HYDROLOGY H15/D12 7 PLANS

H15/D12

7 PLANS

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

February 7, 1983

Brian Burnette
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Broadbent Phase IV rundown into City detention Pond,
2801 Broadbent Parkway N.E.

Dear Brian:

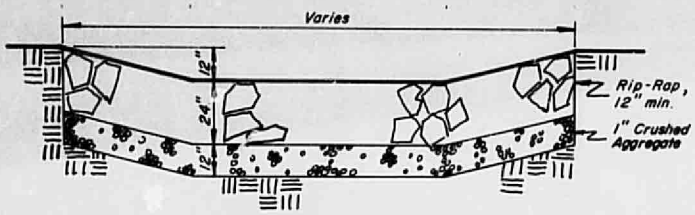
Weather has delayed completion of the rundown, but due to requirements of the permanent financing, we would like you to release the certificate of occupancy.

At this time, the pipe has been installed, the Double "C" inlet has been constructed, and the curb has been replaced. Remaining are rip-rap at the outlet, berm behind curb, and pavement patching.

Attached please find the as-built as it exists now. This firm will provide a completed as-built when construction is complete.

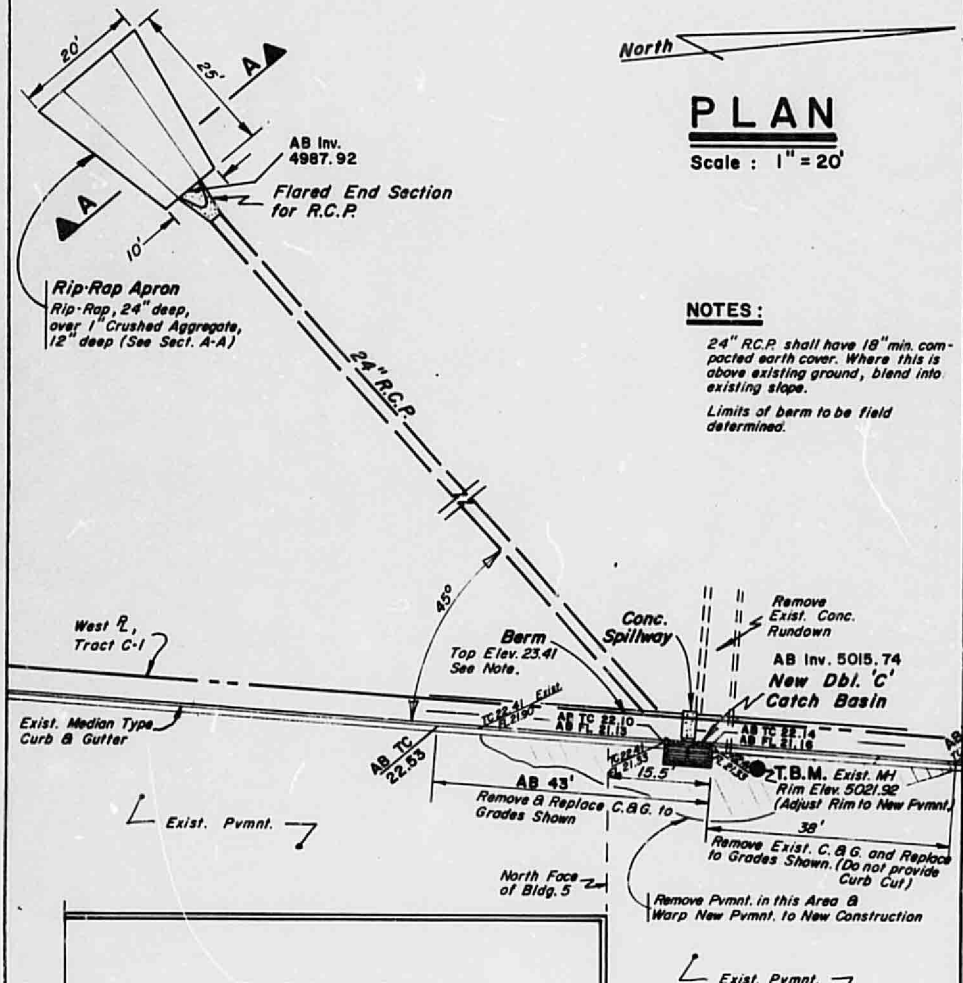
Thank You,

John Armstrong



SECTION A-A

N.T.S.



PLAN

Scale : 1" = 20'

NOTES:

24" R.C.P. shall have 18" min. compacted earth cover. Where this is above existing ground, blend into existing slope.

Limits of berm to be field determined.

BLDG. 5

2801 BROADBENT PKWY. NE

AS-BUILT

AS OF FEB. 4, 1983

AS BUILT GRADES: AB 4987.92

CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE
A.C.E. /DESIGN		
INSPECTOR		
A.C.E. /FIELD		

TITLE:
BROADBENT BUSINESS PARK
TRACT C-1
DBL. 'C' CATCH BASIN & OUTLET PIPE

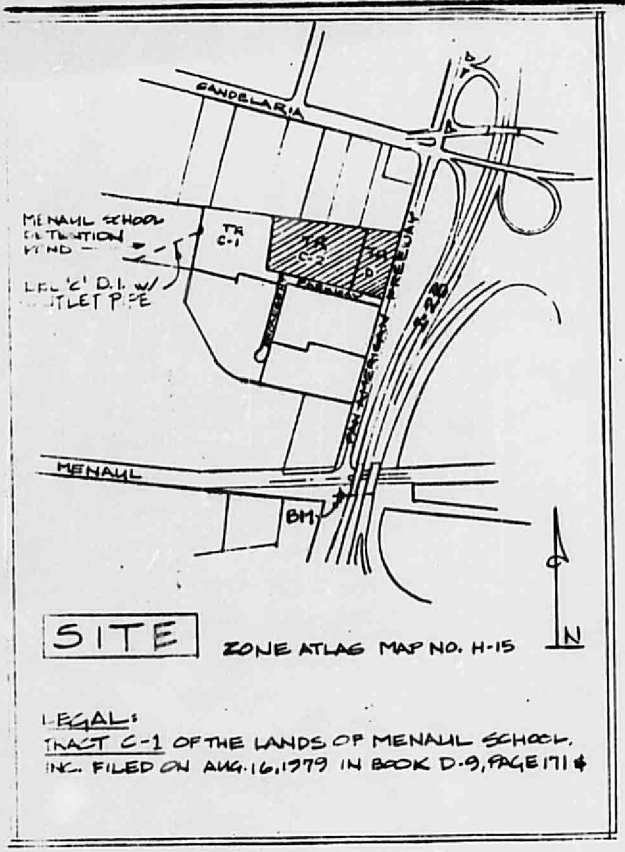
PROJECT NO

Sht. 2 of 4

MAP NO H-15

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



LEGAL:
TRACT C-1 OF THE LANDS OF MENAUL SCHOOL, INC. FILED ON AUG. 16, 1979 IN BOOK D-9, PAGE 171 &

OWNER:
BROADBENT BUSINESS PARK
2651-1 PAN AMERICAN
ABQ, N.M. 87107

PLANS PREPARED UNDER THE DIRECTION OF:

JOHN T ARMSTRONG
NEW MEXICO
6556
REGISTERED PROFESSIONAL ENGINEER

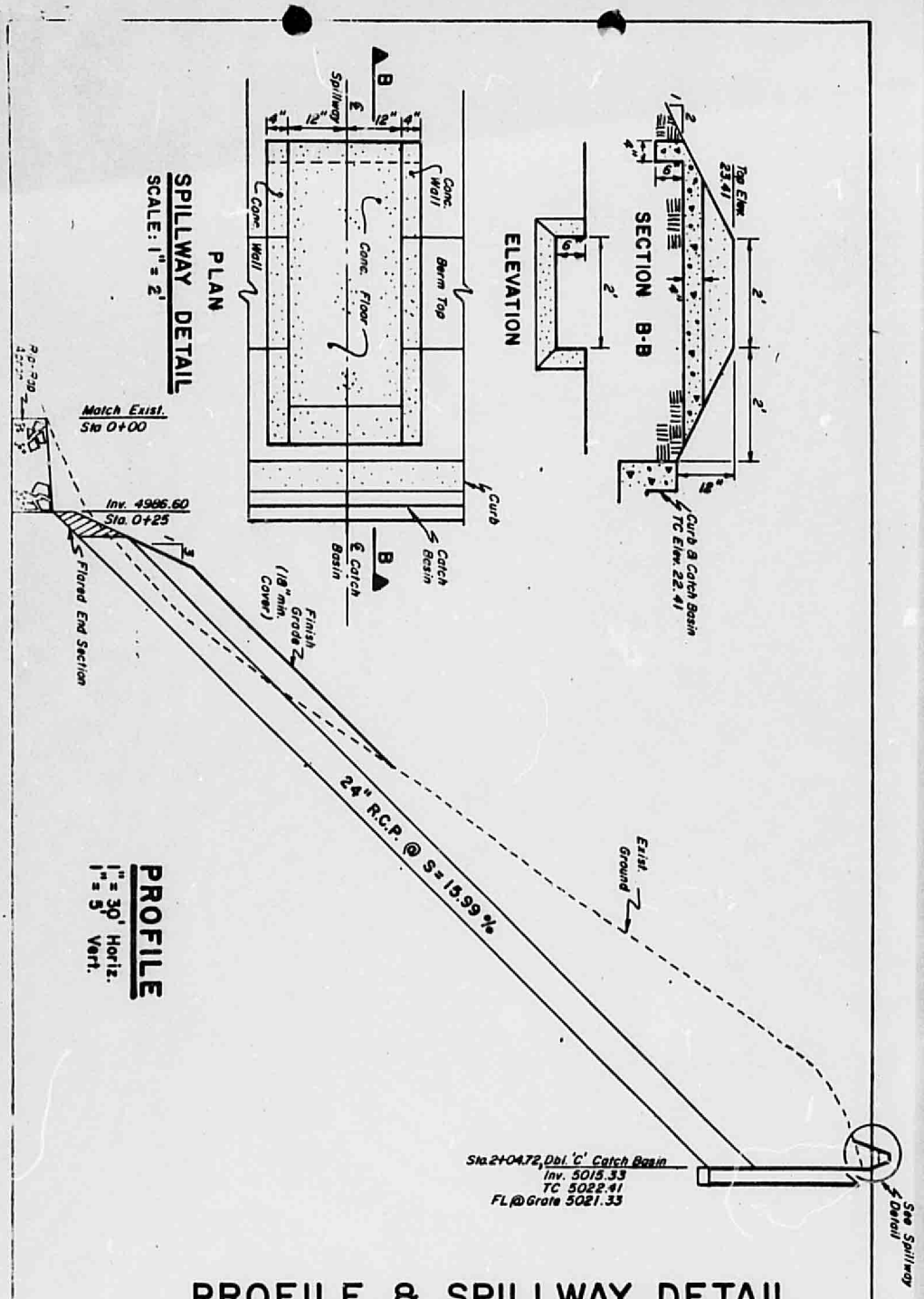
JOHN ARMSTRONG

VICINITY MAP

NOTICE TO CONTRACTOR

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

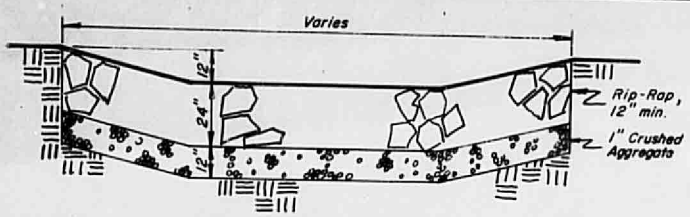
APPROVALS	NAME	DATE	TITLE: BROADBENT BUSINESS PARK TRACT C-1 DBL.'C' CATCH BASIN & OUTLET PIPE
A.C.E./DESIGN			
INSPECTOR			PERMIT NO. / MAP



PROFILE & SPILLWAY DETAIL

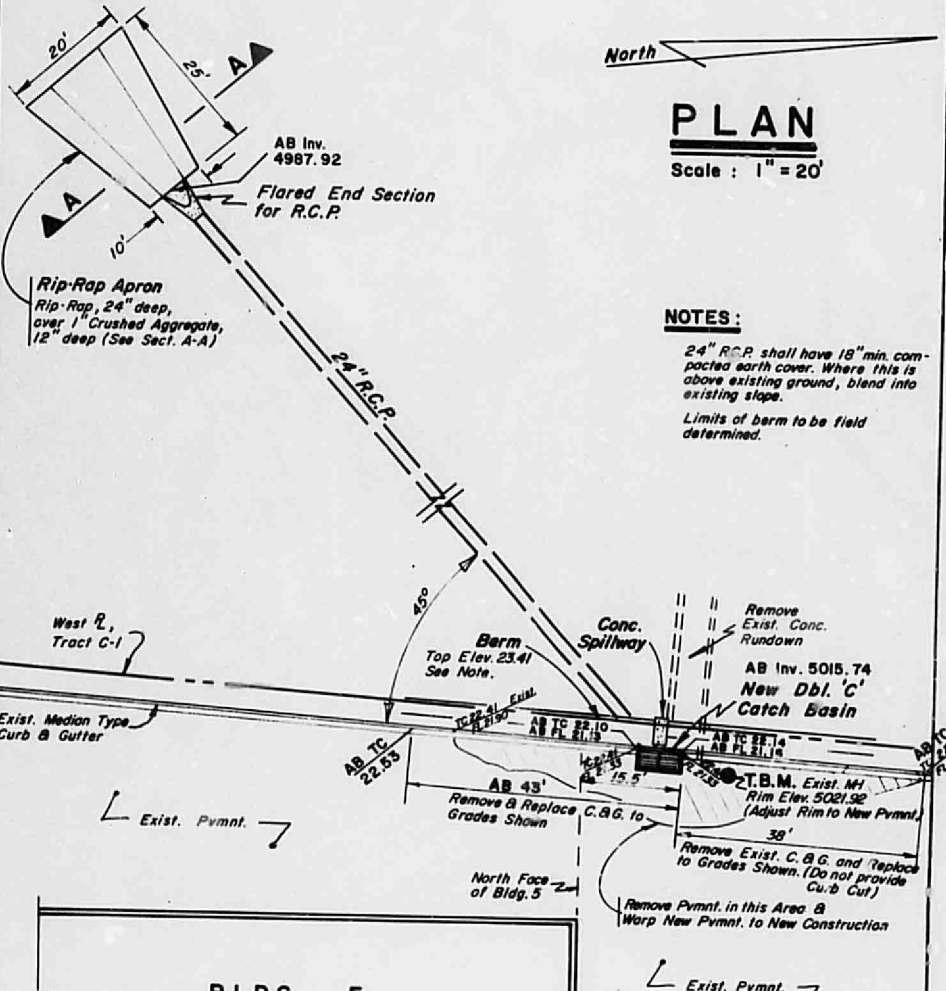
CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE	TITLE: BROADBENT BUSINESS PARK TRACT C-1 DBL.'C' CATCH BASIN & OUTLET PIPE	
C.E./DESIGN				
INSPECTOR				
C.E./FIELD			PROJECT NO Sht. 3 of 4	MAP NO H-15



SECTION A-A

N.T.S.



PLAN

Scale : 1" = 20'

NOTES:

24" R.C.P. shall have 18" min. compacted earth cover. Where this is above existing ground, blend into existing slope.

Limits of berm to be field determined.

BLDG. 5

2801 BROADBENT PKWY. NE

AS-BUILT

AS OF FEB. 4, 1983

AS BUILT GRADES: AB 4987.92

CITY OF ALBUQUERQUE

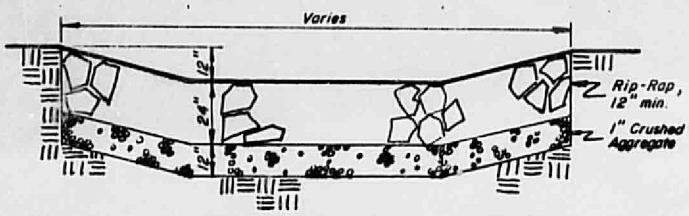
APPROVALS	ENGINEER	DATE
A.C.E./DESIGN		
INSPECTOR		
[illegible]		

TITLE: BROADBENT BUSINESS PARK TRACT C-1 DBL. 'C' CATCH BASIN & OUTLET PIPE

PROJECT NO

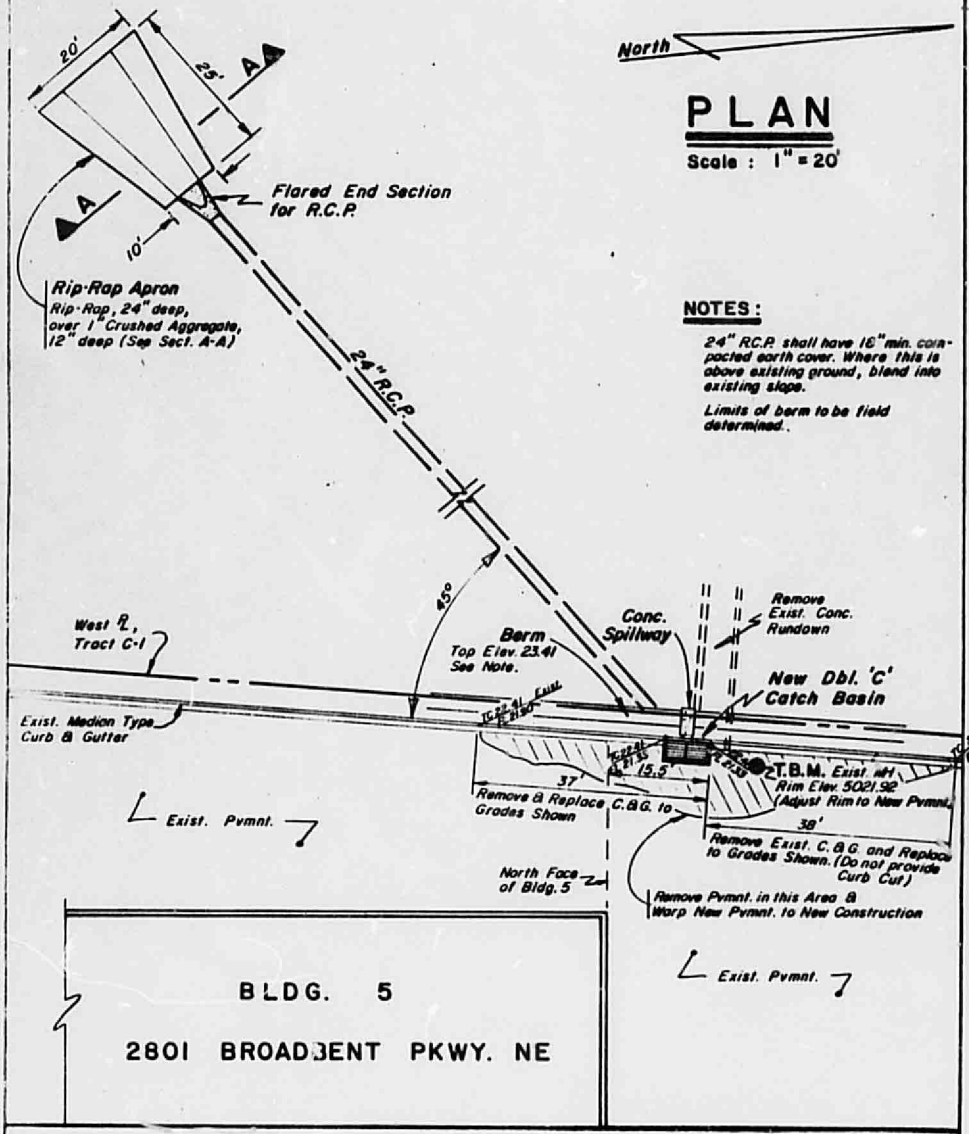
Sht. 2 of 4

MAP NO H-15



SECTION A-A

N.T.S.



PLAN

Scale : 1" = 20'

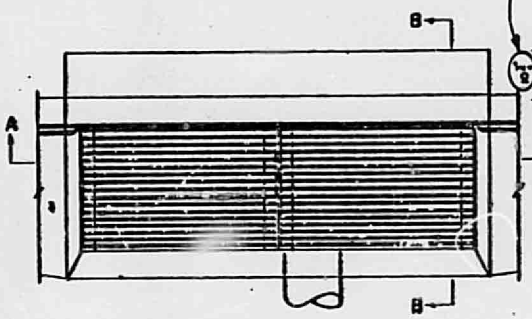
NOTES:

24" R.C.P. shall have 16" min. compacted earth cover. Where this is above existing ground, blend into existing slope.

Limits of berm to be field determined.

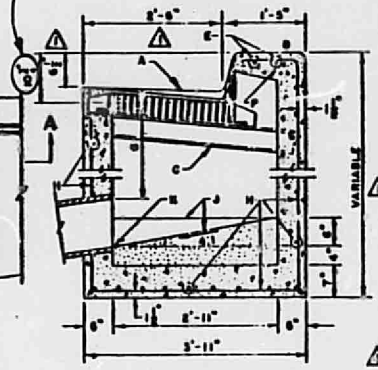
CITY OF ALBUQUERQUE

APPROVALS	ENGINEER	DATE	TITLE: BROADBENT BUSINESS PARK TRACT C-1 DBL.'C' CATCH BASIN & OUTLET PIPE
A.C.E. /DESIGN			
INSPECTOR			
[illegible]			PROJECT NO. — Sht. 2 of 4 — MAP H-15

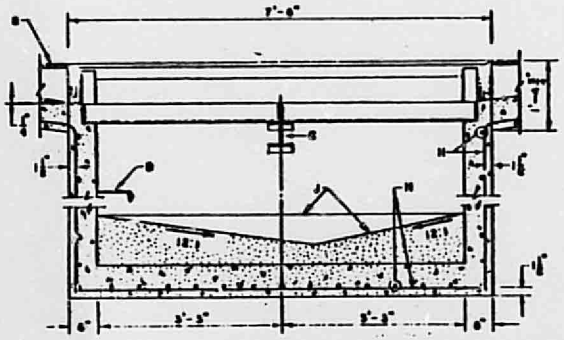


PLAN

NOTE: *This Dimension to be 13". See Plan.*



SECTION B-B



SECTION A-A

GENERAL NOTES:

1. FRAME OF GRATING SHALL BE WELDED AND/OR RIVETED.
2. AFTER CLEANING SURFACE OF SCALE, RUST ETC., GRATING, FRAME AND CENTER SUPPORT TO BE PAINTED WITH ONE SHOP COAT RED OXIDE. TWO FINISH COATS ALUMINUM PAINT (AASHO M69)
3. FOR GUTTER TRANSITION, SEE DETAIL FOR PLACING CATCH BASIN, DWG. K-2

CONSTRUCTION NOTES:

A. NORMAL GUTTER LINE.
B. TOP OF CURB.
C. CENTER SUPPORT ASSEMBLY, FOR DETAILS SEE DWG. K-9.
D. USE STANDARD MH STEPS, FIRST STEP TO BE 18" FROM TOP OF GRATE AND SHALL PROTRUDE 7". SPACING BETWEEN STEPS TO BE 18" O.C., LAST STEP 18" MAX. FROM BOTTOM, SEE DWG. S-11.
E. EXTEND NO. 4 REBAR 18" INTO CURB ON EACH SIDE OF CATCH BASIN.
F. FOR ANCHOR DETAIL, SEE DWG. K-4.
G. 1'-10" MIN. UNLESS OTHERWISE DIRECTED.
H. NO. 4 BARS AT 6" O.C. EACH WAY.
J. CONC. FILL, SEE NOTE E, DWG. K-1.
K. INVERT PER DESIGN.

REVISIONS	CITY OF ALBUQUERQUE
1-26-66	DRAINAGE
	CATCH BASIN DOUBLE "C"
	DWG. K-5-1

CITY OF ALBUQUERQUE

TITLE: BROADBENT BUSINESS PARK TRACT C-1
DBL. 'C' CATCH BASIN & OUTLET PIPE

MAP H-15

PROJECT NO.

Sht. 4 of 4

APPROVALS	ENGINEER	DATE
A.C.E./DESIGN		
DIRECTOR		

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

January 19, 1983

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

Re: Broadbent Phase IV Engineers Certification.

Dear Brian:

Please find attached as built drawings of the Broadbent Project.

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

Thank You,

John Armstrong

RECEIVED
JAN 19 1983
ERING

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

August 23, 1982

Mr. Richard E. Peterson
Broadbent Development Company
2651-J Pan American Freeway N.E.
Albuquerque, N.M. 87107

RE: YOUR LETTER OF AUGUST 16, 1982 CONCRETE SPILLWAY - DRAINAGE DITCH LANDS OF THE MENAUL SCHOOL

Dear Dick:

I have been asked by Mr. Richard Heller, City Engineer, to respond to your August 16, 1982 letter concerning the washout of the concrete spillway adjacent to the Menaul Pond. We appreciate you taking the time out of your busy schedule to contact this office about the problem.

On August 16 and 17, 1982, crews from the Street Maintenance Department conducted remedial work on the rundown by filling the crevice with broken curb and gutter. Hopefully, this measure will serve as a satisfactory solution until a permanent structure is designed and constructed. Until the "rainy" season is over we will continue to monitor the area and provide clean-up work if necessary.

Thank you for notifying us about the rundown situation. We will keep you informed of any work conducted by this office.

Very truly yours,

Charles M. Easterling
Princ.Asst.City Eng./Hydrology

CME/BGB/tsl

cc: Mr. Richard Heller, City Engineer
Mr. John Armstrong, Armstrong Eng.

BROADBENT DEVELOPMENT COMPANY
2651-J PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87107
TELEPHONE (505) 345-3506

naiop
NATIONAL ASSOCIATION OF INDUSTRIAL & OFFICE PARKS

August 16, 1982

RECEIVED
AUG 18 1982
CITY ENGINEER

Mr. Richard Heller
City Engineer
City of Albuquerque
400 Marquette Avenue, N.W.
Albuquerque, NM 87102

RE: Concrete Spillway - Drainage Ditch
Lands of The Menaul School

Dear Richard:

On Thursday night of last week, I am sure that you are well aware that we had serious rainstorms in the Albuquerque area with considerable runoff. As part of that rainstorm, the concrete spillway which is at the entrance to the retainage pond owned by the City of Albuquerque and the end of the drainage channel which runs through a portion of the property which Broadbent Development Company is involved with has deteriorated in the sense that the lower portion of the spillway is completely gone and the upper most portion is basically "hanging by a thread." While this is an obvious problem, we took it upon ourselves to inform as many City departments as possible in order to get some type of temporary repair work so that the entire spillway would not be lost. However, it was difficult from the City's standpoint to determine who's responsibility it was to repair this structure. We have probably talked to five or six different departments and they all indicated that we should talk to other departments because it was not their responsibility.

As you are aware, underneath the spillway or in that area is a high pressure sewer main or force main which serves a considerable area. It is our civil engineer's feeling that should the spillway indeed come down in its entirety and/or we receive new rains of the velocity we had last Thursday night, that the remaining soil above the force main will erode and is a very good possibility that the force main will be ruptured. This is obviously an important situation to address by all parties. More than that, however, we are deeply concerned that the spillway is in the condition that it is and that it poses a very definite public hazard to any individuals who might be in the retainage pond. While it is not general that people are down in the pond, we have upon occasion seen motorcycle riders, children, etc., playing in this area. The area underneath the remaining portion of the spillway has eroded and is very inviting to a youngster who might say "Gee - look at the neat cave." We are very concerned with this situation, inasmuch as anybody that is underneath the spillway obviously would have very little chance of survival if it did come down. In fact, we chased a couple of kids away from the area on Friday, the day after the rains. While I am

BRIAN
PLEASE WRITE A LETTER TO DICK PETERSON

G.P. Has copy
Feedback 8/25 RSH

RSH	RSH	ADM	
HRO		SUR	
CDS		COUN	
DES		SEC	
INSP		FILE	
HYDRO		RETURN	

Chuck — Get w/ George Paul & fix up — Answer letter that we are doing something — RSH

not certain what corrective measures can be taken in the immediate future to prevent this, I would suggest that barricading, etc., be done in order to make all people well aware that it is an indeed extreme hazard in that area. Of course, we made the various departments of the City aware of this situation in our attempt to find someone to provide temporary repairs or filling in of that area.

Certainly we will be more than happy to work with you in regard to the situation inasmuch as like anybody we would hate to see any injuries caused by the spillway and to make sure that the integrity of the sewer force main remains in tact. I will talk with all necessary people in regard to the proposed drainage repairs, as well as the effect on them caused by this new development.

The purpose of writing this letter is to ask for your help in directing the correct City department to take whatever steps can be taken at the present time to alleviate the situation that is now caused by the spillway and its present condition. Again, if I can be of any help, please let me know.

Sincerely,

Richard E. Peterson

Richard E. Peterson
Senior Vice President

REP:pjh

cc: Mr. Brian Burnett, City of Albuquerque
Mr. Charles P. Price, Sutin, Thayer & Browne

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

July 20, 1982

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

RE: BROADBENT DRAINAGE IMPROVEMENTS CONSTRUCTION PLAN

Dear John:

I concur with the designs outlined in the referenced plan. Please keep me posted as to when the construction work along the arroyo will take place.

Enclosed is a copy of the Drainage Channel Improvement Agreement prepared by Ms. Barbara Stephenson, Assistant City Attorney. The construction plan sheet will serve as Exhibit A. Please have the Broadbent Development Corp. review the document at the earliest possible date.

Thank you for your cooperation in this matter. Please call if you have any questions.

Very truly yours,

Brian G. Burnett

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

Enclosures

cc: Mr. Richard E. Peterson

DRAINAGE CHANNEL IMPROVEMENT AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 1982 by and between BROADBENT DEVELOPMENT COMPANY, a Delaware corporation ("Owner") and the CITY OF ALBUQUERQUE, a municipal corporation ("City").

1. Recital. Owner owns the property located in Bernalillo County, New Mexico described on the attached Exhibit A (the "Property"). City is the grantee under an easement covering the existing Drainage Channel (the "Drainage Channel") running in a northwesterly direction from the Pan American Frontage Road, in the vicinity of the Property, to the existing detention pond. City requires this Agreement as a condition of further approvals for construction on the Property.

2. Drainage Improvements. Within ninety (90) days after the date of this Agreement, Owner will commence (i) to fill eroded areas where needed and correct the Drainage Channel, (ii) to repair the Drainage Channel outfall structure at the west end of the Drainage Channel, and within six (6) months after the date of this Agreement, Owner will commence and (iii) repair the existing rip rap run-down channel located at the northeast corner of the detention pont. Construction and repair will be in accordance with mutually acceptable plans, approved by the City.

3. Bond. Within thirty (30) days after execution of this Agreement, Owner shall furnish the City with satisfactory evidence of a performance bond, acceptable to the City, in the amount of Ten Thousand Dollars ($10,000), said bond to ensure that all obligations of Owners under this Agreement are fulfilled.

4. City Approvals. Upon execution of this Agreement, City will not withhold approval of any building permits or certificates of occupancy, provided, however, that Owner has fully complied with the conditions of Paragraph 3 of this

Agreement. In addition, this Agreement in no way relieves Owner from any obligation to improve drainage points of entry to the Drainage Channel from portions of any future developments on the property described in Exhibit A. Owner may, at Owner's option, elect to further improve the Drainage Channel so that the surface of the property now occupied by the Drainage Channel is available for development by Owner. Construction will be in accordance with plans approved by the City. Upon satisfactory completion of Owner's responsibilities under this Agreement, the City will impose no additional requirements on Broadbent Development Company for improvements of the Drainage Channel or City property as a condition for approval of future developments except as provided in this Agreement. The City will have all future responsibility for maintenance of the Drainage Channel, the outfall structure at the west end of the Drainage Channel, and the rundown channel at the northeast corner of the detention pond.

Dated:

BROADBENT DEVELOPMENT COMPANY,
A Delaware Corporation

ATTEST:

_____
Secretary

BY: _____
TITLE: _____

ATTEST:

_____
City Clerk

CITY OF ALBUQUERQUE

_____
Frank A. Kleinhenz
Chief Administrative Officer

REVIEWED BY THE LEGAL DEPARTMENT:

Barbara Stephenson
Assistant City Attorney

APPROVED:

_____
Charles M. Easterling
Principal Assistant City
Engineer/Hydrology

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE July 13, 1982 REF. NO._____

TO: Brian G. Burnett, Civil Engineer/Hydrology

FROM: Barbara Stephenson, Assistant City Attorney BS

SUBJECT: Broadbent Agreement

Attached are three original copies of the Broadbent Agreement. Before it is executed, make sure that Exhibit A is attached to all copies and that that Exhibit shows what it is supposed to.

Call me if you have any questions.

BS:mab

Enclosure

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE June 15, 1982 REF. NO._____

TO: Barbara Stephenson, Assistant City Attorney

FROM: Brian G. Burnett, Civil Engineer/Hydrology BGB

SUBJECT: DRAINAGE CHANNEL IMPROVEMENT AGREEMENT BETWEEN THE CITY AND BROADBENT DEVELOPMENT COMPANY

A building permit was recently issued to the Broadbent Development Company so that work could begin on Phase IV of their business park. Before issuing the permit, Broadbent agreed to enter into an agreement with the City outlining their commitment for drainage improvements on the site. Enclosed is a copy of this agreement. Could you please review this document and return your comments to me? We hope to clear up this matter so that the improvements are completed by the time the Phase IV buildings are ready for occupancy.

Thank you for your help.

BGB/tsl

Enclosure

DRAINAGE CHANNEL IMPROVEMENT AGREEMENT

BROADBENT DEVELOPMENT COMPANY, a Delaware corporation ("Owner") and the CITY OF ALBUQUERQUE, a municipal corporation ("City") agree:

1. Recital. Owner owns the property located in Bernalillo County, New Mexico described on the attached Exhibit A (the "Property"). City is the grantee under an easement covering the existing drainage channel (the "Drainage Channel") running in a northwesterly direction from the Pan American Frontage Road, in the vicinity of the Property, to the existing detention pond. City requires this Agreement as a condition of further approvals for construction on the Property.

2. Drainage Improvements. Within 90 days after the date of this Agreement, Owner will commence (i) to fill eroded areas where needed and correct the Drainage Channel, (ii) to repair the Drainage Channel outfall structure at the west end of the Drainage Channel, and within 6 months after the date of this Agreement, Owner will commence and (iii) to repair the existing rip rap run-down channel located at the northeast corner of the detention pond. Construction and repair will be in accordance with mutually acceptable plans, approved by the City.

3. City Approvals. Upon execution of this Agreement, City will not withhold approval of any building permits or certificates of occupancy for the Property because of Drainage Channel improvements, except that Owner may be required to improve drainage points of entry to the drainage channel from portions of the property developed in the future. Owner may at owner's option elect to further improve the drainage channel so that the surface of the property now occupied by the drainage channel is available for development by owner. Construction will be in accordance with plans approved by the City. Upon satisfactory completion of owner's responsibilities under this agreement, the City will impose no additional requirements on Broadbent Development Company for improvements of the drainage channel or City property as a condition for approval of future developments except as provided in this

Agreement. The City will have all future responsibility for maintenance of the drainage channel, the outfall structure at the west end of the drainage channel, and the rundown channel at the northeast corner of the detention pond.

BROADBENT DEVELOPMENT COMPANY
A DELAWARE CORPORATION

BY_____

ATTEST:

_____
Secretary

REVIEWED & APPROVED BY THE
LEGAL DEPARTMENT:

_____
Assistant City Attorney

_____
Frank A. Kleinhenz
Chief Administrative Officer
for City of Albuquerque

_____
Charles M. Easterling
Princ. Asst. City Eng./Hydrology

ACKNOWLEDGEMENTS

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me by _____ _____, on this _____ day of _____, 1982.

_____
Notary Public

My Commission Expires:

_____

STATE OF NEW MEXICO)
SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me by _____ _____, on this _____ day of _____, 1982.

_____
Notary Public

My Commission Expires:

_____

BROADBENT DEVELOPMENT COMPANY
2651-J PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87107
TELEPHONE (505) 345-3506

naiop
NATIONAL ASSOCIATION OF INDUSTRIAL & OFFICE PARKS

May 14, 1982

RECEIVED
MAY 17 1982
CITY ENGINEER

Mr. Brian G. Burnett
Civil Engineer/Hydrology
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

Dear Brian:

Pursuant to our conversation this week regarding the drainage agreement for Broadbent Business Park, please find attached a preliminary typewritten page which would be utilized for the second page of that agreement. Basically, I am using the language that my attorney has suggested and I am forwarding this on to you for your study.

In regard to the timing that is shown on page one, i.e., 90 days, I would prefer that if we are going to tie both items together that we utilize 120 days. While I fully expect that we will be doing the work much sooner than this, I do want to have the ability from the date we sign the agreement, so that all plans are approved by your office and that we have adequate time for whatever work has to be done.

I would appreciate that after you have received this if you could give me a call so that we may try to determine the final language so that we may submit it to your legal staff. Certainly should you have any questions, please let me know.

Sincerely,

Dick

Richard E. Peterson
Senior Vice President

REP:pjh
Enclosure

Pg. 2

Owner may be required to improve drainage points of entry to the Drainage Channel from portions of the Property developed in the future. Owner may, at Owner's option, elect to further improve the Drainage Channel so that the surface of the Property now occupied by the Drainage Channel is available for development by Owner. Construction will be in accordance with plans approved by the City. ~~Owner's responsibilities for Drainage Channel improvements will be completely satisfied upon satisfactory completion of Owner's responsibilities under this Agreement~~. Still needed? City will have all future responsibility for maintenance of the Drainage Channel, the outfall structure at the west end of the Drainage Channel, and the run-down channel at the northeast corner of the detention pond.

DATED: _____, 1982.

BROADBENT DEVELOPMENT COMPANY
A Delaware corporation

By_____
Its_____

CITY OF ALBUQUERQUE
A municipal corporation

By_____
Its_____

City will impose no add'l requirements ~~drainage channel~~ on BDC as cond. to approval of developments, except as provided in this Agr.

For improvement of the Drainage Channel on ~~off-site~~ City property,

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

April 13, 1982

Mr. Richard E. Peterson
Senior Vice President
Broadbent Development Company
2651-J Pan American Freeway NE
Albuquerque, N.M. 87107

RE: DRAINAGE AGREEMENT FOR BROADBENT BUSINESS PARK

Dear Mr. Peterson:

Enclosed is a copy of the referenced agreement with some minor changes. If you have no objections to the new wording, please return the document along with Exhibit "A". I will then forward the packet to our Legal Department for review.

In order to expedite the review process we may wish to discuss any changes over the phone. Thank you for your cooperation in this matter.

Very truly yours,

BGB

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

cc: Charles M. Easterling, PACE/Hydrology
John Armstrong, Armstrong Engineering

BROADBENT DEVELOPMENT COMPANY
2651-J PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87107
TELEPHONE (505) 345-3506

naiop
NATIONAL ASSOCIATION OF INDUSTRIAL & OFFICE PARKS

March 29, 1982

RECEIVED
MAR 31 1982
CITY ENGINEER

Mr. Brian G. Burnett
Civil Engineer/Hydrology
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

RE: Drainage Requirements for
Broadbent Business Park

Dear Brian:

Pursuant to your letter dated March 16, 1982 and per our telephone conversation today, please find enclosed language that our legal counsel has drafted in regard to the proposed drainage improvements to be constructed by Broadbent Development Company at Broadbent Business Park. I believe that it contains the essence of the agreement which we had forwarded to you under our letterhead, but I would appreciate if you would review, at your convenience, so that we may determine that it is indeed acceptable to the City of Albuquerque. I would like to mention that the particular timing that is stated within the document may or may not be accurate from your standpoint, but if it is inaccurate it is merely an oversite by our attorney who did not have the timing that we wish to agree upon.

Please excuse the delay in your receiving this document. I would anticipate that all of the improvements that we have agreed to perform will be done concurrently with the construction of our Phase IV buildings. It certainly makes sense from our standpoint inasmuch as we will have the contractors and their equipment on-site at various times in order to accomplish the improvements that are desired. Again, should you have any questions, please let me know.

Sincerely,

Dick Peterson - pr

Richard E. Peterson
Senior Vice President

REP:pjh

cc: Mr. Charles Easterling, PACE/Hydrology
Mr. John Armstrong, Armstrong Engineering

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

H15 - D1,D9, D12

March 16, 1982

RECEIVED
Broadbent Development Co.

MAR 18 1982

R. Peterson ____ J. Holmquist ____
R. Jensen ____
Accounting ____ File ____

Mr. Richard E. Peterson
Senior Vice President
Broadbent Development Company
2651-J Pan American Freeway NE
Albuquerque, N.M. 87107

RE: DRAINAGE REQUIREMENTS FOR BROADBENT BUSINESS PARK

Dear Mr. Peterson:

On February 2, 1982, this office transmitted an approval letter for the Broadbent Phase IV development. In this same correspondence we also requested that a legal document be drafted defining the responsibilities of both the City and Broadbent for the necessary drainage and channel improvements.

We would appreciate receiving this document by March 29, 1982, in order to expedite review and approval of the agreements.

If you feel the above deadline is unreasonable or if you have any questions concerning this matter, please call.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

cc: Mr. Charles Easterling, PACE/Hydrology
Mr. John Armstrong, Armstrong Engineering

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

H15 - D1,D9, D12

March 16, 1982

Mr. Richard E. Peterson
Senior Vice President
Broadbent Development Company
2651-J Pan American Freeway NE
Albuquerque, N.M. 87107

RE: DRAINAGE REQUIREMENTS FOR BROADBENT BUSINESS PARK

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Civil Engineer/Hydrology

BGB/tsl

cc: Mr. Charles Easterling, PACE/Hydrology
Mr. John Armstrong, Armstrong Engineering

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

Feb. 11, 1982

Mr. John Armstrong
Armstrong Engineering
2709 - A Pan American Frwy., NE
87107

Re: BROADBENT BUISNESS PARK DRAINAGE AGREEMENTS

Dear John,

The letter is a follow-up to your correspondence dated February 3, 1982, concerning the referenced agreements. This office concures with the proposals outlined in your letter. However, we request that a formal agreement be entered into by Broadbent Development Company and the City. This requires a legal document drafted by Broadbent's lawyer. I have enclosed a sample for reference purposes.

This letter will also serve as notification that the drainage report for Broadbent Phase IV is approved, and that a building permit will be issued.

We appreciate the cooperation of your firm and the Broadbent Company. If I can be of any help, please call.

Very Truly Yours,

Brian G. Burnett

Brian G. Burnett
Civil Engineer/Hydrology

cc: Mr. Richard Peterson

~~#2/7/82~~

/ February 8, 1982

Mr. John Armstrong
Armstrong Engineering
need address

Re: BROADBENT BUSINESS PARK
DRAINAGE AGREEMENTS

Dear John,

This letter is in reference to your correspondence dated February 3, 1982 concerning the referenced agreements.

This office ~~concurs~~ concurs with the ~~statement~~ proposals outlined in your letter. However,

before a final signature

BROADBENT DEVELOPMENT COMPANY
2651-J PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87107
TELEPHONE (505) 345-3506

naiop
NATIONAL ASSOCIATION OF INDUSTRIAL & OFFICE PARKS

Summary plat
Need Row and maintenance road

February 3, 1982

City Engineer
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

RE: Drainage Requirements
Broadbent Business Park
Albuquerque, New Mexico

Gentlemen:

Pursuant to Broadbent Development Company's submittal of building plans to the City of Albuquerque for expansion of Broadbent Business Park, and the subsequent requirements for certain drainage improvements to be constructed, this letter shall serve as Broadbent's committment to perform same.

We understand the improvements to be:

1. Fill and correct the existing drainage channel (which runs from Pan American Freeway - West Frontage Road to the City's detention pond).

2. Repair the existing drainage outfall structure at the west end of said drainage channel.

Plans for the corrective work will be coordinated with the City Engineer's office. Armstrong Engineering will represent Broadbent in this coordination effort. After mutual acceptance of plans and repairs, Broadbent will at its cost perform or cause to be performed the repair work. Commencement will take place within ninety days after agreement. With the repair work being performed by Broadbent, it is Broadbent's understanding that there will not be any additional requirements by the City of Albuquerque to further improve the drainage channel now or with the future development on property (see attached description) owned by Broadbent, its successors, or assigns. The exception to this would be the entry point to the existing drainage channel or City detention pond of run-off waters from future phases of development. If this letter is agreed to, our request for a special improvement district for the property dated November 18, 1981 shall be withdrawn as it pertains to drainage improvements.

Broadbent also agrees that it will repair the existing rip rap run-down channel located at the northeast corner of the drainage pond. Plans will again be coordinated with the City and upon acceptance and agreement, the work will be performed at the same

time as the construction for the next phase or expansion of Broadbent Business Park. It is anticipated this work will commence within thirty working days or sooner from this date.

Upon the completion of the repair work of the drainage channel, outfall structure and run-down channel as contained in this letter, it is Broadbent's understanding that the future responsibility and maintenance of the drainage channel, outfall structure, and run-down channel will be by the City of Albuquerque.

Upon your approval of the items stated in this letter, please indicate your acceptance in the space provided below and return a copy of this letter in the envelope provided. The original is for your files. Certainly should there be any questions or more information required, please do not hesitate to contact us at 345-3506 or Armstrong Engineering at 345-2133. Thank you for your assistance and cooperation in this matter.

Sincerely,

Richard E. Peterson

Richard E. Peterson
Senior Vice President

REP:pjh

ACCEPTED BY:

Name: _____ Title:
City of Albuquerque

Date: _____

BROADBENT DEVELOPMENT COMPANY
2651-J PAN AMERICAN FREEWAY, N.E.
ALBUQUERQUE, NEW MEXICO 87107
TELEPHONE (505) 345-3506

naiop
NATIONAL ASSOCIATION OF INDUSTRIAL & OFFICE PARKS

February 3, 1982

City Engineer
City of Albuquerque
Post Office Box 1293
Albuquerque, NM 87103

RECEIVED
FEB 0 1982
CITY ENGINEER

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Broadbent Business Park
Albuquerque, New Mexico

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Sincerely,

Richard E. Peterson

Richard E. Peterson
Senior Vice President

REP:pjh

ACCEPTED BY:

Name: _____ Title: _____
City of Albuquerque

Date: _____

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

H15 - D12

January 19, 1982

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

RE: BROADBENT BUSINESS PARK PHASE IV

Dear John:

The following items are in reference to our meeting of January 19, 1982.

1. Please provide a conceptual plan for the rip-rap rundown located on the northwest side of the property. We recommend that the curb opening be widened, the existing concrete rundown be utilized and corrected to a larger section, a one foot thick graded filter be placed under the larger material, and that 3:1 side-slopes be used throughout the section.

2. Please make an evaluation of the stability of the existing concrete structure located at the west end of the naturally lined channel. This evaluation should include a description of the design and why it is inadequate, a list of possible alternatives (including replacing the structure completely), and a cost breakdown of each alternative.

3. There are several locations in the channel which require some remedial work. Please identify the locations and required treatment.

4. The Developer will be required to construct all facilities as recommended by the Engineer and approved by the City. Mr. Charles Easterling, Principal Asst. City Engineer/Hydrology, has indicated that the City of Albuquerque will be responsible for maintenance of the rundown structures and channel.

5. A sign-off by Hydrology on the building plans will be granted when this office has received and approved information relating to 1), 2), and 3) above. We would also appreciate a letter committing the owner to the items outlined in 4).

If I can answer any questions, please call.

Very truly yours,

BGB

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

H15-D12

DRAINAGE REPORT
FOR
BRO[illegible]ENT BUSINESS PARK
PHASE IV
ALBUQUERQUE, NEW MEXICO

JOHN T. ARMSTRONG
NEW MEXICO
6556
REGISTERED PROFESSIONAL ENGINEER

RECEIVED
NOV 30 1981
ENGINEERING

ARMSTRONG ENGINEERING, INC.
2709-A PAN AMERICAN NE
ALBUQUERQUE, NEW MEXICO
PHONE (505) 345-0111

NOVEMBER 1981

DISCUSSION

This report addresses the grading and drainage for Phase IV of Broadbent Business Park which consists of three new buildings located at 2809,2815,and 2825 Broadbent Parkway NE on Tract C-2 Lands of Menaul School, as filed August 16, 1979, and one new building located at 2835 Pan American Freeway NE on Tract D, Lands of Menaul School, as filed October 29, 1979.

This project lies East and adjacent to the City of Albuquerque Menaul School Pond and a hydrology study done by Bohannan Huston in January, 1980 shows that the pond has more than enough capacity to hold the run-off from this development (see attached).

The run-off from this project will be handled through the adjacent Broadbent project Parking lot to the West of the proposed development and into the Menaul School Pond via a corrugated metal pipe run-down.

Tract C-2 is zoned M-1 and Tract D is zoned SU-1 for this particular kind of application and it is believed that no planning history will prevent anything associated with the project.

Erosion control should not be a problem as the property was graded two years ago and there is very little cover existing now,so any future grading will not add to erosion.

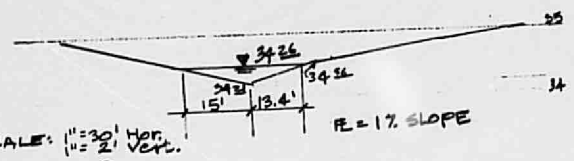
CALCULATIONS

100 year precipitation (see attached)

Coefficient of run-off
18% landscaped areas @ C=0.30
82% paved and roof areas @ C=0.90
Composite C=0.79

Q_1(see plan for location)
A=1.71 Acres
$t_c$less than 5 min.
i= 7.12 in./hr.

Q_1= ciA =(o.79)(7.12)(1.71)= 9.6 Cfs



A= 3.69 ft^2
R=0.1295 ft

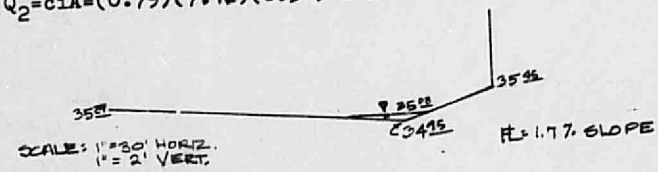
$Q=\frac{1.49}{0.015}(3.69)(0.1295)^{0.67}(0.01)^{0.5}=9.4$ Cfs

V=Q/A=9.6/3.7=2.5 ft/sec

Q_2(see plan)

A=0.51 Acres
t_c = less than 5 min.
i= 7.12 in/hr

Q_2=ciA=(0.79)(7.12)(0.51)=2.9 cfs



A=1.4 ft^2
R=0.065 ft

$Q = \frac{1.49}{0.015}(1.4)(0.065)^{0.67}(0.017)^{0.5} = 2.9$ cfs

V=2.9/1.4 = 2.1 ft/sec

Q_3(see plan)
A=2.40 Acres
t_c = less than 5 min.
i=7.12 in/hr

Q_3=ciA=(0.79)(7.12)(2.40)=13.5 cfs

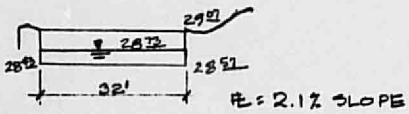
A=3.25 ft^2
R=0.1121 ft

$Q=(1.49/0.015)(3.25)(0.1121)^{0.67}(0.03)^{0.5}=13$ cfs

V= 13.5/3.25=4.2 ft/sec

Q_4(see plan)
A= 3.70 Acres
t_c= less than 5 min.
i= 7.12 in/hr

Q_4=ciA=(0.79)(7.12)(3.70)=20.8cfs



A= 5.1 ft^2
R= 0.1552 ft.

$Q=(1.49/0.015)(5.1)(0.1552)^{0.67}(0.021)^{1/2}=21.2cfs$

V= 20.8/5.1 = 4.1 ft/sec

Q_5(see plan) at spillway
A= 9.53 Acres
V_{ave}=3.8 ft/sec
L=1800 ft
t_c=7.9 min
i= 6.1 in/hr

Q = ciA= (0.79)(6.1)(9.53)= 45.9 cfs

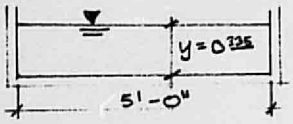
Spillway opening in curb 20 ft wide with spillway @ 25% slope. (This spillway is obviously steep, i.e. super critical flows) Water must pass through critical depth y_c.

$$\frac{Q^2}{g} = \frac{A^3}{B} \text{ or } \frac{(45.9)^2}{32.2} = \frac{(20\ y_c)^3}{20}$$

y_c= 0.55 ft
E (energy line) = 1.5 y_c= 0.83 ft

Lowest top of curb upstream side = 5022.41
Average spillway elevation = 5021.54
Max depth of water on upstream side 0.87
This implies that there is 0.04 ft freeboard.
Freeboard is actually greater than this value since we have assumed 0 approach velocity.

SECTION WHERE SPILLWAY ENTERS DROP-INLET:



Q=45.9 cfs
A=1.68 ft^2
R=0.2954 ft
S=0.2485 ft/ft

$Q=(1.49/0.012)(1.68)(0.2954)^{0.67}(0.2485)^{0.5}= 46.1$ cfs

V= 45.9/1.68 = 27.32 ft/sec

30" DIAMETER CMP:

Q= 45.9 cfs

Inlet control (see chart 5): HW/D = 2.1 or HW = 5.25 ft

The slope of this pipe enables it to carry 45.9 cfs as an open channel; therefore inlet losses control headwater depth. The maximum headwater available is 6.0 ft.
Normal Depths:
@ S = 7% D/d = 66.49% V = 13.24 ft/sec
@ S = 22% D/d = 46.46% V = 20.55 ft/sec

Stilling Basin (see Fig.1 and Fig. 8)
Froude Number at stilling basin:
$D = (A)^{0.5}= (2.23)^{0.5} = 1.49$ ft
$F = 20.55/[(32.2)(1.49)]^{0.5}= 2.96$

W/D (see Fig. 8) = 5.35 or W = 8.0 ft

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

January 11, 1980

Mr. John Armstrong
Armstrong Brothers Construction
2717 A Pan American Fwy., N.E.
Albuquerque, NM 87107

Re: 80 Acre Parcel - Menaul School Pond

Dear Mr. Armstrong:

Concerning the 80 acre parcel which lies west of I-25 and north of Menaul Boulevard and surrounds the existing Menaul School Pond, we have performed analyses based on existing hydrologic modeling information from the draft Albuquerque Master Drainage Study. The assumptions in and results of these analyses are as follows:

Existing Conditions

1. Assumptions

a. Upstream development as of January 8, 1980.
b. Princeton Pump Station Operating.
c. Eighty acre parcel near Menaul School Pond not developed, 40 acres drains to Menaul.

2. Results

a. 100-year peak discharge at I-25 is 340 cfs; runoff volume is 23.2 acre-ft.
b. 100-year peak discharge at Menaul School Pond is 355 cfs; runoff volume is 24.3 acre-ft.
c. Peak discharge out of pond is 148 cfs, peak storage volume is 6.4 acre-ft and peak elevation is 5085.5.

Developed Conditions

1. Assumptions

a. Current upstream development.
b. Princeton Pump Station Operating.
c. Eighty acre parcel fully developed with 85% lot coverage, 15% landscaping.
d. All 80 acres draining to pond.

2. Results

a. 100-year peak discharge at I-25 is 340 cfs; runoff volume is 23.2 acres-ft.

b. Total 100-year peak discharge at Menaul School Pond (with 80 acres fully developed and draining to pond) is 572 cfs; runoff is 32.2 acre-ft.

c. Peak discharge from the pond is 173 cfs, peak volume stored is 9.94 acre-ft and peak elevation is 5086.9.

The computer modeling output for both conditions is enclosed for your files.

If you should have any questions concerning this matter, please contact me.

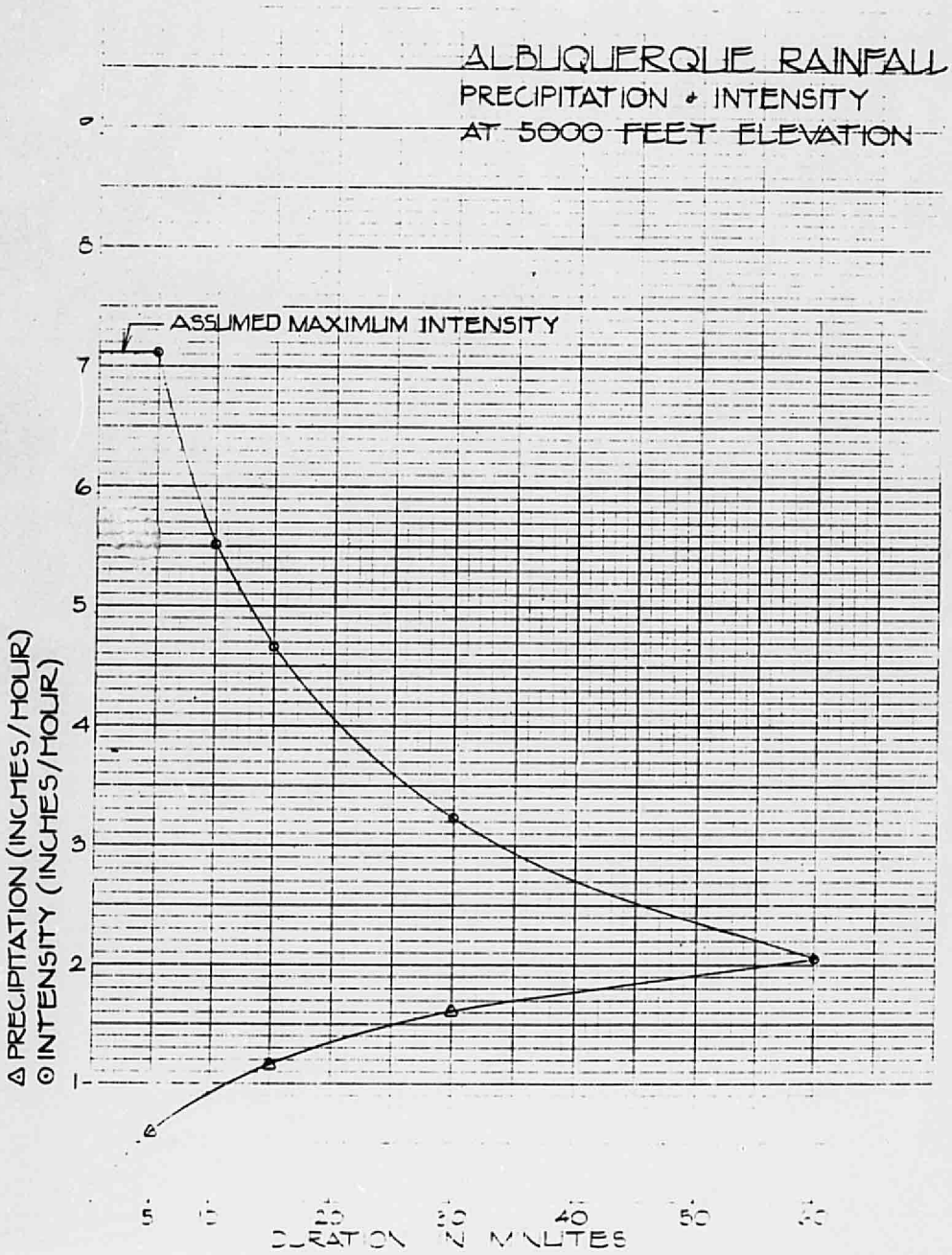
Sincerely,

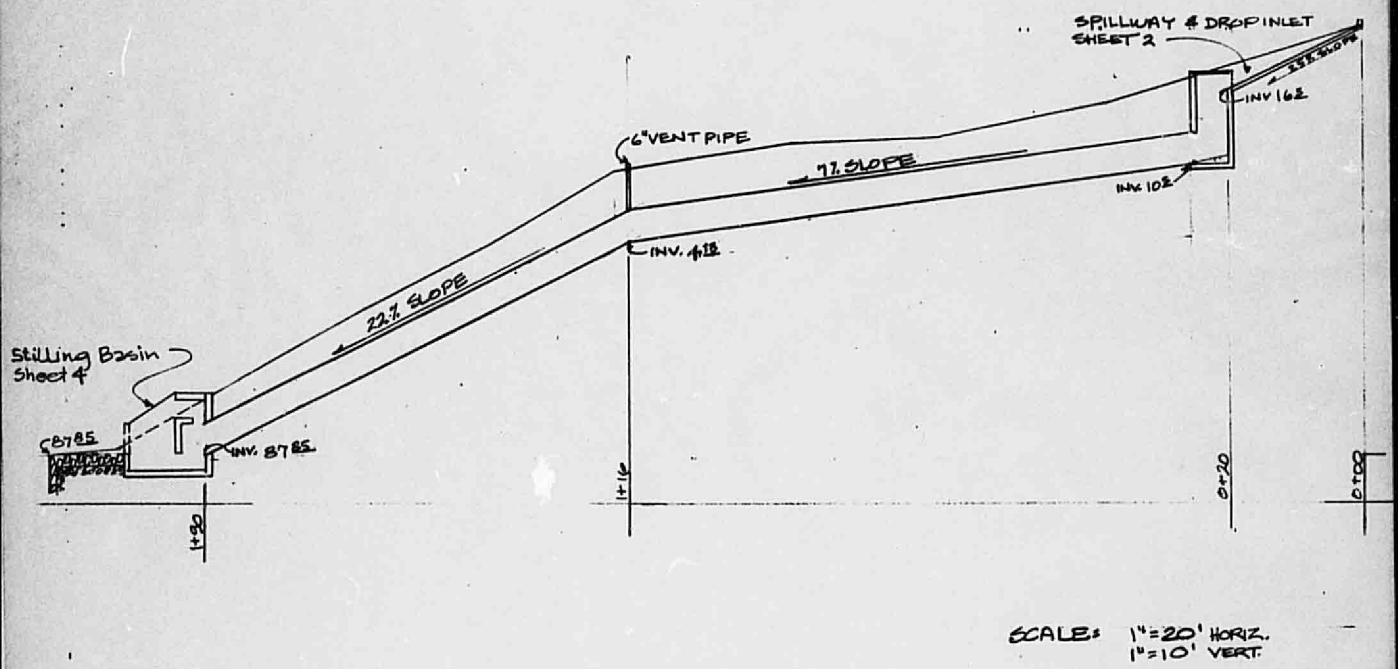
Charles M. Easterling

Charles M. Easterling, P.E.
Division Manager
Water Resources Division

Enclosures

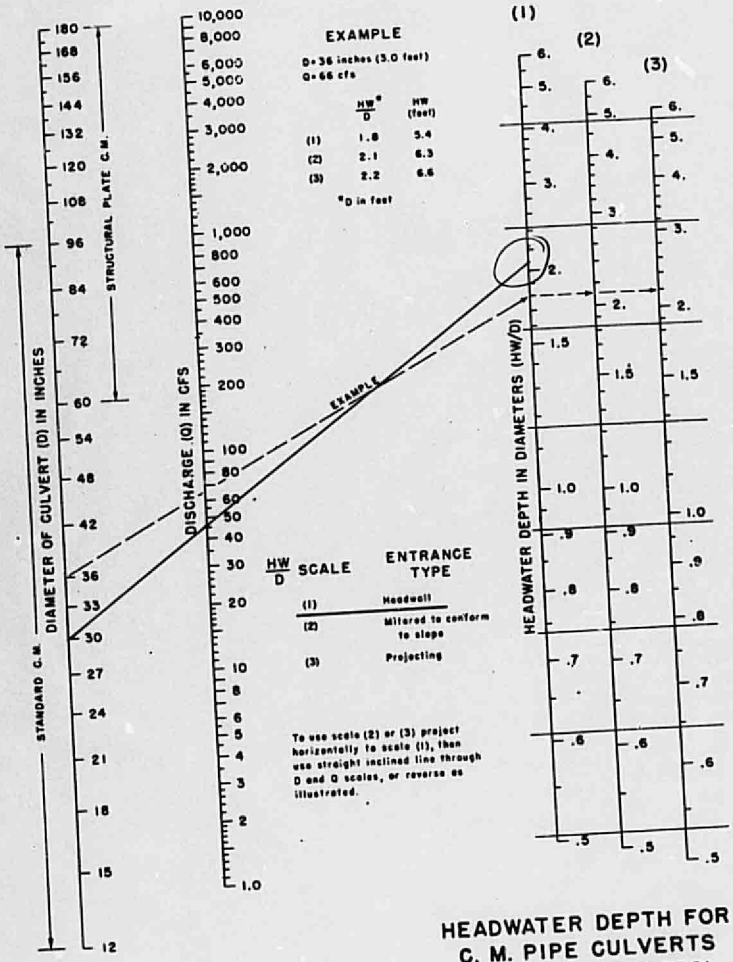
CME/rv
Job No. 09200


ALBUQUERQUE RAINFALL
PRECIPITATION & INTENSITY
AT 5000 FEET ELEVATION
ASSUMED MAXIMUM INTENSITY
Δ PRECIPITATION (INCHES/HOUR)
⊙ INTENSITY (INCHES/HOUR)
7
6
5
4
3
2
1
5
10
20
30
40
50
60
DURATION IN MINUTES



SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

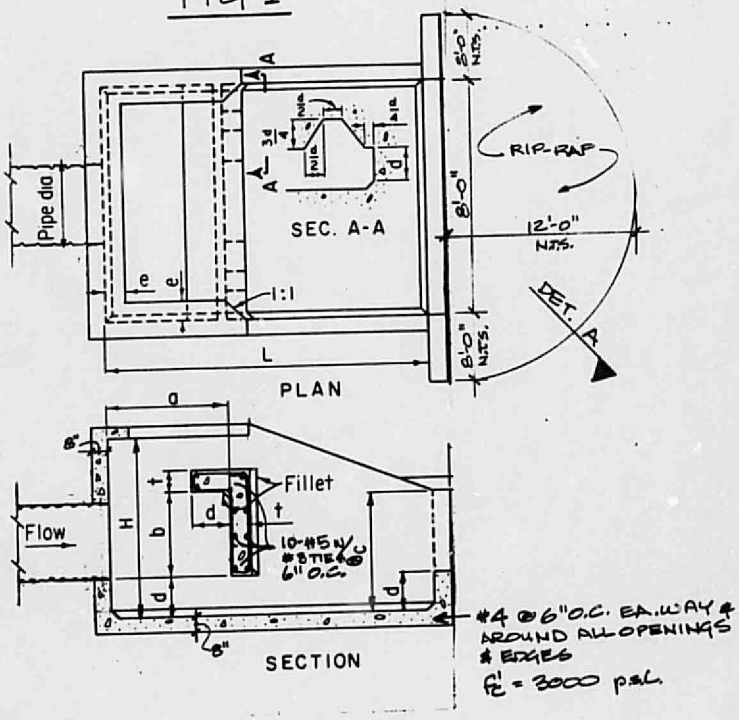
CHART 5



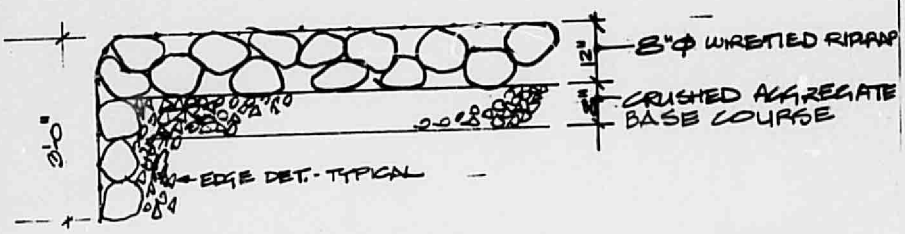
HEADWATER DEPTH FOR
C. M. PIPE CULVERTS
WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

FIG 1

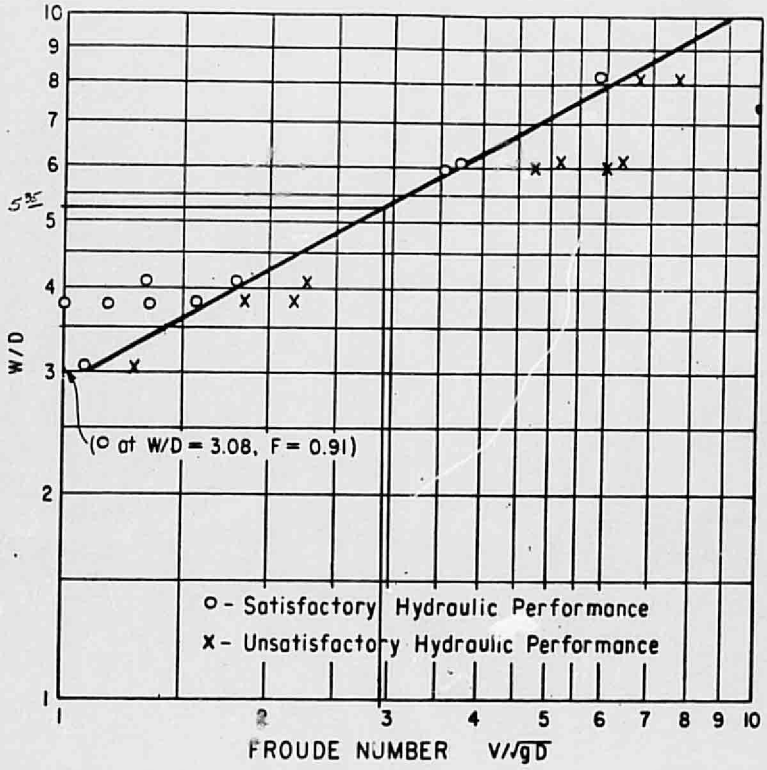


H = 6'-0"	c = 4'-0"
L = 10'-8"	d = 1'-4"
a = 4'-0"	e = 0'-8"
b = 3'-0"	t = 0'-8"



WIRETIED RIP-RAP DETAIL-A ½" = 1'-0"

TURN-DOWN EDGE



"W" is the inside width of the basin.
"D" represents the depth of flow entering the basin and is the square root of the flow area.
"V" is the velocity of the incoming flow.
The tailwater depth is uncontrolled.

Figure 8.–Design width of basin.

DRAINAGE CHANNEL IMPROVEMENT AGREEMENT

BROADBENT DEVELOPMENT COMPANY, a Delaware corporation ("Owner") and the CITY OF ALBUQUERQUE, a municipal corporation ("City") agree:

1. Recital. Owner owns the property located in Bernalillo County, New Mexico described on the attached Exhibit A (the "Property"). City is the grantee under an easement covering the existing drainage channel (the "Drainage Channel") running in a northwesterly direction from the Pan American Frontage Road, in the vicinity of the Property, to the existing detention pond. City requires this Agreement as a condition of further approvals for construction on the Property.

2. Drainage Improvements. Within 90 days after the date of this Agreement, Owner will commence (i) to fill eroded areas where needed and correct the Drainage Channel, (ii) to repair the Drainage Channel outfall structure at the west end of the Drainage Channel, and within 6 months after the date of this Agreement, Owner will commence and (iii) to repair the existing rip rap run-down channel located at the northeast corner of the detention pond. Construction and repair will be in accordance with mutually acceptable plans, approved by the City.

3. City Approvals. Upon execution of this Agreement, City will not withhold approval of any building permits or certificates of occupancy for the Property because of Drainage Channel improvements, except that Owner may be required to improve drainage points of entry to the drainage channel from portions of the property developed in the future. Owner may at owner's option elect to further improve the drainage channel so that the surface of the property now occupied by the drainage channel is available for development by owner. Construction will be in accordance with plans approved by the City. Upon satisfactory completion of owner's responsibilities under this agreement, the City will impose no additional requirements on Broadbent Development Company for improvements of the drainage channel or City property as a condition for approval of future developments except as provided in this

Agreement. The City will have all future responsibility for maintenance of the drainage channel, the outfall structure at the west end of the drainage channel, and the rundown channel at the northeast corner of the detention pond.

BROADBENT DEVELOPMENT COMPANY
A DELAWARE CORPORATION

BY_____

ATTEST:

_____
Secretary

REVIEWED & APPROVED BY THE
LEGAL DEPARTMENT:

_____
Assistant City Attorney

_____
Frank A. Kleinhenz
Chief Administrative Officer
for City of Albuquerque

_____
Charles M. Easterling
Princ. Asst. City Eng./Hydrology

ACKNOWLEDGEMENTS

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me by _____ _____, on this _____ day of _____, 1982.

_____
Notary Public

My Commission Expires:

_____

STATE OF NEW MEXICO)
SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me by _____ _____, on this _____ day of _____, 1982.

_____
Notary Public

My Commission Expires:

_____