1808

CONTRACTOR Baker Construction Co., Inc. CONTACT Mike Baker

ADDRESS P.O. Box 6032 PHONE 344-4050

DATE SUBMITTED Jan. 24, 1983

BY Armstrong Engineering

Use this Information Sheet when submitting the following:

Drainage report or plan, conceptual grading and drainage plan, engineer's certification plan, erosion plan and grading plan. Provide the information applicable to your submittal.

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

July 16, 1982

John Armstrong, PE
Armstrong Engineering, Inc.
1709 A Pan American NE
Albuquerque, New Mexico 87107

RE: HAMILTON TEST FACILITY DRAINAGE PLAN DATED 6/17/82
(FILE NO. J14-D21)

Dear Mr. Armstrong:

The referenced report is approved subject to the owner's engineer certifying the project upon completion for the purpose of obtaining a Certificate of Occupancy.

This certification is required because of the critical grades and the underground drainage structures required to accomplish the approved drainage scheme.

If you have any questions regarding the above, please feel free to call me at 766-7644.

Sincerely,

Fred J. Aguirre, PE
Civil Engineer/Hydrology

FJA/el

cc: Drainage File
Reading File

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

June 28, 1982

John Armstrong, PE
Armstrong Engineering, Inc.
2709 A Pan American NE
Albuquerque, New Mexico 87107

RE: HAMILTON TEST FACILITY DRAINAGE PLAN DATED 6/18/82
(FILE NO. J14-D21)

The following are my comments for the referenced site, please address the comments and resubmit the plan for review.

Note: The numbers proceeding the comments below correspond to a Drainage Plan Checklist located in the Development Process Manual, Section 7, Pages 106 - 109.

1. Completed Information Sheet - See Information Sheet. (Blank Copy Attached).

8. Erosion Control Plan - see Erosion Control Plan Checklist. (See item 24,N,3 for specific concern).

17. Proposed Treatment - adequate treatment of on-site flows including:
   A. Definition of required drainage facilities.
      1. Pond volume calculations including routing if applicable.

21. Site Description:
   A. Vicinity map showing location of the development in relation to well-known landmarks, municipal boundaries and zone atlas map index number.
   B. Legal description or current plat.

24. Proposed Conditions:
   D. Internal contributory drainage areas, including roof areas, outlined on plan.
   H. Notes defining property line, asphalt sidewalks, planting areas, ponding areas, and all other areas whose definition would increase clarity. (show limits of curbs on-site).
   M. Details of ponds, swales, rundowns, curb cuts, water blocks, emergency spillways, retaining walls, pond outlets, safety fences, cross-sections, spot elevations and supporting calculations when appropriate. All cross-sections must be drawn to standard engineering scale or adequately dimensioned. (Provide more detail of the 6" P.V.C. roof drain pipe, i.e., how will it be constructed?)

N. The following phases of development outlined and numbered in sequential order of construction with a proposed erosion plan (see Erosion Control Plan Checklist)
3. Construction phase

P. Proposed construction of private storm drain improvements within the City right-of-way. (Orfice not required on-site per the City's Hydrology Engineer).

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

Sincerely,

Fred J. Aguirre, PE
Civil Engineer/Hydrology

FJA/el

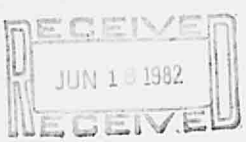
Attachment

DRAINAGE REPORT
FOR
HAMILTON TEST FACILITY

1500 BROADWAY N.E.
ALBUQUERQUE, NEW MEXICO

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

JUNE 1982



DISCUSSION

This report addresses the grading and drainage for the proposed Hamilton Test Facility located at 1500 Broadway NE.

From the Master Drainage Report Sheet J-14 it can be seen that drainage from offsite is small and should not be a problem on this site.

To meet the Valley Interim Drainage Guidelines this plan proposes to pond the entire 50 year developed run-off with controlled release to an existing 48" diameter storm drain in Broadway Blvd.

The controlled release for Valley requirements is the one year undeveloped run-off which is 1.77 cfs which would result in a velocity of 1.0 feet/sec. in the 18" diameter CMP (see attached plan). This would only occur at full flow and the low flows of the average storm probably would not keep this pipe clean. It is therefore proposed that the project be allowed to release at least at the Heights controlled discharge rate of 5 year undeveloped rate and, preferably, no controlled release at all. This could be justified by the fact that the storm drain in Broadway Blvd. is probably full in the large storm situation and would not allow much in-flow anyway.

The property is zoned M-1 and there was no special planning history discovered which would affect this plan.

Erosion control should not be needed as there will not be a long period of time from initial grading to paving and landscaping and there are no offsite flows.

CALCULATIONS

Drainage Area = 2.63 Acres = 114373 ft^2
Existing Coefficient of run-off= 0.35

Proposed Coefficient of run-off:

Paving & Roof,	55600 ft^2 @ 0.9	= 50040
Landscaped area,	58773 ft^2 @ 0.3	= 17632
Composite,	114373 ft^2 @ 0.59	= 67672

Time of concentration = 7.5 min

50 year - 6 hour precipitation = 2.1 inches

POND VOLUME

$V = (0.59)(2.1/12)(114373) = 11809\ ft^2$

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

POSITIVE DISCHARGE

Q_1 undeveloped:

1 year- 7.5 min p= 0.24 inches

$i_1 = (0.24)(60/7.5) = 1.92$ in/hr

$Q = ciA = (0.35)(1.92)(2.63) = 1.77$ cfs

Q_5 undeveloped:

5 year- 7.5 min p= 0.41 inches

$i_5 = (0.41)(60/7.5) = 3.28$ in/hr

Control Orfice (round hole cut in steel plate over inlet of 12 inch RCP):

Max head= 5.77 ft

$C_d = 0.63$

$Q = (0.63)\ A_o\ (2 \times 32.2 \times 5.77) = 12.14\ A_o$

for Q_1:

$12.14\ A_o = 1.77$ cfs

$A_o = 0.15$ ft= PI $d^2/4$

d= 0.43 ft= $5\frac{3}{16}$ inches

for Q_5:

$12.14\ A_o = 3.02$ cfs

$A_o = 0.25$ ft= PI $d^2/4$

d= 0.56 ft= $6\frac{3}{4}$ inches

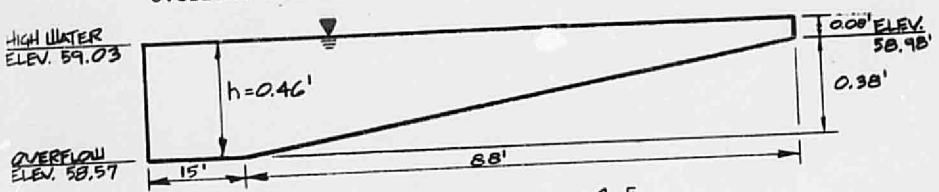
POND EMERGENCY OVERFLOW

Q_{100} developed:

i= 6.2 inches/hour

Q_{100}= ciA= (0.59)(6.2)(2.63)= 9.62 cfs

Overflow Weir (along Broadway between driveways):



$Q = (0.577)(15[0.46]^{1.5} + 88[0.54/2]^{1.5})$

Q= 9.82 cfs 9.62 cfs ok

cc.1

INFORMATION SHEET

PROJECT TITLE Hamilton Test
TYPE OF SUBMITTAL _____
ZONE ATLAS PAGE NO. J-14
CITY ADDRESS 1500 Broadway NE
LEGAL DESCRIPTION Tract "K" of Rowena Acres filed June 22, 1960 in Vol 33, Page 149
ENGINEERING FIRM Armstrong Engineering
CONTACT John Armstrong
ADDRESS 2709-A Pan American NE
PHONE 345-2133
OWNER Hamilton Test
CONTACT _____
ADDRESS 1500 Broadway NE
PHONE _____
ARCHITECT John Rupley
CONTACT _____
ADDRESS 2709-C Pan American NE
PHONE 345-7949
SURVEYOR Adam, Hamlyn, Anderson
CONTACT Jean Bordenave
ADDRESS 4055 Montgomery NE
PHONE 881-1808
CONTRACTOR _____
CONTACT _____
ADDRESS _____
PHONE _____

DATE SUBMITTED _____
BY John Armstrong

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ZONE ATLAS PAGE NO. J-14 CITY ADDRESS 1500 Broadway NE

LEGAL DESCRIPTION Tract "K" of Romero Acres filed June 22, 1960 in Vol B3, Page 149

ENGINEERING FIRM Armstrong Engineering CONTACT John Armstrong

ADDRESS 2709-A Pan American NE PHONE 345-2133

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