HYDROLOGY E21/D15A FIVE PLANS

E21/D15A

5 PLANS

BOHANNAN–HUSTON INC.

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

RECEIVED
NE
JAN 10 1984
ENGINEERING

To: CITY HYDROLOGY

Attention: FRED AGUIRRE

- ☐ Parcel Post
- ☒ Messenger
- ☐ First Class
- ☐ UPS
- ☐ Air Mail
- ☐ R.R. Express
- ☐ Special Delivery
- ☐ Air Freight
- ☐ Bus

E21-D15C

Transmittal

Date: 1/9/84 Our job number: 31705

Your job number:

Job: TIERRA ANTIGUA

We are enclosing:	For:
X Prints	Your Use
Sepias	Your Approval
Tracings	X Your Records
Specs	Review & Comments
Studies Report	Revisions
Xerox	Response to Your Request
Plan Sets	

Comments: ENCLOSED ~~ARE 2 COPIES~~ IS 1 COPY OF THE APPROVED ROUGH GRADING PLAN FOR ~~THE~~ TIERRA ANTIGUA THANKS FOR YOUR COOPERATION
~~ALSO~~ CLIFFORD INDUSTRIAL PARK GRADING PLAN IS WITH THE CITY SET FOR FINAL APPROVAL. I WILL RUN A SET AS SOON AS I GET THE SEPIAS

By: DAVID WOODS thank you

Rec'd by: Cynthia Cydelete Date: 1/9/84

INFORMATION SHEET

PROJECT TITLE Quail Ridge TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. E-21 CITY ADDRESS N/A

LEGAL DESCRIPTION Southern Portion Tract 3 of Academy Hills Unit 6

ENGINEERING FIRM Bohannan–Huston, Inc. CONTACT David Woods

ADDRESS 4125 Carlisle Blvd., NE PHONE 881-2000

OWNER Grupe Construction West CONTACT Dave Kochert

ADDRESS 5023 Justin NW PHONE 292-2908

ARCHITECT Berkus–Group Architects CONTACT Clark Butts

ADDRESS No. 4 Upper Newport Plaza, Suite 100 Newport Beach, CA 92660 PHONE (714) 833-2400

SURVEYOR N/A CONTACT

ADDRESS PHONE

CONTRACTOR N/A CONTACT

ADDRESS PHONE

DATE SUBMITTED 7-29-83

BY David Mymillan

RECEIVED
JUL 29 1983
ENGINEERING

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Tierra Antigua ZONE ATLAS/DRNG. FILE #: E21/D15A

LEGAL DESCRIPTION: Replat of Academy Place Unit 6

CITY ADDRESS: Eubank & Juan Tabo, NE

ENGINEERING FIRM: Bohannan-Huston CONTACT: Dave Woods

ADDRESS: 4125 Carlisle, NE PHONE: 881-2000

OWNER: Grupe Construction West CONTACT: Dave Kochert

ADDRESS: on site PHONE: 292-2908

ARCHITECT: Barker Bol & Associates CONTACT: Chris Rasmussen

ADDRESS: 209 Gold, SW PHONE: 842-6787

SURVEYOR: unknown CONTACT: unknown

ADDRESS: PHONE:

CONTRACTOR: Grupe Construction West CONTACT: Dave Kochert

ADDRESS: on site PHONE: 292-2908

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

X Phasing Plan Approval

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

X Temporary CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: ___

BY: ___

BOHANNAN-HUSTON INC.

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

Transmittal

EIS-DISA

To: CITY HYDROLOGY
2ND + CENTRAL

- ☐ Parcel Post
- ☐ Messenger
- ☐ First Class
- ☐ UPS
- ☐ Express Mail
- ☐ Air Freight
- ☐ Bus
- ☐ _____

Attention: BERNIE MONTOYA

Date: 12/4/84 Our job number: 42241

Your job number: _____

Job: TIERRA ANTIGUA DRAINAGE PHASING PLAN

We are enclosing:	For:
x CERTIFICATION LETTER	YOUR RECORDS

Comments: ENCLOSED IS THE CERTIFICATION OF EXISTING IMPROVEMENTS TO THE CITY RIGHT OF WAY FOR TIERRA ANTIGUA. PLEASE INCLUDE THIS WITH YOUR PHASING PLAN FOR THE SAME PROJECT.

By: DAVID WOODS thank you

Rec'd by: Connie Lujan Date: 12-5-84

☒ Please Return Signed Yellow Copy

2/1/84

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Tierra Antigua ZONE ATLAS/DRNG. FILE #: E-21-D15A

LEGAL DESCRIPTION: Tierra Antigua

CITY ADDRESS: NE. corner of Eubank and Juan Tabo

ENGINEERING FIRM: Bohannan Huston Inc CONTACT: Dave Woods

ADDRESS: 4125 Carlisle Blvd. N.E. PHONE: 881-2000

OWNER: Grupe Construction CONTACT: Tony Altizio

ADDRESS: 5905 Tierra Antigua N.E. PHONE: 292-2908

ARCHITECT: Barker and Bol CONTACT: Chris Rasmussen

ADDRESS: 209 Gold S.W. PHONE: 842-6789

SURVEYOR: Hall Surveying CONTACT: Bob Sexton

ADDRESS: PHONE: 884-6444

CONTRACTOR: U.R. Hale CONTACT: Tim Bowen

ADDRESS: 505 Carmony Rd N.E. PHONE: 345-6628

PRE-DESIGN MEETING:

___ YES

X NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

RECEIVED APR 04 1985 HYDROLOGY SECTION

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

X CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: _____

BY: _____

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

April 3, 1985

RECEIVED
APR 04 1985
HYDROLOGY SECTION

Mr. Bill McNamara
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Tierra Antigua Public Improvements (Job 2062)

Dear Bill:

Your signature below confirms the public storm drain improvements for the above referenced project have been completed to the extent of the contractor's responsibility and are acceptable to the City.

The purpose for seeking acceptance of the storm drain prior to acceptance of the entire project is so the project owners may receive their permanent Certificates of Occupancy (CO). The City Hydrology Department requires your acceptance of the public storm drain improvements in order to allow release of the CO.

Please sign in the space provided if the public storm drain improvements are acceptable. If you have any questions, please call Dave Woods or me.

Truly yours,

Brian G. Burnett, P.E.
Division Manager

ACCEPTED

BY: W. F. McNamara
BILL MC NAMARA

TITLE: Asst. City Engr./Field

DATE: 4-4-85

BY: TONY TAFOYA

TITLE: Urban Pg Supt.

DATE: Apr 4 1985

cc: Mr. Tony Altizio

DWW/mls
Job No. 4 224 2

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

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

April 3, 1985

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

RECEIVED
APR 04 1985
HYDROLOGY SECTION

Re: Drainage Certification for Tierra Antigua

Dear Bernie:

Enclosed are two (2) copies of the grading and drainage as-builts and City acceptance letter for the public storm drain for Tierra Antigua. The project has been found to be in substantial compliance with the approved drainage report.

The inlets which should discharge to the new Bear Tributary storm drain have been installed but remain unconnected. According to previous arrangements, this connection will be made by the SAD-205 contractor. Until then, temporary channels have been graded to the existing arroyo.

Since the contractor has completed all his required work, we feel the developer should be issued a permanent certificate of occupancy provided there are no problems associated with other required inspections. If you have any questions, please call Dave Woods.

Truly yours,

Brian G. Burnett, P.E.
Division Manager

Enclosures

cc: Mr. Tony Altizio

DWW/mls
Job No. 4 224 2

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

BOHANNAN-HUSTON INC.

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

Transmittal

To: CITY HYDRAULOGY
2ND + CENTRAL

Attention: BILLY GOOLSBY

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

Date: 8/1/84 Our job number: 42240

Your job number: E21-D15A 2062

Job: TIERRA ANTIGUA DRAINAGE OUTFALL

We are enclosing:	For:
X PRINT	YOUR REVIEW

Comments: ENCLOSED IS A DRAWING SHOWING THE INTENDED TREATMENT FOR THE BEAR TRIB ARROYO USING A SHORTENED ENTRANCE CHANNEL. IF YOU HAVE ANY QUESTIONS PLEASE GIVE ME A CALL.

RECEIVED
AUG 01 1984
HYDROLOGY SECTION

By: DAVID WOODS thank you

Rec'd by: M. Kunz Date: 8-1-84

☒ Please Return Signed Yellow Copy

2/1/84

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

July 29, 1983

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

Re: Drainage Report for Quail Ridge Subdivision

E21-D15A

Dear Fred:

Enclosed for your review is a copy of the referenced Drainage Report. This particular project will be heard at the September EPC meeting.

Please contact Dave Woods or me if you have any questions.

Sincerely,

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Dave Kochert

DW/blm
Job No. 3 170 2

RECEIVED
JUL 29 1983
ENGINEERING

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L. S.
LARRY W. HUSTON
DONALD T. CREMANS, P. E.
C. J. (SKIP) MEAD, P. E.
MICHIAL M. EMERY, P. E.

ASSOCIATES
ANDRES ARAGON VIAMONTE, P. E.
JACK EICHORN
ROBERT H. GREENLEE, P. E.
G. LEE TRUSSELL
ISAAC J. PINO, P. E.
RAMON LARA, P. E.
DARRELL L. WADE, P. E.
PATRICK L. STIEHR, P. E.
DAVID M. Y. MILLIKAN, 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 CARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

March 20, 1984

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

Re: Tierra Antigua Drainage (E21-D15A)

Dear Fred:

This letter is to finalize the Drainage Plan for Tierra Antigua. As you know, the final drainage solution is to tie into SAD 205. The problem is that SAD 205 has been vacillating between a pipe and a channel. However, after talking to Steve Cannon of Tom Mann & Associates on March 19, 1984, I understand that the problem has been resolved. During a meeting on Friday, March 16, 1984 between Jim Hicks and the interested parties, the decision was made that a pipe would be used instead of a channel.

Since SAD 205 will be built after Tierra Antigua, a temporary solution must be implemented (see enclosed Plate). The temporary solution is to construct surface channels from the back of the catch basins to the Bear Tributary Arroyo. These channels will cross private land but they will be contained within an existing 150' drainage easement granted with the filing of the summary plat of Academy Hills Subdivision, Unit 6, Tracts 2 and 3, and Academy Place Subdivision, Unit 6, Tract B-C filed June, 1982 (see enclosed copy).

The coordination with SAD 205 has been done through Steve Cannon. The drainage items included with Tierra Antigua are:

1. Install catch basins and cover with steel plate.
2. Install one 6' joint 18" RCP from back of catch basins and block pipe (Lots A,C, D).
3. Install one 6' joint 24" RCP from back of catch basins and block pipe (Lot B).
4. Install 42" pipe from inlet through project to a point 16' beyond property line.

RECEIVED
MAR 21 1984
HYDROLOGY SECTION

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

The items to be included in SAD 205 are:

1. All of the pipes (Lots A,B,C,D and the 42" line) will be connected to the 72" SAD 205 pipe.
2. The catch basins will be uncovered and the pipes unblocked when the connection is made.
3. All grading done for the temporary channels will be backfilled along with the backfilling of Bear Tributary Arroyo, and the grading of the 60' right-of-way.

If you have any questions or comments regarding this letter, please contact Kent Alexander or me.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosures

cc: Mr. Dave Kochert
Mr. Steve Cannon
Mr. John Armstrong
Mr. Alan Whitesel

KBA/mw
Job No. 3 170 5

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 20, 1984

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

REF: ROUGH GRADING PLAN FOR TIERRA ANTIGUA (L21-D15A) RECEIVED JANUARY 10, 1984

Dear Mr. Woods:

I am sending this letter to acknowledge receipt of the above referenced plan to update our files. It is understood that this plan allows construction to proceed while the update of the final plans for submittal and approval is pending and will be forthcoming.

Please feel free to contact me if I can be of further assistance.

Sincerely yours,

Billy J. Goolsby

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

BJG:mrk

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

FILE COPY

August 19, 1983

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

REF: QUAIL RIDGE CONCEPTUAL DRAINAGE REPORT (E21-D15A)

Dear Mr. Woods:

The above mentioned report is approved in concept with the following exceptions:

1. SAD 205 will be completed or substantially completed prior to this project impacting flows in the Bear Tributary.

2. Entrance points to the Bear Tributary will need to be designed and approved by the proper authorities (Note: Improvements east of Eubank are now proposed to be underground, not open channel).

3. Adequate erosion protection must be provided for interim measures.

4. Storm drain design must be approved by City Engineer/Design Section as well as Hydrology.

5. Financial guarantees for drainage, utilities and street improvements will be required.

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

Sincerely,

John Armstrong
Civil Engineer/Hydrology

JA:mrk

March 21, 1984

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

Re: Maintenance of the Temporary Channels in Tierra Antigua (E21-D15A)

Dear John:

In this letter I would like to confirm our maintenance of the temporary channels in the Tierra Antigua project. As you know, because of the time delay between our project and SAD 205, we will have to run temporary channels across the existing 150' drainage easement to the Bear Tributary Arroyo. These channels will be dirt lined, and because of this may require some maintenance. This letter is to inform you that Grupe Construction West, Inc. will assume this responsibility until the permanent connections to SAD 205 are made. However, this responsibility is for the temporary channels and does not include the Bear Tributary Arroyo. Also, when the final connections to SAD 205 are made, the channels will be backfilled and our responsibility will end.

Sincerely,

GRUPE CONSTRUCTION WEST, INC.

By David Kochert
Dave Kochert

cc: Mr. Mike Emery

KBA/mw

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 20, 1984

E21 - D15A

Received
4/23/84

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

re: Tierra Antigua – Your Letter of April 6, 1984

Dear John:

This letter is a follow-up to the referenced correspondence. As you know, the construction plans were signed by your office at the April 11, 1984 Construction Plan Review meeting.

I have enclosed back-up material for your files regarding the hydraulics of the Tierra Antigua system and the SAD 205 storm sewer. Steve Cannon, Tom Mann & Associates, has confirmed that plans for SAD 205 will be designed to connect to the Tierra Antigua inlets.

Thank you for your cooperation and effort on this matter.

Sincerely yours,

Brian G. Burnett

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Dave Kochert
Mr. Steve Cannon

BGB/mw
Job No. 3 170 5

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

DENISE,

DURANT WANTED THIS LETTER TO BE INCLUDED WITH THE TIERRA RATIQUE FILE. PLEASE FORWARD A COPY BACK TO ME FOR MY FILES.

✓dw

Fred:
your copy back.
Thanks,
Denise

31705

March 21, 1984

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

Re: Maintenance of the Temporary Channels in Tierra Antigua

Dear John:

In this letter I would like to confirm our maintenance of the temporary channels in the Tierra Antigua project. As you know, because of the time delay between our project and SAD 205, we will have to run temporary channels across the existing 150' drainage easement to the Bear Tributary Arroyo. These channels will be dirt lined, and because of this may require some maintenance. This letter is to inform you that Grupe Construction West, Inc. will assume this responsibility until the permanent connections to SAD 205 are made. However, this responsibility is for the temporary channels and does not include the Bear Tributary Arroyo. Also, when the final connections to SAD 205 are made, the channels will be backfilled and our responsibility will end.

Sincerely,

GRUPE CONSTRUCTION WEST, INC.

By _____
Dave Kochert

cc: Mr. Mike Emery

KBA/mw

SUMMARY OF HYDRAULIC CALCULATIONS

FULL CLOSED CONDUIT DESIGN

Calc. by: KBA
Chk. by:
Project: Tierra Antigua
Lines: Freq.: Yr.

Proj. No. 3170S
Date 3/14/83
Sheet 1 of 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	STRUCTURE	STATION	S.D TYPE SIZE	Q	A	V	K	S_f	L	Δ	LOSSES H_f	H_B	H_J	H_T	H_{bend}	H_{misc}	ΣH_L	E.G.	h_v	H.G.	
1	12" Pipe	338.93	42"	90	9.62	9.36	1010.25	.008	338.93	(1.22)	2.71	.17	—	—	—	—	2.95	16.95	2.95	4.96	A
		0+00																19.90	2.95	7.91	1A
2																					2A
3																					3A
4																					4A
5																					5A
6																					6A
7																					7A
8																					8A
9																					9A
10																					10A
11																					11A
12																					12A
13																					13A
14																					14A
15																					15A
16																					16A
17																					17A
18																					18A
19																					19A
20																					20A

NOTES:

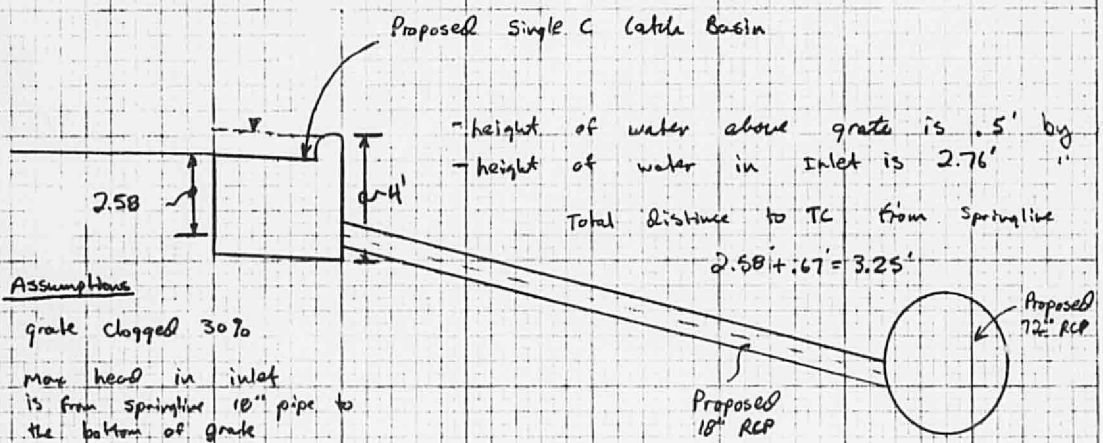
Street	Station SHD-205	Soffit Proposed 72" Pipe (ft)	Springline of Proposed 18" Pipe (ft)	Length of Proposed 18" Pipe (ft)	Slope of HGL (ft/ft)	Q ft^3/sec Required	* Max
LOT A	1397.22	80.54	83.91	26.12	.1290	3.85	11.26
B	1605.88	87.03	89.26	24.33	.0917	14.14	14.14
LOT C	1822.54	93.44	96.86	22.17	.1543	2.87	11.26
LOT D	2038.40	101.37	103.80	20.01	.1214	5.08	11.26

* See attached sheet

PROJECT NAME Tierra Antigua SHEET 2 OF 4
PROJECT NO. 2062 BY LBA DATE 3/14/94
SUBJECT Storm Drainage CH'D DATE

Checking Capacity of 18" for Worst Case

Q = 14.14 cfs



- height of water above grate is .5' by
- height of water in Inlet is 2.76'

Total distance to TC from Springline

2.58' + .67' = 3.25'

Assumptions

1. grate clogged 30%
2. max head in inlet is from springline 18" pipe to the bottom of grate

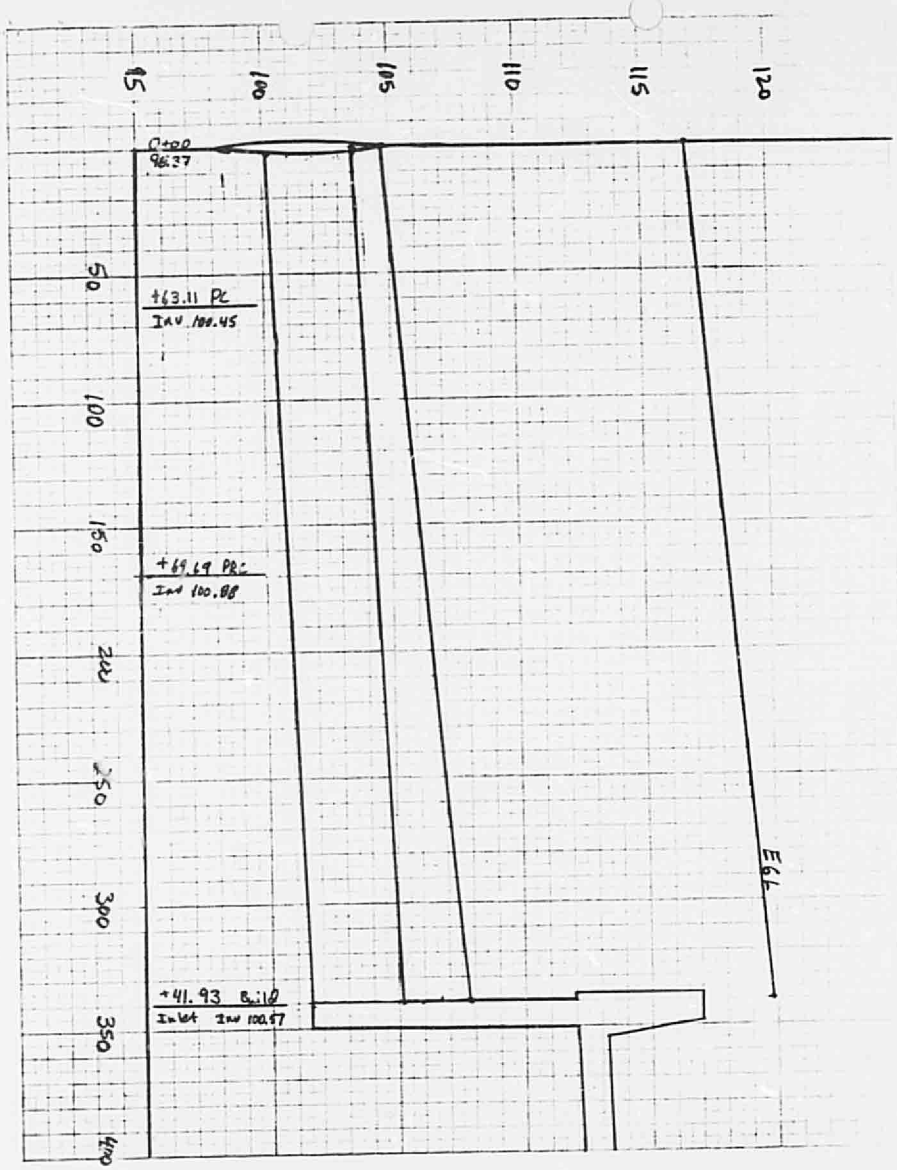
Total Head Required

2.76 + .49 = 3.25

PROJECT NAME ____ SHEET 3 OF 4

PROJECT NO. ____ BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____



PROJECT NAME _____ SHEET 4 OF 4

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____

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

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

August 16, 1984

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

REF: AS-BUILT FOR TIERRA ANTIGUA DRAINAGE OUTFALL (E21-D15A) RECEIVED AUGUST 1, 1984

Dear Dave:

The above referenced submittal has been reviewed and is acceptable; however, please be advised that it is assumed that your agency will continue the co-ordination for tie-in to the SAD 205. Also, it will be your clients responsibility for the maintenance of these outfalls and the Bear Tributary Arroyo in the interim.

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

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

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

September 5, 1984

Mr. Billy J. Goolsby
City/County Flood Ordinance Administrator
Design Hydrology Section
123 Central N.W.
Albuquerque, New Mexico 87102

Re: Tierra Antigua Drainage Outfall to the Bear Tributary Arroyo
(E21-D15A)

Dear Billy:

Dave Kochert of Grupe Construction West has reviewed your letter dated August 16, 1984 regarding the as built connection to the Bear Tributary Arroyo. He is concerned about the implied maintenance of the Bear Tributary Arroyo. He feels he should only be maintaining the arroyo in the areas that are affected by his outfalls.

Please clarify this point so we may all keep our records straight. If you have any questions please call Dave Woods at this office or Dave Kochert at 292-2908.

Sincerely,

Brian G. Burnett

Brian G. Burnett, P.E.
Project Manager

cc: Mr. Dave Kochert
DWW/mls
Job No. 3 170 9

RECEIVED
SEP 10 1984
HYDROLOGY SECTION

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
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N.M. 87505 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

November 28, 1984

Mr. Bernie Montoya
Hydrology Section
City of Albuquerque
123 Central Avenue N.W.
Albuquerque, NM 87102

Re: Tierra Antigua Phasing Plan

Dear Bernie:

Enclosed is a copy of the Drainage Phasing Plan for Tierra Antigua. Since the Developer has substantially completed the portion of the project indicated as Phase I and is preparing it for occupancy, he is requesting a Temporary Certificate of Occupancy for buildings within this phase.

The paving and temporary drainage facilities within Phase I have been installed and will function substantially as intended in the original grading plan (see attached).

The inlets at the north ends of parking lots A, B and C have not been installed, but will be installed before a Permanent Certificate of Occupancy is sought. At this time these inlets serve no purpose since they will not be put into service until the SAD 205 Bear Tributary improvements are installed.

A Final Grading and Phasing Certification Plan, showing all pertinent as-built drainage information, will be submitted when a Permanent Certificate of Occupancy is sought. Please issue a Temporary Certificate of Occupancy for this phase.

If you have any questions, please call Dave Woods or me.

Truly yours,

Brian G. Burnett

Brian G. Burnett, P.E.
Division Manager

Enclosure

cc: Mr. Dave Kochert

DWW/mls
Job No. 4 224 1

RECEIVED
NOV 30 1984
DESIGN HYDROLOGY SECTION

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

FILE 42241

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

November 29, 1984

Mr. Tony Tafoya
City Engineer Office
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Tierra Antigua Temporary Drainage Outfall

Dear Tony:

By signing this letter you are confirming that the temporary earth rundowns connecting the streets within Tierra Antigua and the existing Bear Tributary Arroyo have been constructed in accordance with project 2062. This letter will be forwarded to Bernie Montoya at City Hydrology so a Temporary Certificate of Occupancy may be issued for part of the project.

If you have any questions, please call Dave Woods or me.

Sincerely,

Brian G. Burnett

Brian G. Burnett, P.E.
Division Manager

ACCEPTED:

BY: Tony Tafoya

TITLE: Hydro Proj. Supv.

DATE: Dec 4, 1984

cc: Mr. Dave Kochert

DWW/mls
Job No. 4 224 1

RECEIVED
DEC 8 1984
CITY ENGINEERING
FIELD SECTION

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

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

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

December 3, 1984

Mr. Brian G. Burnett, PE
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87102

REF: TIERRA ANTIGUA PHASING PLAN (E21-D15A)

Dear Brian:

Based on the information provided on your November 30, 1984 submittal, the phasing plan for Tierra Antigua is approved. Please advise your clients that we will need prior notice as to when they will be requesting the temporaries for each building. The person to contact will be Mr. Steve Chavez.

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

Sincerely yours,

Bernie J. Montoya

Bernie J. Montoya
Engineering Assistant, C.E.

BJM:mrk

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

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

April 8, 1985

Brian Burnett
Bohannan-Huston, Inc.
4125 Carlisle Boulevard, NE
Albuquerque, New Mexico 87107

RE: TIERRA ANTIGUA FINAL CERTIFICATION
(E-21/D15A)

Dear Brian:

Based on the information provided on your April 4, 1985 submittal, certification for the referenced drainage plan is acceptable.

If you have any questions or comments regarding this project, please call me at 766-7644.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

Proceeding with the construction of SAD 205 ~~is conditioned~~ dependent on the signing of an agreement between the City, Alby Academy and the "SAD 205 Property Owners" (AmeriWest (AMORE), BCD, Upton Assoc) to put the ~~proposed~~ Alternate Storm Drainage Proposal, advocated by the SAD 205 Property Owners, into effect.

Advertisement of both SAD & other work within 60 days (to begin) after date of Agreement

Agreement is presently be jointly discussed by all parties

Quail Ridge E21-D15A

① ~~No Plate I~~

② Financial guarantees for drainage, utilities and street improvements

③

36" RCP: Flowing Full

$A = 7.07\ ft^2$

$R = 0.75$

$$Q = \frac{(1.486)}{(0.013)}(7.07)(0.75)^{2/3}\ S^{1/2} = 73\ cfs$$

$S = 0.012\ ft/ft$ ok

BOHANNAN-HUSTON INC. 1

DRAINAGE REPORT

FOR

QUAIL RIDGE

JULY 1983

RECEIVED
JUL 29 1983
ENGINEERING

DRAINAGE REPORT
FOR
QUAIL RIDGE

JULY, 1983

PREPARED FOR

GRUPE CONSTRUCTION WEST, INC.
2291 W. MARCH LANE
STOCKTON, CALIFORNIA 95207

PREPARED BY

BOHANNAN–HUSTON, INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
505/881-2000

DAVID M. Y. MILLIKAN
7547
7-28-83
REGISTERED PROFESSIONAL ENGINEER

David M Y Millikan

DAVID M.Y. MILLIKAN, P.E.
N.M.P.E. NO. 7547

TABLE OF CONTENTS

	Page
PURPOSE AND SCOPE	1
SITE LOCATION AND DESCRIPTION	1
METHOD OF ANALYSIS	1
EXISTING CONDITIONS	2
DEVELOPED CONDITIONS	2
UPLAND RUNOFF	2
INTERNAL DRAINAGE	2
BASINS A – G	3
BASIN H	4
INTERIM DRAINAGE	4
EROSION CONTROL	4
FLOOD HAZARD AREAS	4
MAINTENANCE	4
RECOMMENDATIONS	4

APPENDICES

Appendix 1	Off-Site Drainage Calculations
Appendix 2	On-Site Drainage Calculations
Appendix 3	Drainageway inlet structure

FIGURES

Figure 1	Site Location Map
Figure 2	Bernalillo County Soils Map
Figure 3	DPM Plate 22.2 D-1 100-Year – 6 Hour Volumes Map
Figure 4	Flood Hazard Boundary Map
Figure 5	Upland Drainage Basin

PLATES

Plate 1	Undeveloped Drainage
Plate 2	Conceptual Grading and Drainage Plan

PURPOSE

This drainage report has been prepared to outline the treatment of storm water flowing onto and generated within Quail Ridge (a portion of Tract 3, Academy Hills Subdivision Unit 6) for Grupe Construction West Company. It has been prepared in conformance with the guidelines of the City of Albuquerque's Development Process Manual (DPM), Chapter 22, entitled "Drainage and Flood Control." It contains recommendations for satisfactory treatment of upland flows and flows generated on-site.

SITE LOCATION AND DESCRIPTION

The site is located in the northeast heights of Albuquerque, New Mexico. It is bounded on the south by Juan Tabo Boulevard, on the west by Eubank Boulevard, on the north by the Bear Canyon Tributary Arroyo and on the east by Block 8A Academy Place Subdivision Unit 5. (See Figure 1). The site contains approximately 9.48 acres. It slopes from east to west at approximately 5%. The soils on the site consist of Tijeras Gravelly fine sandy loam and the Embudo-Tijeras complex. The locations of each soil type are indicated on the enclosed copy of the Soil Survey of Bernalillo County prepared by the Soil Conservation Service (See Figure 2). Both soil types are classified as hydrologic soil Group "B".

METHOD OF ANALYSIS

The peak flow rates for the developed and undeveloped drainage basins were determined by application of the Rational Method. The total runoff volumes were calculated using the SCS Curve Number Method. Both these methods are outlined in the DPM. The time of concentration was found to be less than ten minutes for all basins. Therefore, ten minutes was used in all computations.

Rainfall intensities were determined by applying Plates 22.2 D-1 (Figure 3) and 22.2 D-2 of the DPM. The 100-year intensity was determined to be 5.28 in./hr. The 10-year intensity is 3.47 in./hr.

The runoff coefficient for the site was estimated as 0.63. This is based on the developed site, including streets, being 60% impervious.

Flow depths and velocities were computed using Manning's equation. A Manning's n of 0.017 was used for the streets.

Since the time of concentration for all basins is ten minutes, the peak discharge is proportional to the area of each basin.

EXISTING CONDITIONS

No upland drainage reaches the site as sheet flow. The subdivision east of the site discharges 73 cfs (See Appendix 1) onto the site through a concrete rundown in a 20' drainage easement. This is currently discharged directly to the Bear Canyon Tributary via an earth lined channel (Plate 1). The area north of this channel (Basin 5) drains into it. The peak flow rate generated off this area is an additional 3.5 cfs.

Flows (12 cfs) from the largest basin (Basin 4) concentrate and discharge west to Eubank Boulevard. Basins 1, 2 and 3 discharge directly to Juan Tabo Boulevard. The combined flows discharging to Juan Tabo are 6.45 cfs.

DEVELOPED CONDITIONS

For the purposes of this report it shall be assumed the improvements to the Bear Canyon Tributary have been completed by SAD 205. Upon completion of the Bear Canyon Tributary improvements adjacent to the site, the runoff from the site shall be allowed to freely discharge to the arroyo through concrete rundowns.

The site runoff will be concentrated and discharged to the arroyo at the concrete rundowns. The land between the channel lining and the arroyo right-of-way will be landscaped and maintained by the Developer. This will prevent erosion benind the lining.

UPLAND RUNOFF

The upland runoff (73 cfs) contributed by the subdivision to the east of the site will be intercepted by a specially designed curb inlet (see Appendix) and conveyed through the site to the Arroyo in a 36" RCP.

INTERNAL DRAINAGE

The site will be graded to direct as much of the site runoff as possible to the Bear Canyon Tributary Arroyo (Plate 2). Some areas will still discharge to Juan Tabo Blvd. and Eubank Blvd., but the discharge rate will be substantially less than the existing discharge.

BASIN A

The runoff from this Basin (0.54 cfs) will discharge west to Eubank Blvd. Nuisance flows will be retained in a small pond (100 cf) at the west end of the Basin. A grass-lined weir and rundown will prevent erosion of the slope during significant rainfalls. The bottom of the pond will be lined with 4" – 6" rock.

BASIN B

The runoff from this area (3.85 cfs) will be conveyed through the internal streets and discharged into the Bear Canyon Tributary Arroyo.

BASIN C

The runoff from Basin C (1.70 cfs) will discharge as uncontrolled sheet flow to Juan Tabo Boulevard. This discharge is less than the undeveloped runoff (2.19 cfs) which is currently discharged to Juan Tabo in this area. Areas of concentrated flow will be avoided. The landscaping will be designed to minimize the occurrence of nuisance flows reaching Juan Tabo Blvd.

BASIN D

Basin D is the largest Basin in the site. Its runoff (14.43 cfs) will be conveyed through the internal streets and discharged to the concrete lined Bear Canyon Tributary Arroyo at an uncontrolled rate through a concrete rundown. The depth of flow will be below the top of curb (6") in all cases. Nuisance flows crossing the internal streets will be minimized.

BASIN E

The runoff from Basin E (2.87 cfs) will be collected in the parking area and conveyed north to the arroyo. Discharge to the Arroyo will be through a concrete rundown.

BASIN F

The runoff generated within Basin F (5.08 cfs) will be conveyed east within the streets then north to the arroyo via a concrete rundown.

BASIN G

Basin G runoff (2.38 cfs) will flow to the west within the landscaped area. It will be discharged into the arroyo through a small rundown.

BASIN H

The runoff from Basin H (0.50 cfs) which will discharge to Juan Tabo Blvd. is substantially similar to the undeveloped runoff in this area. However, it contains a higher percentage of sheet flow and will contain less silt due to the landscaping in the Basin.

INTERIM DRAINAGE

If the site is graded prior to the construction of the Bear Canyon Tributary Improvements temporary earth lined drainage ditches will be constructed from the rundowns on the north boundary of the site to the existing arroyo. These will require temporary private drainage easements obtained from the current landowner of Academy Hills Subdivision, Tract 3, Unit 6.

EROSION CONTROL

If construction on the site does not commence prior to six months after completion of grading the site will be revegetated with native grasses. If construction is not to be started less than one month after grading is completed wind rows will be plowed parallel to the contours at 50' intervals.

After construction is substantially completed, all erodable areas and ponding areas shall be landscaped and maintained by the owner.

FLOOD HAZARD AREAS

Eubank Blvd. adjoining this site is designated as a flood hazard area, however, construction of the arroyo improvements should eliminate this problem. All flooding should be contained within the improved channel.

MAINTENANCE

All internal streets and private drainage facilities shall be maintained by the owner. The 36" storm drain within the dedicated easement shall be maintained by the City.

RECOMMENDATIONS

It is felt that the drainage system, as described, will function properly and favorably impact the surrounding area. Furthermore, construction drawings indicating the following drainage improvements should be approved.

1. Install a small retention pond for nuisance flows at the west end of the site. Provide a grass-lined weir on this pond to prevent erosion during significant storms.

2. Grade the site to drain to the north.

3. Provide four (4) concrete rundowns from the internal parking areas to the Bear Canyon Tributary Arroyo.

4. Install an adequately sized inlet and underground storm drain to intercept the runoff from the upland basin to the Bear Canyon Tributary Arroyo.

5. Install and maintain non-erosive landscaping throughout the site and up to the arroyo lining.

6. Allow small areas adjoining Juan Tabo Blvd. to discharge as sheet flow to the street.

GRUPE SITE - OFFSITE DRAINAGE

1. Area ~ 21.8 acres
2. Percent Impervious ~ 60%
3. 'C' Value .63 (Plate 22.2 C-1)
4. Rainfall Amounts (Plate 22.2 D-1) — 10 yr. 1.64" ; 100 yr. 2.5"
5. Intensities (Plate 22.2 D-2) — 10 yr 3.47 in/hr (10 min.tc) ; 100 yr. 5.28 in/hr (" ")
6. Flowrates @ Pt. A (See attached) — 10 yr. 48 cfs ; 100 yr. 73 cfs

Assumptions

a. "Free-discharge" in watershed

b. Carruthers St. diverts flows generated to east, northward to Bear Trib. (was not field verified)

PROJECT NAME QUAIL RIDGE SHEET 1 OF 3
PROJECT NO. 39422 BY BGB DATE 7-11-83
SUBJECT OFF-SITE DRAINAGE CHKD DATE

UNDEVELOPED DRAINAGE

$I_{10} = 3.47$ $I_{100} = 5.28$

BASIN	AREA ACRES	TC MIN	C	Q_{10} CFS	Q_{100} CFS
1	1.19	10	.35	1.44	2.19
2	1.26	10	.56	2.45	3.73
3	0.29	10	.35	0.35	0.53
4	6.53	10	.35	7.93	12.06
5	1.89	10	.35	2.30	3.50

DEVELOPED DRAINAGE

A	0.16	10	.63	0.36	0.54
B	1.16	10	.63	2.53	3.85
C	0.51	10	.63	1.12	1.70
D	4.33	10	.63	9.49	14.43
E	0.86	10	.63	1.89	2.87
F	1.52	10	.63	3.34	5.08
G	0.71	10	.63	1.56	2.38
H	0.15	10	.63	0.33	0.50

BASIN A 2 YEAR STORM VOLUME

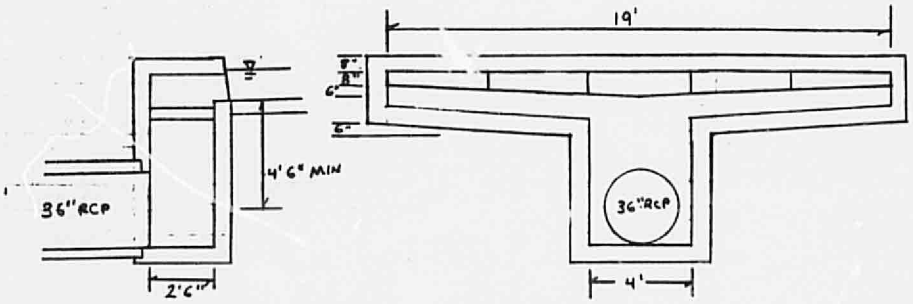
$\frac{.63 \times .16 \times 2.5 \times .446 \times 43560}{12} = 407$ CU FT

USE 100 CUBIC FEET FOR NUISENCE FLOW PONDING

PROJECT NAME QUAIL RIDGE SHEET 2 OF 3

PROJECT NO. 31702 BY WW DATE 7/25/23

SUBJECT DRAINAGE CALCULATIONS CH'D. DATE



DRAINAGEWAY INLET DETAIL
SCALE 1" = 5'

CAPACITY 73 CFS

INLET OPENING 16.7 SQ FT

DEPTH REQUIRED BY ORIFICE EQUATION 0.76'
DEPTH AVAILABLE 1.0'
10% OF OPENING MAY BE CLOGGED

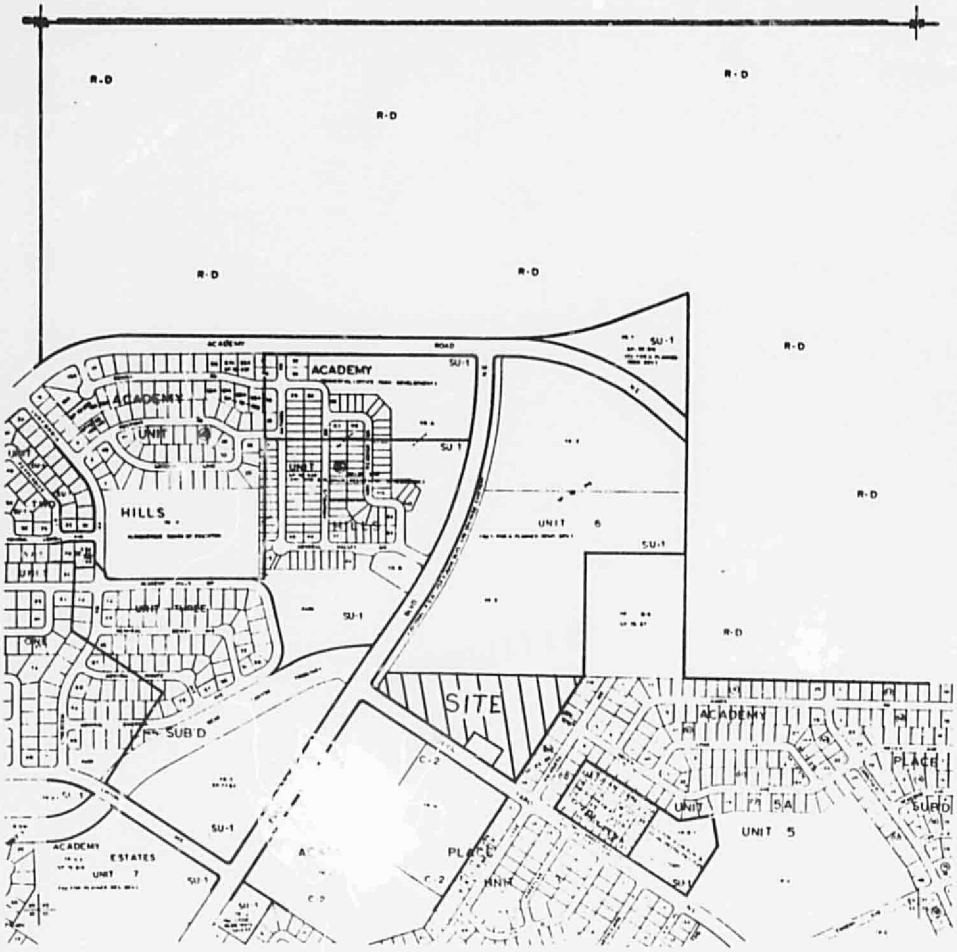
OUTLET PIPE 36" RCP

DEPTH REQUIRED BY ORIFICE EQUATION 4.6'
MINIMUM SLOPE OF OUTLET PIPE S=.0120

WALL THICKNESS 8"

PROJECT NAME QUAIL RIDGE SHEET 3 OF 3
PROJECT NO. 31702 BY [illegible] DATE 7/29/83
SUBJECT DRAINAGEWAY INLET CH'D _____ DATE _____

FIGURE 1



E-21-Z

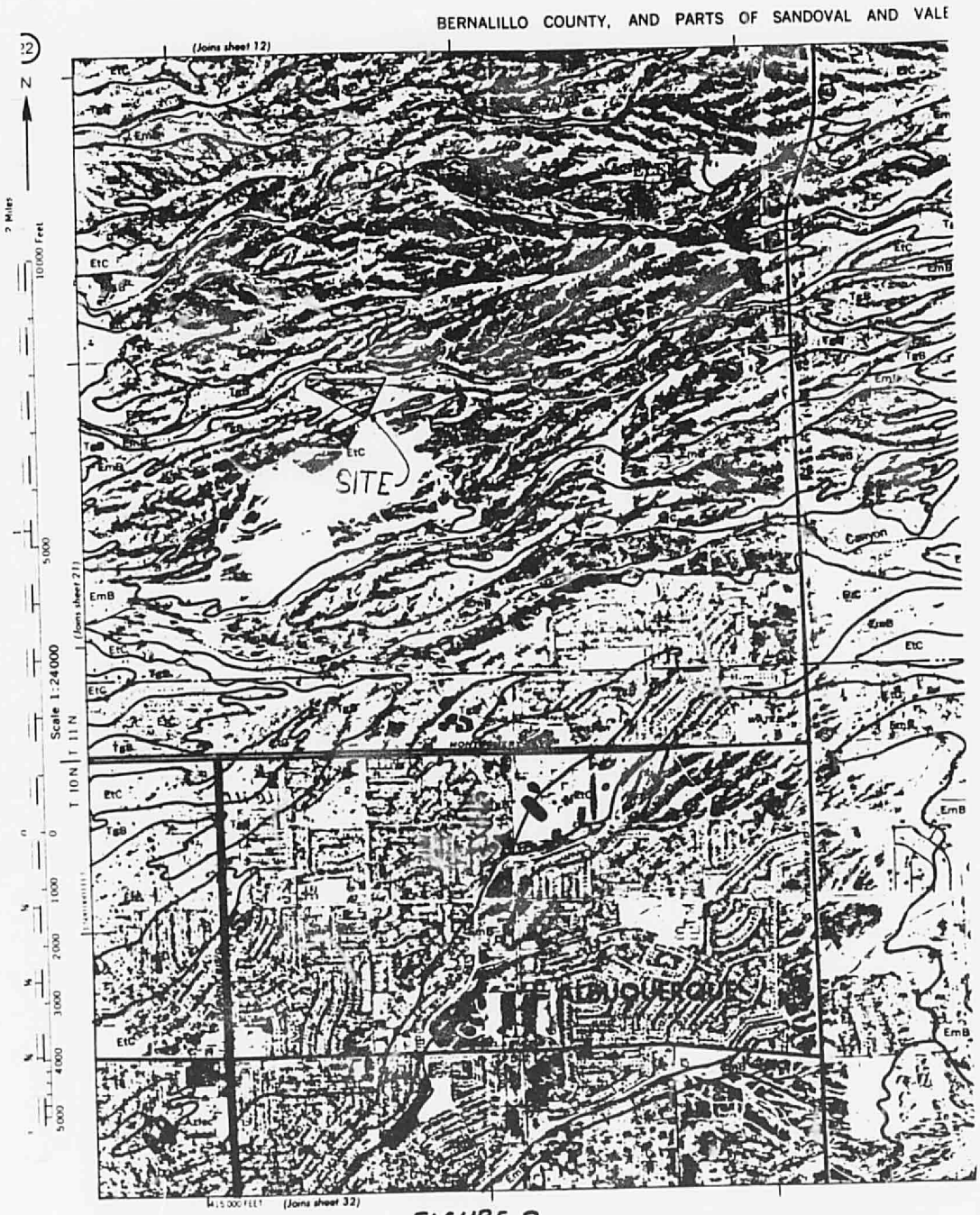

BERNALILLO COUNTY, AND PARTS OF SANDOVAL AND VALE
(Joins sheet 12)
(Joins sheet 21)
(Joins sheet 32)
SITE
ALBUQUERQUE
Scale 1:24000
T 10 N
T 11 N
N
2 Miles
10000 Feet
5000
0
1000
2000
3000
4000
5000
EmB
EtC
TsB
Canon

FIGURE 2

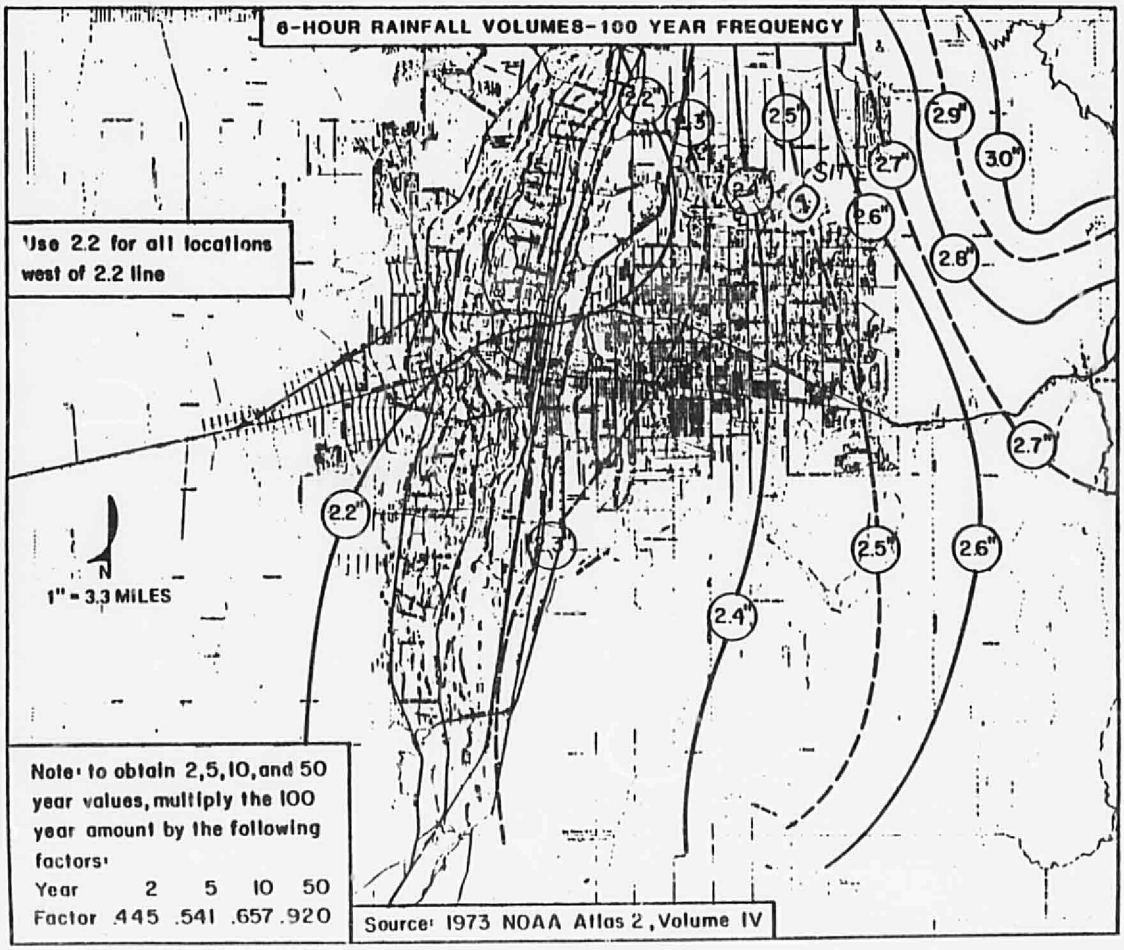
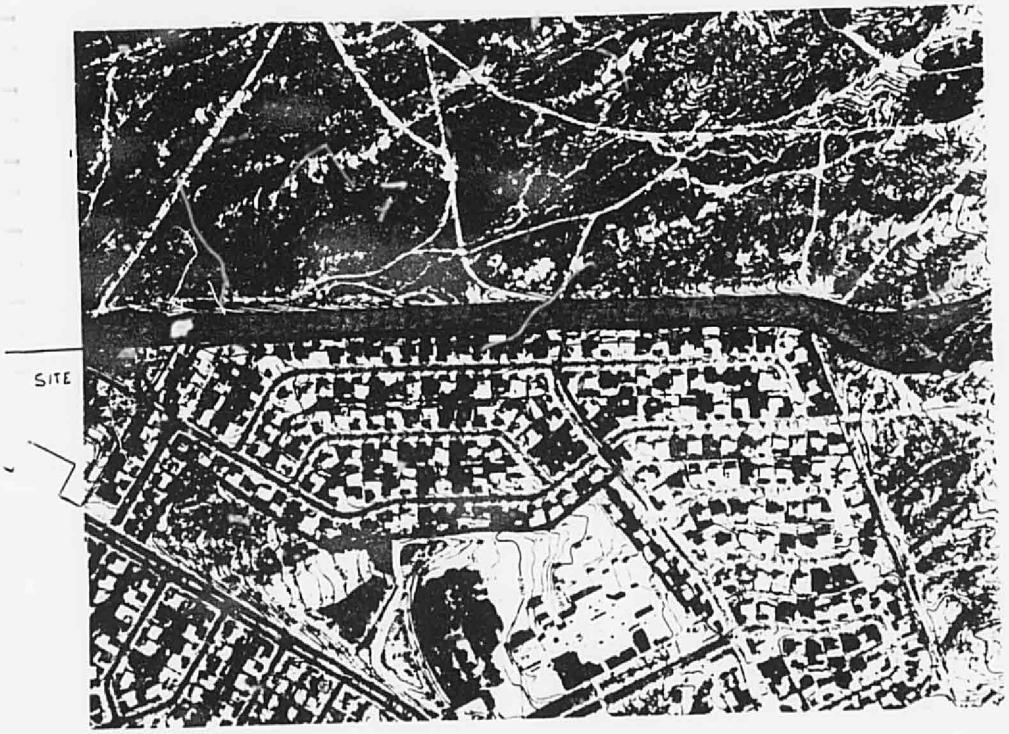

6-HOUR RAINFALL VOLUMES-100 YEAR FREQUENCY
Use 2.2 for all locations west of 2.2 line
2.2"
2.3
2.5"
2.9"
3.0"
2.7"
SITE
2.6"
2.8"
2.7"
2.2"
2.5"
2.6"
2.4"
N
1" = 3.3 MILES
Note: to obtain 2,5,10,and 50 year values, multiply the 100 year amount by the following factors:
Year 2 5 10 50
Factor .445 .541 .657 .920
Source: 1973 NOAA Atlas 2, Volume IV

FIGURE 3

FIGURE 4



UPLAND DRAINAGE

FIGURE 5

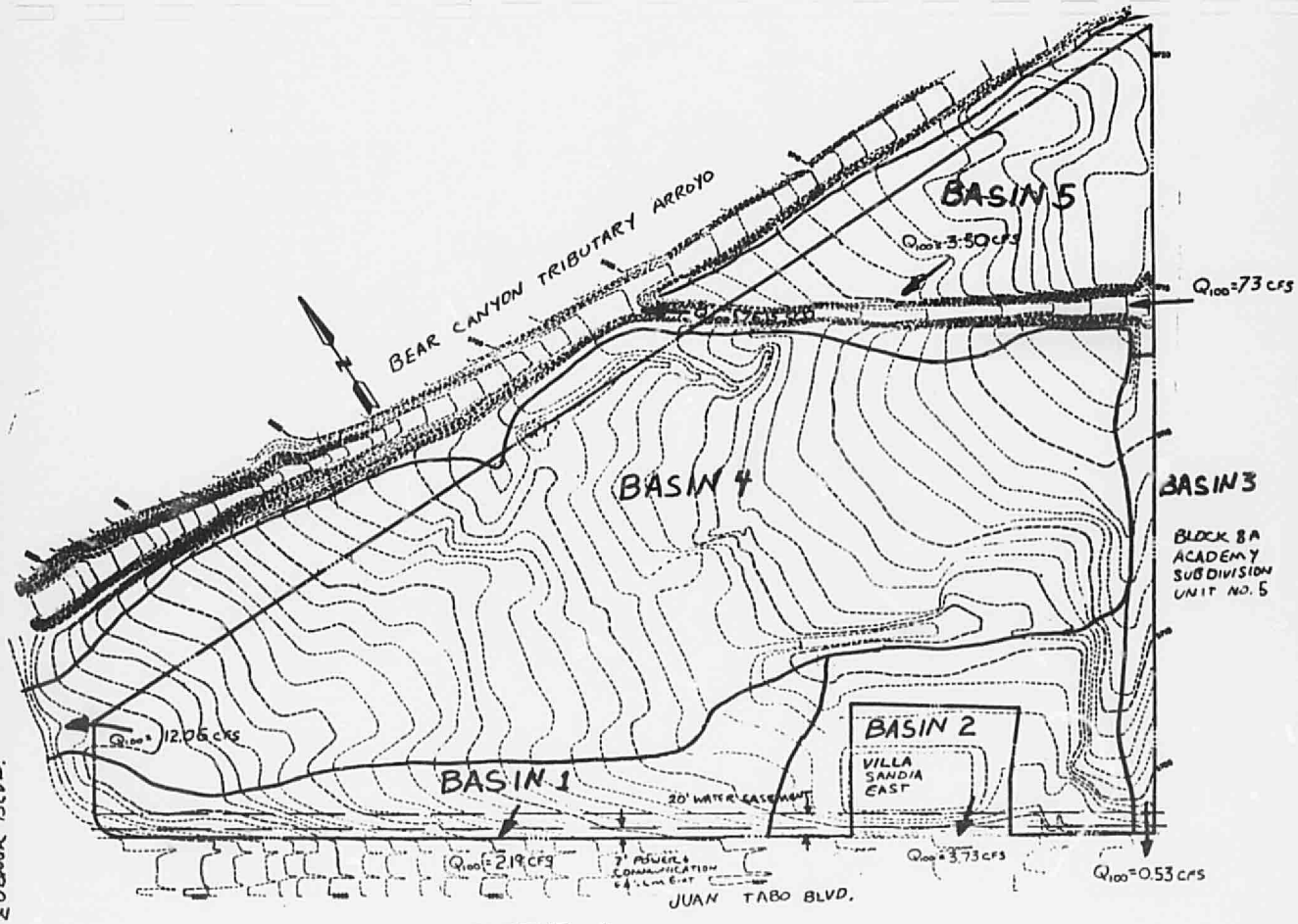


PLATE 1

UNDEVELOPED DRAINAGE

SCALE 1" ≈ 110'

SCALE CHANGES

REDUCTION	.77	.64	REDUCTION	.77	.64	REDUCTION	.77	.64
.770	1		.095	9		.033	8	3
.640		1	.092	4	3	.033	13	
.593	2		.085	6	2	.031	3	6
.493	1	1	.083	1	5	.030	10	2
.457	3		.079	8	1	.029	5	5
.410		2	.077	3	4	.028	12	1
.380	2	1	.073	10		.027	7	4
.352	4		.071	5	3	.026	2	7
.315	1	2	.069		6	.026	14	
.292	3	1	.066	7	2	.025	9	3
.271	5		.064	2	5	.024	4	6
.262		3	.061	9	1	.023	11	2
.243	2	2	.059	4	4	.022	1	8
.225	4	1	.056	11		.021	8	4
.208	6		.055	6	3	.020	15	
.202	1	3	.053	1	6	.020	3	7
.187	3	2	.051	8	2			
.173	5	1	.049	3				
.168		4	.047	10	1			
.160	7		.045	5	4			
.155	2	3	.044		7			
.144	4	2	.043	12				
.133	6	1	.042	7	3			
.129	1	7	.041	2	6			
.124	8		.039	9	2			
.120	3	3	.038	4	5			
.111	5	2	.036	11	1			
.107		5	.035	6	4			
.102	7	1	.034	1	7			

DAV 82

SUMMARY OF HYDRAULIC CALCULATIONS

FULL CLOSED CONDUIT DESIGN

Calc. by KBA
Chk. by
Project: Tierra Antelope
Lines: Freq: Yr.

Proj. No. 3170S
Date 3/14/83
Sheet 1 of 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	STRUCTURE	STATION	S.D. TYPE SIZE	Q	A	V	K	S_F	L	Δ	LOSSES H_F	H_B	H_J	H_T	H_{MH}	H_{MISC}	ΣH_L	E.G.	h_v	H.G.	
		333.93														Total = 2.95		16.95	2.95	4.96	A
1	42" Pipe	0+00	42	90	9.62	9.36	1210.35	.008	338.93	0.02	2.71	.17	—	—	—	2.95	2.95	19.90	2.95	7.91	1A
2																					2A
3																					3A
4																					4A
5																					5A
6																					6A
7																					7A
8																					8A
9																					9A
10																					10A
11																					11A
12																					12A
13																					13A
14																					14A
15																					15A
16																					16A
17																					17A
18																					18A
19																					19A
20																					20A

NOTES:

Slope from ℄ 18" Rep @ inlet to Soffit 72" ?

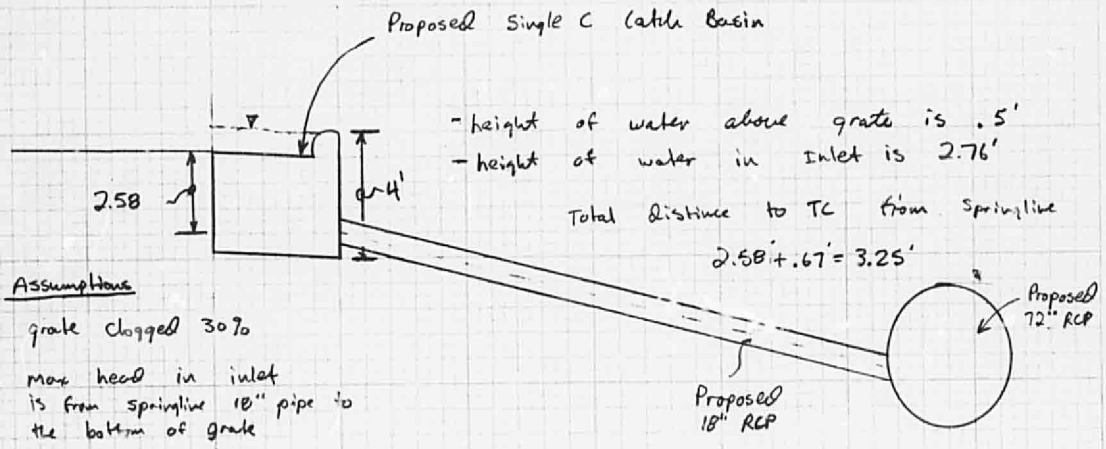
Street	Station SRD-205	Soffit Proposed 72" Pipe (ft)	Springline of Proposed 18" Pipe (ft)	Length of Proposed 18" Pipe (ft)	Slope of HGL (ft/ft)	Q ft^3/sec Required	Q ft^3/sec * Max
LOT A S = 3.11%	1397.22	80.54	83.91	26.12	.1290	3.85	11.26
LOT B S = 2.96%	1605.88	87.03	89.26	24.33	.0917	14.14	14.14
LOT C S = 3.67%	1822.54	93.44	96.86	22.17	.1543	2.87	11.26
LOT D	2038.40	101.37	103.80	20.01	.1214	5.08	11.26

* See attached sheet

PROJECT NAME Tierra Antigua SHEET 2 OF 4
PROJECT NO 2062 BY LRA DATE 3/14/84
SUBJECT Storm Drainage CH'D DATE

Checking Capacity of 18" for Worst Case

Q = 14.14 CFS



- height of water above grate is .5'
- height of water in Inlet is 2.76'

Total distance to TC from Springline

2.58' + .67' = 3.25'

Assumptions

1. grate clogged 30%
2. max head in inlet is from springline 18" pipe to the bottom of grate

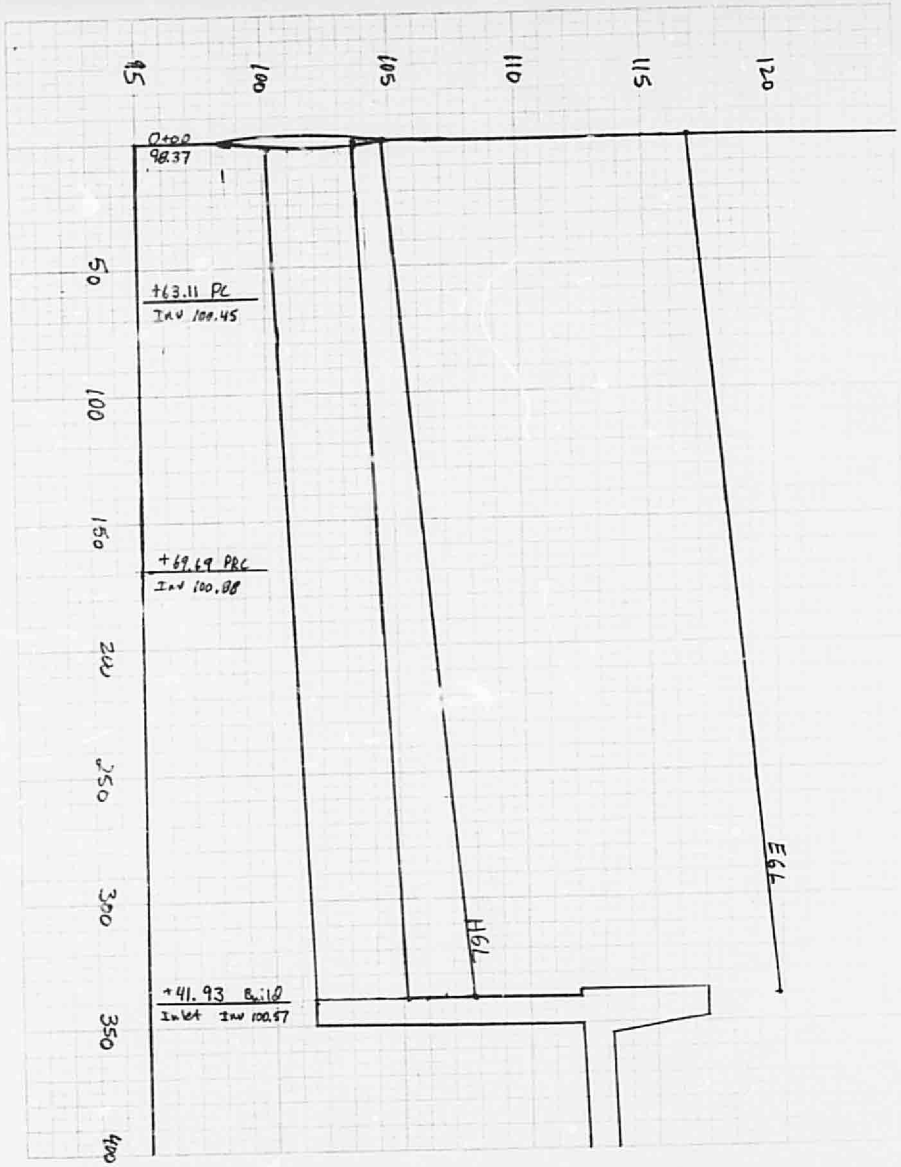
Total Head Required

2.76 + .49 = 3.25

PROJECT NAME _____ SHEET 3 OF 4

PROJECT NO. _____ BY _____ DATE _____

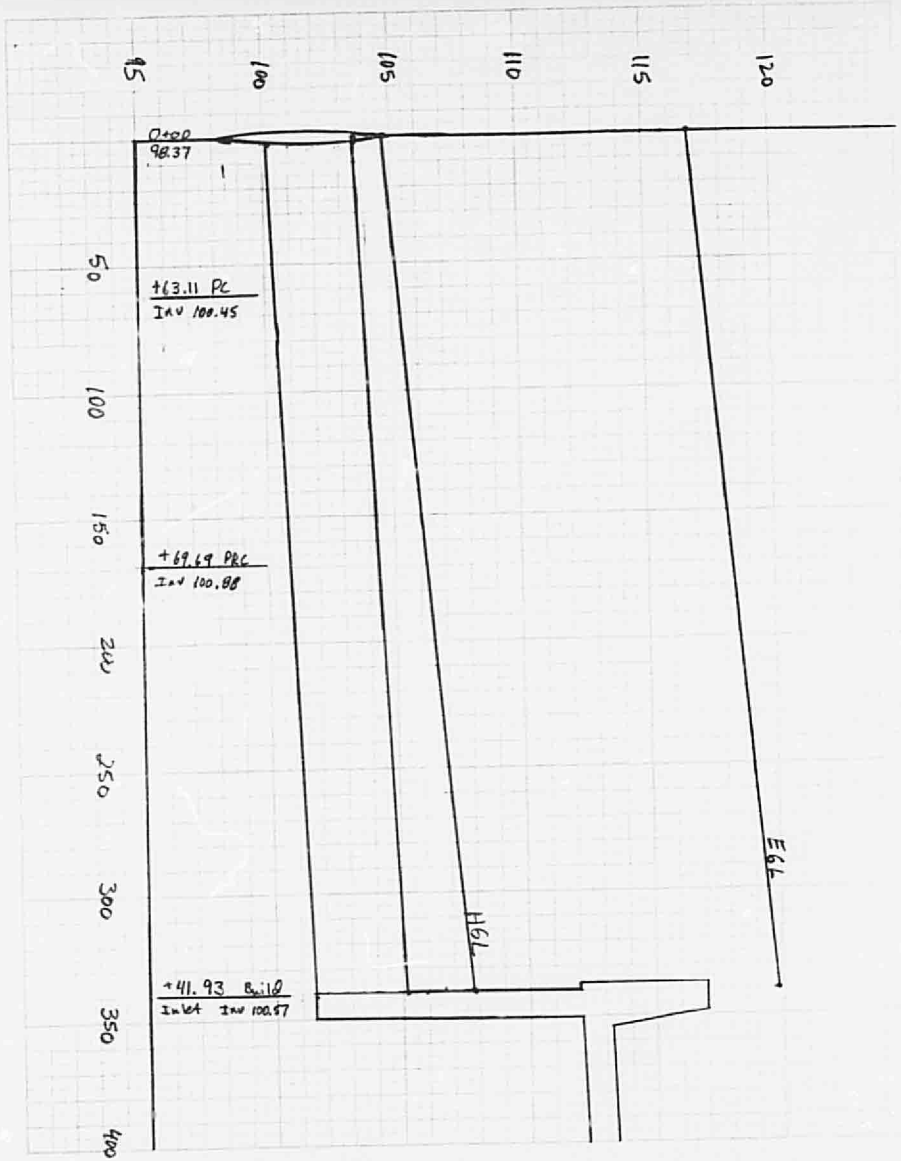
SUBJECT _____ CH'D _____ DATE _____



PROJECT NAME _____ SHEET 4 OF 4

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____



PROJECT NAME _____ SHEET 4 OF 4

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____

1620