E20/D23

7 Plans

1. Mr. Sheppard signed construction set for concrete channel from Wyoming to Estrellita (project 1930) April 5, 1984. As-Built sign-off June 9, 1985

2. First submittal drainage report April 19, 1984

3. Comments April 20, 1984

4. 2nd submittal May 24, 1984

5. Comments June 29, 1984

6. 3rd submittal Aug 1, 1984

7. Comments by phone Aug 16, 1984

8. 4th submittal - change order to project 1930 Aug 28, 1984

9. Rough Grading sign-off Sept 10, 1984

10. Supplemental information for construction drawings submitted Oct 9, 1984

11. Moon street improvements letter from Ron Brown Oct 24, 1984

12 Addendum for construction plan sign-off. Nov 7, 1984

13. Drainage plan Approval Nov 8, 1984

14. Letter from Greg Olsen to Bohannan Huston on project 2250 Dec 6, 1984

15. Re submittal of construction set Jan 2, 1985

16. Drainage plan approved again Jan 17, 1985

ASSOCIATED COUNSELING SERVICES

Carl B. Adams, Ph.D.
Clinical Psychologist
Carol Adams, M.A.
Counselor

RECEIVED
APR 03 1987
HYDROLOGY SECTION

March 30, 1987

Richard L. Duran
City of Albuquerque
Utility Development Division
Hydrology Section
P. O. Box 1293
Albuquerque, New Mexico 87103

RE: Correspondence 3/2/87

Dear Mr. Duran:

I am writing in reference to your letter of March 2, 1987, and have enclosed a copy of that letter. At the time the terrace and backfill was planned, I was not aware of the problem. I intend to excavate the backfill far enough to build a retaining wall that will meet city code.

If you have any questions or concerns, please feel free to call me at 821-9630 or daytimes 883-8984.

Sincerely,

Carl Adams

Carl B. Adams, PhD

cc: Al Iacoltti

4316 Carlisle N.E. Suite C • Albuquerque, New Mexico 87107 • (505) 883-8984

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

March 2, 1987

Property Owner
5917 Canyon Crest Place, NE
Albuquerque, New Mexico 87111

Our office has received a complaint that the common garden wall behind your house has been backfilled over 18 inches. Attached is a copy of the approved grading plan for Canyon Run Subdivision. If you will note, the grading plan shows by spot elevations that the difference in grade between your property and the adjacent property was designed at approximately one foot. Measurements taken on March 2, 1987 showed a 32 inch difference in grade. Backfill against an unreinforced garden wall exceeding 18 inches has been shown to weaken the integrity of a wall and eventually result in its collapse.

The intent of this letter is to advise you of a potential problem and inform you that this situation is a civil matter to be arbitrated between the two property owners involved.

If you have any questions or comments, please feel free to call me at 764-1699.

Cordially,

Richard L. Duran

Richard L. Duran
Drainage Inspector

cc: Al Iacoltti
8804 Caminoto Drive, NE

Enclosure

RLD/bsj

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

January 17, 1985

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: REVISED GRADING PLAN FOR CANYON RUN SUBDIVISION (E20-D23) RECEIVED JANUARY 4, 1985

Dear Dan:

I am, hereby, giving official notice that the above referenced submittal has been received and is approved by this department.

The construction plans were signed off last week in DRC. Therefore, no further action is required.

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

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

1/9/85 Discussed w/ Dan Hogan no objection to subject request of elimination of 2 concrete ribbon.

0018

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

January 3, 1985

RECEIVED
JAN 04 1985
CITY ENGINEER

Mr. Dwayne Sheppard, City Engineer
MDD-Engineering
P. O.Box 1293
Albuquerque, New Mexico 87103

RE: Appeal of Drainage Requirement, Canyon Run Subdivision-City Project #2250

Dear Dwayne:

The purpose of this letter is to appeal a drainage requirement for construction of a 2 foot concrete ribbon on the surface above a 48 inch concrete storm sewer on Lot 21, Block D of Canyon Run Subdivision. The storm sewer and ancillary catch basins in the subdivision are designed to carry the 100 year flows from the subdivision; the storm sewer runs across Lot 21, Block D in a 20 foot easement. The 20 foot easement is also designated as an emergency surface drainage way (in the event of a failure of the storm sewer system) and is noted on the Subdivision Plat Map as follows:

"No trees shrubs, fences or other structures may be placed in the 20' Public Drainage Easement as shown on Lot 21 Block D."

When we were planning this subdivision we wanted to incorporate this easement into usable area for a lot owner rather than have this area as a "no mans land" easement between two lots. The only purpose to be served by the required concrete ribbon is to show on the surface of the lot that there is a drainage easement across the property. I protested the requirement of the concrete ribbon when we were reviewing the plan comments of the Hydrology Section, but I was over-ruled by Jim Fink and Dan Hogan. I believe that the requirement is superfluous and only creates an unsightly limitation to the owner's ability to otherwise productively use the easement area, subject to the drainage requirements.

Revised plans prepared by Bohannan-Huston,Inc. which incorporate this requested change and several other changes, are being submitted to your department under separate cover. A copy of this letter will accompany those revised plans to facilitate your inter-office coordination relating to this issue.

I appreciate your consideration of this matter.

Very Truly Yours,

Ronald D. Brown

RDB/cjg
cc; Chris Inman

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Revision

ZONE ATLAS PAGE NO. E-20/ CITY ADDRESS

LEGAL DESCRIPTION Canyon Run Subdivision

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Groschowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture CONTACT Ron Brown

ADDRESS c/o Brown & Associates 3800 Carlisle NE Albuquerque, N.M. PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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 Change Order Approval (SPECIFY)



DATE SUBMITTED: 1/3/85

BY: Dan Groschowski

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

January 2, 1985

Mr. Gregory R. Olson
Assistant City Engineer/Design
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

Re: Canyon Run Subdivision - Revisions, Project No. 2250

Dear Greg:

Transmitted herewith are 5 sets of the construction drawings, revised, for the referenced project for review and approval.

In response to the concerns expressed in your letter dated December 6, 1984 (copy attached for your reference) we submit the following:

- The proposed grades were followed as closely as practicable.
- A revised grading plan is included in the plan set and a print sent to Hydrology with a copy of this letter.
- The existing sheets used to identify the Moon Street sidewalk now include the note you requested.
- Additional excess fill has not become available at this time.
- The revisions have been annotated on the original.

In addition to the revisions originally requested, we have also removed the 2 foot wide concrete strip that was located in the center of the 20 foot wide drainage easement in Lot 21 of Block D. This has been done at the request of the developer, Brown and Associates. Mr. Ron Brown of Brown and Associates discussed the concrete strip with Mr. Dwayne Sheppard. (See enclosed letter). It was agreed that such strips are generally used to carry low flows. In Canyon Run the underground storm drain carries all runoff; therefore, the concrete strip should not be required.



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

Please schedule this project for final sign-off at the DRC on January 9, 1985. Upon approval of the revisions, the last five items required in your letter will be provided.

If you have any questions or comments, please feel free to call me.

Sincerely,

Dan Grochowski

Daniel J. Grochowski, P.E. & L.S.
Project Manager

Enclosures

cc: Mr. Ron Brown
Mr. Carlos Montoya

DJG/mls
Job No. 3 226 5

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

December 6, 1984

Mr. Daniel Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, New Mexico 87107

RE: Canyon Run Subdivision - Revisions, Project No. 2250

Dear Dan:

I presented your proposed grading and sidewalk changes on subject project to the Design Review Committee members after our December 5, 1984 session of DRC. Following is a summary of comments:

WRD - No concerns
Traffic - Probably okay if proposed grades are followed
Hydro - An updated or revised grading plan will need to be provided and approved.
Design -

1. The new or existing sheet used to identify the Moon St. sidewalk should include a note for contractor to coordinate installation of sidewalk with adjacent paving project SAD 210.

2. If additional excess fill becomes available, it would be desirable to see the lots along S. and E. boundaries of Block D raised, to reduce the grade differential between them and the adjacent properties and the Bear Tributary Arroyo.

It is now appropriate for you to check out the original drawings for necessary revisions. Please substitute prints or sepias of the original design drawings in our files, during the redesign process. Any revisions to the drawings should be annotated on the plan or profile and in the revision block of that sheet on originals.

Upon approval of revisions, we will require:

1. Your estimate of revised quantities on standard estimate form, including Cash Paving No. 31 prices and extensions.

2. Copy of the Change Order to accomplish the revised work.

3. Consent of surety to any change in the contract amount covered by the Warranty Bond.

RECEIVED
DEC 04 1985
HYDROLOGY SECTION

4. Payment of Additional Engineering Fees on the additional contract cost.

5. Contractor will have to get Excavation and Sidewalk Permit for the additional two blocks of sidewalk on Moon Street.

If you have any questions, please call me.

Sincerely,

Greg Olson

Gregory R. Olson
Assistant City Engineer/Design

GRO/fs

cc: Barry Simmons, Senior Civil Engineer/Field Section
Mr. Ron Brown, Brown & Associates
Project File 2250

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

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

November 8, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle NE
Albuquerque, NM 87107

REF: CANYON RUN SUBDIVISION (E20-D23) RECEIVED NOVEMBER 7, 1984

Dear Dan:

The above referenced plan, dated August 1, 1984, is approved.

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

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

Sincerely yours,

Carlos A. Montoya

Carlos A. Montoya, PE
City/County Flood Plain Admin.

CAM:mrk

cc: B-I Joint Venture, c/o Ron Brown & Assoc., 3800 Carlisle NE

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Addendum

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Grochowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture c/o Ron Brown & Associates CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque, NM 87107 PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
X OTHER Construction Plans (SPECIFY) Sign off

DATE SUBMITTED: 11/7/89

BY: Dan Grochowski

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Addendum

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan-Huston, Inc CONTACT Dan Groschowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture c/o Ron Brown & Associates CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque NM 87107 PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
X OTHER Construction Plans (SPECIFY)
Sign off

DATE SUBMITTED: 11/7/84

BY: Dan Groschowski

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

October 25, 1984

E-20
D/23

Mr. Robert F. Sykes, P.E.
Wilson & Company
P. O. Box 3548
Albuquerque, New Mexico 87190

RE: SAD 2. - Ratification of Benefits for 94 Lots, Canyon Run Subdivision (Formerly Tract 4A, Lands of William O. and Mary L. Edward)

The attached letter from Brown & Associates, Inc. indicates their willingness to ratify, on a unit basis, the benefits previously determined for Tract 4-A, Lands of William O. and Mary L. Edward, Item No. 9 of the Estimated Maximum Benefit Roll for SAD 210. The ratification will spread the benefits for Item No. 9 over the 94 lots contained in the Canyon Run Subdivision, which is a Replat of Tract 4A. The replat is in the final stages of signature approval within the City. Mr. Brown, President of Brown & Associates, Inc. has also agreed to pay the costs for the associated additional assessments engineering that will be required by Wilson and Company for the deletion of Item No. 9 and the creation of 94 new item numbers. He has agreed that these costs should be included with the benefits which he will ratify for the 94 lots in the Canyon Run Subdivision.

Please prepare the ratification per Paragraph A.3.d (4) of Exhibit I, A/E Services Agreement 82-18, dated July 13, 1982 and obtain the required signatures of the property owners.

Sincerely,

James N. Hicks, Jr.
Principal Assistant City Engineer

JNH/fs

cc: C. Dwayne Sheppard, City Engineer
Ronald D. Brown, President, Brown & Assoc., Inc.
Malcolm deVesty, Assistant City Attorney
Zachary L. McCormick, Modrall, Sperling, Roehl, Harris & Sisk
Fred A. Aguirre, Design Hydrologist
Pat Montano, Special Assessments Supervisor
Juanita Mastronardi, Special Assessments
File: SAD 210

Enclosure

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

October 16, 1984

Mr. James Hicks
Assistant City Engineer
MDD-Engineering
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
OCT 18 1984
CITY ENGINEER

Dear Jim

Per our discussion this morning, this letter confirms that the owner of Tract 4A, lands of William O. and Mary L. Edward is B.I. Joint Venture. This property is a part of the lands being assessed under S.A.D. 210, and the maximum benefit calculated is approximately $87,000. B.I. Joint Venture is in the process of replatting this property into Canyon Run Subdivision (City Project No. 2250), which will be 94 separate single family lots. This subdivision plat, along with the Subdivision Construction Documents, the Subdivision Agreement and Financial Guarantee are currently in the final City approval process. B.I. Joint Venture will ratify the assessments for S.A.D. 210 for this property and will consent to dividing the maximum benefits for Tract 4A into 94 equal assessments for each of the 94 lots comprising Canyon Run Subdivision. You have spoken with Mr. Divesty, Assistant City Attorney, about the requirement to have an agreement between the City and B.I. Joint Venture relative to redividing the assessments. Please have the City Attorney's office prepare such an agreement. The appropriate name should be B.I. Joint Venture, a general partnership consisting of Brown & Associates, Inc. and Inman Enterprises, Inc. both New Mexico Corporations.

The signature block should be:

B.I. JOINT VENTURE

By: Brown & Associates, Inc., Venture Partner

By: _____
Ronald D. Brown, President

If you have any questions about title or the parties, you may contact Mr. Kevin Peterman, Executive Vice President of Rio Grande Title Company (883-6969).

Very truly yours,

Ronald D. Brown

RDB/ml

cc: Mr. Bryan Burnette, Bohannan-Huston, Inc.
Mr. Robert Sykes, Wilson & Co.
Mr. Chris Inman

FILE W/ RPT

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

October 24, 1984

Mr. Fred Aguirre
Design Hydrologist
MDD-Engineering
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Moon Street Improvements adjacent to Canyon Run Subdivision
(Project No. 2250)

Dear Fred:

In the event that S.A.D.-210 improvements are not contracted for by January 31, 1985, and the City Engineer desires that B.I. Joint Venture install under private contract the improvements listed in Exhibit "A" of the attached escrow letter, then B. I. Joint Venture shall submit to the City of Albuquerque specific plans for those improvements, which would go through the City's normal plan review and approval process prior to the commencement of construction of those improvements.

Very truly yours,

B. I. JOINT VENTURE
By: Brown & Associates, Inc.

Ronald D. Brown, President

Encl.

RDB/cjg

OFFSITE CATCH BASIN DESIGN

TOTAL Q = 71.6 cfs

CATCH BASIN IN SUMP CONDITIONS

USE 2 TYPE A CATCH BASINS WITH DOUBLE "B" GRATES

GRATE SIZE $2[2(40" \times 25")] = 27.78$ SF (GROSS)

LESS - $2[2(13 - 1/2" \times 40"$ BARS $\& 9 - 1/2" \times 18\ 1/2"$ BARS$)]$
$= 9.53$ SF

NET AREA $27.78 - 9.53 = 18.25$ SF

USE ORIFICE EQ.

$Q = CA\sqrt{2gH}$

$C = 0.62$ $\quad H = 8"$

$Q = 74.1$ cfs > 71.6 cfs O.K.

PROJECT NAME CANYON RUN SUB'D SHEET 2 OF 2
PROJECT NO. 32265 BY DJG DATE 10/18/84
SUBJECT CATCH BASINS CH'D _____ DATE _____

BASIN & CATCH BASIN DESIGN

TOTAL Q = 58.9 cfs

CATCH BASIN IN SUMP CONDITIONS

USE TYPE "A" CATCH BASIN WITH DOUBLE "B" GRATE

GRATE SIZE 2(90" x 25") = 13.89 SF (GROSS)

LESS 2(13 - 1½" x 60" BARS & 9 - 1½" x 18½" BARS)
= 4.77 SF

NET AREA = 13.89 - 4.77 = 9.12 SF

USE ORIFICE EQ.

$Q = CA\sqrt{2gH}$

C = 0.62 H = 8"

Q = 37.0 cfs

Q STILL REQUIRED 58.9 - 37.0 = 21.9 cfs

WIDTH OF CURB FACE OPENING REQUIRED

USE ORIFICE EQ.

Q = 21.9 A = L x 0.5' H = 8" - 0.5/2 = 0.42'

L = 13.58'

USE 0.5' x 14' OPENING

PROJECT NAME CANYON RUN SUB'D SHEET 1 OF 2
PROJECT NO. 32265 BY DJG DATE 6/18/84
SUBJECT CATCH BASINS CH'D _____ DATE _____

INFORMATION SHEET

PROJECT TITLE Canyon Run Subdivision TYPE OF SUBMITTAL Supplemental Info

ZONE ATLAS PAGE NO. E-20 D23 CITY ADDRESS _____

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan - Huston, Inc. CONTACT Dan Grochowsn

ADDRESS 7125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque, NM 87107 PHONE 883-1674

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR Bohannan - Huston, Inc. CONTACT _____

ADDRESS See Above 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 Construction Drawing (SPECIFY)
Sign Off

DATE SUBMITTED: 10/9/84

BY: Daniel Stockwell

RECEIVED
OCT 09 1984
HYDROLOGY SECTION

BOHANNAN–HUSTON INC.

4125 Carlisle Blvd. NE Albuquerque, New Mexico 87107
(505) 881-2000

Transmittal

To: CITY HYDROLOGY
123 CENTRAL NW

Attention: CARLOS MONTOYA

☐ Parcel Post ☐ Messenger
☐ First Class ☐ UPS
☐ Express Mail ☐ Air Freight
☐ Bus ☒ HAND

Date: 10/9/84 Our job number: 33265

Your job number:

Job: CANYON RUN SUBDIVISION

We are enclosing:	For:
1 PRINT - SHEET 18 OF CONSTRUCTION DRAWINGS	

Comments:

Carlos,

Please note the detail which has been added to the plans for the wall between the Bear Tail and the 20' drainage easement. If you would let Billy Hockly know so he can sign-off tomorrow I would appreciate it. Thanks.

RECEIVED
OCT 09 1984
HYDROLOGY SECTION

By: Daniel Hrechowski thank you

Rec'd by: Connie Lujan Date: 10-9-84

☐ Please Return Signed Yellow Copy

2/1/84

INFORMATION SHEET

PROJECT TITLE Canyon Run Subdivision TYPE OF SUBMITTAL Drainage Report Add. & Revised Grading Plan

ZONE ATLAS PAGE NO. E-20 P23 CITY ADDRESS _____

LEGAL DESCRIPTION Edward Trast

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Grochowski

ADDRESS 4125 Carlisle NE Albuq, NM 87107 PHONE 881-2600

OWNER Brown & Associates, Inc. CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuq, NM 87107 PHONE 883-1674

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR Bohannan-Huston, Inc. CONTACT _____

ADDRESS See Above 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
_X_ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
_X_ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

RECEIVED
AUG 30 1984
HYDROLOGY SECTION

DATE SUBMITTED: _____

BY: Dan Grochowski

BOHANNAN-HUSTON INC.

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

August 28, 1984

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

Re: Canyon Run Subdivision

Dear Carlos:

Enclosed are prints of the changes made to the Bear Trib Plans to facilitate Canyon Run, along with the letter to Russell Givler requesting the changes. Also enclosed is the revised Grading Plan showing a change to concrete rundowns in the private drainage easements and its supporting calculations. With this submittal, we again request drainage report approval and a rough grading permit.

If you have any questions, please call Dan Grochowski at 881-2000.

Sincerely,

Brian Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DG/bl
Job No. 32263

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

BOHANNAN-HUSTON INC.

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

August 28, 1984

Mr. Russell Givler
Senior Civil Engineer
Civil Engineering Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Bear Trib Arroyo Change Order

Dear Mr. Givler:

With this letter, we request a change order to the referenced project. Enclosed are reproducibles of Sheets 7 and 8 of the referenced project, revised to show the new locations for rundowns and new storm drain stub out. Details of the storm drain stub out connection to the channel on 8-1/2" x 11" sheets are attached to Sheets 7 & 8.

The sanitary sewer changes at Moon Street, previously submitted, have been included on the drawings.

The quantity estimates for each of the changes (excluding the sanitary sewer) are also enclosed for your information.

If you have any questions, please call Dan Grochowski of our office.

Sincerely,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown
Mr. Carlos Montoya

DG/bl
Job No. 32265

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

PRIVATE DRAINAGE EASEMENT CAPACITIES

MAX. AREA DRAINING TO EASEMENT:

1/2 OF 4 LOTS - $60 \times 60 \times 4 = 14400 = 0.33$ Ac.

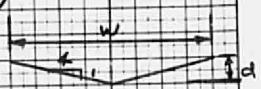
$C = 0.64$ $I = 5.1$ in./hr.

$Q = 0.64 (5.1) 0.33 = 1.1$ cfs

MINIMUM SLOPE — 1.25%

TRY CONCRETE LINED V-DITCH

SS - 4:1 $n = 0.017$



USING MANNING'S EQUATION

$d = 0.31'$

$W = 0.31 (4) (2) = 2.5'$

VELOCITY = 2.79 fps

USE 3' WIDE DRAINAGE EASEMENTS

PROJECT NAME Canyon Run SHEET 1 OF 1

PROJECT NO. 32263 BY DJG DATE 4/15/84

SUBJECT Misc. Calculations CH'D _____ DATE _____

LOT DRAINAGE ALONG MOON ST.

MAX. LOT SIZE: 8000 ft.²
C: 0.64
I: 5.1 in/hr.

Q = 0.60 cfs

TRY TWO WALL OPENINGS 6"x6"

USING WEIR EQ. $Q = CLH^{3/2}$

C: 3.0 L: 1' Q = 0.6

H = 4.1"

USE 2 - 6"x6" OPENINGS PER LOT

CATCH BASIN CAPACITY (IN BASIN 1)

CATCH BASIN DIAMETER: 7 ft.
AREA: 38.48 ft.²
Q = 90.8 cfs

USE ORIFICE EQ. $Q = CA\sqrt{2gH}$

C: 0.62

H = 0.22 ft.

H_{MAX} = 0.67 ft. Q = 156 cfs

PROJECT NAME Canyon Run SHEET 1 OF 3
PROJECT NO. 32263 BY DG DATE 9/26/94
SUBJECT Misc. Calculations CH'D _____ DATE _____

CATCH BASIN CAPACITY (IN BASIN 4)

CATCH BASIN DIAMETER: 7 ft
AREA: 38.48 ft.²
Q = 54.0 cfs

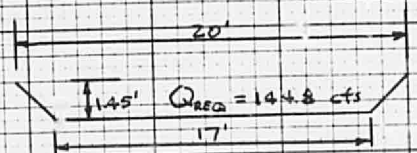
USE ORIFICE EQ. $Q = CA\sqrt{2gH}$

C: 0.62

H = 0.08 ft.

$H_{MAX.}$ = 0.67 ft. Q = 156 cfs

EMERGENCY RUNDOWN (GRASS)



SECTION B-B

n = 0.025
s = 0.64%
A = 26.8 ft.²
WP = 21.1 ft.
HR = 1.27

$$Q = 2.63 \frac{1.486}{0.025} (1.27)^{2/3} (0.0064)^{1/2} = 149.5 \text{ cfs}$$

PROVIDE A 20' x 1.5' OPENING IN THE GARDEN WALL. SEE PLATE 6 FOR OPENING LOCATIONS.

STORM DRAIN HYDRAULICS

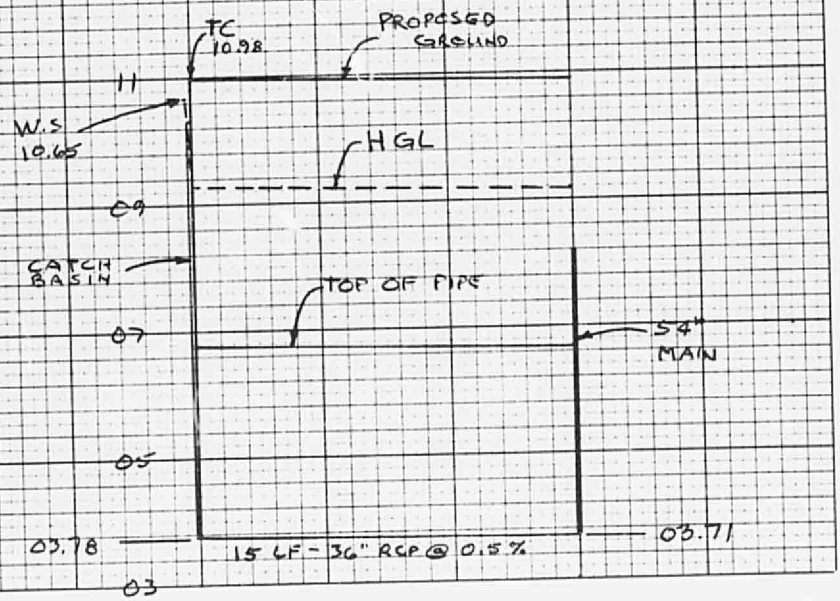
BASIN 4 CATCH BASIN

SEE SHEET 7R OF 8 FOR HYDRAULIC DATA (SEGMENT 2A (36"))

LOCATION	LENGTH	h_f	h_i	HGL ELEV.
JCT				09.19
	15	0.10		09.29
INLET			1.36	10.65

$h_f = S_f(L)$ $h_i = 1.5\left(\frac{V^2}{2g}\right)$

13



PROJECT NAME Canyon Run SHEET 3 OF 3

PROJECT NO 32[illegible]5 BY DG DATE 5/23/[illegible]

SUBJECT _____ CH'D _____ DATE _____

ONSITE FLOWS

PROPOSED CONDITIONS

	1.	2.	3.	4.	5.	6.
AREA (Ac.)	3.7	2.4	10.9	13.3	2.8	1.5
"C" FACTOR	0.64	←	←	←	←	0.64
T_c (min.)	10	←	←	←	←	10
RAINFALL (I_{100yr})(in.)	2.4	←	←	←	←	2.4
INTENSITY	5.1	←	←	←	←	5.1
Q_{100}	12.1	7.8	35.6	43.4	9.1	4.9
Q_{10}	7.9	5.1	23.4	28.5	6.0	3.2
FLOW FROM OFFSITE BASIN A (Q_{100})	78.7	0	0	0	0	0
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0	0
TOTAL Q_{100}	90.8	7.8	46.2	54.0	9.1	4.9
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE BASIN 1 OUTFALL	0	90.8	0	90.8	0	0
TOTAL	90.8	98.6	46.2	144.8	9.1	4.9

PROJECT NAME CANYON RUN SHEET 3R OF 8
PROJECT NO. 32263 BY DG DATE 5/22/04
SUBJECT ONSITE FLOWS CH'D ____ DATE ____

STORM DRAIN HYDRAULICS

PIPE OUTLET:

CHANNEL INVERT: 02.3
CHANNEL HGL: 05.5

SET PIPE INVERT @ 03.3
W/ 54" PIPE, SOFFIT = 07.8

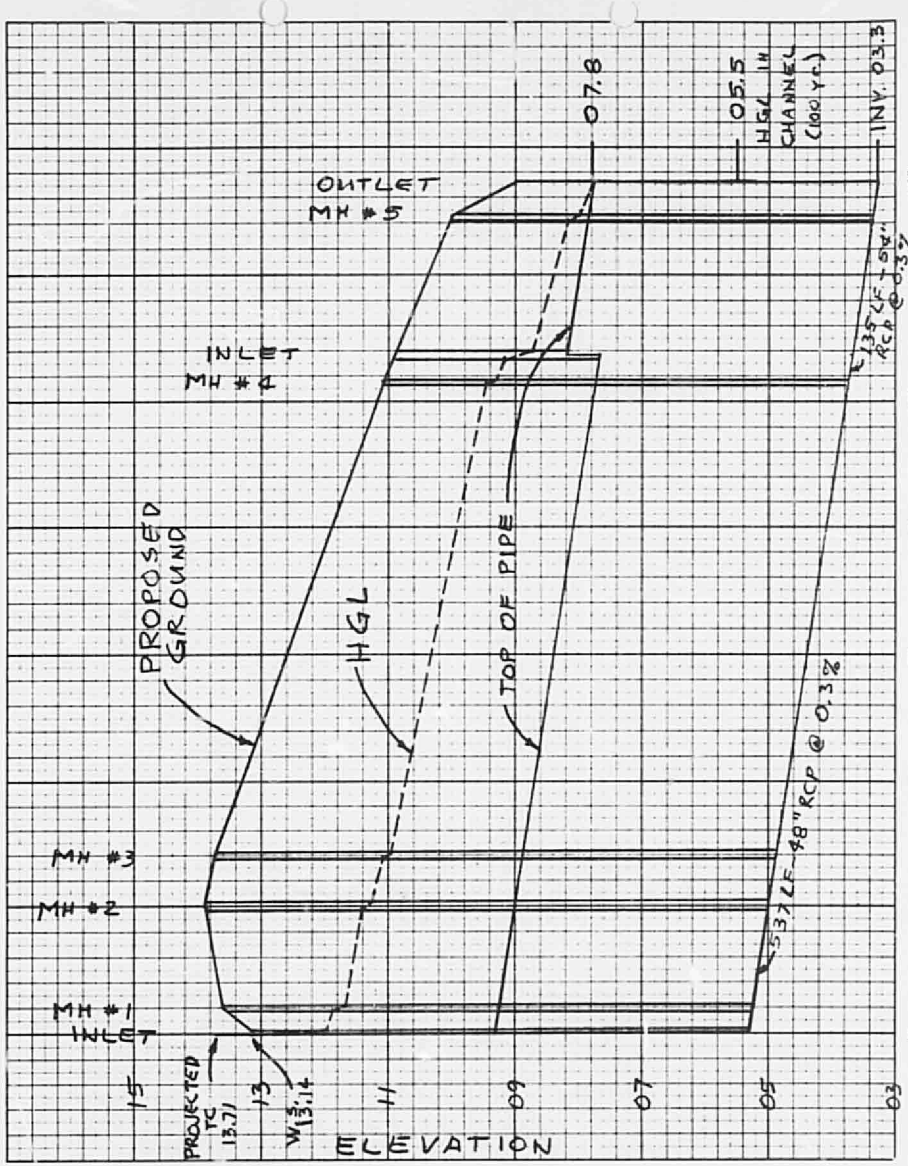
SEGMENT =	1(48")	2(54")	2A(36")
Q =	90.8	144.8	54.0
A =	12.57	15.90	7.07
WP =	12.57	14.14	9.42
HR =	1.00	1.12	0.75
n =	0.013	0.013	0.013
V =	7.22	9.11	7.64
K =	1436.8	1966.5	667.1
S_f =	0.0040	0.0054	0.0066

LOCATION	LENGTH	h_f	h_j	h_{mh}	h_m	Δ	K_b	h_b	h_i	HGL ELEV.
OUTLET										07.80
	35	0.19								07.99
MH 5				0.06		28°	0.11	0.14		08.19
	100	0.54								08.73
JCT			0.41		0.05					09.19
	32	0.13								09.32
MH 4				0.04		22°	0.10	0.08		09.44
	375	1.50								10.94
MH 3				0.04		46°	0.14	0.11		11.09
	41	0.16								11.25
MH 2				0.04		48°	0.15	0.12		11.41
	67	0.27								11.68
MH 1				0.04		48°	0.15	0.12		11.84
	22	0.09								11.93
INLET									1.21	13.14

$h_f = S_f(L)$ $\quad h_{mh} = 0.05\left(\frac{V_2^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V_2^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V_2^2}{2g}\right)$

$h_j = \frac{V_3^2}{2g} - \frac{V_1^2}{2g} = \left(\frac{2A_2}{A_2} \cdot \frac{V_3^2}{2g} \cdot \cos\theta\right)$ $\quad h_m = 0.2\left(\frac{V_1}{2g} - \frac{V_2}{2g}\right)^2$

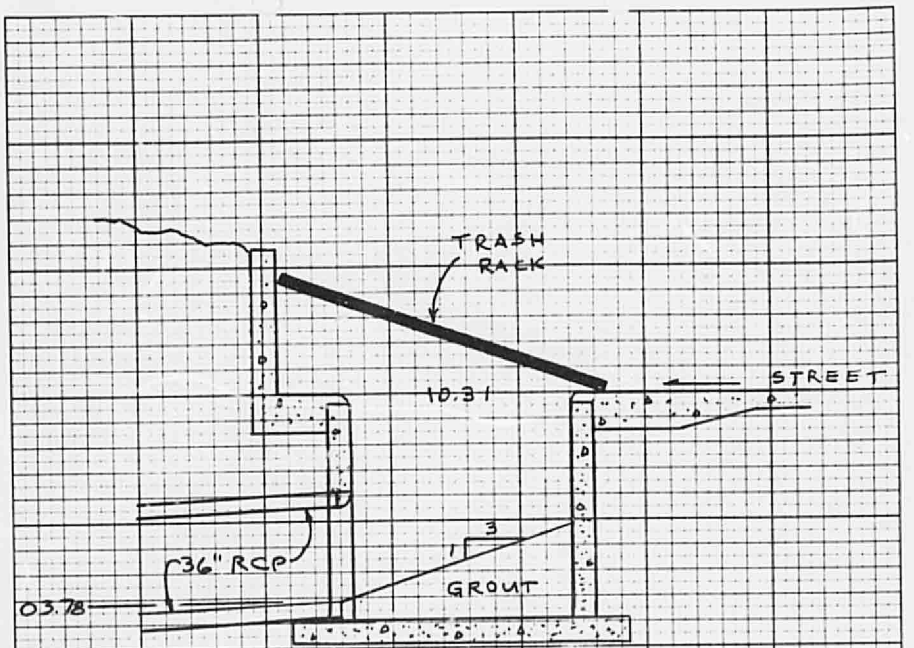
PROJECT NAME Canyon Run SHEET 7R OF 8
PROJECT NO. 32263 BY DG DATE 5/22/01
SUBJECT Storm Drain Hydraulics CH'D DATE



PROJECT NAME Canyon Run SHEET 8R OF 8

PROJECT NO. 32263 BY DG DATE 5/22/84

SUBJECT Hydraulic Grade Line CH'D _____ DATE _____



INLET SECTION (BASIN 4)

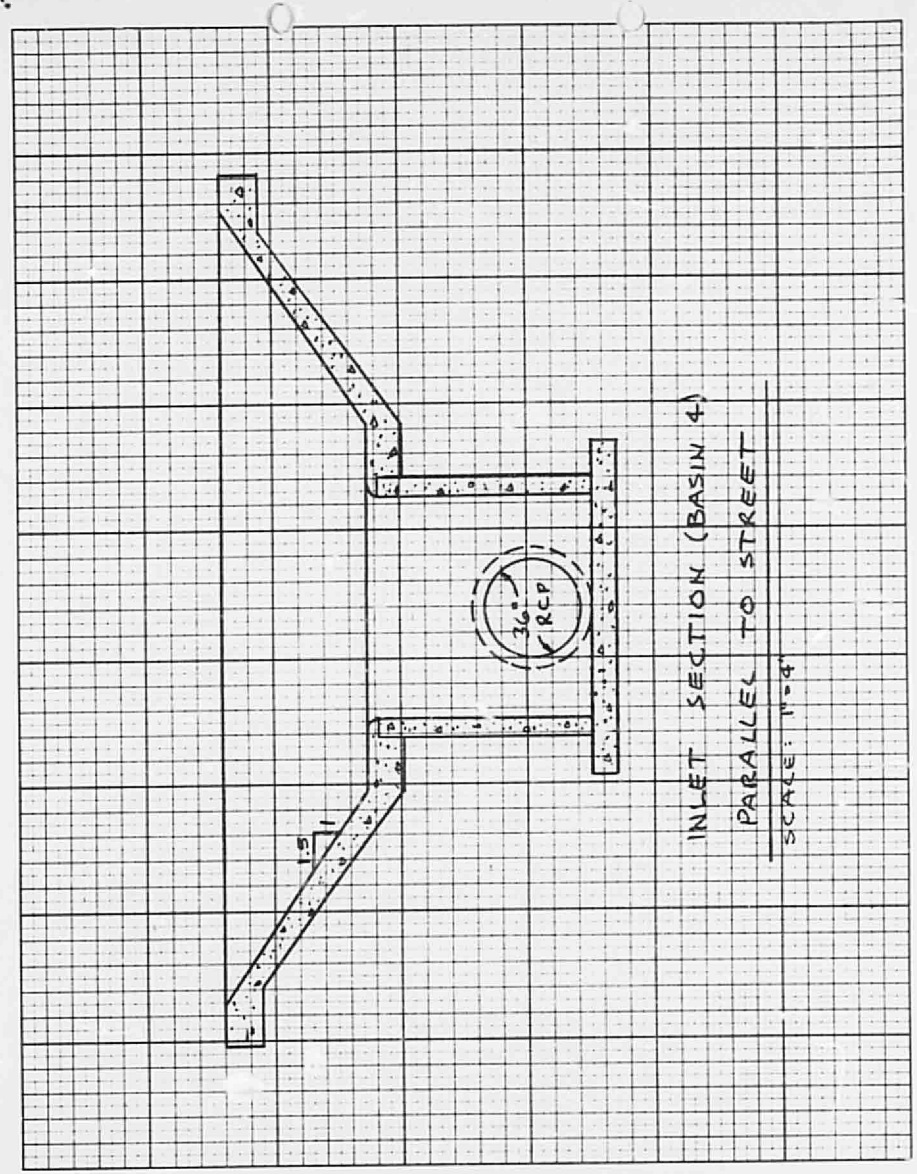
PERPENDICULAR TO STREET

SCALE: 1" = 4'

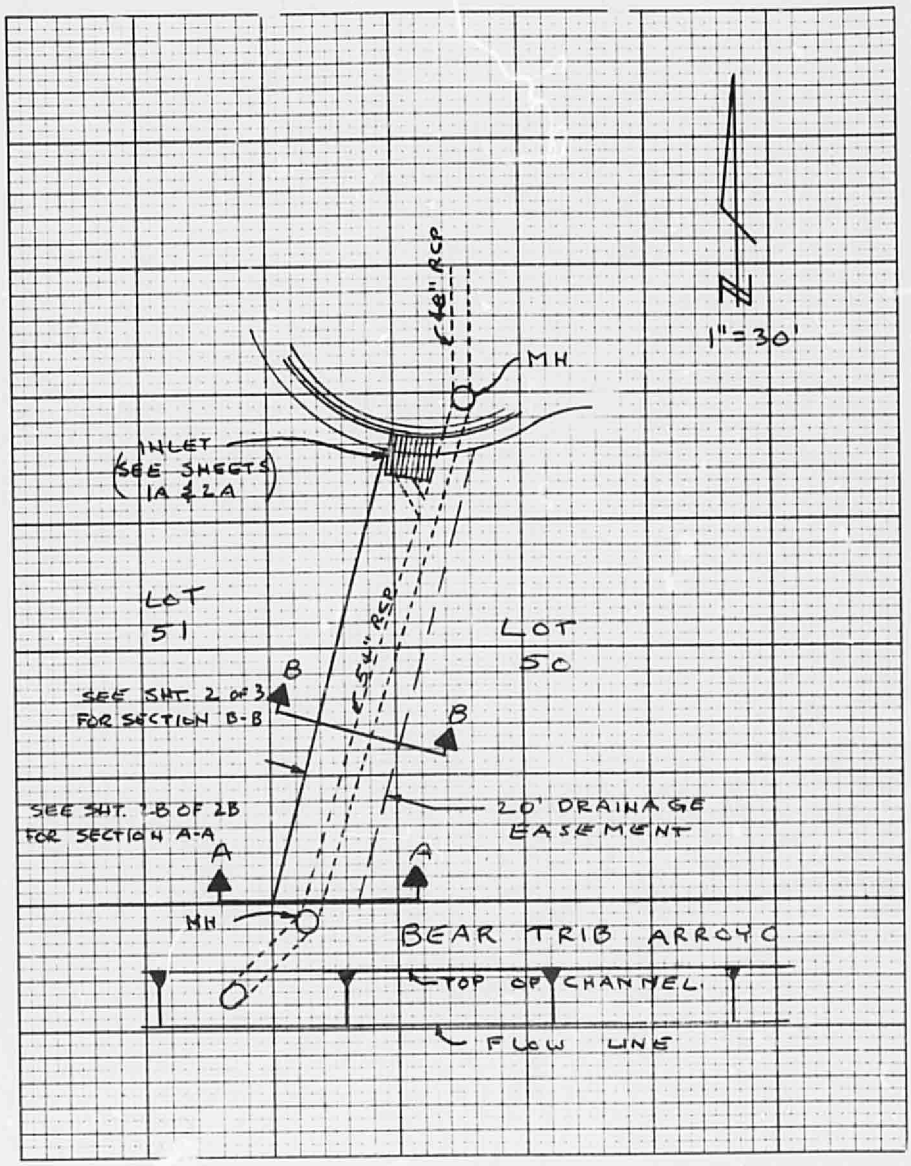
PROJECT NAME Canyon Run SHEET A OF 2A

PROJECT NO. 32263 BY DG DATE 5/23/84

SUBJECT Inlet Section (Basin 4) CH'D DATE



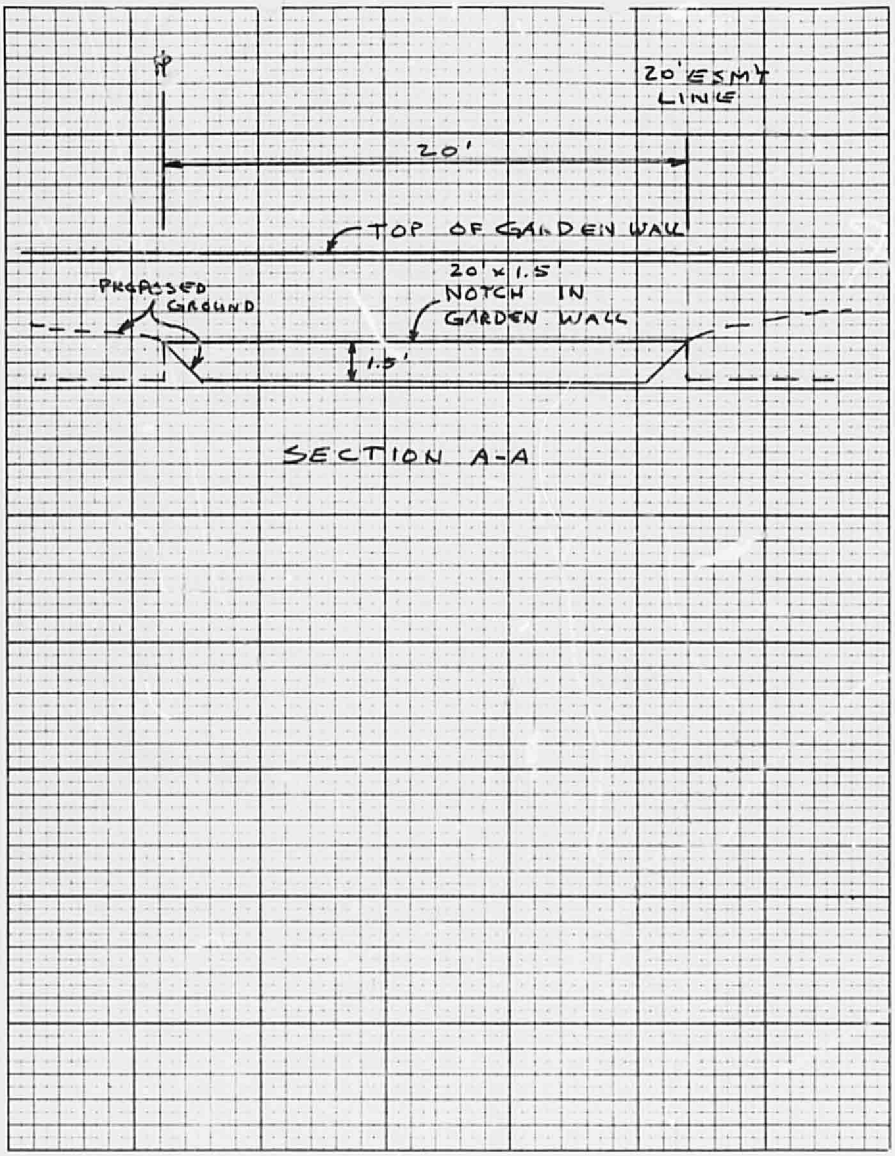
PROJECT NAME CANYON RUN SHEET 2A OF 2A
PROJECT NO. 32263 BY DG DATE 5/23/84
SUBJECT INLET SECTION (BASIN 4) CH'D DATE



PROJECT NAME CANYON RUN SHEET 1B OF 2B

PROJECT NO. 32263 BY DG DATE 5/29/84

SUBJECT DRAINAGE EASEMENT CH'D _____ DATE _____



SECTION A-A

PROJECT NAME Canyon Run SHEET 2B OF 2B

PROJECT NO. 32263 BY DG DATE 5/29/84

SUBJECT Drainage Easement CH'D ____ DATE ____

INFORMATION SHEET

DRAINAGE REPORT ADD. #1

PROJECT TITLE CANYON RUN SUB'D TYPE OF SUBMITTAL GRADING PLAN

ZONE ATLAS PAGE NO. E-20 D23 CITY ADDRESS _____

LEGAL DESCRIPTION EDWARD TRACT

ENGINEERING FIRM BOHANNAN-HUSTON, INC. CONTACT DAN GROCHOWSKI

ADDRESS 4125 CARLISLE NE ALBUQUERQUE, NM 87107 PHONE 881-2000

OWNER BROWN & ASSOCIATES, INC. CONTACT RON BROWN

ADDRESS 3800 CARLISLE NE ALBUQUERQUE NM PHONE _____

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR BOHANNAN-HUSTON INC. 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 8/1/84

BY: Dan Grochowski

RECEIVED
AUG 01 1984
HYDROLOGY SECTION

OFFSITE FLOWS

BASIN A:

AREA: 29.3 ACRES

C: 0.52 (40% IMPERVIOUS - B TYPE SOIL)
FROM PLATES 22.2 C-1 & C-2
W/ SLIGHTLY SMALLER THAN ¼ AC. LOTS

RAINFALL: 2.4 INCHES (100-YEAR)

SLOPE: (70-17)/2650 = 2.0%

VELOCITY: 3.8 fps (plate 22.2 B-1)

T_c: 2650/(3.8×60) = 11.6 min.

I: 2.4(1.96) = 4.7 in/hr. (plate 22.2 D-2)

Q_{100} = 0.52 (4.7) 29.3 = 71.6 cfs

Q_{10} = 71.6 (0.657) = 47.0 cfs

BASIN B:

AREA: 4.0 ACRES

C: 0.52

T_c: USE MINIMUM OF 10 min.

I: 2.4 (2.11) = 5.1 in/hr.

Q_{100} = 0.52 (5.1) 4.0 = 10.6 cfs

Q_{10} = 10.6 (0.657) = 7.0 cfs

RECEIVED
AUG 0 1 1984
HYDROLOGY SECTION

PROJECT NAME Canyon Run SHEET 1 OF 11
PROJECT NO. 32263 BY DG DATE 7/23/84
SUBJECT Offsite Flows CH'D DATE

ONSITE FLOWS

PROPOSED CONDITIONS:

	1.	2.	3.	4.	5.
AREA (A_c)	3.8	3.3	11.5	19.8	2.7
"C" FACTOR	0.64	←	→		0.64
T_c (min.)	10	←	→		10
RAINFALL (100yr.) (in.)	2.4	←	→		2.4
INTENSITY	5.1	←	→		5.1
Q_{100}	12.4	10.8	37.5	48.3	8.8
Q_{10}	8.1	7.1	24.6	31.7	5.8
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0
TOTAL Q_{100}	12.4	10.8	48.1	58.9	8.8
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE OFFSITE OUTFALL	35.8	35.8	0	35.8	17.9
TOTAL	48.2	46.6	48.1	94.7	26.7

PROJECT NAME CANYON RUN SHEET 2 OF 11
PROJECT NO. 32263 BY DG DATE 7/25/84
SUBJECT ONSITE FLOWS CH'D _____ DATE _____

STORM DRAIN HYDRAULICS

PIPE OUTLET:
CHANNEL INVERT : 02.3
CHANNEL HGL : 05.5

SET PIPE INVERT @ 03.3
W/ 48" PIPE SOFFIT = 07.3

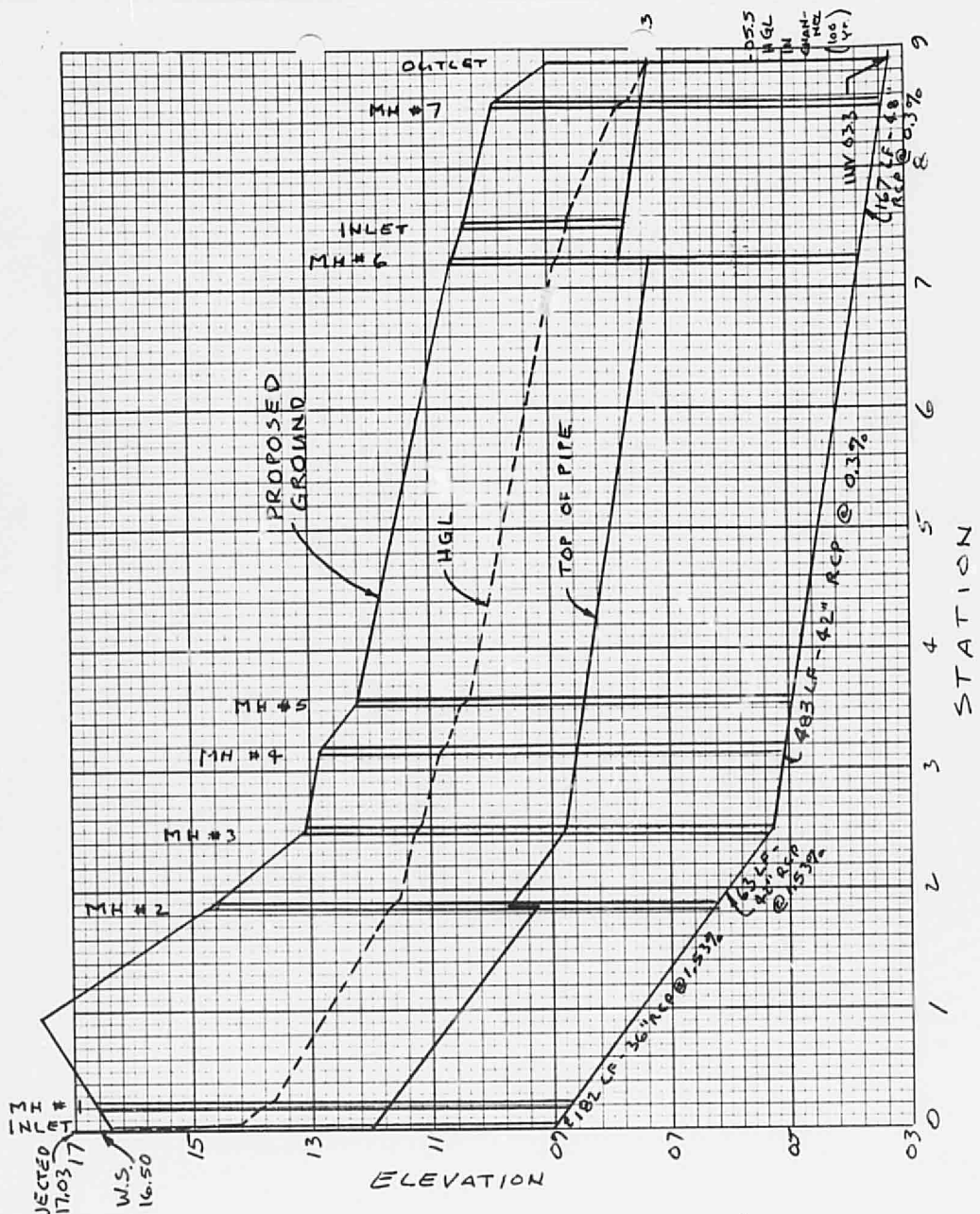
SEGMENT		1 (36")	2 (42")	3 (48")	4 (48")	2 A (36")
Q	=	71.6	71.6	71.6	130.5	58.9
A	=	7.07	9.62	12.57	12.57	7.07
WP	=	9.42	11.00	12.57	12.57	9.42
HR	=	0.75	0.875	1.00	1.00	0.75
n	=	0.013	0.013	0.013	0.013	0.013
V	=	10.13	7.44	5.70	10.38	8.33
K	=	667.1	1149.8	1836.8	1436.8	667.1
S_f	=	0.0115	0.0039	0.0025	0.0083	0.0078

Seg.	LOCATION	LENGTH	h_f	h_j	h_{mh}	h_t	Δ	K_b	h_b	h_i	HGL Elev.
	OUTLET										07.30
		35	0.29								07.59
4	MH 7				0.08		28°	0.11	0.18		07.85
		100	0.82								08.67
	JCT			0.00		0.00					08.67
		32	0.08								08.74
3	MH 6				0.03		22°	0.10	0.08		08.86
		375	1.46								10.32
	MH 5				0.04		46°	0.14	0.12		10.48
		41	0.16								10.64
2	MH 4				0.04		48°	0.15	0.13		10.81
		67	0.26								11.07
	MH 3				0.04		48°	0.15	0.13		11.24
		63	0.25								11.49
	MH 2				0.06	0.00	45°	0.14	0.17		11.72
		160	1.84								13.56
1	MH 1				0.08		45°	0.14	0.22		13.86
		22	0.25								14.11
	INLET									2.39	16.50

$h_f = S_f(L)$ $\quad h_{mh} = 0.05\left(\frac{V^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V^2}{2g}\right)$

$h_j = \frac{V_2^2}{2g} - \frac{V_1^2}{2g} - \left(\frac{2A_2}{A_2} \cdot \frac{V_2^2}{2g} \cdot \cos\theta\right)$ $\quad h_t = 0.2\left(\frac{V_1}{2g} - \frac{V_2}{2g}\right)^2$

PROJECT NAME Canyon Run SHEET 3 OF 11
PROJECT NO. 32263 BY DG DATE 7/25/84
SUBJECT Storm Drain Hydraulics CH'D DATE



PROJECT NAME Canyon Run SHEET 4 OF 11

PROJECT NO. 32263 BY OG DATE 7/25/84

SUBJECT Hydraulic Grade Line CH'D _____ DATE _____

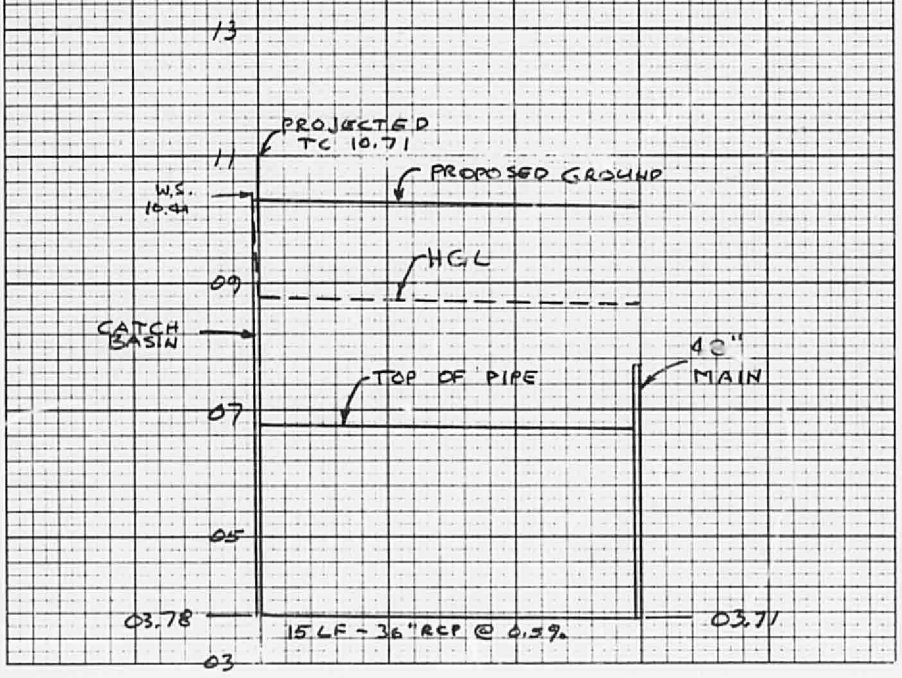
STORM DRAIN HYDRAULICS

BASIN 4 CATCH BASIN

SEE SHEET FOR HYDRAULIC DATA (SEGMENT 2A (36"))

LOCATION	LENGTH	h_f	h_i	HGL ELEV.
JCT				08.67
	15	0.12		08.79
INLET			1.62	10.41

$h_f = S_f(L)$ $\quad h_i = 1.5\left(\frac{V^2}{2g}\right)$



PROJECT NAME Canyon Run SHEET 5 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT Storm Drain Hydraulics & HGL CH'D _____ DATE _____

CATCH BASIN CAPACITIES

CATCH BASIN DIAMETER : 6 ft.
AREA : 28.27 ft.²

USE ORIFICE EQ. $Q = CA\sqrt{2gH}$

C : 0.62

$H_{max} = 0.67$ ft Q = 115.1 cfs

Q (REQUIRED CAPACITY)

- OFFSITE 71.6 cfs
- BASIN Q 58.9 cfs

PROJECT NAME Canyon Run SHEET 6 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT Miss. Calculations CH'D DATE

LOT DRAINAGE ALONG MOON ST.

1) MAX. AREA PER LOT DRAINING TO MOON ST: 48.2 ft.²
C: 0.64
I: 5.1 in/hr.

Q = 0.36 cfs

TRY TWO WALL OPENINGS 6"x6"
USING WEIR EQ. $Q = CLH^{3/2}$

C = 3.0 L = 1 ft Q = 0.36 cfs

H = 2.9 inches

USE 2 - 6"x6" OPENINGS PER LOT

PRIVATE DRAINAGE EASEMENTS

MAX. AREA DRAINING TO EASEMENT:
1/2 OF 4 LOTS = 60x60x4 = 14400 = 0.33 Ac.
C = 0.64 I = 5.1
Q = 0.64(5.1) 0.33 = 1.1 cfs
MIN. SLOPE = 1.25 %

TRY V DITCH SS - 4:1 n = 0.045

USING MANNING'S EQ. d = 0.45 ft
V = 1.34 fps
TOP WIDTH = 0.45(4)(2) = 3.6'

USE 4' WIDE DRAINAGE EASEMENTS

PROJECT NAME CANYON RUN SHEET 7 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/82
SUBJECT MISS. CALCULATIONS CH'D DATE

CHANNEL CAPACITIES

(USING MANNING'S EQ.: $Q = A\frac{1.486}{n}(HR)^{2/3}(S)^{1/2}$)

BASIN 5

MAX. FLOW IN CHANNEL = 26.7 cfs

$n = 0.013$

M.L. SLOPE = 0.53%

TRY 9' BOTTOM WIDTH

@ Q = 26.7 cfs d = 0.56 ft.

V = 5.3 fps

BASIN 4

MAX. FLOW IN CHANNEL = 58.9 cfs
OFFSITE BASIN OUTFALL FAILURE Q = 94.7 cfs)

$n = 0.025$ SS = 1:1

MIN SLOPE = 0.6%

TRY 17' BOTTOM WIDTH

@ Q = 58.9 cfs d = 0.83 ft

V = 4.0 fps

(@ Q = 94.7 cfs d = 1.10 ft

V = 4.7 fps)

PROJECT NAME CANYON RUN SHEET 8 OF 11

PROJECT NO. 32263 BY DG DATE 7/26/84

SUBJECT CHANNEL CAPACITIES CH'D ____ DATE ____

CHANNEL ENTRANCE CAPACITIES
(using Weir Eq.: $Q = 3.4 H^{3/2}$)

BASIN 5 :

$Q = 26.7$ cfs
$L = 9$ ft.

$$H = \left(\frac{4.9}{3 \times 9}\right)^{2/3} = 0.99 \text{ ft.}$$

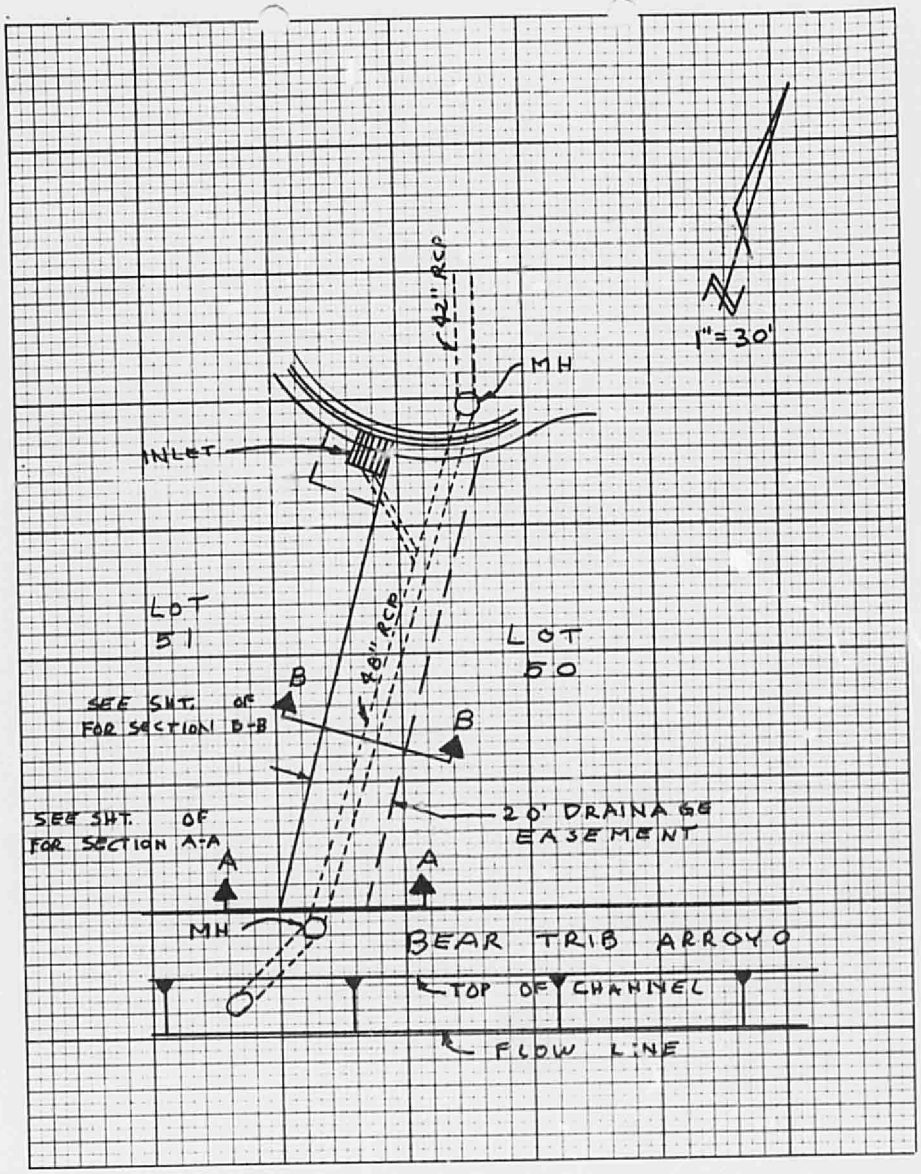
BASIN 4 :

$Q = 58.9$ cfs (94.7 cfs)
$L = 19$ ft.

$$H = \left(\frac{58.9}{3 \times 19}\right)^{2/3} = 1.02 \text{ ft.}$$

$$\left(\left(\frac{94.7}{3 \times 19}\right)^{2/3} = 1.40 \text{ ft.}\right.$$

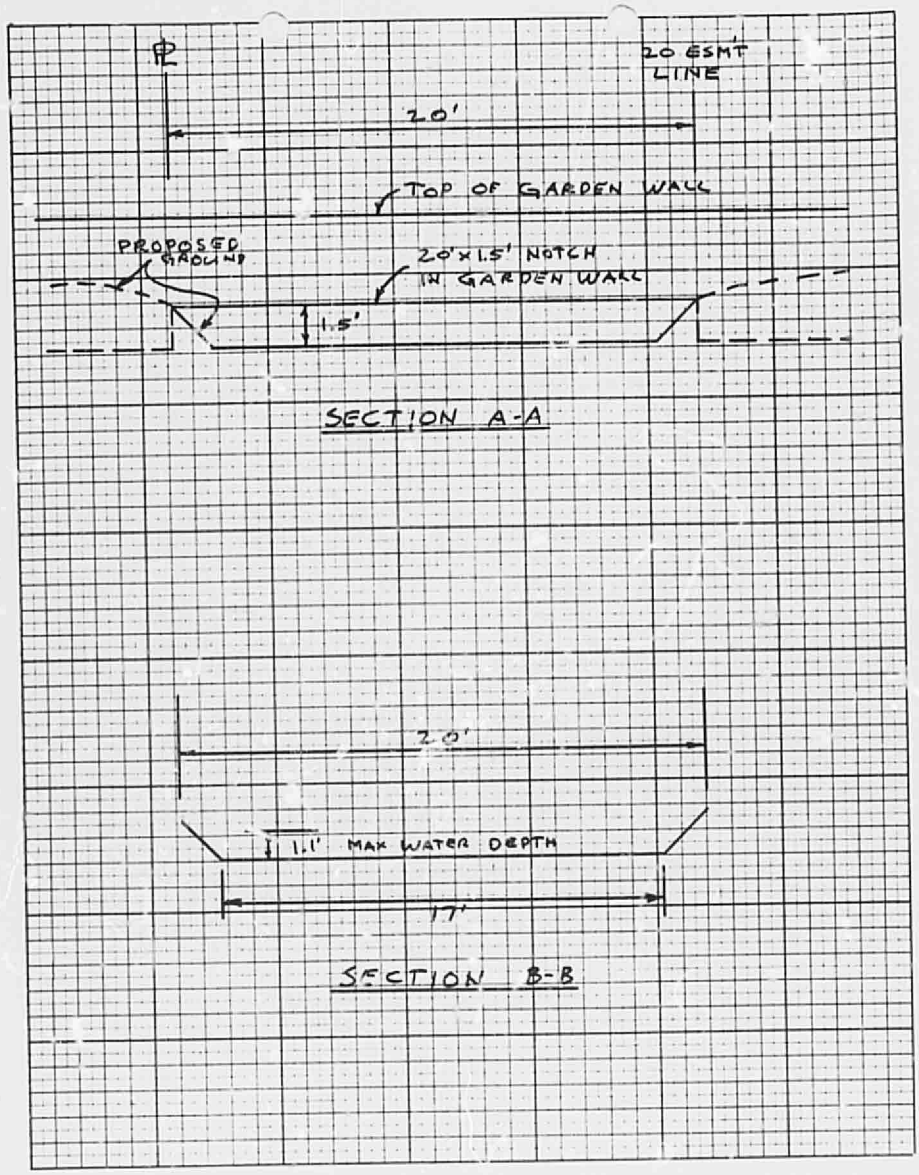
PROJECT NAME Canyon Run SHEET 9 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT Channel Entrance Capacities CH'D _____ DATE _____



PROJECT NAME Canyon Run SHEET 10 OF 11

PROJECT NO. 32263 BY DG DATE 7/26/84

SUBJECT Drainage Easement CH'D _____ DATE _____



PROJECT NAME Canyon Run SHEET 11 OF 11

PROJECT NO 32263 BY DG DATE 7/26/04

SUBJECT Drainage Easement CH'D _____ DATE _____

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

E20 D23

July 30, 1984

Billy J. Goolsby, P.E.
City/County Flood Plain Administrator
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Canyon Run Subdivision

Dear Billy:

Enclosed please find additional calculations, Plate 6 revised, and the final grading plan for the referenced site. With this submittal we are responding to comments in your letter of June 29, 1984 and are requesting drainage report approval and a rough grading permit.

In an effort to reduce the amount of imported fill required for the referenced site, we have revised the grading plan for the proposed subdivision. As a result of these revisions, the drainage basin boundaries have been extended north in Casa Feliz to collect runoff from Academy Estates, Unit 7, prior to entering the Canyon Run site. A sump condition has been developed in Casa Feliz to facilitate a catch basin.

We have been informed by the engineer for SAD 210 that the storm drain system in Academy has been designed to accept all runoff generated in the Academy right-of-way. A valley gutter has been constructed across Casa de Vida at its intersection with Academy. Consequently, we have reduced the size of off-site Basin A from 32.2 acres to 29.3 acres, decreasing the flow by 7.1 cfs to 71.6 c.s.

The combination of new drainage basin boundaries, reduced off-site flows entering the site and extension of the storm drain in Casa Feliz has reduced the pipe size requirements for the storm drain (see calculations enclosed). With the pipe diameter reduction, the 20-foot wide easement is, once again, valid (comment #2).

In response to the first comment, we have received verbal approval for the use of grass lining for the emergency spillway from Mr. Dan Hogan. We will provide a cut-off wall at the connection of the rundown with the Bear Tributary.

RECEIVED
AUG 0 1 1984
HYDROLOGY SECTION

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

We will be submitting construction drawings in the near future and would appreciate an expeditious review of the enclosed material. If you have any questions, please call Dan Grochowski at 881-2000.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DJG/mws
Job No. 3 226 3

RECEIVED
AUG 01 1984
HYDROLOGY SECTION

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

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

June 29, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: REVISED DRAINAGE REPORT FOR CANYON RUN SUBDIVISION (F20-D23)
RECEIVED MAY 29, 1984

Dear Dan:

I have reviewed the above referenced submittal and issue two (2) comments:

1. The use of grass lining for the emergency spillway over the 54" pipe will have to be approved by Jim Fink since it will be a City maintenance responsibility.

2. The 20' wide easement is no longer valid, per the DPM criteria, since the pipe diameter has been increased.

Also, for safety reasons, it is not advisable to have the water discharge across the sidewalk to Moon Street, In the winter, ice could form.

Please provide an information sheet with the next and all future submittals to this office. This sheet helps us in our record keeping.

Should you have any questions or comments, please contact me.

Yours truly,

Billy J. Goolsby

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

BJG:mrk

BOHANNAN · HUSTON INC.

4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
6701 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

May 24, 1984

Mr. Billy J. Goolsby
City/County Flood Plain Administrator
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

E20-D23

Re: Canyon Run Subdivision Drainage Report

Dear Billy:

First of all, let me thank you for your quick response to our submittal of April 19, 1984. In response to your comments in your letter of April 20, 1984, we submit the following:

1. The rear lot line wall along Moon will require openings to allow for drainage to Moon. See sheet 1 of the enclosed calculations. A note has been added to Plate 6 indicating the opening requirement.

2. Elevations will be added to Moon Street from the plans for SAD 210.

3. The capacity of the proposed catch basin is 156 cfs. See sheet 1 of the enclosed calculations. Final detailing of the catch basin will be done as part of the public infrastructure improvement plans. The 48" pipe will be shown in its proper location.

4. Direction of roof drainage has been added to Plate 6.

In addition to these responses, we have changed the concept of collecting runoff from Basin 4. A catch basin has been added at the southwest end of Subbasins 2 and 3 and to direct storm runoff to the storm drain. See revised sheet 3. The increase in required capacity results in an increase in pipe size from the new catch basin to the Bear Trib Channel. A 54" pipe is now required. See revised sheets 7 and 8.

RECEIVED
MAY 29 1984
HYDROLOGY SECTION

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

In the event of failure of the storm drain, the rundown will contain the entire flow within the easement limits. See sheet 2 of the miscellaneous calculations for rundown sizing. Openings shall be required in the garden wall of Lot 50 to allow for rundown use. Again, the rundown is for emergency situations only.

If you have any questions, please call.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DG/mw
Job No. 3 226 5

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

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

April 20, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: DRAINAGE REPORT FOR CANYON RUN SUBDIVISION (F20-D23) RECEIVED APRIL 19, 1984

Dear Dan:

I have reviewed the above referenced report and only have a few comments:

1. The plan shows drainage in the back of the lots adjacent to Moon Street directed toward the property line. How are they to be handled? Will the water pond against a wall or flow over the public R/W?

2. Top of curb and flowline elevations should be shown for Moon Street for clarity of interfacing. Approved street grades are required if not existing.

3. What is the capacity of the proposed catchbasin? Also, the detail shows the 48 inch pipe coming from the back of the catchbasin.

4. Roof drains should be indicated on the plan.

Satisfactory response to the above comments will give drainage approval for preliminary plat approval. It is understood that a detailed, construction quality, grading plan will be submitted to this office for review and approval prior to final sign-off.

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

Yours truly,

Billy J. Goolsby

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

BJG:mrk

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

Yours truly,

Billy J. Goolsby

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

BJG:mrk

INFORMATION SHEET

PROJECT TITLE CANYON RUN SUBDIVISION TYPE OF SUBMITTAL DRAINAGE REPORT

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS _____

LEGAL DESCRIPTION EDWARD TRACT

ENGINEERING FIRM BOHANNAN-HUSTON, INC. CONTACT DAN GROSHOWSKI
ADDRESS 4125 CARLISLE NE ALBUQUERQUE, NM 87107 PHONE 881-2000

OWNER INMAN HOMES CONTACT RON BROWN
ADDRESS 8205 SPAIN NE ALBUQUERQUE, NM 87109 PHONE 821-5600

ARCHITECT _____ CONTACT _____
ADDRESS _____ PHONE _____

SURVEYOR BOHANNAN-HUSTON, INC. CONTACT _____
ADDRESS SAME AS ABOVE 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
X 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
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/19/84
BY: Dan Groshowski

RECEIVED
APR 19 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

April 17, 1984

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

Re: Drainage Report for Canyon Run Subdivision

Dear Fred:

Enclosed for your review is a copy of the referenced drainage report. Please contact me if you have any questions.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Ron Brown
Mr. John Brown

BGB/mw
Job No. 3 226 3

RECEIVED
APR 19 1984
HYDROLOGY SECTION

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

E30-D33

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

January 5, 1984

Mr. Michial M. Emery, P.E.
Vice President
Bohannan-Huston, Inc.
4125 Carlisle N.E.
Albuquerque, NM 87107

RE: Agreement for Constructing Improvements to the Bear Tributary Arroyo
(Our letters, November 29, 1983 and December 27, 1983)

Dear Mike:

Attached is an addition to paragraph five (5) of the final version of the referenced agreement. We have made this addition after receiving another phone call from Carl Tebbens requesting that words be added to this paragraph to account for excess Academy and Edward funds that may not be required for the City to award a construction contract and may be remaining after final acceptance of the work by the City.

Please coordinate with Carl Tebbens at MSM and with respective clients, Dr. Edward and Gary Swearingen, regarding this addition to the agreement. If they concur, please have them sign the agreement and then return it to us for the Chief Administrative Officer's signature.

Very truly yours,

Carl P. Rodolph

Carl P. Rodolph
Director, Municipal Development

CPR/JNH/tsl
Attachment
JNH 1/6/84
cc: Carl A. Tebbens, P.E., Vice President, MSM
C. Dwayne Sheppard, City Engineer
James N. Hicks, Jr., Princ. Asst./City Engineer
Jim Fink, Planning and Programming Hydrologist
Fred Aguirre, Design Hydrologist
Charles N. Estes, Jr., Assistant City Attorney

E20/D23

7 Plans

1. Mr. Sheppard signed construction set for concrete channel from Wyoming to Estrellita (project 1930) April 5, 1984. As-built sign-off June 9, 1985

2. First submittal drainage report April 19, 1984

3. Comments April 20, 1984

4. 2nd submittal May 24, 1984

5. Comments June 29, 1984

6. 3rd submittal Aug 1, 1984

7. Comments by phone Aug 16, 1984

8. 4th submittal - change order to project 1930 Aug 28, 1984

9. Rough Grading sign-off Sept 10, 1984

10. Supplemental information for construction drawings submitted Oct 9, 1984

11. Moon street improvements letter from Ron Brown Oct 24, 1984

12 Addendum for construction plan sign-off. Nov 7, 1984

13. Drainage plan Approval Nov 8, 1984

14. Letter from Grey Olsen to Bohannon Huston on project 2250 Dec 6, 1984

15. Re submittal of construction set Jan 2, 1985

16. Drainage plan approved again Jan 17, 1985

ASSOCIATED COUNSELING SERVICES

Carl B. Adams, Ph.D.
Clinical Psychologist
Carol Adams, M.A.
Counselor

RECEIVED
APR 03 1987
HYDROLOGY SECTION

March 30, 1987

Richard L. Duran
City of Albuquerque
Utility Development Division
Hydrology Section
P. O. Box 1293
Albuquerque, New Mexico 87103

RE: Correspondence 3/2/87

Dear Mr. Duran:

I am writing in reference to your letter of March 2, 1987, and have enclosed a copy of that letter. At the time the terrace and backfill was planned, I was not aware of the problem. I intend to excavate the backfill far enough to build a retaining wall that will meet city code.

If you have any questions or concerns, please feel free to call me at 821-9630 or daytimes 883-8984.

Sincerely,

Carl Adams

Carl B. Adams, PhD

cc: Al Iacoltti

4316 Carlisle N.E. Suite C • Albuquerque, New Mexico 87107 • (505) 883-8984

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

March 2, 1987

Property Owner
5917 Canyon Crest Place, NE
Albuquerque, New Mexico 87111

Our office has received a complaint that the common garden wall behind your house has been backfilled over 18 inches. Attached is a copy of the approved grading plan for Canyon Run Subdivision. If you will note, the grading plan shows by spot elevations that the difference in grade between your property and the adjacent property was designed at approximately one foot. Measurements taken on March 2, 1987 showed a 32 inch difference in grade. Backfill against an unreinforced garden wall exceeding 18 inches has been shown to weaken the integrity of a wall and eventually result in its collapse.

The intent of this letter is to advise you of a potential problem and inform you that this situation is a civil matter to be arbitrated between the two property owners involved.

If you have any questions or comments, please feel free to call me at 764-1699.

Cordially,

Richard L. Duran

Richard L. Duran
Drainage Inspector

cc: Al Iacoltti
8804 Caminoto Drive, NE

Enclosure

RLD/bsj

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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

January 17, 1985

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: REVISED GRADING PLAN FOR CANYON RUN SUBDIVISION (E20-D23) RECEIVED JANUARY 4, 1985

Dear Dan:

I am, hereby, giving official notice that the above referenced submittal has been received and is approved by this department.

The construction plans were signed off last week in DRC. Therefore, no further action is required.

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

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

1/9/85 Discussed w/ Dan Hogan no objection to subject request of elimination of 2 concrete ribbon. 0018

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

January 3, 1985

RECEIVED
JAN 04 1985
CITY ENGINEER

Mr. Dwayne Sheppard, City Engineer
MDD-Engineering
P. O.Box 1293
Albuquerque, New Mexico 87103

RE: Appeal of Drainage Requirement, Canyon Run Subdivision-City Project #2250

Dear Dwayne:

The purpose of this letter is to appeal a drainage requirement for construction of a 2 foot concrete ribbon on the surface above a 48 inch concrete storm sewer on Lot 21, Block D of Canyon Run Subdivision. The storm sewer and ancillary catch basins in the subdivision are designed to carry the 100 year flows from the subdivision; the storm sewer runs across Lot 21, Block D in a 20 foot easement. The 20 foot easement is also designated as an emergency surface drainage way (in the event of a failure of the storm sewer system) and is noted on the Subdivision Plat Map as follows:

"No trees shrubs, fences or other structures may be placed in the 20' Public Drainage Easement as shown on Lot 21 Block D."

When we were planning this subdivision we wanted to incorporate this easement into usable area for a lot owner rather than have this area as a "no mans land" easement between two lots. The only purpose to be served by the required concrete ribbon is to show on the surface of the lot that there is a drainage easement across the property. I protested the requirement of the concrete ribbon when we were reviewing the plan comments of the Hydrology Section, but I was over-ruled by Jim Fink and Dan Hogan. I believe that the requirement is superfluous and only creates an unsightly limitation to the owner's ability to otherwise productively use the easement area, subject to the drainage requirements.

Revised plans prepared by Bohannan-Huston,Inc. which incorporate this requested change and several other changes, are being submitted to your department under separate cover. A copy of this letter will accompany those revised plans to facilitate your inter-office coordination relating to this issue.

I appreciate your consideration of this matter.

Very Truly Yours,

Ronald D. Brown

RDB/cjg
cc; Chris Inman

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Revision

ZONE ATLAS PAGE NO. E-20 / D23 CITY ADDRESS

LEGAL DESCRIPTION Canyon Run Subdivision

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Groshowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture c/o Brown & Associates CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque, NM PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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 Change Order Approval (SPECIFY)

RECEIVED
JAN 04 1985
HYDROLOGY SECTION

DATE SUBMITTED: 1/3/85

BY: Dan Groshowski

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

January 2, 1985

Mr. Gregory R. Olson
Assistant City Engineer/Design
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

Re: Canyon Run Subdivision - Revisions, Project No. 2250

Dear Greg:

Transmitted herewith are 5 sets of the construction drawings, revised, for the referenced project for review and approval.

In response to the concerns expressed in your letter dated December 6, 1984 (copy attached for your reference) we submit the following:

- The proposed grades were followed as closely as practicable.
- A revised grading plan is included in the plan set and a print sent to Hydrology with a copy of this letter.
- The existing sheets used to identify the Moon Street sidewalk now include the note you requested.
- Additional excess fill has not become available at this time.
- The revisions have been annotated on the original.

In addition to the revisions originally requested, we have also removed the 2 foot wide concrete strip that was located in the center of the 20 foot wide drainage easement in Lot 21 of Block D. This has been done at the request of the developer, Brown and Associates. Mr. Ron Brown of Brown and Associates discussed the concrete strip with Mr. Dwayne Sheppard. (See enclosed letter). It was agreed that such strips are generally used to carry low flows. In Canyon Run the underground storm drain carries all runoff; therefore, the concrete strip should not be required.

RECEIVED
JAN 04 1985
HYDROLOGY SECTION

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

Please schedule this project for final sign-off at the DRC on January 9, 1985. Upon approval of the revisions, the last five items required in your letter will be provided.

If you have any questions or comments, please feel free to call me.

Sincerely,

Dan Grochowski

Daniel J. Grochowski, P.E. & L.S.
Project Manager

Enclosures

cc: Mr. Ron Brown
Mr. Carlos Montoya

DJG/mls
Job No. 3 226 5

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 6, 1984

Mr. Daniel Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, New Mexico 87107

RE: Canyon Run Subdivision - Revisions, Project No. 2250

Dear Dan:

I presented your proposed grading and sidewalk changes on subject project to the Design Review Committee members after our December 5, 1984 session of DRC. Following is a summary of comments:

WRD - No concerns
Traffic - Probably okay if proposed grades are followed
Hydro - An updated or revised grading plan will need to be provided and approved.
Design -

1. The new or existing sheet used to identify the Moon St. sidewalk should include a note for contractor to coordinate installation of sidewalk with adjacent paving project SAD 210.

2. If additional excess fill becomes available, it would be desirable to see the lots along S. and E. boundaries of Block D raised, to reduce the grade differential between them and the adjacent properties and the Bear Tributary Arroyo.

It is now appropriate for you to check out the original drawings for necessary revisions. Please substitute prints or sepias of the original design drawings in our files, during the redesign process. Any revisions to the drawings should be annotated on the plan or profile and in the revision block of that sheet on originals.

Upon approval of revisions, we will require:

1. Your estimate of revised quantities on standard estimate form, including Cash Paving No. 31 prices and extensions.

2. Copy of the Change Order to accomplish the revised work.

3. Consent of surety to any change in the contract amount covered by the Warranty Bond.

RECEIVED JAN 04 1985 HYDROLOGY SECTION

MUNICIPAL DEVELOPMENT DEPARTMENT
C. Dwayne Sheppard, P.E., City Engineer ENGINEERING DIVISION Telephone (505) 766-7467

AN EQUAL OPPORTUNITY EMPLOYER

4. Payment of Additional Engineering Fees on the additional contract cost.

5. Contractor will have to get Excavation and Sidewalk Permit for the additional two blocks of sidewalk on Moon Street.

If you have any questions, please call me.

Sincerely,

Greg Olson

Gregory R. Olson
Assistant City Engineer/Design

GRO/fs

cc: Barry Simmons, Senior Civil Engineer/Field Section
Mr. Ron Brown, Brown & Associates
Project File 2250

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

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

November 8, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle NE
Albuquerque, NM 87107

REF: CANYON RUN SUBDIVISION (E20-D23) RECEIVED NOVEMBER 7, 1984

Dear Dan:

The above referenced plan, dated August 1, 1984, is approved.

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

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

Sincerely yours,

Carlos A. Montoya

Carlos A. Montoya, PE
City/County Flood Plain Admin.

CAM:mrk

cc: B-I Joint Venture, c/o Ron Brown & Assoc., 3800 Carlisle NE

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Addendum

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Groschowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture c/o Ron Brown & Associates CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque, NM 87107 PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
X OTHER Construction Plans (SPECIFY) Sign off

DATE SUBMITTED: 11/7/84

BY: Dan Groschowski

INFORMATION SHEET

PROJECT TITLE Canyon Run Sub'd TYPE OF SUBMITTAL Addendum

ZONE ATLAS PAGE NO. E 20 CITY ADDRESS

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan-Huston, Inc CONTACT Dan Grochowski

ADDRESS 4125 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture c/o Ron Brown & Associates CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque NM 87107 PHONE 883-1674

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan-Huston, Inc. CONTACT

ADDRESS See Above 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
X OTHER Construction Plans (SPECIFY)
Sign off

DATE SUBMITTED: 11/7/84

BY: Dan Grochowski

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

October 25, 1984

E-20
D/23

Mr. Robert F. Sykes, P.E.
Wilson & Company
P. O. Box 3548
Albuquerque, New Mexico 87190

RE: SAD 210 - Ratification of Benefits for 94 Lots, Canyon Run Subdivision (formerly Tract 4A, Lands of William O. and Mary L. Edward)

The attached letter from Brown & Associates, Inc. indicates their willingness to ratify, on a unit basis, the benefits previously determined for Tract 4-A, Lands of William O. and Mary L. Edward, Item No. 9 of the Estimated Maximum Benefit Roll for SAD 210. The ratification will spread the benefits for Item No. 9 over the 94 lots contained in the Canyon Run Subdivision, which is a Replat of Tract 4A. The replat is in the final stages of signature approval within the City. Mr. Brown, President of Brown & Associates, Inc. has also agreed to pay the costs for the associated additional assessments engineering that will be required by Wilson and Company for the deletion of Item No. 9 and the creation of 94 new item numbers. He has agreed that these costs should be included with the benefits which he will ratify for the 94 lots in the Canyon Run Subdivision.

Please prepare the ratification per Paragraph A.3.d (4) of Exhibit I, A/E Services Agreement 82-18, dated July 13, 1982 and obtain the required signatures of the property owners.

Sincerely,

James N. Hicks, Jr.
Principal Assistant City Engineer

JNH/fs

cc: C. Dwayne Sheppard, City Engineer
Ronald D. Brown, President, Brown & Assoc., Inc.
Malcolm deVesty, Assistant City Attorney
Zachary L. McCormick, Modrall, Sperling, Roehl, Harris & Sisk
Fred A. Aguirre, Design Hydrologist
Pat Montano, Special Assessments Supervisor
Juanita Mastronardi, Special Assessments
File: SAD 210

Enclosure

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

October 16, 1984

Mr. James Hicks
Assistant City Engineer
MDD-Engineering
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
OCT 18 1984
CITY ENGINEER

Dear Jim

Per our discussion this morning, this letter confirms that the owner of Tract 4A, lands of William O. and Mary L. Edward is B.I. Joint Venture. This property is a part of the lands being assessed under S.A.D. 210, and the maximum benefit calculated is approximately $87,000. B.I. Joint Venture is in the process of replatting this property into Canyon Run Subdivision (City Project No. 2250), which will be 94 separate single family lots. This subdivision plat, along with the Subdivision Construction Documents, the Subdivision Agreement and Financial Guarantee are currently in the final City approval process. B.I. Joint Venture will ratify the assessments for S.A.D. 210 for this property and will consent to dividing the maximum benefits for Tract 4A into 94 equal assessments for each of the 94 lots comprising Canyon Run Subdivision. You have spoken with Mr. Divesty, Assistant City Attorney, about the requirement to have an agreement between the City and B.I. Joint Venture relative to redividing the assessments. Please have the City Attorney's office prepare such an agreement. The appropriate name should be B.I. Joint Venture, a general partnership consisting of Brown & Associates, Inc. and Inman Enterprises, Inc. both New Mexico Corporations.

The signature block should be:

B.I. JOINT VENTURE

By: Brown & Associates, Inc., Venture Partner

By: _____
Ronald D. Brown, President

If you have any questions about title or the parties, you may contact Mr. Kevin Peterman, Executive Vice President of Rio Grande Title Company (883-6969).

Very truly yours,

Ronald D. Brown

RDB/ml

cc: Mr. Bryan Burnette, Bohannan-Huston, Inc.
Mr. Robert Sykes, Wilson & Co.
Mr. Chris Inman

FILE W/ RPT

BROWN & ASSOCIATES, INC.
REALTY SERVICES

Post Office Box 3671
Albuquerque, New Mexico 87190
Offices at: 3800 Carlisle Blvd. NE
(505) 883-1674

October 24, 1984

Mr. Fred Aguirre
Design Hydrologist
MDD-Engineering
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Moon Street Improvements adjacent to Canyon Run Subdivision
(Project No. 2250)

Dear Fred:

In the event that S.A.D.-210 improvements are not contracted for by January 31, 1985, and the City Engineer desires that B.I. Joint Venture install under private contract the improvements listed in Exhibit "A" of the attached escrow letter, then B. I. Joint Venture shall submit to the City of Albuquerque specific plans for those improvements, which would go through the City's normal plan review and approval process prior to the commencement of construction of those improvements.

Very truly yours,

B. I. JOINT VENTURE
By: Brown & Associates, Inc.

Ronald D. Brown, President

Encl.

RDB/cjg

OFFSITE CATCH BASIN DESIGN

TOTAL Q = 71.6 cfs

CATCH BASIN IN SUMP CONDITIONS

USE 2 TYPE A CATCH BASINS WITH DOUBLE "B" GRATES

GRATE SIZE $2[2(40" \times 25")] = 27.78$ SF (GROSS)

LESS - $2[2(13 - 1\frac{1}{2}" \times 40"$ BARS $\& 9 - 1\frac{1}{2}" \times 18\frac{1}{2}"$ BARS)]
$= 9.53$ SF

NET AREA $27.78 - 9.53 = 18.25$ SF

USE ORIFICE EQ.

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

$C = 0.62$ $\quad H = 8"$

$Q = 79.1$ cfs > 71.6 cfs O.K.

PROJECT NAME CANYON RUN SUB'D SHEET 2 OF 2
PROJECT NO. 32265 BY DJG DATE 10/18/84
SUBJECT CATCH BASINS CH'D DATE

BASIN 4 CATCH BASIN DESIGN

TOTAL Q = 58.9 cfs

CATCH BASIN IN SUMP CONDITIONS

USE TYPE "A" CATCH BASIN WITH DOUBLE "B" GRATE

GRATE SIZE 2 (40" x 25") = 13.89 SF (GROSS)

LESS 2 (13 - 1½" x 40" BARS & 9 - 1½" x 18½" BARS)
= 4.77 SF

NET AREA = 13.89 - 4.77 = 9.12 SF

USE ORIFICE EQ.

$Q = CA\sqrt{2gH}$

C = 0.62 H = 8"

Q = 37.0 cfs

Q STILL REQUIRED 58.9 - 37.0 = 21.9 cfs

WIDTH OF CURB FACE OPENING REQUIRED

USE ORIFICE EQ.

Q = 21.9 A = L x 0.5' H = 8" - 0.5/2 = 0.42'

L = 13.58'

USE 0.5' x 14' OPENING

PROJECT NAME CANYON RUN SUB'D SHEET 1 OF 2
PROJECT NO. 32265 BY DJG DATE 10/18/04
SUBJECT CATCH BASINS CH'D _____ DATE _____

INFORMATION SHEET

PROJECT TITLE Canyon Run Subdivision TYPE OF SUBMITTAL Supplemental Info

ZONE ATLAS PAGE NO. E-20 D23 CITY ADDRESS _____

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan - Huston, Inc. CONTACT Dan Grochowsn

ADDRESS 4120 Carlisle NE Albuquerque, NM 87107 PHONE 881-2000

OWNER B-I Joint Venture CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuquerque, NM 87107 PHONE 883-1674

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR Bohannan - Huston, Inc. CONTACT _____

ADDRESS See Above 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 Construction Drawing (SPECIFY)
Sign Off

DATE SUBMITTED: 10/9/84

BY: Daniel Grochowski

RECEIVED
OCT 09 1984
HYDROLOGY SECTION

BOHANNAN–HUSTON INC.

4125 Carlisle Blvd. NE Albuquerque, New Mexico 87107
(505) 881-2000

Transmittal

To: City Hydrology
123 Central NW

Attention: Carlos Montoya

☐ Parcel Post ☐ Messenger
☐ First Class ☐ UPS
☐ Express Mail ☐ Air Freight
☐ Bus ☒ Hand

Date: 10/9/84 Our job number: 33265
Your job number:

Job: Canyon Run Subdivision

We are enclosing:	For:
1 Print - Sheet 18 of Construction Drawings	

Comments:

Carlos,

Please note the detail which has been added to the plans for the wall between the Bear Tile and the 20' drainage easement. If you would let Billy Hately know so he can sign-off tomorr I would appreciate it. Thanks.

RECEIVED
OCT 09 1984
HYDROLOGY SECTION

By: Daniel Hurlowski thank you

Rec'd by: Connie Lujan Date: 10-9-84

☐ Please Return Signed Yellow Copy

2/1/84

INFORMATION SHEET

PROJECT TITLE Canyon Run Subdivision TYPE OF SUBMITTAL Drainage Report and Revised Grading Plan

ZONE ATLAS PAGE NO. E-20 P23 CITY ADDRESS _____

LEGAL DESCRIPTION Edward Tract

ENGINEERING FIRM Bohannan-Huston, Inc. CONTACT Dan Grochowski

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

OWNER Brown & Associates, Inc. CONTACT Ron Brown

ADDRESS 3800 Carlisle NE Albuq, NM 87107 PHONE 883-1678

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR Bohannan-Huston, Inc. CONTACT _____

ADDRESS See Above 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

RECEIVED
AUG 30 1984
HYDROLOGY SECTION

DATE SUBMITTED: _____

BY: Dan Grochowski

BOHANNAN-HUSTON INC.

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 915 778-4431

August 28, 1984

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

Re: Canyon Run Subdivision

Dear Carlos:

Enclosed are prints of the changes made to the Bear Trib Plans to facilitate Canyon Run, along with the letter to Russell Givler requesting the changes. Also enclosed is the revised Grading Plan showing a change to concrete rundowns in the private drainage easements and its supporting calculations. With this submittal, we again request drainage report approval and a rough grading permit.

If you have any questions, please call Dan Grochowski at 881-2000.

Sincerely,

Brian Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DG/bl
Job No. 32263

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

BOHANNAN-HUSTON INC.

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

August 28, 1984

Mr. Russell Givler
Senior Civil Engineer
Civil Engineering Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Bear Trib Arroyo Change Order

Dear Mr. Givler:

With this letter, we request a change order to the referenced project. Enclosed are reproducibles of Sheets 7 and 8 of the referenced project, revised to show the new locations for rundowns and new storm drain stub out. Details of the storm drain stub out connection to the channel on 8-1/2" x 11" sheets are attached to Sheets 7 & 8.

The sanitary sewer changes at Moon Street, previously submitted, have been included on the drawings.

The quantity estimates for each of the changes (excluding the sanitary sewer) are also enclosed for your information.

If you have any questions, please call Dan Grochowski of our office.

Sincerely,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown
Mr. Carlos Montoya

DG/bl
Job No. 32265

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

PRIVATE DRAINAGE EASEMENT CAPACITIES

MAX. AREA DRAINING TO EASEMENT:

1/2 OF 4 LOTS - $60 \times 60 \times 4 = 14400 = 0.33$ Ac.

$C = 0.64$ $I = 5.1$ in./hr.

$Q = 0.64 (5.1) 0.33 = 1.1$ cfs

MINIMUM SLOPE — 1.25%

TRY CONCRETE LINED V-DITCH

SS - 7:1 $n = 0.017$



USING MANNING'S EQUATION

$d = 0.31'$

$W = 0.31 (Q / (S_2)) = 2.5'$

VELOCITY = 2.79 fps

USE 3' WIDE DRAINAGE EASEMENTS

PROJECT NAME Canyon Run SHEET 1 OF 1

PROJECT NO. 32263 BY DJG DATE 6/16/94

SUBJECT Misc. Calculations CH'D _____ DATE _____

LOT DRAINAGE ALONG MOON ST.

MAX. LOT SIZE: 8000 ft.^{2}

C: 0.64

I: 5.1 in/hr.

Q = 0.60 cfs

TRY TWO WALL OPENINGS 6" x 6"

USING WEIR EQ. $Q = CLH^{3/2}$

C: 3.0 L: 1' Q = 0.6

H = 4.1"

USE 2 - 6"x6" OPENINGS PER LOT

CATCH BASIN CAPACITY (IN BASIN 1)

CATCH BASIN DIAMETER: 7 ft.

AREA: 38.48 ft^2

Q = 90.8 cfs

USE ORIFICE EQ. $Q = CA\sqrt{2gH}$

C: 0.62

H = 0.22 ft.

H_{MAX} = 0.67 ft. Q = 156 cfs

PROJECT NAME Canyon Run SHEET 1 OF 3

PROJECT NO. 32263 BY DG DATE 9/26/02

SUBJECT Misc. Calculations CH'D _____ DATE _____

CATCH BASIN CAPACITY (IN BASIN 4)

CATCH BASIN DIAMETER: 7 ft.
AREA: 38.48 ft.²
Q = 54.0 cfs

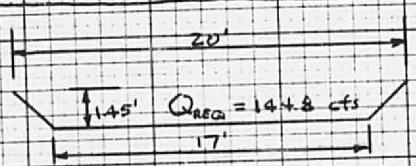
USE ORIFICE EQ. $Q = CA\sqrt{2gH}$

C: 0.62

H = 0.08 ft.

H_{MAX} = 0.67 ft. Q = 156 cfs

EMERGENCY RUNDOWN (GRASS)



SECTION B-B

n = 0.025
s = 0.64%
A = 26.8 ft.²
WP = 21.1 ft.
HR = 1.27

$$Q = 26.8 \frac{1.486}{0.025}(1.27)^{2/3}(0.0064)^{1/2} = 149.5 \text{ cfs}$$

PROVIDE A 20' x 1.5' OPENING IN THE GARDEN WALL. SEE PLATE 6 FOR OPENING LOCATIONS.

STORM DRAIN HYDRAULICS

BASIN 4 CATCH BASIN

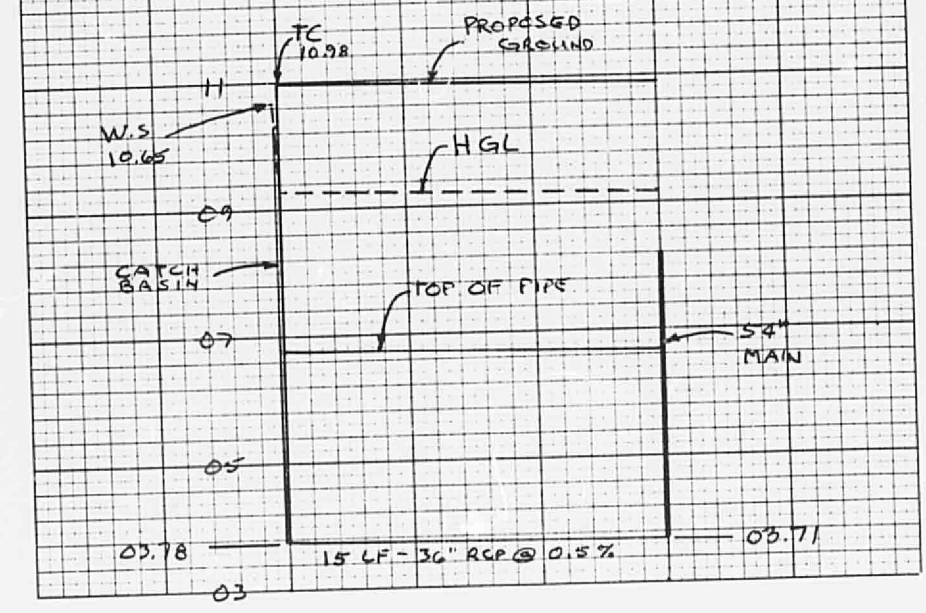
SEE SHEET 7R OF 8 FOR HYDRAULIC DATA (SEGMENT 2A (36"))

LOCATION	LENGTH	h_f	h_i	HGL ELEV.
JCT				09.19
	15	0.10		09.29
INLET			1.36	10.65

$h_f = S_f(L)$

13

$h_i = 1.5\left(\frac{V^2}{2g}\right)$



PROJECT NAME Canyon Run SHEET 3 OF 3

PROJECT NO. 32265 BY DG DATE 5/23/ed

SUBJECT CH'D DATE

ONSITE FLOWS

PROPOSED CONDITIONS

	1.	2.	3.	4.	5.	6.
AREA (Ac.)	3.7	2.4	10.9	13.3	2.8	1.5
"C" FACTOR	0.64	→	→	→	→	0.64
T_c (min.)	10	→	→	→	→	10
RAINFALL (100 yr.) (in)	2.4	→	→	→	→	2.4
INTENSITY	5.1	→	→	→	→	5.1
Q_{100}	12.1	7.8	35.6	43.4	9.1	4.9
Q_D	7.9	5.1	23.4	28.5	6.0	3.2
FLOW FROM OFFSITE BASIN A (Q_{100})	78.7	0	0	0	0	0
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0	0
TOTAL Q_{100}	90.8	7.8	46.2	54.0	9.1	4.9
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE BASIN 1 OUTFALL	0	90.8	0	90.8	0	0
TOTAL	90.8	98.6	46.2	144.8	9.1	4.9

PROJECT NAME CANYON RUN SHEET 3R OF 6
PROJECT NO. 32263 BY DG DATE 5/22/84
SUBJECT ONSITE FLOWS CH'D ____ DATE ____

STORM DRAIN HYDRAULICS

PIPE OUTLET:

CHANNEL INVERT: 02.3
CHANNEL HGL: 05.5

SET PIPE INVERT @ 03.3
W/ 54" PIPE, SOFFIT = 07.8

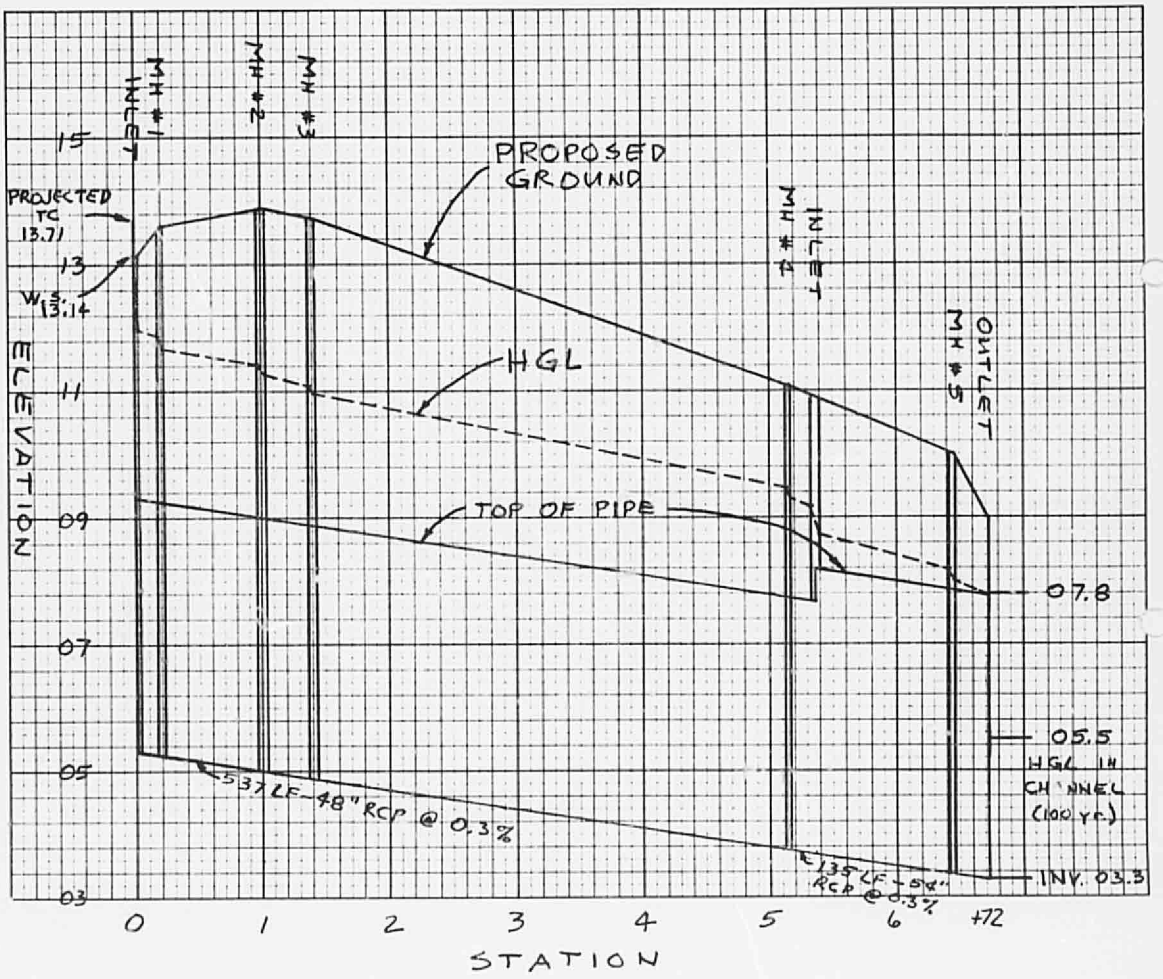
SEGMENT =	1(48")	2(54")	2A(3-54")
Q =	90.8	144.8	54.0
A =	12.57	15.90	7.07
WP =	12.57	14.14	9.42
HR =	1.00	1.12	0.75
n =	0.013	0.013	0.013
V =	7.22	9.11	7.64
K =	1436.8	1966.5	667.1
S_f =	0.0040	0.0054	0.0066

LOCATION	LENGTH	h_f	h_j	h_{MH}	h_T	Δ	K_b	h_b	h_i	HGL ELEV.
OUTLET										07.80
	35	0.19								07.99
MH 5				0.06		28°	0.11	0.14		08.19
	100	0.54								08.73
JCT			0.41		0.05					09.19
	32	0.13								09.32
MH 4				0.04		22°	0.10	0.08		09.44
	375	1.50								10.94
MH 3				0.04		46°	0.14	0.11		11.09
	41	0.16								11.25
MH 2				0.04		48°	0.15	0.12		11.41
	67	0.27								11.68
MH 1				0.04		48°	0.15	0.12		11.84
	22	0.09								11.93
INLET									1.21	13.14

$h_f = S_f(L)$ $\quad h_{MH} = 0.05\left(\frac{V_2^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V_2^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V_2^2}{2g}\right)$

$h_j = \frac{V_2^2}{2g} - \frac{V_1^2}{2g} - \left(\frac{2A_2}{A_2} \cdot \frac{V_2}{2g}\right)\cos\theta$ $\quad h_T = 0.2\left(\frac{V_1}{2g} - \frac{V_2}{2g}\right)^2$

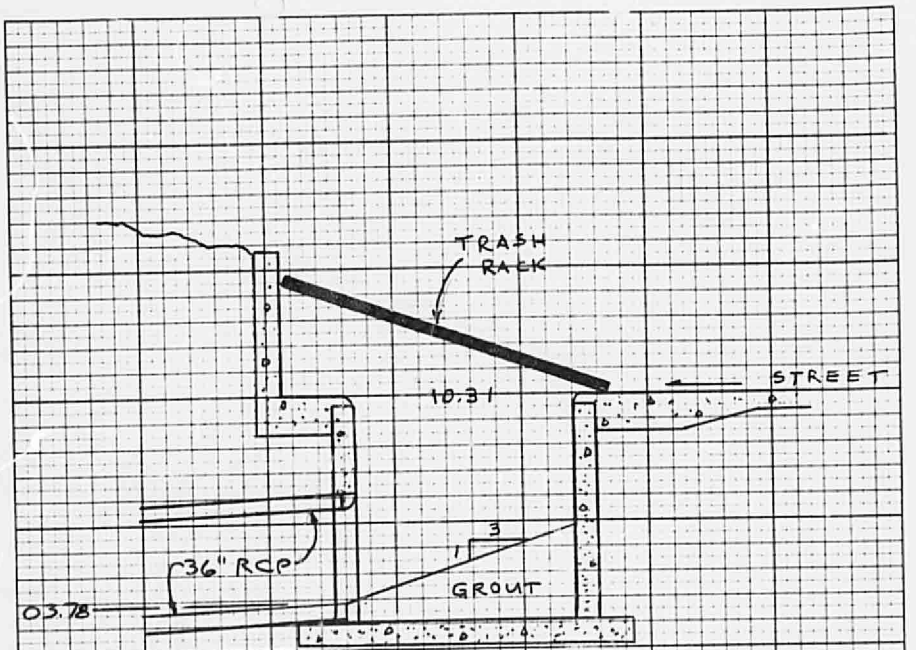
PROJECT NAME CANYON RUN SHEET 7R OF 8
PROJECT NO. 32263 BY DG DATE 5/22/01
SUBJECT STORM DRAIN HYDRAULICS CH'D _____ DATE _____



PROJECT NAME Canyon Run SHEET 8A OF 8

PROJECT NO. 32.63 BY DG DATE 5/23/84

SUBJECT Hydraulic Grade Line CH'D DATE



INLET SECTION (BASIN 4)

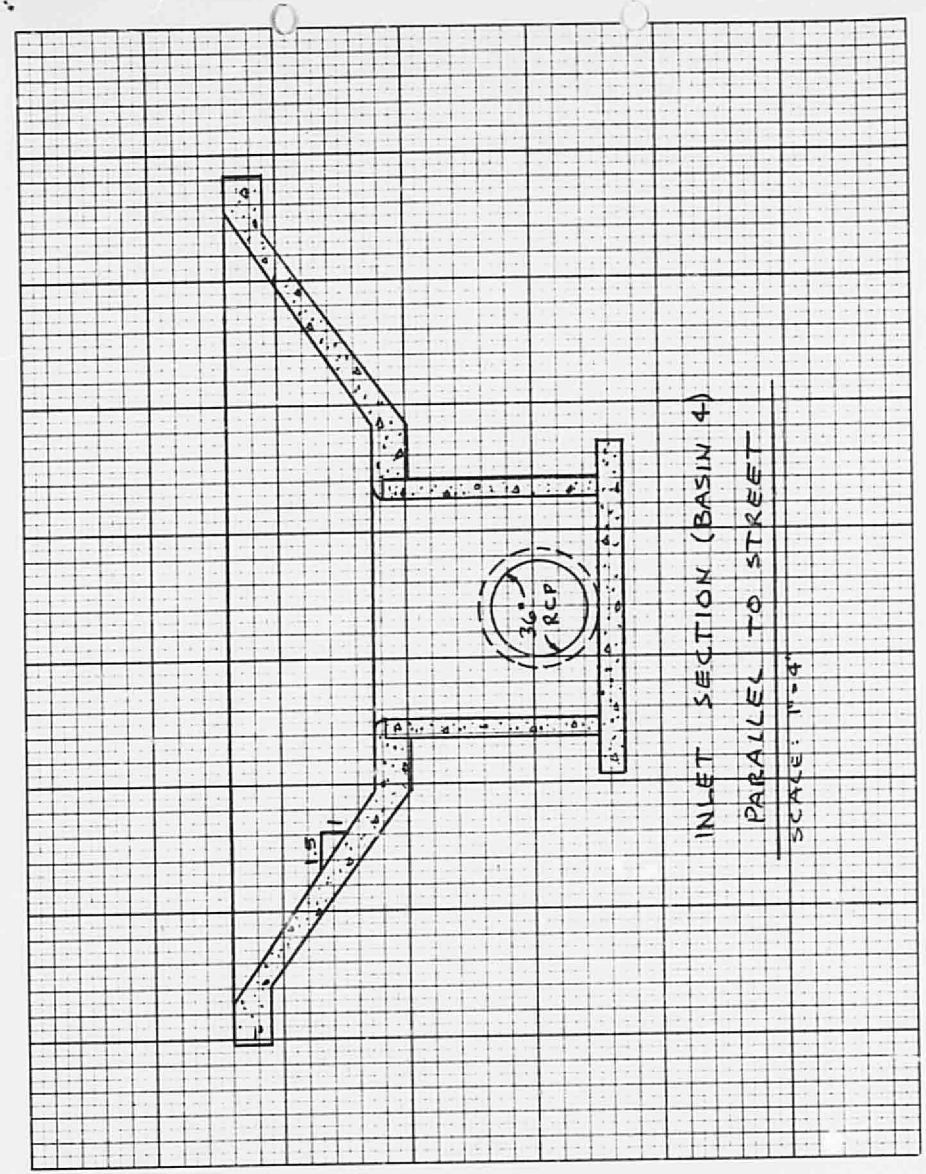
PERPENDICULAR TO STREET

SCALE: 1" = 4'

PROJECT NAME Canyon Run SHEET 1A OF 2A

PROJECT NO. 32263 BY DG DATE 5/23/84

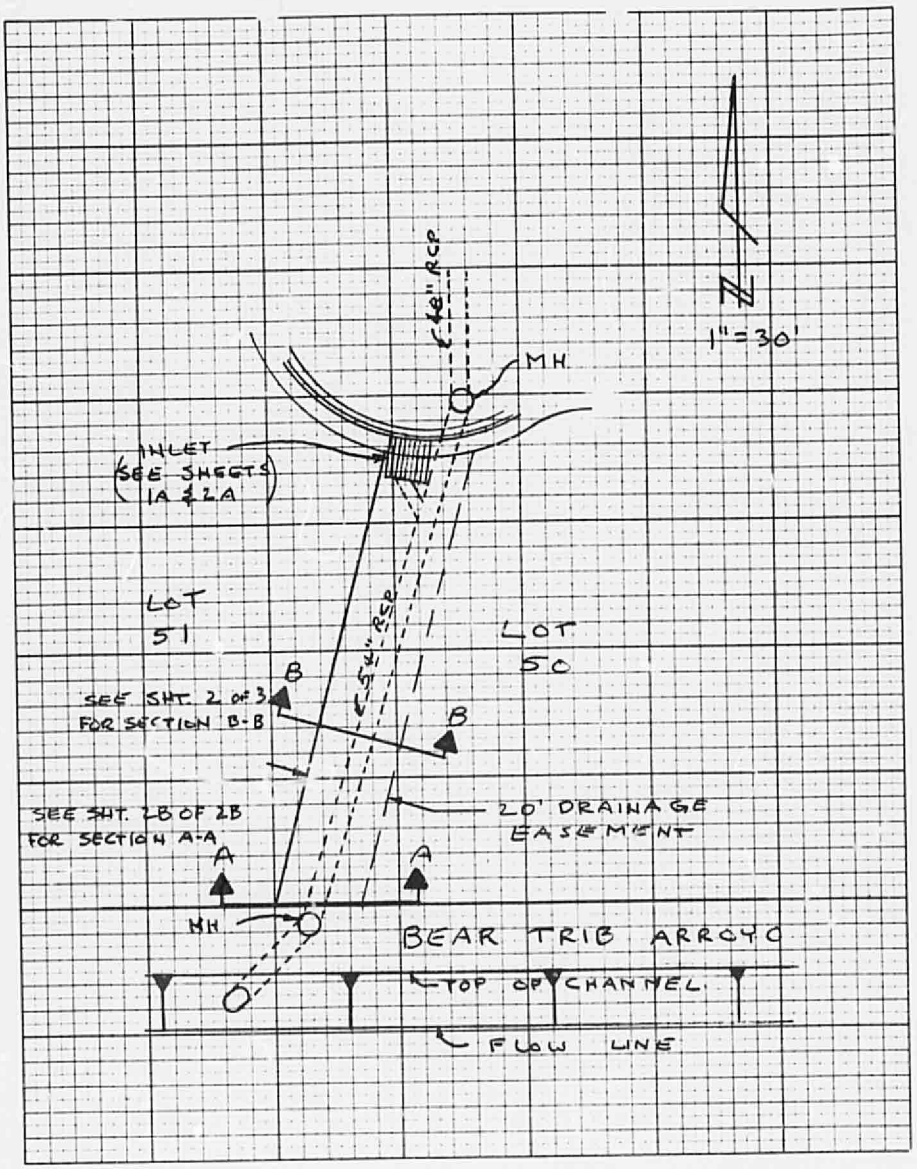
SUBJECT Inlet Section (Basin 4) CH'D _____ DATE _____



PROJECT NAME CANYON RUN SHEET 2A OF 2A

PROJECT NO. 32263 BY DG DATE 5/23/24

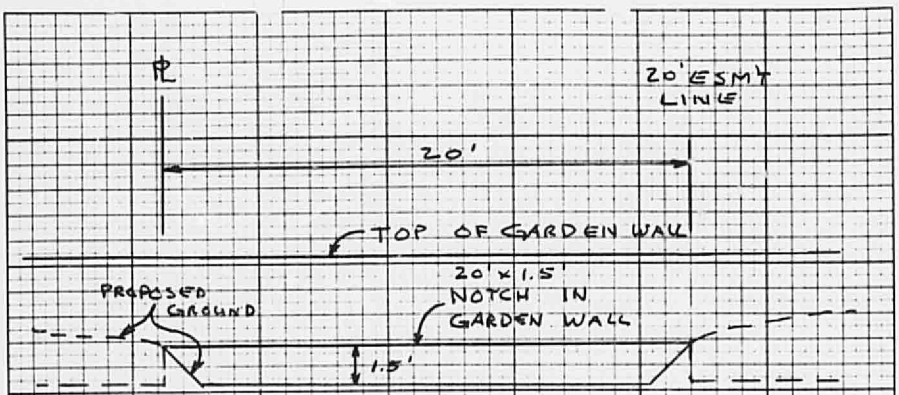
SUBJECT INLET SECTION (BASIN 4) CH'D _____ DATE _____



PROJECT NAME Canyon Run SHEET 1B OF 2B

PROJECT NO. 32263 BY DS DATE 5/29/84

SUBJECT Drainage Easement CH'D _____ DATE _____



SECTION A-A

PROJECT NAME Canyon Run SHEET 2B OF 2B

PROJECT NO. 32263 BY DG DATE 5/29/84

SUBJECT Drainage Easement CH'D _____ DATE _____

INFORMATION SHEET DRAINAGE REPORT ADD. #1

PROJECT TITLE CANYON RUN SUB'D TYPE OF SUBMITTAL GRADING PLAN

ZONE ATLAS PAGE NO. E-20 D23 CITY ADDRESS _____

LEGAL DESCRIPTION EDWARD TRACT

ENGINEERING FIRM BOHANNAN-HUSTON, INC. CONTACT DAN GROCHOWSKI

ADDRESS 4125 CARLISLE NE ALBUQUERQUE, NM 87107 PHONE 881-2000

OWNER BROWN & ASSOCIATES, INC. CONTACT RON BROWN

ADDRESS 3800 CARLISLE NE ALBUQUERQUE NM PHONE _____

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR BOHANNAN-HUSTON, INC. 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
X FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 8/1/84

BY: Dan Grochowski

RECEIVED
AUG 0 1 1984
HYDROLOGY SECTION

OFFSITE FLOWS

BASIN A:

AREA: 29.3 ACRES

C: 0.52 (40% IMPERVIOUS - B TYPE SOIL)
FROM PLATES 22.2 C-1 & C-2
W/ SLIGHTLY SMALLER THAN ½ AC. LOTS

RAINFALL: 2.4 INCHES (100-YEAR)

SLOPE: (70-17)/2650 = 2.0%

VELOCITY: 3.8 fps (plate 22.2 B-1)

T_c: 2650/(3.8×60) = 11.6 min.

I: 2.4(1.96) = 4.7 in/hr. (plate 22.2 D-2)

Q_{100} = 0.52 (4.7) 29.3 = 71.6 cfs

Q_{10} = 71.6 (0.657) = 47.0 cfs

BASIN B:

AREA: 4.0 ACRES

C: 0.52

T_c: USE MINIMUM OF 10 min.

I: 2.4 (2.11) = 5.1 in/hr.

Q_{100} = 0.52 (5.1) 4.0 = 10.6 cfs

Q_{10} = 10.6 (0.657) = 7.0 cfs

RECEIVED
AUG 0 1 1984
HYDROLOGY SECTION

PROJECT NAME Canyon Run SHEET 1 OF 11
PROJECT NO. 32263 BY PG DATE 7/23/84
SUBJECT Offsite Flows CH'D ____ DATE ____

ONSITE FLOWS

PROPOSED CONDITIONS:

	1.	2.	3.	4.	5.
AREA (Ac.)	3.8	3.3	11.5	14.8	2.7
"C" FACTOR	0.64	→	→	→	0.64
T_c (min.)	10	→	→	→	10
RAINFALL (100 yr.) (in.)	2.4	→	→	→	2.4
INTENSITY	5.1	→	→	→	5.1
Q_{100}	12.4	10.8	37.5	48.3	8.8
Q_{10}	8.1	7.1	24.6	31.7	5.8
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0
TOTAL Q_{100}	12.4	10.8	48.1	58.9	8.8
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE OFFSITE OUTFALL	35.8	35.8	0	35.8	17.9
TOTAL	48.2	46.6	48.1	94.7	26.7

PROJECT NAME CANYON RUN SHEET 2 OF 11
PROJECT NO. 32263 BY DG DATE 7/25/84
SUBJECT ONSITE FLOWS CH'D _____ DATE _____

STORM DRAIN HYDRAULICS

PIPE OUTLET:
CHANNEL INVERT : 02.3
CHANNEL HGL : 05.5

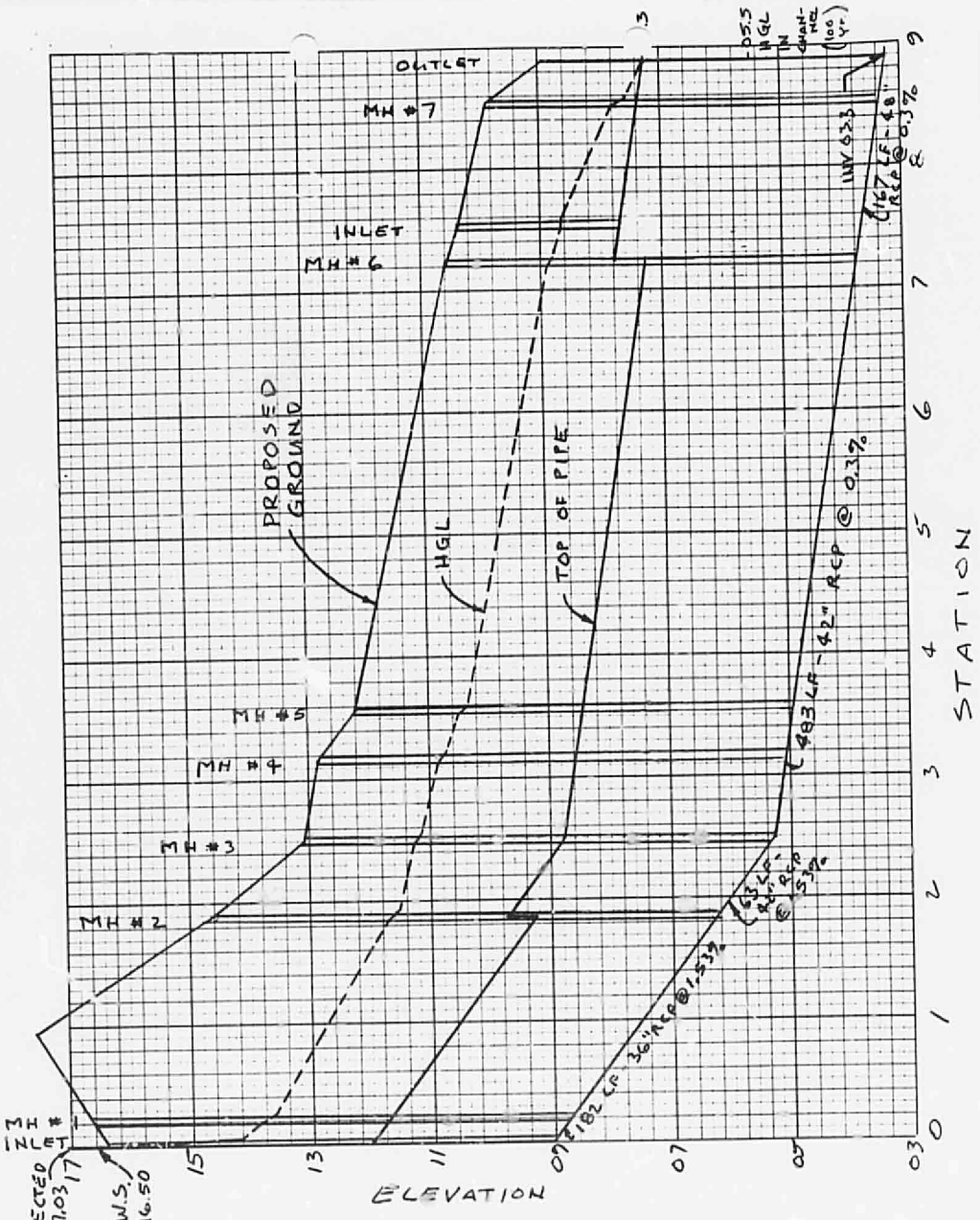
SET PIPE INVERT @ 03.3
W/ 48" PIPE SOFFIT = 07.3

SEGMENT		1 (36")	2 (42")	3 (48")	4 (48")	2A (36")
Q	=	71.6	71.6	71.6	130.5	58.9
A	=	7.07	9.62	12.57	12.57	7.07
WP	=	9.42	11.00	12.57	12.57	9.42
HR	=	0.75	0.875	1.00	1.00	0.75
n	=	0.013	0.013	0.013	0.013	0.013
V	=	10.13	7.44	5.70	10.38	8.33
K	=	667.1	1149.8	1836.8	1436.1	667.1
S_f	=	0.0115	0.0039	0.0025	0.0083	0.0078

Seg.	LOCATION	LENGTH	h_f	h_j	h_{mh}	h_p	Δ	K_b	h_b	h_i	HGL Elev.
	OUTLET										07.30
4		35	0.29								07.59
	MH 7				0.08		28°	0.11	0.18		07.85
		100	0.82								08.67
	JCT			0.00		0.00					08.67
3		32	0.08								08.74
	MH 6				0.03		22°	0.10	0.08		08.86
		375	1.46								10.32
	MH 5				0.04		46°	0.14	0.12		10.48
		41	0.16								10.64
2	MH 4				0.04		48°	0.15	0.13		10.81
		67	0.26								11.07
	MH 3				0.04		48°	0.15	0.13		11.24
		63	0.25								11.49
	MH 2				0.06	0.00	45°	0.14	0.17		11.72
		160	1.84								13.56
1	MH 1				0.08		45°	0.14	0.22		13.86
		22	0.25								14.11
										2.39	16.50
	INLET										

$h_f = S_f(L)$ $\quad h_{mh} = 0.05\left(\frac{V_2^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V_3^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V_2^2}{2g}\right)$

$h_j = \frac{V_2^2}{2g} - \frac{V_1^2}{2g} - \left(\frac{2A_1}{A_2} \cdot \frac{V_2^2}{2g} \cdot \cos\theta\right)$ $\quad h_p = 0.2\left(\frac{V_1}{2g} - \frac{V_2}{2g}\right)^2$



PROJECT NAME CANYON RUN SHEET 4 OF 11

PROJECT NO. 32263 BY OG DATE 7/25/84

SUBJECT HYDRAULIC GRADE LINE CH'D _____ DATE _____

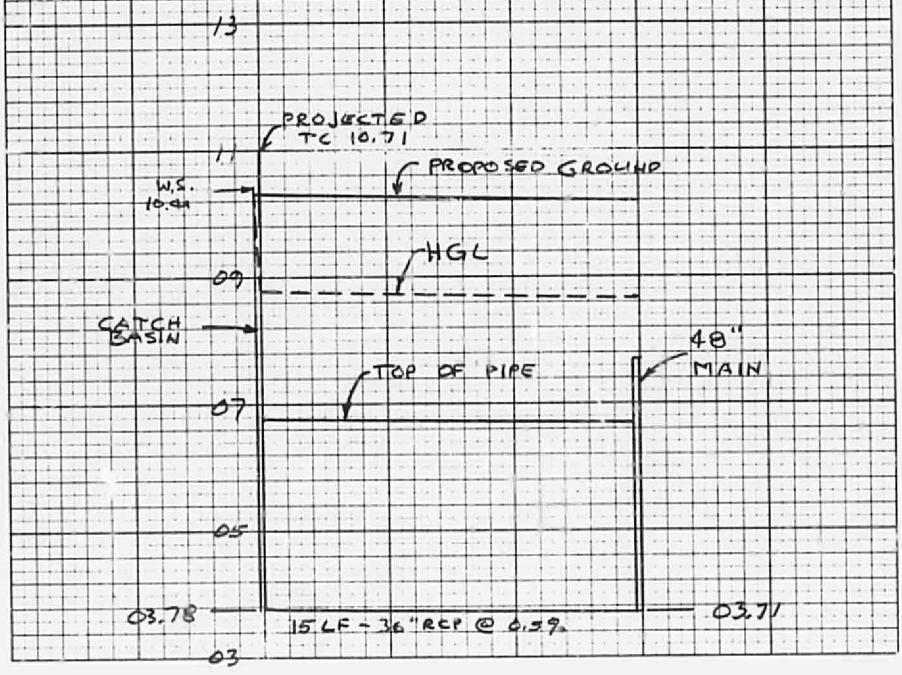
STORM DRAIN HYDRAULICS

BASIN 4 CATCH BASIN

SEE SHEET FOR HYDRAULIC DATA (SEGMENT 2A (36"))

LOCATION	LENGTH	h_f	h_i	HGL ELEV.
JCT				08.67
	15	0.12		08.79
INLET			1.62	10.41

$h_f = S_f(L)$ $\quad h_i = 1.5\left(\frac{V^2}{2g}\right)$



PROJECT NAME CANYON RUN SHEET 5 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/96
SUBJECT STORM DRAIN HYDRAULICS & HGL CH'D DATE

CATCH BASIN CAPACITIES

CATCH BASIN DIAMETER: 6 ft.
AREA: 28.27 ft.²

USE ORIFICE EQ. $Q = C A \sqrt{2gH}$

C: 0.62

H_{max} = 0.67 ft Q = 115.1 cfs

Q (REQUIRED CAPACITY)

- OFFSITE 71.6 cfs
- BASIN 4 58.9 cfs

PROJECT NAME CANYON RUN SHEET 6 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT MISC. CALCULATIONS CH'D DATE

LOT DRAINAGE ALONG MOON ST

1) MAX. AREA PER LOT DRAINING TO MOON ST : 4800 ft.²

C : 0.64

I : 5.1 in/hr.

Q = 0.36 cfs

TRY TWO WALL OPENINGS 6"x6"
USING WEIR EQ. $Q = CLH^{3/2}$

C = 3.0 L = 1 ft Q = 0.36 cfs

H = 2.9 inches

USE 2 - 6"x6" OPENINGS PER LOT

PRIVATE DRAINAGE EASEMENTS

MAX. AREA DRAINING TO EASEMENT :
1/2 OF 4 LOTS — 60x60 x 4 = 14400 = 0.33 Ac.
C = 0.64 I = 5.1
Q = 0.64(5.1) 0.33 = 1.1 cfs
MIN. SLOPE = 1.25 %

TRY V-DITCH SS - 4:1 n - 0.045

USING MANNING'S EQ. d = 0.45 ft
V = 1.34 fps
TOP WIDTH = 0.45(4)(2) = 3.6'

USE 4' WIDE DRAINAGE EASEMENTS

PROJECT NAME Canyon Run SHEET 7 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/82
SUBJECT Miss. Calculations CH'D DATE

CHANNEL CAPACITIES

(USING MANNING'S EQ.: $Q = A\frac{1.486}{n}(HR)^{2/3}(s)^{1/2}$)

BASIN 5

MAX. FLOW IN CHANNEL = 26.7 cfs

n = 0.013

MIN. SLOPE = 0.53%

TRY 9' BOTTOM WIDTH

@ Q = 26.7 cfs d = 0.56 ft.

V = 5.3 fps

BASIN 4

MAX. FLOW IN CHANNEL = 58.9 cfs
(W/ OFFSITE BASIN ON ITEALL FAILURE Q = 94.7 cfs)

n = 0.025 SS = 1:1

MIN SLOPE = 0.6%

TRY 17' BOTTOM WIDTH

@ Q = 58.9 cfs d = 0.83 ft

V = 4.0 fps

(@ Q = 94.7 cfs d = 1.10 ft

V = 4.7 fps)

PROJECT NAME CANYON RUN SHEET 8 OF 11

PROJECT NO. 32263 BY DG DATE 7/26/04

SUBJECT CHANNEL CAPACITIES CH'D ____ DATE ____

CHANNEL ENTRANCE CAPACITIES
(using Weir Eq.: $Q = 3 L H^{3/2}$)

BASIN 5 :

$Q = 26.7$ cfs
$L = 9$ ft.

$H = \left(\frac{26.7}{3 \times 9}\right)^{2/3} = 0.99$ ft.

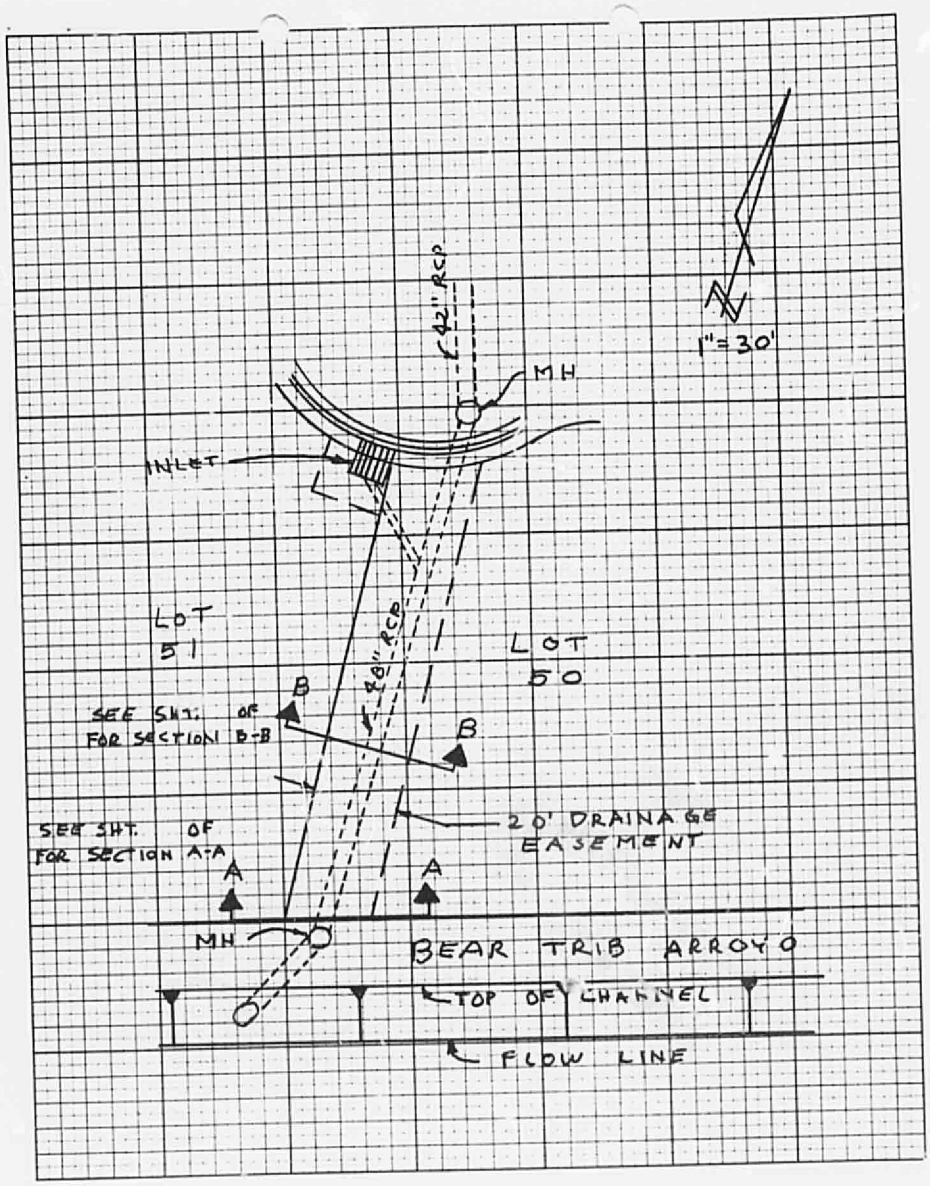
BASIN 4 :

$Q = 58.9$ cfs (94.7 cfs)
$L = 19$ ft.

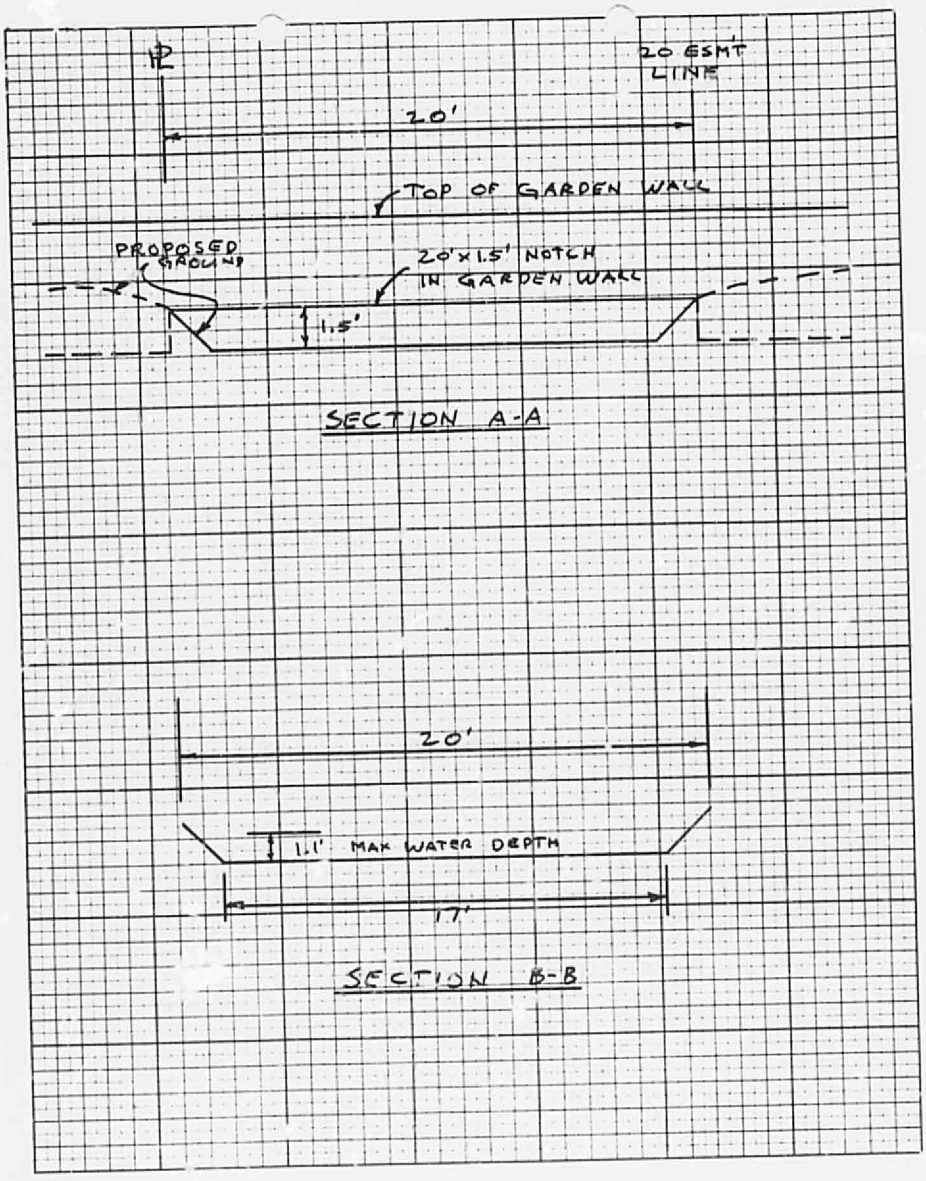
$H = \left(\frac{58.9}{3 \times 19}\right)^{2/3} = 1.02$ ft.

$\left(\left(\frac{94.7}{3 \times 19}\right)^{2/3} = 1.40$ ft.

PROJECT NAME Canyon Run SHEET 9 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT Channel Entrance Capacities CH'D _____ DATE _____



PROJECT NAME CANYON RUN SHEET 10 OF 11
PROJECT NO. 32263 BY DG DATE 7/26/84
SUBJECT DRAINAGE EASEMENT CHD _____ DATE _____



PROJECT NAME Canyon Run SHEET 1 OF 11

PROJECT NO. 22263 BY DG DATE 7/26/04

SUBJECT Drainage Easement CH'D _____ DATE _____

BOHANNAN-HUSTON INC.
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

E20 D23

July 30, 1984

Billy J. Goolsby, P.E.
City/County Flood Plain Administrator
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Canyon Run Subdivision

Dear Billy:

Enclosed please find additional calculations, Plate 6 revised, and the final grading plan for the referenced site. With this submittal we are responding to comments in your letter of June 29, 1984 and are requesting drainage report approval and a rough grading permit.

In an effort to reduce the amount of imported fill required for the referenced site, we have revised the grading plan for the proposed subdivision. As a result of these revisions, the drainage basin boundaries have been extended north in Casa Feliz to collect runoff from Academy Estates, Unit 7, prior to entering the Canyon Run site. A sump condition has been developed in Casa Feliz to facilitate a catch basin.

We have been informed by the engineer for SAD 210 that the storm drain system in Academy has been designed to accept all runoff generated in the Academy right-of-way. A valley gutter has been constructed across Casa de Vida at its intersection with Academy. Consequently, we have reduced the size of ~~off-site Basin A~~ from 32.2 acres to 29.3 acres, decreasing the flow by 7.1 cfs to 71.6 cfs.

The combination of new drainag basin boundaries, reduced off-site flows entering the site and extension of the storm drain in Casa Feliz has reduced the pipe size requirements for the storm drain (see calculations enclosed). With the pipe diameter reduction, the 20-foot wide easement is, once again, valid (comment #2).

In response to the first comment, we have received verbal approval for the use of grass lining for the emergency spillway from Mr. Dan Hogan. We will provide a cut-off wall at the connection of the rundown with the Bear Tributary.

RECEIVED
AUG 0 1 1984
HYDROLOGY SECTION

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

We will be submitting construction drawings in the near future and would appreciate an expeditious review of the enclosed material. If you have any questions, please call Dan Grochowski at 881-2000.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DJG/mws
Job No. 3 226 3

RECEIVED
AUG 01 1984
HYDROLOGY SECTION

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

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

June 29, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: REVISED DRAINAGE REPORT FOR CANYON RUN SUBDIVISION (F20-D23)
RECEIVED MAY 29, 1984

Dear Dan:

I have reviewed the above referenced submittal and issue two (2) comments:

1. The use of grass lining for the emergency spillway over the 54" pipe will have to be approved by Jim Fink since it will be a City maintenance responsibility.

2. The 20' wide easement is no longer valid, per the DPM criteria, since the pipe diameter has been increased.

Also, for safety reasons, it is not advisable to have the water discharge across the sidewalk to Moon Street, In the winter, ice could form.

Please provide an information sheet with the next and all future submittals to this office. This sheet helps us in our record keeping.

Should you have any questions or comments, please contact me.

Yours truly,

Billy J. Goolsby

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

BJG:mrk

BOHANNAN-HUSTON INC.

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

May 24, 1984

Mr. Billy J. Goolsby
City/County Flood Plain Administrator
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

E20-D23

Re: Canyon Run Subdivision Drainage Report

Dear Billy:

First of all, let me thank you for your quick response to our submittal of April 19, 1984. In response to your comments in your letter of April 20, 1984, we submit the following:

1. The rear lot line wall along Moon will require openings to allow for drainage to Moon. See sheet 1 of the enclosed calculations. A note has been added to Plate 6 indicating the opening requirement.

2. Elevations will be added to Moon Street from the plans for SAD 210.

3. The capacity of the proposed catch basin is 156 cfs. See sheet 1 of the enclosed calculations. Final detailing of the catch basin will be done as part of the public infrastructure improvement plans. The 48" pipe will be shown in its proper location.

4. Direction of roof drainage has been added to Plate 6.

In addition to these responses, we have changed the concept of collecting runoff from Basin 4. A catch basin has been added at the southwest end of Subbasins 2 and 3 and to direct storm runoff to the storm drain. See revised sheet 3. The increase in required capacity results in an increase in pipe size from the new catch basin to the Bear Trib Channel. A 54" pipe is now required. See revised sheets 7 and 8.

RECEIVED
MAY 29 1984
HYDROLOGY SECTION

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

In the event of failure of the storm drain, the rundown will contain the entire flow within the easement limits. See sheet 2 of the miscellaneous calculations for rundown sizing. Openings shall be required in the garden wall of Lot 50 to allow for rundown use. Again, the rundown is for emergency situations only.

If you have any questions, please call.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Ron Brown

DG/mw
Job No. 3 226 5

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

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

April 20, 1984

Mr. Dan Grochowski
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: DRAINAGE REPORT FOR CANYON RUN SUBDIVISION (F20-D23) RECEIVED APRIL 19, 1984

Dear Dan:

I have reviewed the above referenced report and only have a few comments:

1. The plan shows drainage in the back of the lots adjacent to Moon Street directed toward the property line. How are they to be handled? Will the water pond against a wall or flow over the public R/W?

2. Top of curb and flowline elevations should be shown for Moon Street for clarity of interfacing. Approved street grades are required if not existing.

3. What is the capacity of the proposed catchbasin? Also, the detail shows the 48 inch pipe coming from the back of the catchbasin.

4. Roof drains should be indicated on the plan.

Satisfactory response to the above comments will give drainage approval for preliminary plat approval. It is understood that a detailed, construction quality, grading plan will be submitted to this office for review and approval prior to final sign-off.

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

Yours truly,

Billy J. Goolsby

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

BJG:mrk

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

Yours truly,

Billy J. Goolsby

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

BJG:mrk

INFORMATION SHEET

PROJECT TITLE CANYON RUN SUBDIVISION TYPE OF SUBMITTAL DRAINAGE REPORT

ZONE ATLAS PAGE NO. E-20 CITY ADDRESS _____

LEGAL DESCRIPTION EDWARD TRACT

ENGINEERING FIRM BOHANNAN-HUSTON, INC. CONTACT DAN GROSHOWSKI

ADDRESS 4125 CARLISLE NE ALBUQUERQUE, NM 87107 PHONE 881-2000

OWNER INMAN HOMES CONTACT RON BROWN

ADDRESS 8205 SPAIN NE ALBUQUERQUE, NM 87109 PHONE 821-5600

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR BOHANNAN-HUSTON, INC. CONTACT _____

ADDRESS SAME AS ABOVE 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
X 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
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/19/84

BY: Dan Groshowski

RECEIVED
APR 19 1984
HYDROLOGY SECTION

BOHANNAN-HUSTON INC.

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

April 17, 1984

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

Re: Drainage Report r Canyon Run Subdivision

Dear Fred:

Enclosed for your review is a copy of the referenced drainage report. Please contact me if you have any questions.

Sincerely yours,

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Ron Brown
Mr. John Brown

BGB/mw
Job No. 3 226 3

RECEIVED
APR 19 1984
HYDROLOGY SECTION

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

E30-D23

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

January 5, 1984

Mr. Michial M. Emery, P.E.
Vice President
Bohannan-Huston, Inc.
4125 Carlisle N.E.
Albuquerque, NM 87107

RE: Agreement for Constructing Improvements to the Bear Tributary Arroyo
(Our letters, November 29, 1983 and December 27, 1983)

Dear Mike:

Attached is an addition to paragraph five (5) of the final version of the referenced agreement. We have made this addition after receiving another phone call from Carl Tebbens requesting that words be added to this paragraph to account for excess Academy and Edward funds that may not be required for the City to award a construction contract and may be remaining after final acceptance of the work by the City.

Please coordinate with Carl Tebbens at MSM and with respective clients, Dr. Edward and Gary Swearingen, regarding this addition to the agreement. If they concur, please have them sign the agreement and then return it to us for the Chief Administrative Officer's signature.

Very truly yours,

Carl P. Rodolph
Director, Municipal Development

CPR/JNH/tsl
Attachment
JNH 1/6/84
cc: Carl A. Tebbens, P.E., Vice President, MSM
C. Dwayne Sheppard, City Engineer
James N. Hicks, Jr., Princ. Asst./City Engineer
Jim Fink, Planning and Programming Hydrologist
Fred Aguirre, Design Hydrologist
Charles N. Estes, Jr., Assistant City Attorney

1. Edward agrees to pay for the design of the drainage improvements to the Bear Canyon Tributary Arroyo within Segment B. The design shall include a grading plan of Edward's property to assure that surface water enters the Bear Tributary and does not flow onto Academy Road. However grading construction can be done separately by Edward. The grading will be completed prior to final project acceptance by the City.

2. City agrees to waive the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street eastward to approximately two hundred forty (240) feet west of Estrellita Del Norte, thereby providing additional financial support for the achievement of these improvements which will benefit the public.

3. Edward agrees to pay the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street westward to Wyoming Boulevard.

4. Academy agrees to have the design of the crossing construction and the channel construction within Segment A coordinated and combined with the design of the drainage improvements within Segment B at the common junction of these two segments so that they may be bid as a single project. Costs associated with this combination of the two designs into one project shall be jointly paid for by Edward and Academy. The combining of the two designs shall include preparation of bidding documents per City of Albuquerque criteria and printing of plan sets for bidders.

5. City shall advertise the project, comprised of the combined Academy and Edward designs for Segments A and B, after receipt of an amount of funds from Edward equal to the Engineer's Cost Estimate for Segment B plus 10%, less $130,000 to be contributed by the City, and receipt of an amount of funds from Academy equal to the developer costs for Segment A as specified in Exhibit "C". If the low bid exceeds the total funds available Edward, Academy and the City shall jointly determine the items of work requiring additional funds. Edward shall furnish all additional funds for items of work within Segment B. Academy and the City shall share proportionately the additional funds for items of work within Segment A. City agrees to pay $130,000 of the total cost of the Edward part of the project, to include all change orders. If the amount of funds provided to the City at the time of advertisement by Edward or Academy exceeds their prorata shares of the low bid plus a 10% contingency, the City shall refund the excess funds to Edward or Academy at the time of award of a contract to the approved low bidder. City shall return to Academy or Edward any funds remaining at the time of final acceptance of the completed construction when the City makes final payment to the contractor.

6. City agrees to provide for the inspection, to include preparation of pay estimates and review of shop submittals, and testing of the work. Edward and Academy agree to pay their consultants for staking and preparation of as-built drawings for their respective portions of the project.

7. Edward and Academy shall furnish a copy of this Agreement to the Development Review Board (DRB) when Edward and Academy requests DRB review and approval of the plats shown as Exhibit "A" and Exhibit "B".

BOHANNAN-HUSTON INC.

E20-023

RECEIVED
APR 19 1984
HYDROLOGY SECTION

DRAINAGE REPORT
FOR
CANYON RUN
SUBDIVISION

April, 1984

DRAINAGE REPORT
FOR
CANYON RUN
SUBDIVISION

PREPARED FOR:

INMAN HOMES
8205 SPAIN NE
ALBUQUERQUE, NM 87109

PREPARED BY:

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

Daniel J. Grochowski

Daniel J. Grochowski
N.M.P.E. No. 8766

TABLE OF CONTENTS

	Page
PURPOSE	1
LOCATION AND SITE DESCRIPTION	1
PLANNING HISTORY	1
METHOD OF ANALYSIS	1
EXISTING CONDITIONS	2
PROPOSED CONDITIONS	2
A. Off-Site	2
B. On-Site	2
C. Determining Downstream Capacity	3
EROSION CONTROL AND PHASING	3

PLATES

Plate 1 – Vicinity Map
Plate 2 – Soils Map
Plate 3 – Flood Hazard Boundary Map
Plate 4 – Off-Site Basins
Plate 5 – Existing Conditions (Rear Pocket)
Plate 6 – Drainage and Grading Plan (Rear Pocket)

APPENDIX

Appendix 1 – Calculations
Appendix 2 – Inlet Sections
Appendix 3 – Agreement

PURPOSE

The purpose of this report is to present the results of a drainage analysis for the Canyon Run proposed subdivision and a plan to manage storm water runoff upon development of the site. Plans for the proposed development will be in accordance with criteria and guidelines established by the City of Albuquerque.

LOCATION AND SITE DESCRIPTION

The site is located in the northeast quadrant of Albuquerque at the northeast corner of the intersection of Moon Street and the Bear Tributary Arroyo as shown on the Vicinity Map (Plate 1). The 21.3-acre site is bounded on the north and east by Academy Estates, Unit 7, a developed subdivision. There is a 0.2-acre well site in the southwest corner that is not a part of this development.

The ground slopes from northeast to southwest at average slopes of 2-5%. The soil is classified as Embudo and Embudo-Tijeras (see Soils Map, Plate 2), both of which are 'B' type soils. Native grasses cover the site. Three arroyos cross the site from east to west and it is currently in a flood hazard zone as shown on the Flood Hazard Boundary Map (Plate 3).

PLANNING HISTORY

Present zoning of the site is R-1 which is compatible with the proposed subdivision. The Development Review Board has given sketch plat approval (DRB 83-735). Preliminary plat submittal is pending with a tentative public hearing date of May 8, 1984 before the DRB.

METHOD OF ANALYSIS

Criteria outlined in Section 22.2 of the Development Process Manual (DPM) was used to compute existing and developed flow rates.

More specifically:

- 'C' value; Plate 22.2 C-1
- Times of concentration; Plate 22.2 B-1 and B-2
- Rainfall amounts; Plate 22.2 D-1
- Flow rate computation; Rational Formula

EXISTING CONDITIONS

Off-site runoff enters the site at three locations in concentrated flows. These three locations coincide with the three arroyos crossing the site as previously mentioned and shown on Plate 4.

At the southwest corner of the Academy Estates, Unit 7, subdivision, three lots and a portion of Casa Feliz were left undeveloped. In their place is a temporary detention pond which collects runoff from 32.2 acres and releases it to the Edward Tract at a controlled rate. 4.0 acres of Academy Estates, Unit 7, runoff flows to the site in Madre Avenue.

The Bear Tributary Arroyo, which is currently an earthen channel and floods the southern portion of the site, will be concrete-lined as a part of City of Albuquerque Project No. 1930. The project construction drawings are approved with construction scheduled to begin this spring. Completion of the Bear Tributary improvements will remove the flood hazard designation from Canyon Run.

On-site runoff flows to the three arroyos extending from the off-site basins and flows to Moon Street or the Bear Tributary. See Sheets 1 and 2 of the calculations.

PROPOSED CONDITIONS

A. Off-Site

The undeveloped portion of Casa Feliz in Academy Estates, Unit 7, must be completed to provide access to Canyon Run. This will direct runoff currently flowing to the temporary detention pond to the site at the flow rate shown on Sheet 1 of the calculations (78.7 cfs). The 10.6 cfs entering the site in Madre Avenue will continue to do so. The Bear Tributary will be confined to the new concrete-lined channel and will no longer impact the site.

B. On-Site

Proposed drainage basins on-site shall be as shown on Plate 6. All areas except for Basin 5 will drain to the Bear Tributary. Basin 5, which contains 2.8 acres, will drain to Moon Street. An agreement between the

owners of Canyon Run, Academy Development Company and the City of Albuquerque limits the area which is allowed to drain to Moon Street to 4.0 acres. A copy of the agreement can be found in Appendix 3.

Basin 6 requires that a concrete rundown in an easement, with the dimensions shown on Sheets 5 and 6 of the calculations, be constructed to carry runoff to the Bear Tributary.

Basin 1 will incorporate off-site Basin A with the runoff being carried to the Bear Tributary in a 48" storm drain. The hydraulic grade line of the storm drain can be found on Sheets 7 and 8 of the calculations. A preliminary inlet configuration is shown in Appendix 3. The inlet may require an additional easement. The last reach of the storm drain, before its outlet to the Bear Tributary, will require an easement.

Basin 4, which is a conglomeration of Basins 2 and 3 and off-site Basin B, will flow to the Bear Tributary in a concrete-lined rundown using the same easement as the Basin 1 storm drain. See calculations Sheets 5 and 6 for channel dimension requirements. Two sets of dimensions are shown: 1) for 55.6 cfs generated by Basins 2 and 3 and off-site Basin B, and 2) which includes the entire flow from the Basin 1 storm drain. In the event of failure of the storm drain, the runoff will be directed to either Basin 2 or Basin 5, both of which are able to contain the additional flow within the streets. See Sheet 4 of the calculations. House pad elevations have been raised in the vicinity of the inlet as an additional safety factor. Only two lots require rear yard ponds. They are in the northeast corner of the site as shown on Plate 6. No credit has been given for the ponds in determining runoff quantities.

C. Determining Downstream Capacity

The design of Moon Street, as a part of SAD 210, took into account runoff from 4.0 developed acres of Canyon Run which is greater than the 2.8 acres proposed in this report. The Bear Tributary design assumed developed conditions for its entire watershed.

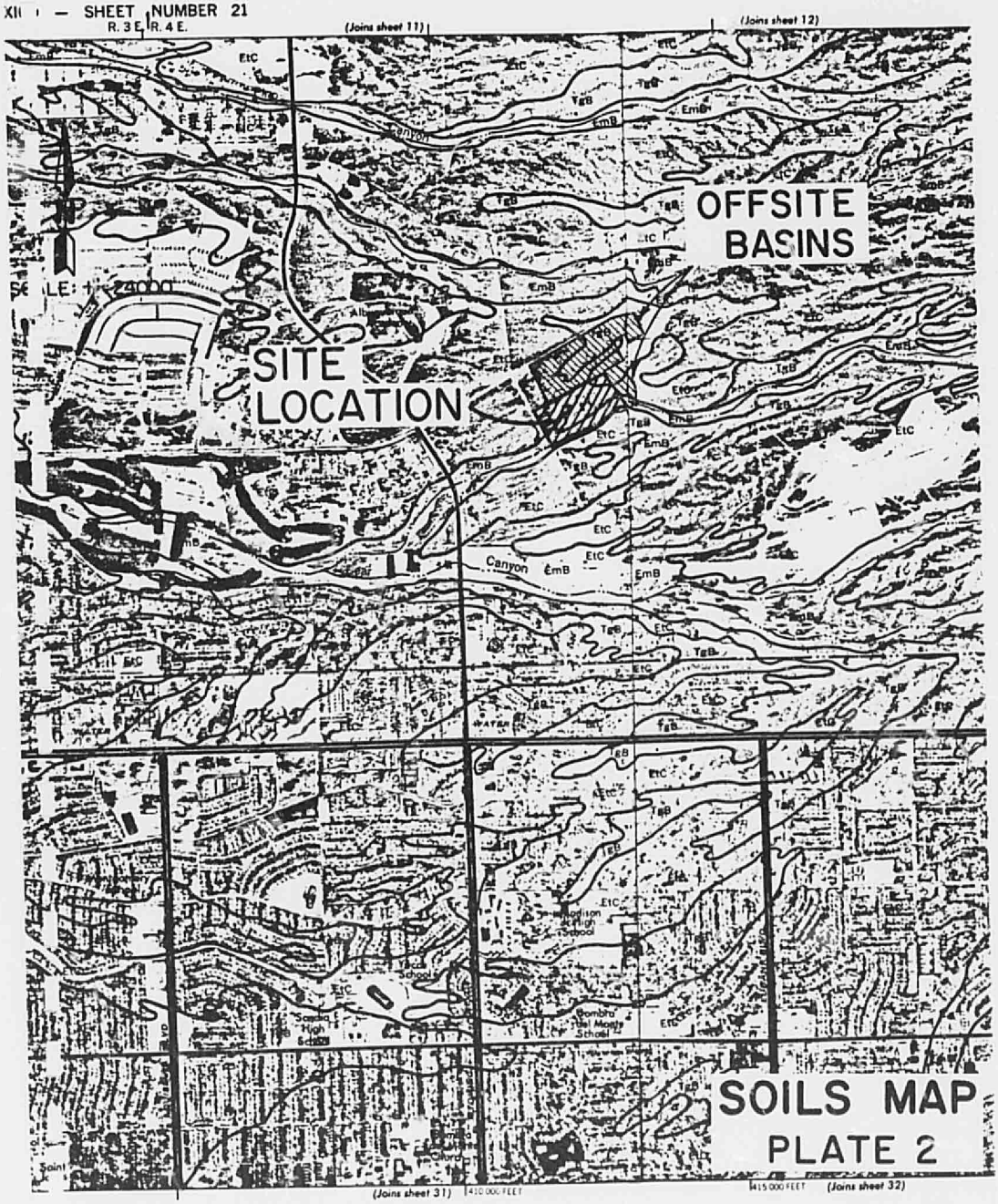
EROSION CONTROL AND PHASING

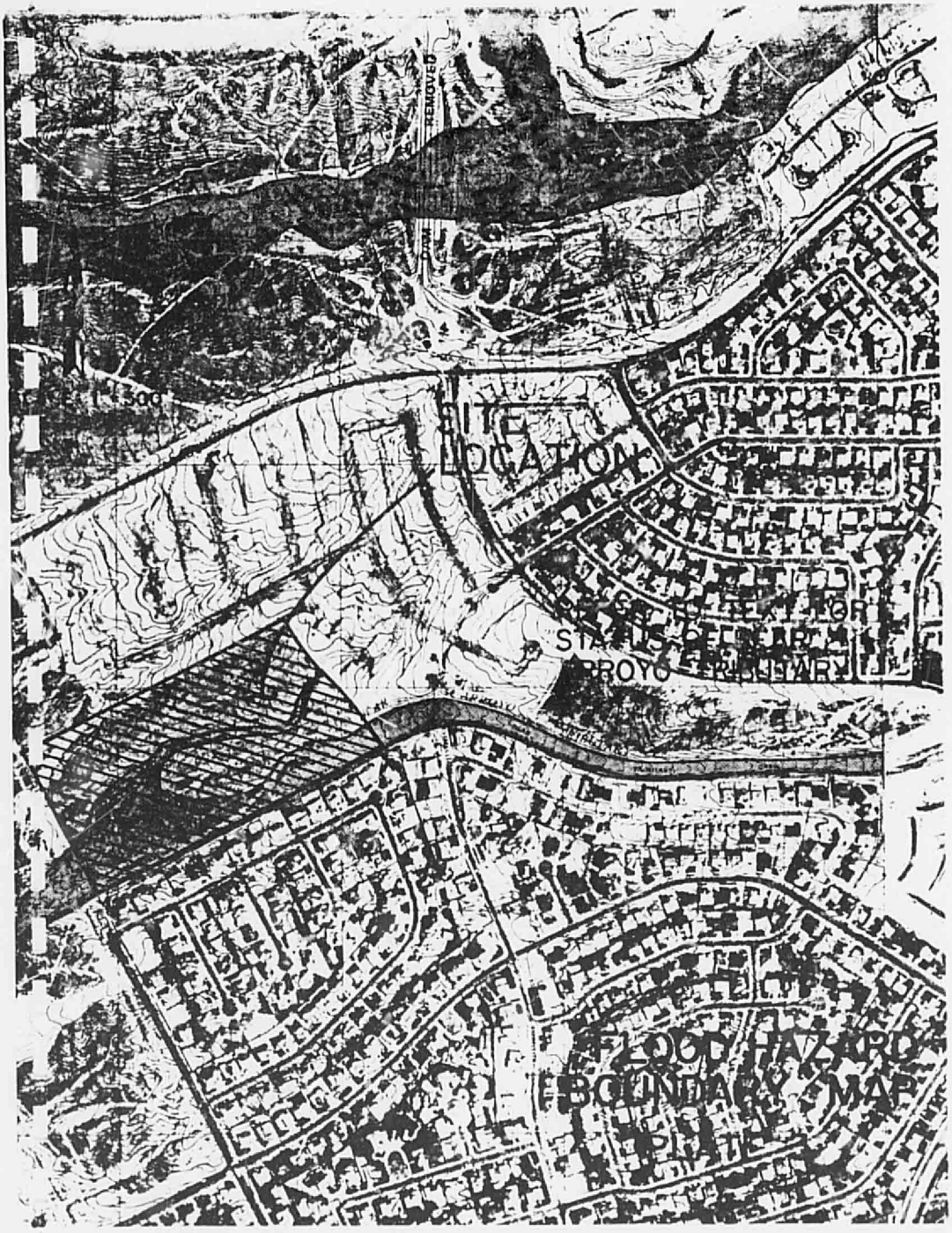
The grading plan (Plate 6) indicates erosion control measures which should be

implemented during construction of the project. The development is programmed to be constructed in one phase. All drainage and paving improvements shall be in place prior to occupying any structure.

PLATES

VICINITY MAP
PLATE I


XII — SHEET NUMBER 21
R. 3 E. R. 4 E.
(Joins sheet 11)
(Joins sheet 12)
OFFSITE BASINS
SITE LOCATION
SOILS MAP
PLATE 2
(Joins sheet 31)
410 000 FEET
415 000 FEET
(Joins sheet 32)


REMOVED
1300
SITE
LOCATION
STATUS OF
PROVO
FLOOD HAZARD
BOUNDARY MAP


REMOVED
OFFSITE
A
OFFSI
B
OFFSITE
BASIS

APPENDIX

APPENDIX 1
CALCULATIONS

OFFSITE FLOWS

BASIN A:

AREA: 32.2 ACRES

C: 0.52 (40% IMPERVIOUS - B TYPE SOIL)
FROM PLATES 22.2 C-1 & C-2
W/ SLIGHTLY SMALLER THAN 1/2 AC. LOTS

RAINFALL: 2.4 INCHES (100-YEAR)

SLOPE: (70-17)/2650 = .02

VELOCITY: 3.8 fps (plate 22.2 B-1)

T_c: 2650 / (3.8 x 60) = 11.6 min.

I: 2.4 (1.96) = 4.7 in./hr. (plate 22.2 D-2)

$Q_{100} = 0.52 (4.7) 32.2 = 78.7$ cfs

$Q_{10} = 78.7 (0.657) = 51.7$ cfs

BASIN B:

AREA: 4.0 ACRES

C: 0.52

T_c: USE MINIMUM OF 10 min.

I: 2.4 (2.11) = 5.1 in./hr.

$Q_{100} = 0.52 (5.1) 4.0 = 10.6$ cfs

$Q_{10} = 10.6 (0.657) = 7.0$ cfs

PROJECT NAME CANYON RUN SHEET 1 OF 8
PROJECT NO. 32263 BY DG DATE 4/5/84
SUBJECT OFFSITE FLOWS CH'D _____ DATE _____

ONSITE FLOWS

EXISTING CONDITIONS:

BASIN I:

AREA: 5.1 ACRES

C: 0.34 (0% IMPERVIOUS - B TYPE SOIL)

RAINFALL: 2.4 inches (100 year)

T_c: USE MIN. 10 min.

I: 2.4 (2.11) = 5.1 in./hr.

$Q_{100} = 0.34(5.1)\,5.1 = 8.8$ cfs

$Q_{10} = 8.8\,(0.657) = 5.8$ cfs

BASIN II:

AREA: 8.6 ACRES

C: 0.34

T_c: 10 min.

I: 5.1 in/hr.

$Q_{100} = 0.34(5.1)\,8.6 = 14.9$ cfs

$Q_{10} = 14.9\,(0.657) = 9.8$ cfs

PROJECT NAME CANYON RUN SHEET 2A OF 8

PROJECT NO 32263 BY DG DATE 4/5/84

SUBJECT ONSITE FLOWS - EXISTING CH'D _____ DATE _____

BASIN III:

AREA: 7.2 ACRES

C: 0.34

T_c: USE MIN. 10 min.

I: 5.1 in/hr

$Q_{100} = 0.34(5.1)\,7.2 = 12.5$ cfs

$Q_{10} = 12.5(0.657) = 8.2$ cfs

BASIN IV

AREA: 0.4 ACRES

C: 0.34

T_c: USE MIN. 10 min.

I: 5.1 in/hr

$Q_{100} = 0.34(5.1)\,0.4 = 0.7$ cfs

$Q_{10} = 0.7(0.657) = 0.5$ cfs

PROJECT NAME CANYON RUN SHEET 2B OF 8

PROJECT NO. 32263 BY DG DATE 4/5/84

SUBJECT ONSITE FLOWS - EXISTING CH'D DATE

ONSITE FLOWS

PROPOSED CONDITIONS:

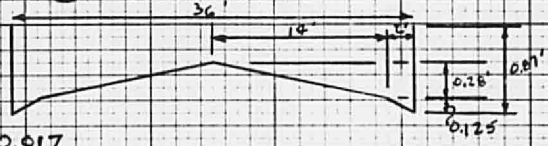
	1.	2.	3.	4.	5.	6.
AREA (Ac)	3.2	2.4	11.4	13.8	2.8	1.5
"C" FACTOR	0.64	←	←	←	←	0.64
T_c (min.)	10	←	←	←	←	10
RAINFALL (I_{100}, Yr)	2.4	←	←	←	←	2.4
INTENSITY	5.1	←	←	←	←	5.1
Q_{100}	10.4	7.8	37.2	45.0	9.1	4.9
Q_{10}	6.9	5.1	24.4	29.6	6.0	3.2
FLOW FROM OFFSITE BASIN A (Q_{100})	78.7	0	0	0	0	0
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0	0
TOTAL Q_{100}	89.1	7.8	47.8	55.6	9.1	4.9
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE BASIN 1 OUTFALL	0	89.1	0	89.1	0	0
TOTAL	89.1	96.9	47.8	144.7	9.1	4.9

PROJECT NAME CANYON RUN SHEET 3 OF 8
PROJECT NO. 32263 BY DG DATE 4/9/04
SUBJECT ONSITE FLOWS CH'D DATE

STREET CAPACITY

MAX. FLOW IN ANY STREET = 89.1 cfs

MIN. CAPACITY @ SLOPE = 0.5%



n: 0.017

AREA: $(36 \times 0.865) + 2\left(\frac{0.28 \times 14}{2}\right) + 2(2 \times 0.28) + 2\left(\frac{0.125 \times 2}{2}\right) = 22.03$

WP: $2(0.87) + 2\sqrt{14^2 + 0.28^2} + 2\sqrt{2^2 + 0.125^2} = 33.75$

HR: 0.65

$Q = 22.03 \frac{1.486}{0.017} (0.65)^{2/3} (0.005)^{1/2} = 102.2$ cfs

IN THE EVENT OF FAILURE OF THE BASIN 1. OUTFALL THE MAX. FLOW IN ANY STREET = 96.9 cfs

CHANNEL CAPACITIES

(using Manning's Eq.: $Q = A \frac{1.49}{n} (R/A)^{2/3} (S)^{1/2}$)

BASIN 6.

MAX. FLOW IN CHANNEL = 4.9 cfs

n = 0.013

MIN. SLOPE = 1.0%

TRY 7' BOTTOM WIDTH

@ 4.9 cfs d = 0.19 ft.

V = 3.7 fps

BASIN 4

MAX. FLOW IN CHANNEL = 55.6 cfs
(w/ BASIN 1 OUTFALL FAILURE Q = 148.7 cfs)

n = 0.013

MIN SLOPE = 0.64%

TRY 19' BOTTOM WIDTH

@ 55.6 cfs d = 0.52 ft

V = 5.7 fps

(@ 148.7 cfs d = 0.93 ft

V = 8.2 fps)

CHANNEL ENTRANCE CAPACITIES

(Using Weir Eq: $Q = 3 L H^{3/2}$)

BASIN 6.:

$Q = 4.9$ cfs

$L = 7$ ft

$H = \left(\frac{4.9}{3 \times 7}\right)^{2/3} = 0.38$ ft.

BASIN 4.:

$Q = 55.6$ cfs (184.7 cfs)

$L = 10$ ft

$H = \left(\frac{55.6}{3 \times 10}\right)^{2/3} = 0.98$ ft.

$\left(\left(\frac{184.7}{3 \times 10}\right)^{2/3} = 1.86 \text{ ft}\right)$

STORM DRAIN HYDRAULICS

PIPE OUTLET:

CHANNEL INVERT : 02.3

CHANNEL HGL : 05.5

SET PIPE INVERT @ 03.3
w/ 48" PIPE SOFFIT = 07.3

$Q = 89.1$ cfs
$A = 12.57$ ft.^{2}
$WP = 12.57$ ft
$HR = 1.00$
$n = 0.013$
$V = 7.09$ fps

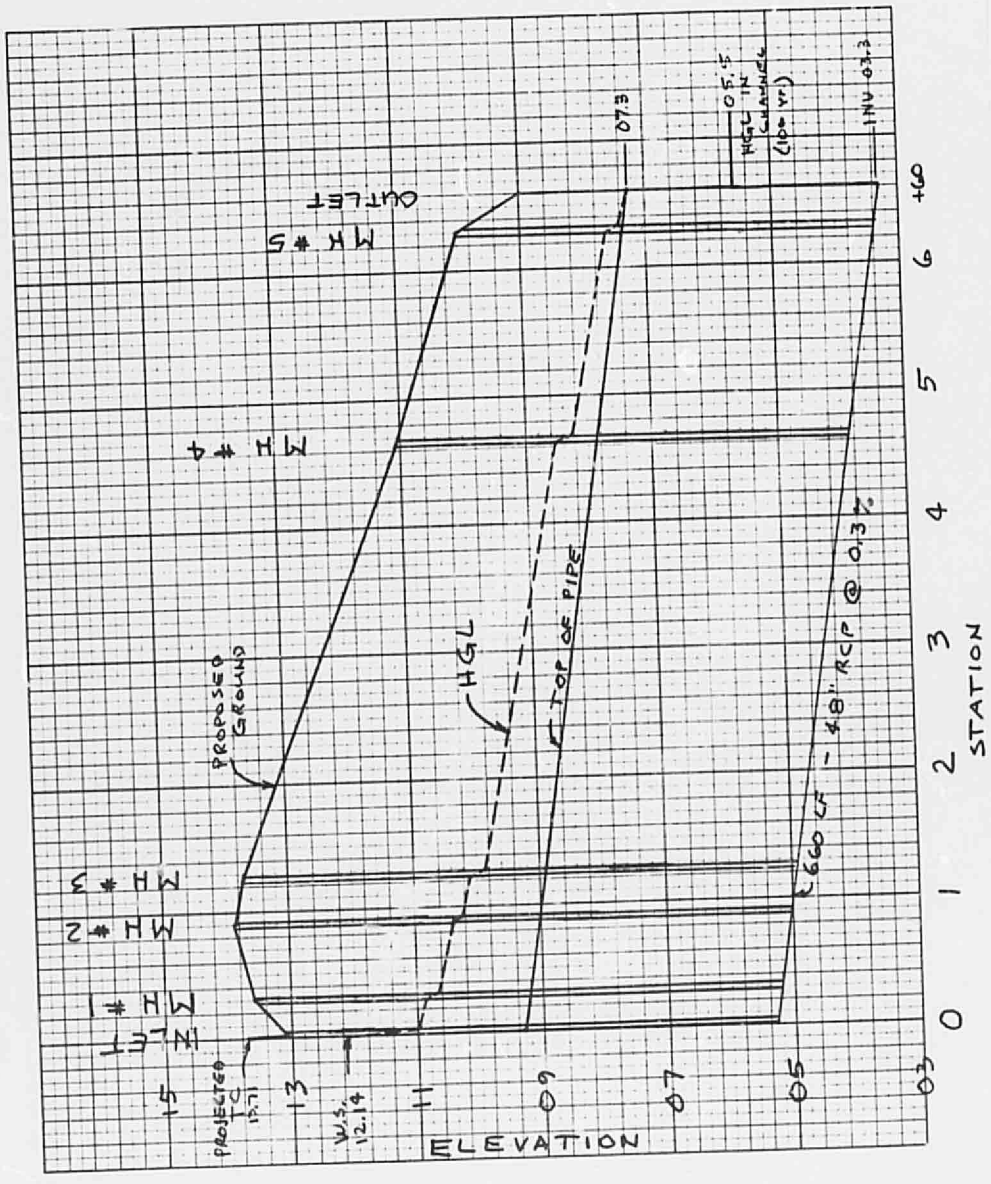
$$K = \frac{1.486(12.57)\ 1.00^{2/3}}{0.013} = 1436.8$$

$$S_f = (89.1/1436.8)^2 = 0.0038$$

LOCATION	LENGTH	h_f	h_{mh}	Δ	K_b	h_b	h_i	HGL ELEV.
OUTLET								07.30
	30	0.11						07.41
MH 1			0.07	27°	0.11	0.15		07.63
	165	0.63						08.26
MH 2			0.07	50°	0.15	0.20		08.53
	340	1.29						09.82
MH 3			0.07	42°	0.14	0.19		10.08
	35	0.13						10.21
MH 4			0.07	18°	0.09	0.12		10.40
	60	0.23						10.63
MH 5			0.07	32°	0.12	0.16		10.86
	30	0.11						10.97
INLET							1.17	12.14

$h_f = S_f(L)$ $\quad h_{mh} = 0.05\left(\frac{V^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V^2}{2g}\right)$

PROJECT NAME Canyon Run SHEET 7 OF 8
PROJECT NO. 32263 BY DG DATE 4/10/84
SUBJECT Storm Drain Hydraulics CH'D DATE

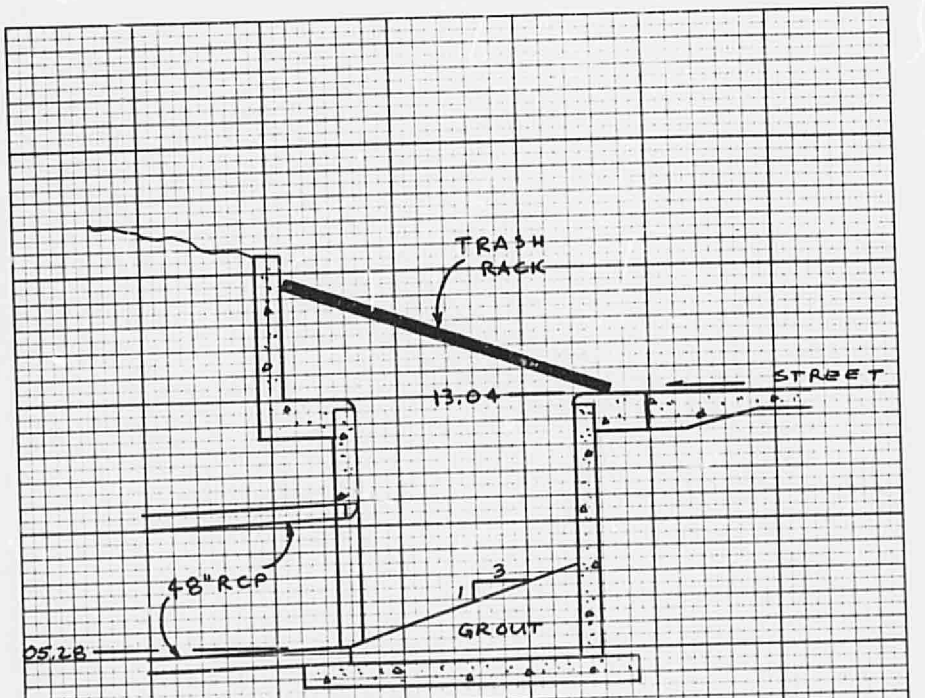


PROJECT NAME Canyon Run SHEET 8 OF 8

PROJECT NO. 32263 BY DG DATE 4/10/04

SUBJECT Hydraulic Grade Line CH'D _____ DATE _____

APPENDIX 2
INLET SECTIONS



INLET SECTION

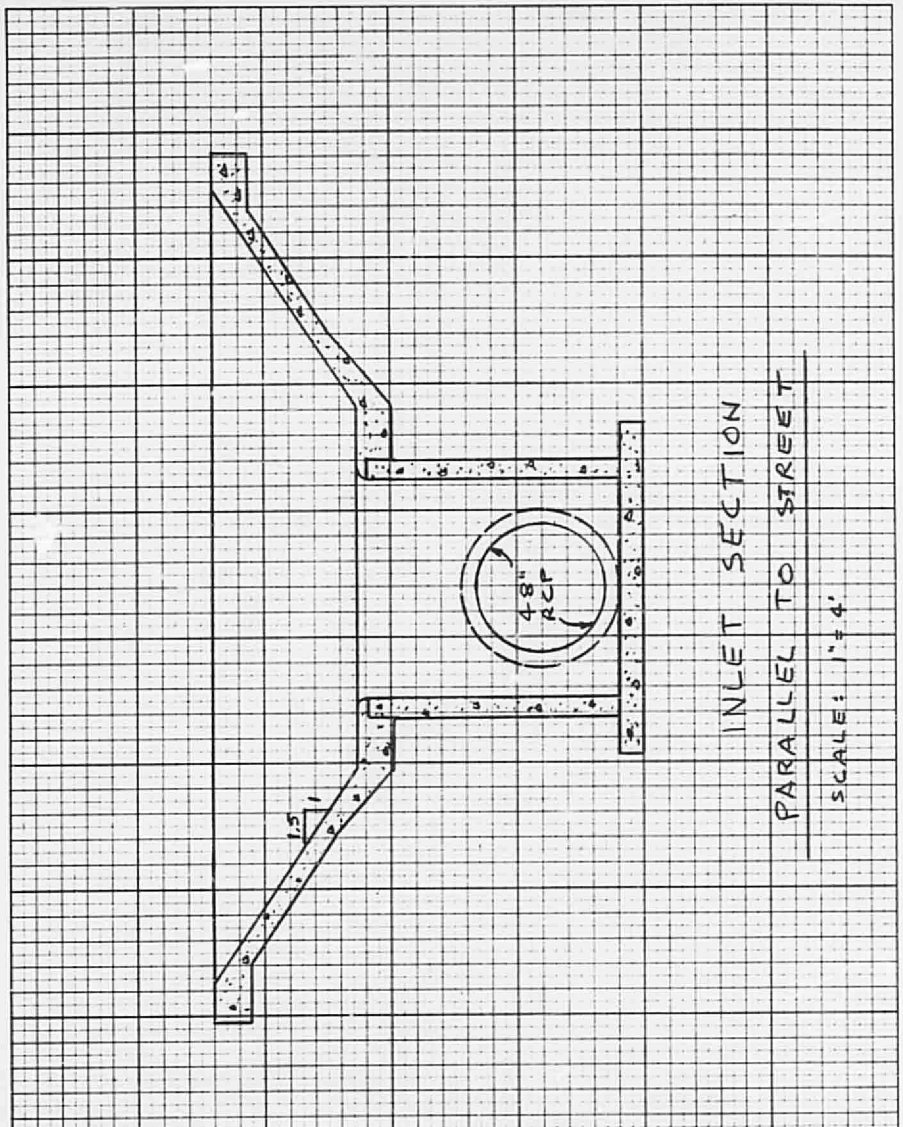
PERPENDICULAR TO STREET

SCALE: 1"=4'

PROJECT NAME CANYON RUN SHEET 1 OF 2

PROJECT NO. 32263 BY DG DATE 4/10/84

SUBJECT INLET SECTION CH'D _____ DATE _____



PROJECT NAME CANYON RUN SHEET 2 OF 2
PROJECT NO. 32262 BY DG DATE 9/10/04
SUBJECT INLET SECTION CH'D _____ DATE _____

APPENDIX 3
AGREEMENT

AGREEMENT

This Agreement made and entered into this _____ day of _____, 1983 by and between the City of Albuquerque, New Mexico, a municipal corporation, hereinafter referred to as "City", Dr. William O. Edward and Mary Lou Edward, his wife (hereinafter referred to as "Edward"), 201 Cedar Street, S.E., Suite 808, Presbyterian Professional Bldg., Albuquerque, New Mexico 87106 and Academy Development Company, (hereinafter referred to as "Academy"), 8401 Spain Road, N.E., No. 3-D, Albuquerque, New Mexico 87111.

WITNESSETH:

WHEREAS, Edward is the owner of certain real estate located in the City of Albuquerque, County of Bernalillo, State of New Mexico, to wit:

(1) Replat of Tracts 2 and 4, Lands of William O. & Mary L. Edward, and

(2) Replat of Tract 1A, Lands of William O. & Mary L. Edward as depicted on the proposed plat attached hereto as Exhibit "A"; and

WHEREAS, Academy is the owner of certain real estate located in the City of Albuquerque, County of Bernalillo, State of New Mexico to wit:

Replat of Tract "A", Unit No. 5, Academy Estates as depicted on the proposed plat attached hereto as Exhibit "B"; and

WHEREAS, both Exhibit "A" and Exhibit "B" have been submitted to the City's Development Review Board for approval; and

WHEREAS, the City, Edward and Academy desire to construct drainage improvements in the drainage right-of-way shown on Exhibits "A" and "B" and extending eastward to Layton Avenue, N.E., comprising the Bear Arroyo Tributary from Wyoming Blvd. to Layton Ave. N.E.; and

WHEREAS, public benefit will be derived from the construction of these drainage improvements; and

WHEREAS, the City and Academy have entered into a memorandum of understanding for the financial aspects of the Bear Arroyo Tributary/ Estrellita del Norte Street Crossing and channel improvements along the Bear Arroyo Tributary between Layton Ave. NE and approximately two hundred forty (240) feet west of Estrellita del Norte St. NE, ("Segment A") by letter dated August 9, 1983, attached as Exhibit "C"; and

WHEREAS, the City and Edward desire to share the costs of construction of the channel improvements in the Bear Tributary Arroyo from a point approximately two hundred forty (240) feet west of Estrellita del Norte, N.E. westward to Wyoming Blvd. ("Segment B"); and

WHEREAS, the City will bid out the channel improvements between Layton Ave. N.E. and Wyoming Blvd. N.E., subject to the financial commitments by Academy and Edward set forth herein.

NOW THEREFORE, the parties to this Agreement, in consideration of the stipulations set out herein, agree as follows:

1. Edward agrees to pay for the design of the drainage improvements to the Bear Canyon Tributary Arroyo within Segment B. The design shall include a grading plan of Edward's property to assure that surface water enters the Bear Tributary and does not flow onto Academy Road or Wyoming Boulevard, and that only 4.0 acres of developed property flows to Moon Street. This grading plan shall be considered an interim plan, however, any future development on the property shall result in the same drainage patterns being permanently established. The construction of the drainage improvements may result in some storm drainage water being interimly ponded in the abandoned arroyo channels. Such occurence is not objectionable to the "City" or "Edward" on an interim basis and will be remedied at the time the property is developed and final graded. In certain areas of the project, cut and fill slopes required to construct the channel extend outside of the proposed drainage right-of-way. Temporary slope easements are granted to the "City" by "Edward" to cover these areas until such time as grading for development renders these slopes unnecessary, at which time they shall be considered extinguished. However grading construction can be done separately by Edward. The grading will be completed prior to final project acceptance by the City.

2. City agrees to waive the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street eastward to approximately two hundred forty (240) feet west of Estrellita Del Norte, thereby providing additional financial support for the achievement of these improvements which will benefit the public.

3. Edward agrees to pay the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street westward to Wyoming Boulevard.

4. Academy agrees to have the design of the crossing construction and the channel construction within Segment A coordinated and combined with the design of the drainage improvements within Segment B at the common junction of these two segments so that they may be bid as a single project. Costs associated with this combination of the two designs into one project shall be jointly paid for by Edward and Academy. The combining of the two designs shall include preparation of bidding documents per City of Albuquerque criteria and printing of plan sets for bidders. In certain areas of the project, cut and fill slopes required to construct the channel extend outside of the proposed drainage right-of-way. Temporary slope easements are granted to the "City" by "Academy" to cover these areas until such time as grading for development renders these slopes unnecessary, at which time they shall be considered extinguished.

5. City shall advertise the project, comprised of the combined Academy and Edward designs for Segments A and B, after receipt of an amount of funds from Edward equal to the Engineer's Cost Estimate for Segment B plus 10%, less $130,000 to be contributed by the City, and receipt of an amount of funds from Academy equal to the developer costs for Segment A as specified in Exhibit "C". If the low bid exceeds the total funds available Edward, Academy and the City shall jointly determine the items of work requiring additional funds. Edward shall furnish all additional funds for items of work within Segment B. Academy and the City shall share proportionately the additional funds for items of work within Segment A. City agrees to pay $130,000 of the total cost of the Edward part of the project, to include all change orders. If the amount of funds provided to the City at the time of advertisement by Edward or

Academy exceeds their prorata shares of the low bid plus a 10% contingency, the City shall refund the excess funds to Edward or Academy at the time of award of a contract to the approved low bidder. City shall return to Academy or Edward any funds remaining at the time of final acceptance of the completed construction when the City makes final payment to the contractor.

6. City agrees to provide for the inspection, to include preparation of pay estimates and review of shop submittals, and testing of the work. Edward and Academy agree to pay their consultants for staking and preparation of as-built drawings for their respective portions of the project.

7. Edward and Academy shall furnish a copy of this Agreement to the Development Review Board (DRB) when Edward and Academy requests DRB review and approval of the plats shown as Exhibit "A" and Exhibit "B".

8. City agrees that no financial guarantees shall be required for the improvements in the right-of-way created by the filing of the above-referenced plats. However, before any further subdivision of the property is made the financial assurance requirements in effect by City Ordinances will be complied with. Such financial assurances will extend to the contributions for channel improvements specified in this Agreement, unless the deposits required by Paragraph five (5) above have already been made at the time such any further subdivision is requested.

9. Edward and Academy agree to proceed with the design of the drainage improvements described herein as of the date of this Agreement and to make funds available to the City for construction of the work so as to enable the City to award a construction contract not later than March 23, 1984.

10. Upon satisfactory completion of the arroyo improvements and receipt by the City of the as-built plans for such improvements, the City shall issue certificates of completion and acceptance to Edward and Academy accepting such improvements and the associated public areas dedicated on the final plat on behalf of the City.

11. This instrument contains the entire agreement between the parties, and no statement, promises, or inducements made by any party or agent of any party that is not contained in this written Agreement shall be valid or binding; and this Agreement may not be enlarged, modified, or altered, except in writing, signed by the parties and endorsed hereon, except that Edward and Academy may make additional agreements between each other not inconsistent with the terms of this Agreement.

12. This Agreement shall inure to the benefit of and be binding upon the heirs, executors, administrators, assignees, and successors of the respective parties and shall constitute a covenant running with the land and must be recorded in the records of the Bernalillo County Clerk.

IN WITNESS WHEREOF, Academy, Edward and the City have executed this Agreement as of the date first above written.

ACADEMY: ACADEMY DEVELOPMENT COMPANY

By _____
Gary Swearingen, President

EDWARD: _____
WILLIAM O. EDWARD

_____
MARY LOU EDWARD, his wife

CITY: CITY OF ALBUQUERQUE

_____
Chief Administrative Officer

ATTEST: _____
City Clerk

Reviewed by the Legal Department

_____
Assistant City Attorney

RECOMMENDED:

_____
Director of Municipal Development

_____
City Engineer

STATE OF NEW MEXICO)
) ss..
COUNTY OF BERNALILLO)

The foregoing instrument was duly acknowledged before me this _____ day of _____, 1983 by Gary Swearingen, President of Academy Development Company, a _____ _____ corporation, on behalf of said corporation.

_____
NOTARY PUBLIC

My commission expires:

_____

STATE OF NEW MEXICO)
) ss..
COUNTY OF BERNALILLO)

The foreging instrument was duly acknowledged before me this _____ day of _____, 1983 by William O. Edward and Mary Lou Edward, his wife.

_____
NOTARY PUBLIC

My commission expires:

_____

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

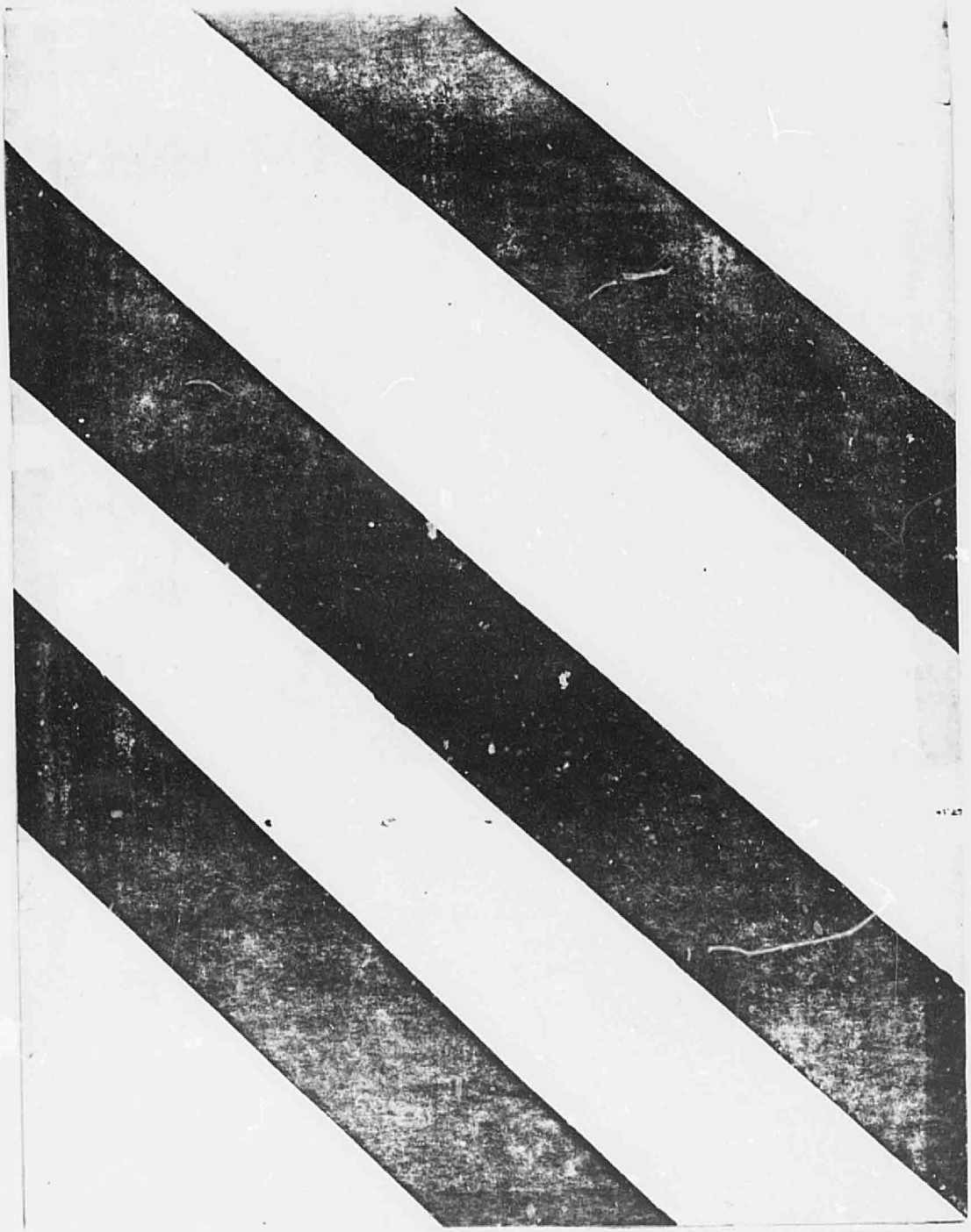
The foregoing instrument was acknowledged before me this _____ day of _____, 19___, by Frank A. Kleinhenz, Chief Administrative Officer, City of Albuquerque.

_____
NOTARY PUBLIC

My Commission Expires:

_____





1. Edward agrees to pay for the design of the drainage improvements to the Bear Canyon Tributary Arroyo within Segment B. The design shall include a grading plan of Edward's property to assure that surface water enters the Bear Tributary and does not flow onto Academy Road. However grading construction can be done separately by Edward. The grading will be completed prior to final project acceptance by the City.

2. City agrees to waive the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street eastward to approximately two hundred forty (240) feet west of Estrellita Del Norte, thereby providing additional financial support for the achievement of these improvements which will benefit the public.

3. Edward agrees to pay the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street westward to Wyoming Boulevard.

4. Academy agrees to have the design of the crossing construction and the channel construction within Segment A coordinated and combined with the design of the drainage improvements within Segment B at the common junction of these two segments so that they may be bid as a single project. Costs associated with this combination of the two designs into one project shall be jointly paid for by Edward and Academy. The combining of the two designs shall include preparation of bidding documents per City of Albuquerque criteria and printing of plan sets for bidders.

5. City shall advertise the project, comprised of the combined Academy and Edward designs for Segments A and B, after receipt of an amount of funds from Edward equal to the Engineer's Cost Estimate for Segment B plus 10%, less $130,000 to be contributed by the City, and receipt of an amount of funds from Academy equal to the developer costs for Segment A as specified in Exhibit "C". If the low bid exceeds the total funds available Edward, Academy and the City shall jointly determine the items of work requiring additional funds. Edward shall furnish all additional funds for items of work within Segment B. Academy and the City shall share proportionately the additional funds for items of work within Segment A. City agrees to pay $130,000 of the total cost of the Edward part of the project, to include all change orders. If the amount of funds provided to the City at the time of advertisement by Edward or Academy exceeds their prorata shares of the low bid plus a 10% contingency, the City shall refund the excess funds to Edward or Academy at the time of award of a contract to the approved low bidder. City shall return to Academy or Edward any funds remaining at the time of final acceptance of the completed construction when the City makes final payment to the contractor.

6. City agrees to provide for the inspection, to include preparation of pay estimates and review of shop submittals, and testing of the work. Edward and Academy agree to pay their consultants for staking and preparation of as-built drawings for their respective portions of the project.

7. Edward and Academy shall furnish a copy of this Agreement to the Development Review Board (DRB) when Edward and Academy requests DRB review and approval of the plats shown as Exhibit "A" and Exhibit "B".

BOHANNAN-HUSTON INC.

E20-023

RECEIVED
APR 19 1984
HYDROLOGY SECTION

DRAINAGE REPORT
FOR
CANYON RUN
SUBDIVISION

April, 1984

DRAINAGE REPORT
FOR
CANYON RUN
SUBDIVISION

PREPARED FOR:

INMAN HOMES
8205 SPAIN NE
ALBUQUERQUE, NM 87109

PREPARED BY:

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

Daniel J. Grochowski

Daniel J. Grochowski
N.M.P.E. No. 8766

TABLE OF CONTENTS

	Page
PURPOSE	1
LOCATION AND SITE DESCRIPTION	1
PLANNING HISTORY	1
METHOD OF ANALYSIS	1
EXISTING CONDITIONS	2
PROPOSED CONDITIONS	2
A. Off-Site	2
B. On-Site	2
C. Determining Downstream Capacity	3
EROSION CONTROL AND PHASING	3

PLATES

Plate 1 – Vicinity Map
Plate 2 – Soils Map
Plate 3 – Flood Hazard Boundary Map
Plate 4 – Off-Site Basins
Plate 5 – Existing Conditions (Rear Pocket)
Plate 6 – Drainage and Grading Plan (Rear Pocket)

APPENDIX

Appendix 1 – Calculations
Appendix 2 – Inlet Sections
Appendix 3 – Agreement

PURPOSE

The purpose of this report is to present the results of a drainage analysis for the Canyon Run proposed subdivision and a plan to manage storm water runoff upon development of the site. Plans for the proposed development will be in accordance with criteria and guidelines established by the City of Albuquerque.

LOCATION AND SITE DESCRIPTION

The site is located in the northeast quadrant of Albuquerque at the northeast corner of the intersection of Moon Street and the Bear Tributary Arroyo as shown on the Vicinity Map (Plate 1). The 21.3-acre site is bounded on the north and east by Academy Estates, Unit 7, a developed subdivision. There is a 0.2-acre well site in the southwest corner that is not a part of this development.

The ground slopes from northeast to southwest at average slopes of 2-5%. The soil is classified as Embudo and Embudo-Tijeras (see Soils Map, Plate 2), both of which are 'B' type soils. Native grasses cover the site. Three arroyos cross the site from east to west and it is currently in a flood hazard zone as shown on the Flood Hazard Boundary Map (Plate 3).

PLANNING HISTORY

Present zoning of the site is R-1 which is compatible with the proposed subdivision. The Development Review Board has given sketch plat approval (DRB 83-735). Preliminary plat submittal is pending with a tentative public hearing date of May 8, 1984 before the DRB.

METHOD OF ANALYSIS

Criteria outlined in Section 22.2 of the Development Process Manual (DPM) was used to compute existing and developed flow rates.

More specifically:

- 'C' value; Plate 22.2 C-1
- Times of concentration; Plate 22.2 B-1 and B-2
- Rainfall amounts; Plate 22.2 D-1
- Flow rate computation; Rational Formula

EXISTING CONDITIONS

Off-site runoff enters the site at three locations in concentrated flows. These three locations coincide with the three arroyos crossing the site as previously mentioned and shown on Plate 4.

At the southwest corner of the Academy Estates, Unit 7, subdivision, three lots and a portion of Casa Feliz were left undeveloped. In their place is a temporary detention pond which collects runoff from 32.2 acres and releases it to the Edward Tract at a controlled rate. 4.0 acres of Academy Estates, Unit 7, runoff flows to the site in Madre Avenue.

The Bear Tributary Arroyo, which is currently an earthen channel and floods the southern portion of the site, will be concrete-lined as a part of City of Albuquerque Project No. 1930. The project construction drawings are approved with construction scheduled to begin this spring. Completion of the Bear Tributary improvements will remove the flood hazard designation from Canyon Run.

On-site runoff flows to the three arroyos extending from the off-site basins and flows to Moon Street or the Bear Tributary. See Sheets 1 and 2 of the calculations.

PROPOSED CONDITIONS

A. Off-Site

The undeveloped portion of Casa Feliz in Academy Estates, Unit 7, must be completed to provide access to Canyon Run. This will direct runoff currently flowing to the temporary detention pond to the site at the flow rate shown on Sheet 1 of the calculations (78.7 cfs). The 10.6 cfs entering the site in Madre Avenue will continue to do so. The Bear Tributary will be confined to the new concrete-lined channel and will no longer impact the site.

B. On-Site

Proposed drainage basins on-site shall be as shown on Plate 6. All areas except for Basin 5 will drain to the Bear Tributary. Basin 5, which contains 2.8 acres, will drain to Moon Street. An agreement between the

owners of Canyon Run, Academy Development Company and the City of Albuquerque limits the area which is allowed to drain to Moon Street to 4.0 acres. A copy of the agreement can be found in Appendix 3.

Basin 6 requires that a concrete rundown in an easement, with the dimensions shown on Sheets 5 and 6 of the calculations, be constructed to carry runoff to the Bear Tributary.

Basin 1 will incorporate off-site Basin A with the runoff being carried to the Bear Tributary in a 48" storm drain. The hydraulic grade line of the storm drain can be found on Sheets 7 and 8 of the calculations. A preliminary inlet configuration is shown in Appendix 3. The inlet may require an additional easement. The last reach of the storm drain, before its outlet to the Bear Tributary, will require an easement.

Basin 4, which is a conglomeration of Basins 2 and 3 and off-site Basin B, will flow to the Bear Tributary in a concrete-lined rundown using the same easement as the Basin 1 storm drain. See calculations Sheets 5 and 6 for channel dimension requirements. Two sets of dimensions are shown: 1) for 55.6 cfs generated by Basins 2 and 3 and off-site Basin B, and 2) which includes the entire flow from the Basin 1 storm drain. In the event of failure of the storm drain, the runoff will be directed to either Basin 2 or Basin 5, both of which are able to contain the additional flow within the streets. See Sheet 4 of the calculations. House pad elevations have been raised in the vicinity of the inlet as an additional safety factor. Only two lots require rear yard ponds. They are in the northeast corner of the site as shown on Plate 6. No credit has been given for the ponds in determining runoff quantities.

C. Determining Downstream Capacity

The design of Moon Street, as a part of SAD 210, took into account runoff from 4.0 developed acres of Canyon Run which is greater than the 2.8 acres proposed in this report. The Bear Tributary design assumed developed conditions for its entire watershed.

EROSION CONTROL AND PHASING

The grading plan (Plate 6) indicates erosion control measures which should be

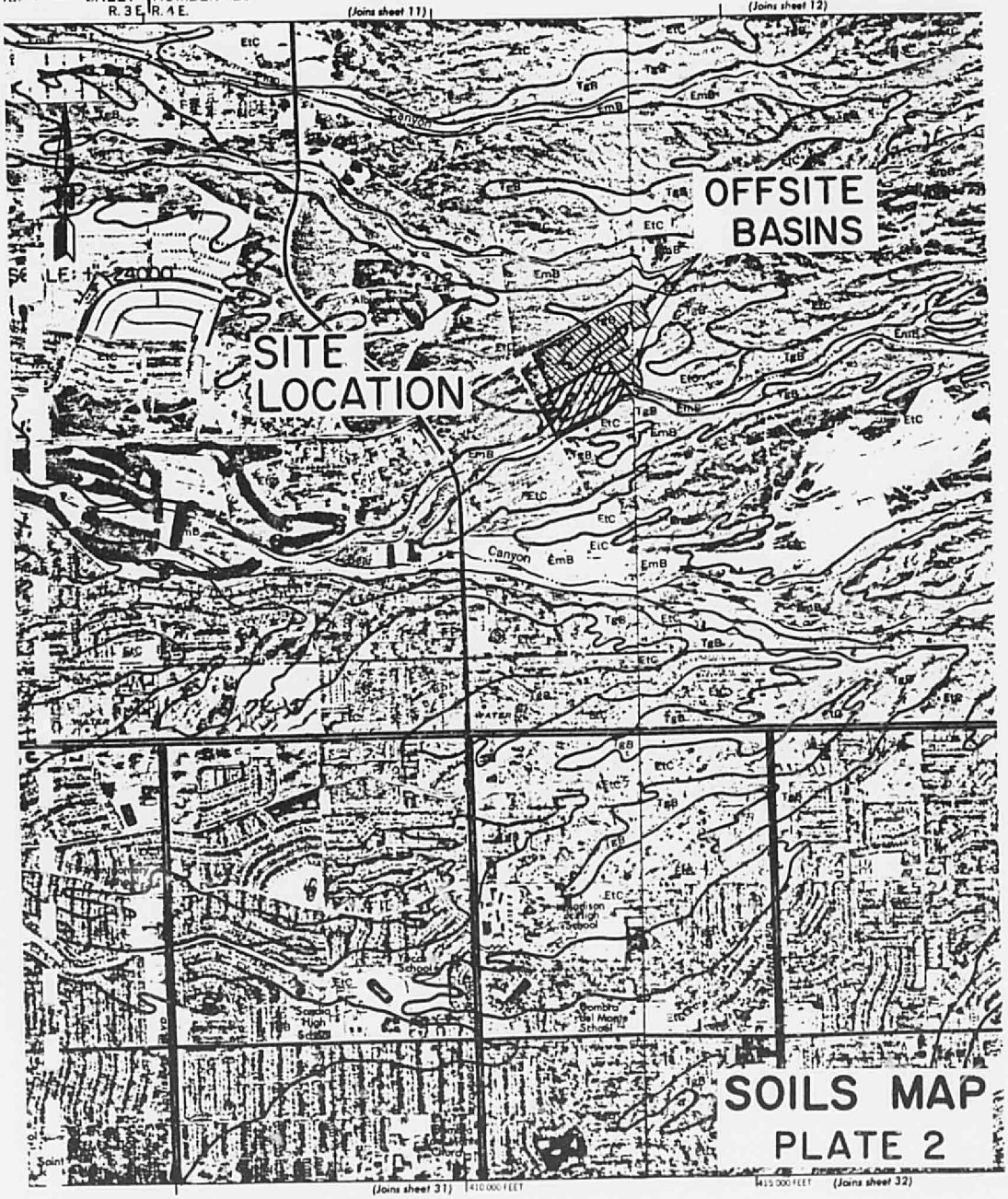
implemented during construction of the project. The development is programmed to be constructed in one phase. All drainage and paving improvements shall be in place prior to occupying any structure

PLATES

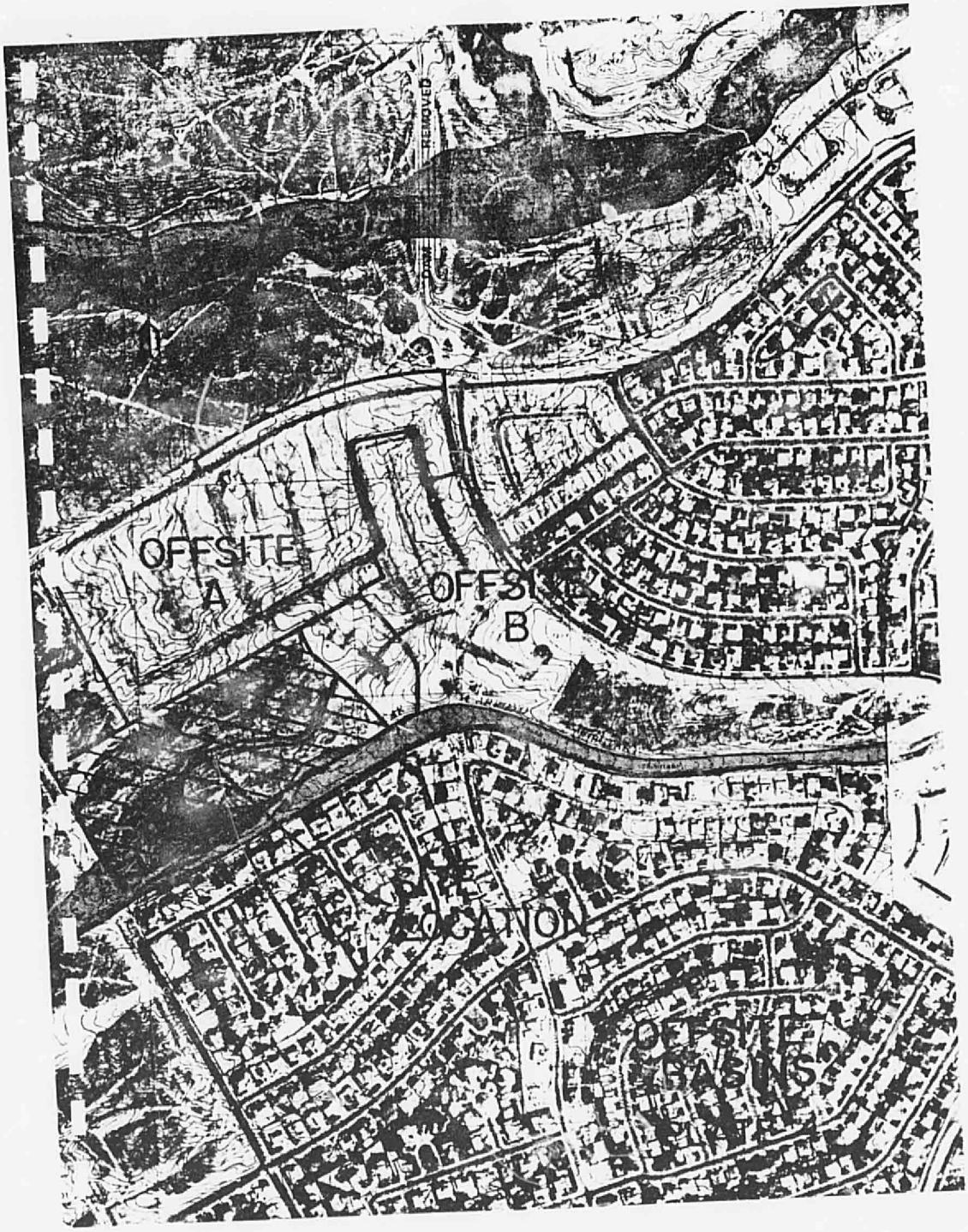
E-20-Z

VICINITY MAP
PLATE 1

XII — SHEET NUMBER 21




REMOVED
SITE
LOCATION
STATUS
PROVO
FLOOD HAZARD
BOUNDARY MAP


REMOVED
OFFSITE
A
OFFSI
B
OFFSI
BASINS

APPENDIX

APPENDIX 1
CALCULATIONS

OFFSITE FLOWS

BASIN A:

AREA: 32.2 ACRES

C: 0.52 (40% IMPERVIOUS - B TYPE SOIL)
FROM PLATES 22.2 C-1 & C-2
W/ SLIGHTLY SMALLER THAN 1/4 AC. LOTS

RAINFALL: 2.4 INCHES (100-YEAR)

SLOPE: (70-17)/2650 = 2.0%

VELOCITY: 3.8 fps (plate 22.2 B-1)

T_c: 2650 / (3.8 x 60) = 11.6 min.

I: 2.4 (1.96) = 4.7 in/hr. (plate 22.2 D-1)

$Q_{100} = 0.52 (4.7) 32.2 = 78.7$ cfs

$Q_{10} = 78.7 (0.657) = 51.7$ cfs

BASIN B:

AREA: 4.0 ACRES

C: 0.52

T_c: USE MINIMUM OF 10 min.

I: 2.4 (2.11) = 5.1 in./hr.

$Q_{100} = 0.52 (5.1) 4.0 = 10.6$ cfs

$Q_{10} = 10.6 (0.657) = 7.0$ cfs

PROJECT NAME CANYON RUN SHEET 1 OF 8
PROJECT NO. 32263 BY DG DATE 4/5/96
SUBJECT OFFSITE FLOWS CH'D DATE

ONSITE FLOWS

EXISTING CONDITIONS:

BASIN I:

AREA: 5.1 ACRES

C: 0.34 (0% IMPERVIOUS - B TYPE SOIL)

RAINFALL: 2.4 inches (100 year)

T_c: USE MIN. 10 min.

I: 2.4 (2.1) = 5.1 in./hr.

$Q_{100} = 0.34 (5.1) 5.1 = 8.8$ cfs

$Q_{10} = 8.8 (0.657) = 5.8$ cfs

BASIN II:

AREA: 8.6 ACRES

C: 0.34

T_c: 10 min.

I: 5.1 in/hr.

$Q_{100} = 0.34 (5.1) 8.6 = 14.9$ cfs

$Q_{10} = 14.9 (0.657) = 9.8$ cfs

BASIN III:

AREA: 7.2 ACRES

C: 0.34

T_c: USE MIN. 10 min.

I: 5.1 in/hr

$Q_{100} = 0.34(5.1)\,7.2 = 12.5$ cfs

$Q_{10} = 12.5(0.657) = 8.2$ cfs

BASIN IV

AREA: 0.4 ACRES

C: 0.34

T_c: USE MIN. 10 min.

I: 5.1 in/hr.

$Q_{100} = 0.34(5.1)\,0.4 = 0.7$ cfs

$Q_{10} = 0.7(0.657) = 0.5$ cfs

PROJECT NAME CANYON RUN SHEET 28 OF 8

PROJECT NO. 32263 BY DG DATE 4/5/84

SUBJECT ONSITE FLOWS - EXISTING CH'D DATE

ONSITE FLOWS

PROPOSED CONDITIONS:

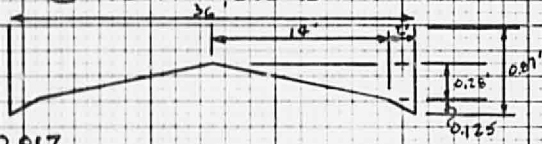
	1.	2.	3.	4.	5.	6.
AREA (Ac.)	3.2	2.4	11.4	13.8	2.8	1.5
"C" FACTOR	0.64	←	←	←	←	0.64
T_c (min.)	10	←	←	←	←	10
RAINFALL (100yr., 1hr.)	2.4	←	←	←	←	2.4
INTENSITY	5.1	←	←	←	←	5.1
Q_{100}	10.4	7.8	37.2	45.0	9.1	4.9
Q_{10}	6.9	5.1	24.4	29.6	6.0	3.2
FLOW FROM OFFSITE BASIN A (Q_{100})	78.7	0	0	0	0	0
FLOW FROM OFFSITE BASIN B (Q_{100})	0	0	10.6	10.6	0	0
TOTAL Q_{100}	89.1	7.8	47.8	55.6	9.1	4.9
ADDITIONAL FLOW IN THE EVENT OF FAILURE OF THE BASIN 1 OUTFALL	0	89.1	0	89.1	0	0
TOTAL	89.1	96.9	47.8	144.7	9.1	4.9

PROJECT NAME CANYON RUN SHEET 3 OF 8
PROJECT NO. 32263 BY DG DATE 4/9/04
SUBJECT ONSITE FLOWS CH'D DATE

STREET CAPACITY

MAX. FLOW IN ANY STREET = 89.1 cfs

MIN. CAPACITY @ SLOPE = 0.5%



n: 0.017

AREA: $(36 \times 0.465) + 2\left(\frac{0.28 \times 14}{2}\right) + 2(2 \times 0.28) + 2\left(\frac{0.125 \times 2}{2}\right) = 22.03$

WP: $2(0.67) + 2\sqrt{14^2 + 0.28^2} + 2\sqrt{2^2 + 0.125^2} = 33.75$

HR: 0.65

$Q = 22.03 \frac{1.486}{0.017} (0.65)^{2/3} (0.005)^{1/2} = 102.2$ cfs

IN THE EVENT OF FAILURE OF THE BASIN & OUTFALL THE MAX. FLOW IN ANY STREET = 96.9 cfs

PROJECT NAME CANYON RUN SHEET 4 OF 8
PROJECT NO. 32263 BY DG DATE 4/9/04
SUBJECT STREET CAPACITY CHD DATE

CHANNEL CAPACITIES

(using Manning's Eq.: $Q = A \frac{1.49}{n} (R/A)^{2/3} (S)^{1/2}$)

BASIN 6.

MAX. FLOW IN CHANNEL = 4.9 cfs

n = 0.013

MIN. SLOPE = 1.0%

TRY 7' BOTTOM WIDTH

@ 4.9 cfs d = 0.19 ft.

V = 3.7 fps

BASIN 4.

MAX. FLOW IN CHANNEL = 55.6 cfs
(w/ BASIN 1. OUTFALL FAILURE Q = 1447 cfs)

n = 0.013

MIN. SLOPE = 0.64%

TRY 19' BOTTOM WIDTH

@ 55.6 cfs d = 0.52 ft

V = 5.7 fps

(@ 1447 cfs d = 0.93 ft

V = 8.2 fps)

CHANNEL ENTRANCE CAPACITIES

(Using Weir Eq.: $Q = 3 L H^{3/2}$)

BASIN 6:

$Q = 4.9$ cfs

$L = 7$ ft

$H = \left(\frac{4.9}{3 \times 7}\right)^{2/3} = 0.38$ ft

BASIN 4:

$Q = 55.6$ cfs (184.7 cfs)

$L = 19$ ft

$H = \left(\frac{55.6}{3 \times 19}\right)^{2/3} = 0.98$ ft

$\left(\left(\frac{184.7}{3 \times 19}\right)^{2/3} = 1.86 \text{ ft}\right)$

PROJECT NAME Canyon Run SHEET 6 OF 8

PROJECT NO. 32263 BY DG DATE 4/7/04

SUBJECT Channel Entrance Capacities CH'D _____ DATE _____

STORM DRAIN HYDRAULICS

PIPE OUTLET :

CHANNEL INVERT : 02.3

CHANNEL HGL : 05.5

SET PIPE INVERT @ 03.3
w/ 48" PIPE SOFFIT = 07.3

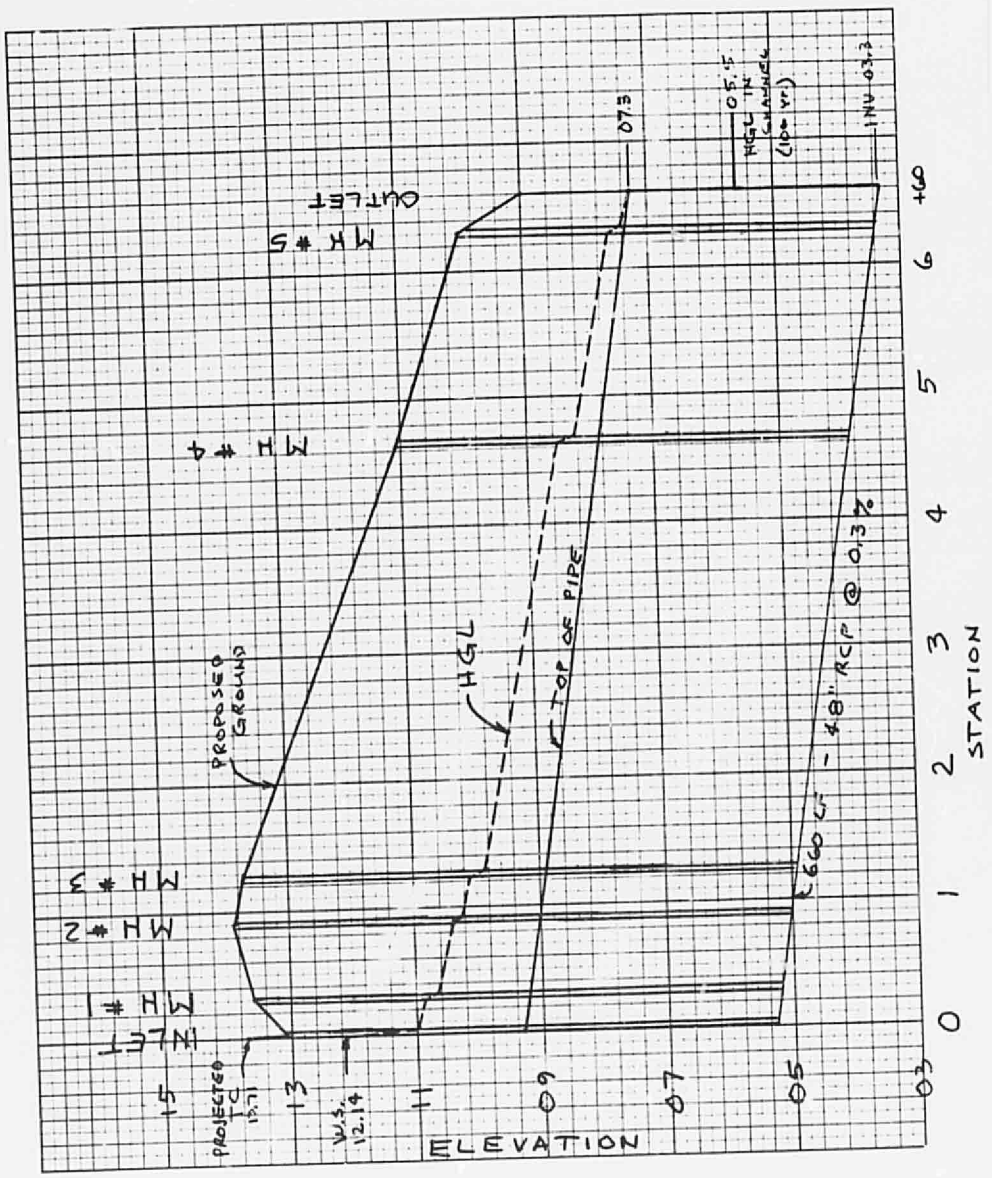
$Q = 89.1$ cfs
$A = 12.57$ ft.^{2}
$WP = 12.57$ ft
$HR = 1.00$
$n = 0.013$
$V = 7.09$ fps

$$K = \frac{1.486(12.57)\ 1.00^{2/3}}{0.013} = 1436.8$$

$$S_f = (89.1/1436.8)^2 = 0.0038$$

LOCATION	LENGTH	h_f	h_{mh}	Δ	K_b	h_b	h_i	HGL ELEV.
OUTLET								07.30
	30	0.11						07.41
MH 1			0.07	27°	0.11	0.15		07.63
	165	0.63						08.26
MH 2			0.07	50°	0.15	0.20		08.53
	340	1.29						09.82
MH 3			0.07	42°	0.14	0.19		10.08
	35	0.13						10.21
MH 4			0.07	18°	0.09	0.12		10.40
	60	0.23						10.63
MH 5			0.07	32°	0.12	0.16		10.86
	30	0.11						10.97
INLET							1.17	12.14

$h_f = S_f(L)$ $\quad h_{mh} = 0.05\left(\frac{V^2}{2g}\right)$ $\quad h_b = K_b\left(\frac{V^2}{2g}\right)$ $\quad h_i = 1.5\left(\frac{V^2}{2g}\right)$

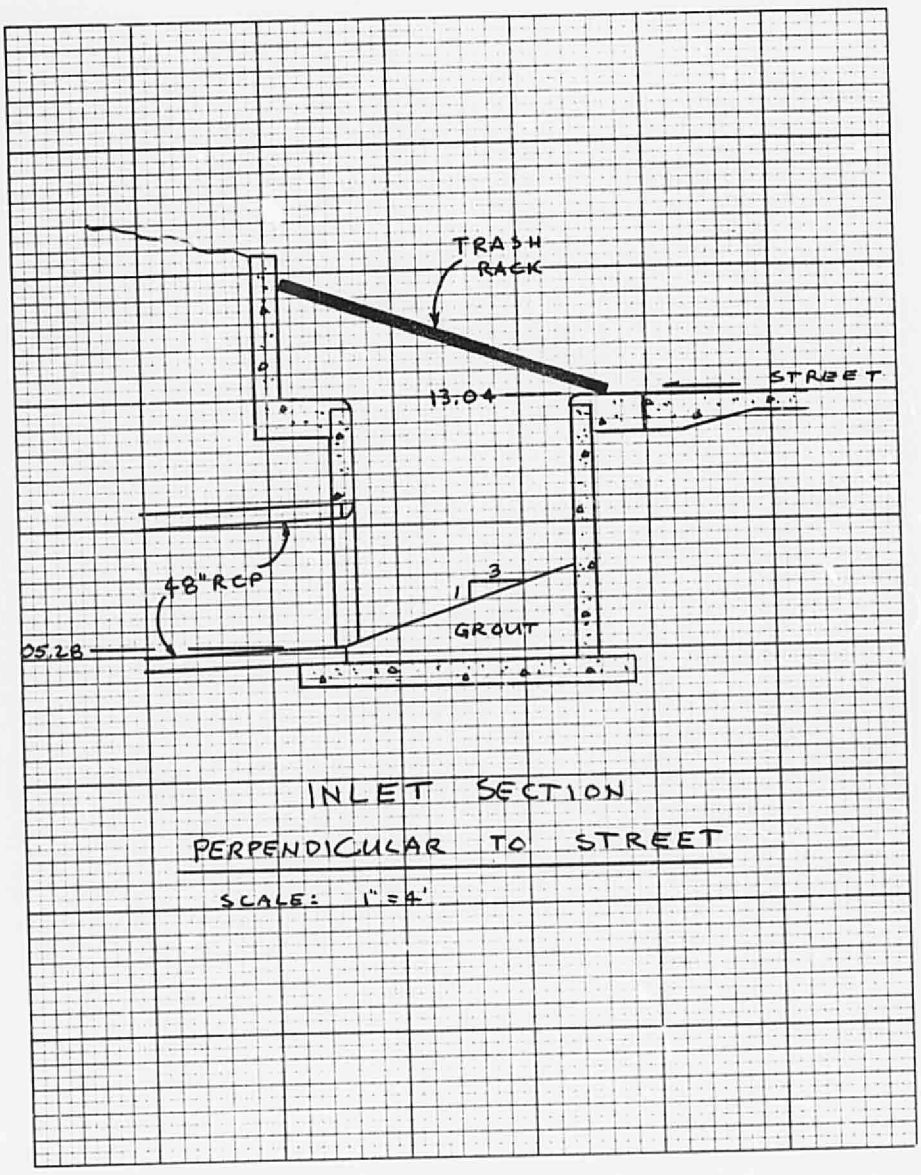


PROJECT NAME CANYON RUN SHEET 8 OF 8

PROJECT NO. 32263 BY DG DATE 4/10/84

SUBJECT HYDRAULIC GRADE LINE CH'D _____ DATE _____

APPENDIX 2
INLET SECTIONS



INLET SECTION

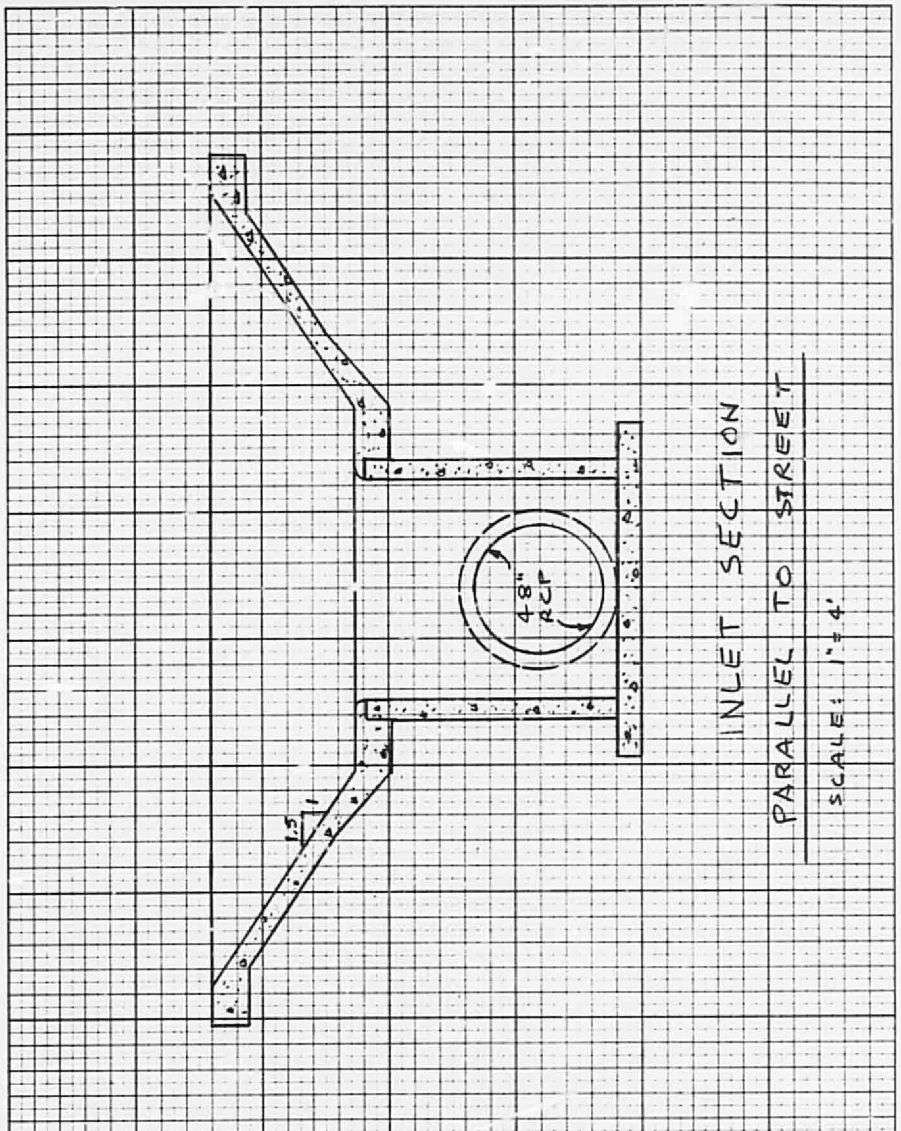
PERPENDICULAR TO STREET

SCALE: 1" = 4'

PROJECT NAME CANYON RUN SHEET 1 OF 2

PROJECT NO. 32263 BY DG DATE 4/10/84

SUBJECT INLET SECTION CH'D _____ DATE _____



PROJECT NAME CANYON RUN SHEET 2 OF 2

PROJECT NO 32262 BY DG DATE 8/10/84

SUBJECT INLET SECTION CH'D _____ DATE _____

APPENDIX 3
AGREEMENT

AGREEMENT

This Agreement made and entered into this _____ day of _____, 1983 by and between the City of Albuquerque, New Mexico, a municipal corporation, hereinafter referred to as "City", Dr. William O. Edward and Mary Lou Edward, his wife (hereinafter referred to as "Edward"), 201 Cedar Street, S.E., Suite 808, Presbyterian Professional Bldg., Albuquerque, New Mexico 87106 and Academy Development Company, (hereinafter referred to as "Academy"), 8401 Spain Road, N.E., No. 3-D, Albuquerque, New Mexico 87111.

WITNESSETH:

WHEREAS, Edward is the owner of certain real estate located in the City of Albuquerque, County of Bernalillo, State of New Mexico, to wit:

(1) Replat of Tracts 2 and 4, Lands of William O. & Mary L. Edward, and

(2) Replat of Tract 1A, Lands of William O. & Mary L. Edward as depicted on the proposed plat attached hereto as Exhibit "A"; and

WHEREAS, Academy is the owner of certain real estate located in the City of Albuquerque, County of Bernalillo, State of New Mexico to wit:

Replat of Tract "A", Unit No. 5, Academy Estates as depicted on the proposed plat attached hereto as Exhibit "B"; and

WHEREAS, both Exhibit "A" and Exhibit "B" have been submitted to the City's Development Review Board for approval; and

WHEREAS, the City, Edward and Academy desire to construct drainage improvements in the drainage right-of-way shown on Exhibits "A" and "B" and extending eastward to Layton Avenue, N.E., comprising the Bear Arroyo Tributary from Wyoming Blvd. to Layton Ave. N.E.; and

WHEREAS, public benefit will be derived from the construction of these drainage improvements; and

WHEREAS, the City and Academy have entered into a memorandum of understanding for the financial aspects of the Bear Arroyo Tributary/ Estrellita del Norte Street Crossing and channel improvements along the Bear Arroyo Tributary between Layton Ave. NE and approximately two hundred forty (240) feet west of Estrellita del Norte St. NE, ("Segment A") by letter dated August 9, 1983, attached as Exhibit "C"; and

WHEREAS, the City and Edward desire to share the costs of construction of the channel improvements in the Bear Tributary Arroyo from a point approximately two hundred forty (240) feet west of Estrellita del Norte, N.E. westward to Wyoming Blvd. ("Segment B"); and

WHEREAS, the City will bid out the channel improvements between Layton Ave. N.E. and Wyoming Blvd. N.E., subject to the financial commitments by Academy and Edward set forth herein.

NOW THEREFORE, the parties to this Agreement, in consideration of the stipulations set out herein, agree as follows:

1. Edward agrees to pay for the design of the drainage improvements to the Bear Canyon Tributary Arroyo within Segment B. The design shall include a grading plan of Edward's property to assure that surface water enters the Bear Tributary and does not flow onto Academy Road or Wyoming Boulevard, and that only 4.0 acres of developed property flows to Moon Street. This grading plan shall be considered an interim plan, however, any future development on the property shall result in the same drainage patterns being permanently established. The construction of the drainage improvements may result in some storm drainage water being interimly ponded in the abandoned arroyo channels. Such occurence is not objectionable to the "City" or "Edward" on an interim basis and will be remedied at the time the property is developed and final graded. In certain areas of the project, cut and fill slopes required to construct the channel extend outside of the proposed drainage right-of-way. Temporary slope easements are granted to the "City" by "Edward" to cover these areas until such time as grading for development renders these slopes unnecessary, at which time they shall be considered extinguished. However grading construction can be done separately by Edward. The grading will be completed prior to final project acceptance by the City.

2. City agrees to waive the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street eastward to approximately two hundred forty (240) feet west of Estrellita Del Norte, thereby providing additional financial support for the achievement of these improvements which will benefit the public.

3. Edward agrees to pay the design review fee for that reach of the drainage improvements in Segment B from the centerline of Moon Street westward to Wyoming Boulevard.

4. Academy agrees to have the design of the crossing construction and the channel construction within Segment A coordinated and combined with the design of the drainage improvements within Segment B at the common junction of these two segments so that they may be bid as a single project. Costs associated with this combination of the two designs into one project shall be jointly paid for by Edward and Academy. The combining of the two designs shall include preparation of bidding documents per City of Albuquerque criteria and printing of plan sets for bidders. In certain areas of the project, cut and fill slopes required to construct the channel extend outside of the proposed drainage right-of-way. Temporary slope easements are granted to the "City" by "Academy" to cover these areas until such time as grading for development renders these slopes unnecessary, at which time they shall be considered extinguished.

5. City shall advertise the project, comprised of the combined Academy and Edward designs for Segments A and B, after receipt of an amount of funds from Edward equal to the Engineer's Cost Estimate for Segment B plus 10%, less $130,000 to be contributed by the City, and receipt of an amount of funds from Academy equal to the developer costs for Segment A as specified in Exhibit "C". If the low bid exceeds the total funds available Edward, Academy and the City shall jointly determine the items of work requiring additional funds. Edward shall furnish all additional funds for items of work within Segment B. Academy and the City shall share proportionately the additional funds for items of work within Segment A. City agrees to pay $130,000 of the total cost of the Edward part of the project, to include all change orders. If the amount of funds provided to the City at the time of advertisement by Edward or

Academy exceeds their prorata shares of the low bid plus a 10% contingency, the City shall refund the excess funds to Edward or Academy at the time of award of a contract to the approved low bidder. City shall return to Academy or Edward any funds remaining at the time of final acceptance of the completed construction when the City makes final payment to the contractor.

6. City agrees to provide for the inspection, to include preparation of pay estimates and review of shop submittals, and testing of the work. Edward and Academy agree to pay their consultants for staking and preparation of as-built drawings for their respective portions of the project.

7. Edward and Academy shall furnish a copy of this Agreement to the Development Review Board (DRB) when Edward and Academy requests DRB review and approval of the plats shown as Exhibit "A" and Exhibit "B".

8. City agrees that no financial guarantees shall be required for the improvements in the right-of-way created by the filing of the above-referenced plats. However, before any further subdivision of the property is made the financial assurance requirements in effect by City Ordinances will be complied with. Such financial assurances will extend to the contributions for channel improvements specified in this Agreement, unless the deposits required by Paragraph five (5) above have already been made at the time such any further subdivision is requested.

9. Edward and Academy agree to proceed with the design of the drainage improvements described herein as of the date of this Agreement and to make funds available to the City for construction of the work so as to enable the City to award a construction contract not later than March 23, 1984.

10. Upon satisfactory completion of the arroyo improvements and receipt by the City of the as-built plans for such improvements, the City shall issue certificates of completion and acceptance to Edward and Academy accepting such improvements and the associated public areas dedicated on the final plat on behalf of the City.

11. This instrument contains the entire agreement between the parties, and no statement, promises, or inducements made by any party or agent of any party that is not contained in this written Agreement shall be valid or binding; and this Agreement may not be enlarged, modified, or altered, except in writing, signed by the parties and endorsed hereon, except that Edward and Academy may make additional agreements between each other not inconsistent with the terms of this Agreement.

12. This Agreement shall inure to the benefit of and be binding upon the heirs, executors, administrators, assignees, and successors of the respective parties and shall constitute a covenant running with the land and must be recorded in the records of the Bernalillo County Clerk.

IN WITNESS WHEREOF, Academy, Edward and the City have executed this Agreement as of the date first above written.

ACADEMY: ACADEMY DEVELOPMENT COMPANY

By _____
Gary Swearingen, President

EDWARD: _____
WILLIAM O. EDWARD

_____
MARY LOU EDWARD, his wife

CITY: CITY OF ALBUQUERQUE

_____
Chief Administrative Officer

ATTEST: _____
City Clerk

Reviewed by the Legal Department

_____
Assistant City Attorney

RECOMMENDED:

_____
Director of Municipal Development

_____
City Engineer

STATE OF NEW MEXICO)
) ss..
COUNTY OF BERNALILLO)

The foregoing instrument was duly acknowledged before me this _____ day of _____, 1983 by Gary Swearingen, President of Academy Development Company, a _____ corporation, on behalf of said corporation.

_____
NOTARY PUBLIC

My commission expires:

_____

STATE OF NEW MEXICO)
) ss..
COUNTY OF BERNALILLO)

The foreging instrument was duly acknowledged before me this _____ day of _____, 1983 by William O. Edward and Mary Lou Edward, his wife.

_____
NOTARY PUBLIC

My commission expires:

_____

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this _____ day of _____, 19___, by Frank A. Kleinhenz, Chief Administrative Officer, City of Albuquerque.

_____
NOTARY PUBLIC

My Commission Expires:

_____

