HYDROLOGY K23/D11 5 PLANS

K23/D11

5 Plans

CITY OF ALBUQUERQUE, NEW MEXICO
CITY ENGINEER'S OFFICE

MEMORANDUM - October 25, 1978

TO: Bruno Conegliano, Asst. City Engineer-Hydrology
FROM: C. D. Sheppard, Acting City Engineer CDS
SUBJECT: MEETING

At 8:15 A.M. on November 1, 1978 the C.A.O. will talk to all personnel in the Hydrology Section regarding the Mayor's tax trade in Room 726. Please insure that all your personnel are there promptly at 8:15.

CDS/tl

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

January 15, 1979

Mr. Rip Orr
Acting Director of Public Works
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Temporary Construction of the Upper Lomas Channel

Dear Mr. Orr,

In the fall of 1978, on behalf of our clients who are developing Daskalos Heights Subdivision and Ciudad Vista Subdivision, Phase III, we attended a meeting with city staff to discuss drainage report approvals for the two projects. At that meeting it was decided that the two subdivisions could develop totally if afforded the protection offered by excavating the Upper Lomas Channel as specified on the City of Albuquerque Plans for the facility and by constructing a similar facility within and adjacent to the east boundary of the Daskalos Project to divert waters to the north and south. Waters diverted to the south would discharge into the temporary channel east of City View Estates Unit D, approved in 1975. Waters diverted to the north would be intercepted by that portion of the Upper Lomas Channel that was to be excavated in the Daskalos project. It was felt by us, and apparently by all of those that were in attendance, that this course of action offered reasonable protection to the developments until the final construction of the Upper Lomas Channel was achieved.

Subsequently, the above channels were excavated by the developer of Ciudad Vista Phase III, and they have been proceeding with final construction of subdivision improvements and the building of homes. However, now the concepts resulting in the furtherance of the Ciudad Vista project are being questioned, and the sign-off of plans for the Daskalos project is being delayed. The question appears to evolve around the concept of reasonable protection, as previously discussed, compared to ultimate 100 Year Storm protection that will be supplied by the Upper Lomas Channel's ultimate construction. I have now been requested to supply a letter that states 100 Year Storm protection will be provided for the Daskalos project by the now existing earthen improvements. I am prepared to comply with the request and that is the purpose of this letter. However, I feel it is important not to lose sight of the overall drainage picture in the area and the importance of the Upper Lomas Channel.

The earth Channel constructed as a portion of the Upper Lomas Channel will provide 100 Year Storm protection to the Daskalos project. Until the Upper Lomas Channel is extended to the U-Hill, it will carry approximately one-half the flows to the north as its anticipated 100 Year flow

rate. An earthen section will carry approximately one-half the flow as an equivalent concrete lined section. Therefore, 100 Year protection will be provided by the existing earthen facility.

The remainder of the flows that will in the future be intercepted by the Upper Lomas Channel presently flow to the south and intercept the east boundary of City View Estates Unit D (Pleasant Hills) where a temporary channel has been constructed for their interception.

The real problem occurs on Copper, where historically flows have converged. Without the construction of the Upper Lomas Channel to its terminal location at the U-Hill and without the construction of the Copper Channel, this area will be the focal point of serious drainage problems. Private contributions have been offered for the construction of portions of both of these facilities since 1975 and 1976. And yet the inability to proceed with the overall drainage program in the area has eroded the worth of the private sector contributions, seen tremendous escalations in costs for the remainder of the system and left us with residual problems like we are discussing in this letter. Rip, if there is anything I can do to reconstruct the history of commitments in the private sector that would aid the overall program, I would be glad to help.

Thank you for your attention to this problem and I hope that my response will allow the signing of the plans for Daskalos Heights.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Bruno Conegliano
Pete Daskalos

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

MAYOR
David Rusk

January 15, 1979

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

Re: Pete Daskolos Subdivision

Dear Mr. Emory:

In reply to your letter dated January 10, 1979, I am reaffirming the indications given to Mr. Ron R. Bohannan that the engineer must supply adequate supporting information demonstrating the protection of the proposed subdivision from a 100 year flooding occurrence. I make here reference to Paragraph B6 and 7 of Section 1910.3, Flood Plain Management Criteria for Flood Plain Areas Federal Register Volume 41, No. 207, with which the City of Albuquerque must comply in the approval of new subdivisions. If you have any further questions, please do not hesitate to contact me.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/fs

cc - Rich Leonard
Dick Heller
Rip Orr
Drainage File

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

January 10, 1979

Mr. Bruno Conegliano
City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
JAN 11 1979
CITY ENGINEERS

RE: Pete Daskalos Subdivision

Dear Mr. Conegliano:

In accordance with your conversation with Ron R. Bohannan, the following items have been addressed:

1. The sheet containing the location and dimension of the upland diversion channel had been left out. This sheet answers a majority of your questions. This channel is entirely on Pete Daskalos land and provides drainage for Lots 15 and 16, Block 3. It also accepts upland flow and diverts the flow to the north and to the south. At the south it is met by the channel dug for Coda Roberson in City View Estates.

2. At present there is a 15' utility and drainage easement that runs along the west side of Lot 7, Block 2 for draining the land of Elmer Sproul.

3. The subdivision will be protected by the temporary drainage ditch, please refer to the letter dated August 9, 1978, from Mr. Rip Orr stating that building permits can be issued when the temporary drainage channel is completed by the developer.

The construction of the upper Lomas Diversion is going to bid in the latter part of January, 1979. Mr. Conegliano has indicated the need for riprap at the junctions of arroyos which drain into the interim drainage plan. This will do two things which will burden both the city and the developer with unnecessary cost; (1) the cost of the placement of the riprap will be at the developer's expense, (2) the cost of the removal of the riprap will be at city expense during construction of the upper Lomas Diversion.

The above items were discussed with Ron R. Bohannan on January 5, 1979, as well as the fact that these items would not hold up the signing of the plan set. We feel that these items have been addressed and we would like to have the plan set signed as soon as possible.

If you have any questions, please contact Ron R. Bohannan or me at this office.

Sincerely,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Mr. Dick Heller
Mr. Pete Daskalos

RRB/kb
Job No. 78-017

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

Rec.

October 12, 1978

Mr. Bruno Conegliano
Assistant City Engineer-Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Pete Daskalos Heights Subdivision

Dear Mr. Conegliano:

Transmitted herewith are two (2) prints of the plan and profile for the Scenic Drive channel adjacent to the Daskalos Subdivision. These prints are being submitted upon your request, and reflect all the information required.

If there are any questions regarding this matter, please contact this office.

Sincerely,

Michial M. Emery, P.E.
Vice President

Enclosure

IJP/mna
Job No. 78-017

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

AUG 11 1978

MAYOR
David Rusk

August 9, 1978

Mr. Pete Daskalos
5321 Menaul Boulevard NE
Albuquerque, New Mexico 87110

Subject: PETE DASKALOS HEIGHTS ADDITION
SECTION 23, T10N, R4E, N.M.P.M., June 1978

Dear Mr. Daskalos:

This is to inform you that, when a temporary drainage channel is completed by the private sector in the right-of-way of the proposed Upper Lomas Drainage Channel (in accordance with plans and specifications prepared by Bohannan-Huston, Inc., for that temporary channel), this department will not object to the issuance of building permits within the referenced Daskalos subdivision.

Sincerely yours,

H. R. Orr, Jr.
Acting Director of Public Works

HRO:rs
cc: Mr. Herbert M. Denish, Herbert M. Denish & Assoc., Inc.
Mr. Elmer Sproul, Sproul Investment Corporation
Mr. C. D. Sheppard, Acting City Engineer

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

July 12, 1978

RECEIVED
JUL 17 1978
CITY ENGINEERS

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Drainage Reports for Los Cuadros, Pete Daskalos Heights Addition, Bear Canyon Estates, and Lot 126 in Kachina Hills Unit I

Dear Mr. Kimmick:

The referenced drainage reports have been in for review by the City for several weeks. Los Cuadros was submitted on April 26, 1978. At the request of Mr. Conegliano, a water surface profile was determined for the Embudito Arroyo adjacent to Los Cuadros and submitted to the City on June 28, 1978. The Daskalos Drainage Report was delivered to the City on February 20, 1978, and a subsequent letter responding to Mr. Coneglianos comments was sent out on June 15, 1978. Bear Canyon Estates was submitted on April 20, 1978, and no response has been received. Lot 126 was delivered on May 18, 1978; there has been no reply.

In order to expedite comments on these reports we desire to meet with you at your office on Wednesday, July 19, 1978, at 3:00p.m., please advise us if another time would be more appropriate.

We appreciate your cooperation in this matter and regret the necessity for calling another meeting.

Sincerely,

Michial M. Emery

Michial M. Emery
Vice President

MME/kb
Job No. 77-231
78-018
78-050
78-085

Bruno —
Please attend.
L.

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

June 15, 1978

Mr. Bruno Conegliano
Assistant City Engineer
Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Daskalos and Limestone Hill Drainage Report

Dear Mr. Conegliano:

The following comments are made in response to your review letter dated April 12, 1978, for the above-referenced Drainage Report.

Location of the nine lots, within Mr. Sproul's property, at the top of Limestone Hill are shown on the attached sheet. This layout has been approved by the Environmental Planning Commission. Due to the steep grades and rock surface, development on the hill will not alter the natural drainage patterns or amounts. A preliminary investigation has been made to determine the alignment of the access road into this area. The bar ditch on Plate 2 represents the north edge of this future roadway. Since the hill is predominately limestone, there should be little or no problem with silt entering Daskalos Drive from the proposed bar ditch. Construction of a desilting basin, at this location or at the northwest property line of the Daskalos Subdivision, does not seem warranted.

The watershed divide between Basins 3c and 5 have been redefined. Total run-off from Basin 3c is now calculated to be 13.7 CFS (see attached drawing) of which 5.4 CFS enters Daskalos Drive in the bar ditch and the remaining portion flows into the 10-foot wide drainage easement at the west side of the subdivision. Developed run-off from Basin 5 equals 18.6 CFS (see attached drawing). A bar ditch will be constructed on the east side of and adjacent to the rear lot lines of Lot 7 through 20 and Block 2 of Cuidad Vista Subdivision. This bar ditch will carry the run-off southward adjacent to Lots 7, 8, and 9 and northward adjacent to Lots 10 through 20. This flow presently exists and no action by the developer is anticipated.

At such time, as the upper Lomas channel is built, a drainage easement will be constructed north from Daskalos Drive into the channel which will carry the north portion of Basin 3c and a portion of Basin 6. The remainder of Basin 6 will sheet flow off the hill to the channel.

Cremans Inc.

Enclosed with this letter is a copy of the proposed grading plan. This plan illustrates the use of back yard ponding and is considered a more economical solution to the drainage problem than installation of a 10-year developed run-off storm sewer.

Also enclosed is a calculation demonstrating the capacity of Turner Drive to be approximately 112 CFS. Compared with the 58.6 CFS from the 40-foot drainage easement between Lots 5 and 6 in Cuidad Vista, Block 2, this seems to be more than adequate.

It is desired to leave the drainage swale and desilting pond on the west side of Scenic Drive, as shown in Plate 2, with the modification that the south end of the swale would be extended approximately 250-feet to protect the lots in Soula Drive cul-de-sac from up-land flows. The swale and desilting pond would be removed when Scenic Drive is constructed in its final form.

If you have any questions, please do not hesitate to contact me or Mr. Ray Macy of this office.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosures

cc: Mr. Elmer Sproul
Mr. Pete Daskalos

RM/js
Job No. 78-017

EXISTING CAPACITY OF TURNER DRIVE
WITHIN CIUDAD VISTA SUBDIVISION.

EXISTING SLOPE = .010 FT/FT
STREET WIDTH (F/F) = 40'
CROWN = 5"
MANNINGS n = .015
CURB HEIGHT = 8"

CAPACITY = 112 CFS
VELOCITY = 5.9 FPS

PROJECT NAME DASKALOS SUB'N SHEET 1 OF 1
PROJECT NO. 78-017 BY RWM DATE 6/15/78
SUBJECT DRAINAGE CH'D DATE

Nick
Emil
Return to me
Duane
6-2-78
Duane
I did this in light of planning activities
Grandes Hills

M. DENISH AND ASSOCIATES, INC.
Consultants to Developers

Herbert M. Denish

June 1, 1978

HAND-DELIVERED

RECEIVED
JUN 01 1978
CITY ENGINEERS

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Approval of development within Phase III of Ciudad Vista (19 lots)

Dear Mr. Kimmick:

This letter confirms our meeting of May 31, 1978 at which time we reviewed the drainage issues and its relationship to properties owned by American Service Corporation known as Ciudad Vista Phase III.

Attached you will find a copy of an amended plat of Ciudad Vista revised March 27, 1974. I have circled in orange those 19 lots which you released for development during our meeting. As we also discussed, American Service Corporation will provide temporary channel improvements through Ciudad Vista.

I want to thank you for your cooperation in this matter, and hopefully by working together we can start construction of the Lomas channel.

Sincerely yours,

Herbert M. Denish

HMD:kabc
Enclosure

cc: Ken Conner, American Service Corp.
cc: Mike Emery, Bohannan-Huston, Inc.

Post Office Box 2001 / Albuquerque, New Mexico 87103 / Telephone (505) 842-6461

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

April 12, 1978

Mr. Michial M. Emery
Bohannan-Huston, Inc.
4125 Carlisle Blvd., NE
Albuquerque, New Mexico 87107

RE: #1 Land of Elmer Sproul

Dear Mr. Emery:

An indication is given that nine lots will be established on this land, but no pattern of development is indicated. Due to the access road (roads?) and residential site location the runoff flow and pattern will be altered. Such modification and its significance must be defined in the drainage report for the report to be acceptable. More detailed comments regarding the information supplied are as follows:

Basin 5 - inaccurately defined. Watershed divide starts from the peak and ends at the property line between lots 9 & 10, block 2, Ciudad Vista Subdivision, hence an incorrect drainage area was estimated. No explanation is given for Q undeveloped = 21.6 cfs., Q developed = 8.4 cfs. No indication on how the runoff will be handled and conveyed to the Lomas Channel while protecting lots 10 through 21, block 1, Ciudad Vista Subdivision.

Basin 3c - bar ditch into Daskolos Dr. must have a desilting basin before outfalling onto a public street. The same concept applies to the swale along the northwestern property line of Daskolos Subdivision. Incidentally the topography makes me question whether the 2 ft. high retaining wall would be adequate particularly along the two lots at the north end of the Oro Real cul-de-sac. Again the question of the protection of the lots in block 2 of Ciudad Vista must be considered.

Basin 6 - whatever development takes place, no sheet flow

can be allowed to discharge in uncontrolled fashion into the diversion channel.

RE: #2 - Land of Pete Daskolos

The more typical dimensions of the lots seem to be 60' x 130' rather then the indicated 75 x 110 feet, but even with these dimensions I cannot see how back lot ponding can be accomplished with 10 - 12 ft. drop in elevation from back to front property line. In particular, a substantial retaining wall would have to be constructed along the west side of the proposed Scenic Drive.

Mechanism are available for the waving of parts of the requirements stipulated in the AMAFCA Resolution when particularly adverse conditions are encountered. In this case I would recommend the collection of the 10 yrs. developed runoff into a storm sewer, to be carried through Turner Dr. into the Lomas Channel. This approach would be particularly desirable in view of the fact that the Turner Dr. was not necessarily designed with the anticipation that substantial flows would have to be conveyed to the Lomas Channel. Incidently this observation points out the need to assess, in the drainage reports the impact of new development on the existing facilities downstream and the congruence with the design assumptions used when the downstream facilities were planned.

In regard to the proposed swale in Scenic Drive. I believe that this drainage structure needs to be located to the east of the drive (including the desilting basin) with only a minor complementary interceptor on the west side. A provision must also be made to intercept the offsite flow that would otherwise enter the two easternmost lots fronting the cul-de-sac of Soula Dr.

The questions above need to be answered satisfactorily before approval to the drainage scheme will be granted. Further the contracts for the construction of the Upper Lomas Channel will have to be executed before the plats for these subdivisions will be signed.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

cc; Jim Smith
V.M. Kimmick
Drainage file

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

April 12, 1978

Mr. Michial M. Emery
Bohannan-Huston, Inc.
4125 Carlisle Blvd.,NE
Albuquerque, New Mexico 87107

RE: #1 Land of Elmer Sproul

Dear Mr. Emery:

An indication is given that nine lots will be established on this land, but no pattern of development is indicated. Due to the access road (roads?) and residential site location the runoff flow and pattern will be altered. Such modification and its significance must be defined in the drainage report for the report to be acceptable. More detailed comments regarding the information supplied are as follows:

Basin 5 - inaccurately defined. Watershed divide starts from the peak and ends at the property line between lots 9 & 10, block 2, Ciudad Vista Subdivision, hence an incorrect drainage area was estimated. No explanation is given for Q undeveloped = 21.6 cfs., Q developed = 8.4 cfs. No indication on how the runoff will be handled and conveyed to the Lomas Channel while protecting lots 10 through 21, block 1, Ciudad Vista Subdivision.

Basin 3c - bar ditch into Daskolos Dr. must have a desilting basin before outfalling onto a public street. The same concept applies to the swale along the northwestern property line of Daskolos Subdivision. Incidentally the topography makes me question whether the 2 ft. high retaining wall would be adequate particularly along the two lots at the north end of the Oro Real cul-de-sac. Again the question of the protection of the lots in block 2 of Ciudad Vista must be considered.

Basin 6 - whatever development takes place, no sheet flow

can be allowed to discharge in uncontrolled fashion into the diversion channel.

RE: #2 - Land of Pete Daskolc

The more typical dimensions of the lots seem to be 60' x 130' rather then the indicated 75 x 110 feet, but even with these dimensions I cannot see how back lot ponding can be accomplished with 10 - 12 ft. drop in elevation from back to front property line. In particular, a substantial retaining wall would have to be constructed along the west side of the proposed Scenic Drive.

Mechanism are available for the waving of parts of the requirements stipulated in the AMAFCA Resolution when particularly adverse conditions are encountered. In this case I would recommend the collection of the 10 yrs. developed runoff into a storm sewer, to be carried through Turner Dr. into the Lomas Channel. This approach would be particularly desirable in view of the fact that the Turner Dr. was not necessarily designed with the anticipation that substantial flows would have to be conveyed to the Lomas Channel. Incidently this observation points out the need to assess, in the drainage reports the impact of new development on the existing facilities downstream and the congruence with the design assumptions used when the downstream facilities were planned.

In regard to the proposed swale in Scenic Drive. I believe that this drainage structure needs to be located to the east of the drive (including the desilting basin) with only a minor complementary interceptor on the west side. A provision must also be made to intercept the offsite flow that would otherwise enter the two easternmost lots fronting the cul-de-sac of Soula Dr.

The questions above need to be answered satisfactorily before approval to the drainage scheme will be granted. Further the contracts for the construction of the Upper Lomas Channel will have to be executed before the plats for these subdivisions will be signed.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

cc; Jim Smith
V.M. Kimmick
Drainage file

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

Bruno

RECEIVED
FEB 21 1978
CITY ENGINEERS

February 20, 1978

Mr. V. M. Kimmick
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Dear Mr. Kimmick:

Enclosed for your review and approval is one copy of the drainage report for the Sproul property and Daskalos property.

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

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Bruno Conegliano, Assistant City Engineer, Hydrology
Mr. Pete Daskalos
Mr. Elmer Sproul

sh
Job No. 78-017

Cremans Inc.

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
February, 1978

BOHANNAN-HUSTON INC.

4125 CARLISLE BOULEVARD, NORTHEAST, ALBUQUERQUE, NEW MEXICO 87107 (505) 881-2000

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
February, 1978

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

DRAINAGE REPORT

FOR

LAND OF PETE DASKALOS

AND

LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

PREPARED FOR

PETE DASKALOS
5321 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

AND

ELMER SPROUL
5115 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

PREPARED BY

BOHANNAN-HUSTON, INC.
4125 Carlisle Blvd., N.E.
Albuquerque, New Mexico 87107

STATE OF NEW MEXICO
MICHIAL M.
EMERY
No. 5194
REGISTERED PROFESSIONAL ENGINEER

MICHIAL M. EMERY, P.E.
N.M.P.E. NO. 5194

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APPENDIX

CALCULATIONS

PLATES

PLATE 1

PLATE 2

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

PURPOSE

The purpose of this report is to examine the existing drainage conditions affecting the study parcels and to make recommendations for the development of the parcels so that the provisions of the 1972 AMAFCA Drainage Resolution shall be met for 100-year-frequency storm conditions.

PROJECT LOCATION AND DESCRIPTION

The Daskalos property consists of approximately 25 acres in Northeast Albuquerque, bounded by Ciudad Vista Subdivision on the west, City View Estates on the south, the Sproul property on the north, and the proposed Scenic Drive on the east. The proposed development consists of 78 R-1 lots. Typical lot size is 75'x110', and single-family dwellings averaging 2,400 sf are expected.

The Sproul property is approximately 12 acres bordered by the Daskalos property on the south, by the proposed Upper Lomas Channel on the north, and by Ciudad Vista Subdivision on the west. A development consisting of 9 custom lots is proposed for the parcel.

UNDEVELOPED HYDROLOGY

The soil is primarily decomposed granite with several large outcroppings of rock. The Sproul property is largely such outcroppings. Rocky areas are shaded on Plate 2. A runoff

factor of C=0.90 was used for rocky areas in undeveloped condition. Calculations are provided in the Appendix.

Construction of the Upper Lomas Channel will be under way before commencement of construction on the study parcels. This will eliminate all but the immediate upland runoff contributions for the parcels.

Drainage for the Daskalos property is defined in four basins as shown on Plate 1. Basin 3C is actually on Sproul property but contributes 10.7 cfs as upland runoff to the Daskalos property. A 100-year storm releases approximately 65.5 cfs from the Daskalos property and its upland basins in undeveloped condition. The existing outlets are at Oro Real Drive and the south property line, proposed Marquette Drive at the west property line, and a 40-foot drainage and utility easement connecting the parcel to Ciudad Vista Subdivision. These three points will be retained as release points for developed drainage.

The Sproul property, in addition to its contribution to Daskalos runoff, contains two basins, Basin 5 and Basin 6, shown on Plate 1. Due to the rocky and steep nature of the property, the 9.5 acres release approximately 41 cfs to the north and west.

DEVELOPED RUNOFF

Development on the study parcels will be single-family residential. Lots that occur on rock outcroppings will not be ponded since "C" development on already hardened surfaces does not increase the runoff. These lots are shaded on Plate 2.

All other lots will pond runoff from the center of the roof to the back yard. Runoff for ponded lots was computed using an

accepted method of assuming that landscaped areas do not contribute to the storm peak and assigning a runoff factor C=1.0 to all hardened surfaces. This applies to 71 of 78 lots on the Daskalos property.

Upland runoff will be intercepted by a temporary swale and desilting basin in the Scenic Drive right-of-way. The desilting basin will be constructed with an outflow weir located to release desilted upland flows into a 10-foot drainage easement and onto Daskalos Drive. Details regarding the swale and basin are provided in the Appendix and on Plate 2. As Scenic Drive is completed, a dip section will be constructed to release flows into the 10-foot drainage easement.

Construction of the swale along Scenic Drive and development of the Daskalos property will redefine the natural basins 1, 2, and 3. The majority of the development will drain as Basin 3, whose release point is a 40-foot drainage and utility easement at the west property line. This easement coincides with a 40-foot easement between Lots 5 and 6 of Block 2 in the Ciudad Vista Subdivision. The easement will release flows onto Turner Drive with turning vanes to direct the flow. This basin definition and release point serve the advantage of reducing the amount of runoff released at the Turner Drive-Marquette Drive intersection and at Oro Real and the south property line where street capacities are less. To insure this flow pattern, waterblocks will be constructed on Marquette Drive and Oro Real Drive as shown on Plate 2.

Drainage on the Sproul property will remain natural with the exception of a bar-ditch type swale along the proposed private drive to direct half of Basin 3C flows onto Daskalos Drive.

The remaining 5.4 cfs from Basin 3C will travel west along a 2-foot high retaining wall at the Daskalos north property line to a 10-foot drainage easement at the Daskalos west property line, which will conduct it to the release point for Basin 3.

Ten-foot drainage easements along the Daskalos west property line will conduct flows from Basin 4 to Basin 2 and Basin 3 release points as shown on Plate 2.

Total developed runoff for the Daskalos property is approximately 62.1 cfs for a 100-year storm as compared to 65.5 cfs in the undeveloped condition.

Developed runoff for the Sproul property, Basins 5 and 6, remains at approximately 41 cfs, its undeveloped rate for a 100-year storm.

CONCLUSION

The development proposed for the Sproul property will not increase runoff for the 100-year-frequency storm. No ponding is required for this development.

Development of the Daskalos property with the recommended drainage improvements will not increase the 100-year storm runoff. Due to the computed decrease in runoff, eight additional lots may be developed without ponding. Developed runoff would then equal undeveloped runoff for the 100-year storm.

RECOMMENDATIONS

1. Construct a temporary swale and desilting basin with weir in the Scenic Drive right-of-way as shown on Plate 2 and described in the Appendix.

2. When Scenic Drive is completed, a dip section should replace the desilting basin and weir.

3. Construct 10-foot drainage easements on the Daskalos property in the locations shown on Plate 2.

4. Construct waterblocks on Marquette Drive and Oro Real Drive as shown on Plate 2.

5. Provide back yard ponding from the centerline of roofs on at least 63 lots of the Daskalos development.

6. Construct a curb opening in the Oro Real Drive cul-de-sac and a drainage easement in the 40-foot drainage and utility easement as shown on Plate 2.

7. Construct a bar-ditch type swale along the south edge of the private drive on the Sproul property to release flows into the Daskalos Drive cul-de-sac.

8. Construct 2-foot high retaining wall along the Sproul-Daskalos property line from Daskalos Drive to the Daskalos west property line as shown on Plate 2.

APPENDIX

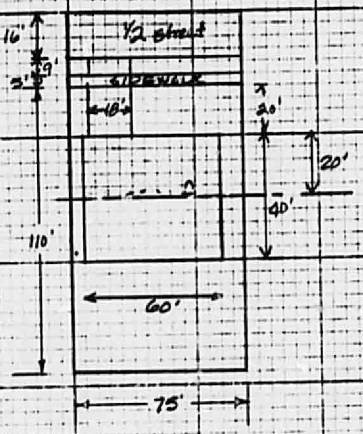
BASIN		UPLAND	INTERIOR	
1	AREA	2.02 acre	4.58	
	L = LENGTH	400 ft	1300	
	ΔH	36 ft	86	
	S = SLOPE	9.0%	0.62	
	B = GROUND FACTOR	1.8		
	$T_c = \text{Log}^{-1}[.3641 B + .3854 \text{Log}(L) - .191 \text{Log}(S) - .8673]$	12.85 min	21.5 min	
	$I = \frac{189}{25+T_c}$	4.99	4.06	
	C factor	0.35	0.35	
	Q = CIA	3.5 cfs	5.8 cfs	
2	AREA	1.89 ac	(2) 6.6 ac	(4) 1.9
	L	300'	1060'	200'
	ΔH	34'	78'	55'
	S	11.3%	7.36%	27.5%
	B	1.8	1.8	1.8
	T_c	11.0 min	19.47 min	10 min
	I	5.25 in/hr	4.25	5.40
	C	0.35	0.35	0.90 (est.)
	Q	3.6 cfs	12.5 cfs	6.8 cfs

PROJECT NAME DACKALOS
PROJECT NO. 78-017
SUBJECT UNDEVELOPED RUNOFF
SHEET ____ OF ____
BY JLF DATE 2/6/78
CH'D ____ DATE ____

BASIN		UPLAND		INTERIOR	
		b	c		
3	Area	4.60	2.48	11.77	
	L	400	650'	920'	
	ΔH	28'	82	70'	
	S	7%	13%	8%	
	B	1.8	1.8	1.8	
	Tc	13.5	14.41	18.13	
	I	4.91	4.80	4.38	
	C	.35	.90 (rock)	.35	
	Q	7.90	10.7	18.2	← TOTAL 65.3 cfs
5	A			4.92	
	L			650	
	ΔH			107	
	S			16.5%	
	B			1.8	
	Tc			13.75	
	I			4.43	
	C			0.90 (rock)	
	Q			21.6 cfs	
6	A			4.47 ac.	
	L			650	
	ΔH			87	
	S			13%	
	B			1.8	
	Tc			14.41 min	
	I			4.80	
	C			0.90 (rock)	
	Q			19.4 cfs	

PROJECT NAME Dove Elms
PROJECT NO. 78-017
SUBJECT UNDEVELOPED RUNOFF
SHEET 2 OF
BY WJP DATE 2/6/78
CH'D DATE

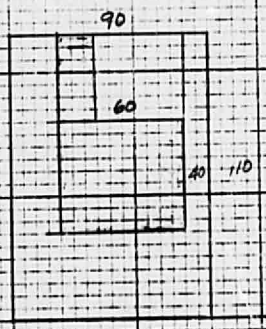
TYPICAL LOT



16 x 75 = 1200
18 x 9 = 162
5 x 75 = 375
18 x 20 = 360
20 x 60 = 1200
3297 ft²

@ C = 1.0

TYP. LOT IN BASIN 2a (see Plate 2)



Primarily Rock

C = 0.90 undeveloped
4050 ft² .17
2400 ft² house .25
20x30 driveway .10
40x30 landscaping .05
270 ft² building
C development = 0.82

PROJECT NAME _____ SHEET _____ OF _____
PROJECT NO. _____ BY _____ DATE _____
SUBJECT _____ CH'D _____ DATE _____

Basin 1. 3297 ft²
$T_c = 10$ (minimum)
$I = 5.4$
$C = 1.0$
$Q = 0.41$ 1 lot

Basin 2. 7 lots x 3297 = 0.5330 (A) A = 1.4 ac
$T_c = 10$ $T_c = 10$ min
$I = 5.4$ $I = 5.4$
$C = 1.0$ $C = 0.83$
$Q = 2.9$ cfs $Q = 6.3$ cfs

Basin 3. A = (68 x 3297 SF) = 5.15 acres
L = 1800'
Δ = 80'
S = 4.4%
B = 0.77 68 lots
$T_c = 11.14$
I = 5.23
C = 1.0
Q = 26.92 cfs

$Q_{developed} = 29.7 + 11.0 + 0.41 + \underbrace{8.5 + 3.5 + 7.9 + 10.7}_{\text{upland}} = 62.1$

PROJECT NAME DASKALOS PROPERTY SHEET ____ OF ____
PROJECT NO. 78-017 BY JJS DATE 2/6/78
SUBJECT DEVELOPED RUNOFF CH'D ____ DATE ____

SWALE ALONG SCENIC DRIVE

To carry 15 cfs

Min. 8' bottom

2:1 Sideslopes

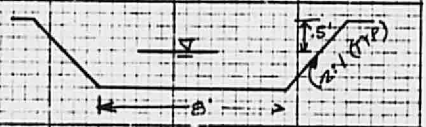
Solve for depth by Mannings Formula

channel slope 4.5% d = .8' V = 4.5 fps FR = 1.34

½% d = .75' V = 2.2 FR = .42

depth 1.25'

to allow .5' freeboard



DESILTING BASIN - SCENIC DR.

70' wide weir discharging 15 cfs → H = 0.7'

silt settling velocity 3"/min

Q_a = 10cfs

Settling time $\frac{0.70'}{12"/min} \times \frac{12"}{ft} = 2.1$ min

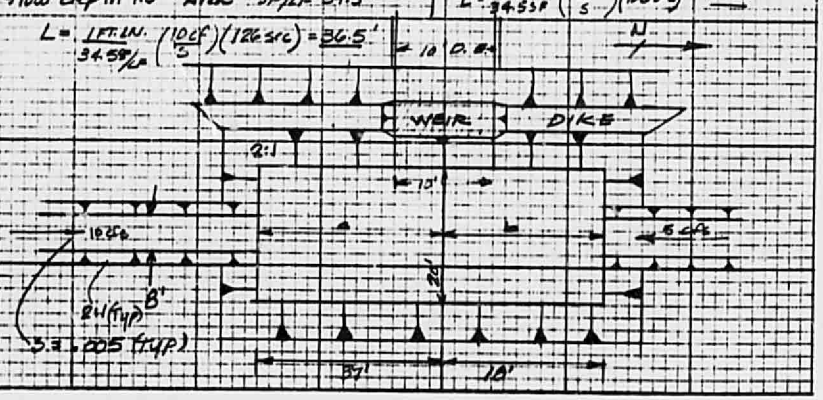
flow depth 1.5' Area 3'/LF 34.5

Q_b = 5 cfs

Settling time $\frac{0.70'}{3"/m} = 2.1$ min

$L = \frac{LF}{34.5 sf}\left(\frac{5cf}{s}\right)(126 sec) = 18.2'$

$L = \frac{LFT.IN.}{34.5 sf}\left(\frac{10cf}{s}\right)(126 sec) = 36.5'$



PROJECT NAME DACKALOS PROPERTY SHEET ____ OF ____

PROJECT NO. 78-017 BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

DRAINAGE REPORT

FOR

LAND OF PETE DASKALOS

AND

LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

PREPARED FOR

PETE DASKALOS
5321 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

AND

ELMER SPROUL
5115 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

PREPARED BY

BOHANNAN-HUSTON, INC.
4125 Carlisle Blvd., N.E.
Albuquerque, New Mexico 87107

STATE OF NEW MEXICO
MICHIAL M.
EMERY
No. 5194
REGISTERED PROFESSIONAL ENGINEER

Michial M. Emery

MICHIAL M. EMERY, P.E.
N.M.P.E. NO. 5194

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DEVELOPED RUNOFF	2
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APPENDIX

CALCULATIONS

PLATES

PLATE 1

PLATE 2

DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

PURPOSE

The purpose of this report is to examine the existing drainage conditions affecting the study parcels and to make recommendations for the development of the parcels so that the provisions of the 1972 AMAFCA Drainage Resolution shall be met for 100-year-frequency storm conditions.

PROJECT LOCATION AND DESCRIPTION

The Daskalos property consists of approximately 25 acres in Northeast Albuquerque, bounded by Ciudad Vista Subdivision on the west, City View Estates on the south, the Sproul property on the north, and the proposed Scenic Drive on the east. The proposed development consists of 78 R-1 lots. Typical lot size is 75'x110', and single-family dwellings averaging 2,400 sf are expected.

The Sproul property is approximately 12 acres bordered by the Daskalos property on the south, by the proposed Upper Lomas Channel on the north, and by Ciudad Vista Subdivision on the west. A development consisting of 9 custom lots is proposed for the parcel.

UNDEVELOPED HYDROLOGY

The soil is primarily decomposed granite with several large outcroppings of rock. The Sproul property is largely such outcroppings. Rocky areas are shaded on Plate 2. A runoff

factor of C=0.90 was used for rocky areas in undeveloped condition. Calculations are provided in the Appendix.

Construction of the Upper Lomas Channel will be under way before commencement of construction on the study parcels. This will eliminate all but the immediate upland runoff contributions for the parcels.

Drainage for the Daskalos property is defined in four basins as shown on Plate 1. Basin 3C is actually on Sproul property but contributes 10.7 cfs as upland runoff to the Daskalos property. A 100-year storm releases approximately 65.5 cfs from the Daskalos property and its upland basins in undeveloped condition. The existing outlets are at Oro Real Drive and the south property line, proposed Marquette Drive at the west property line, and a 40-foot drainage and utility easement connecting the parcel to Ciudad Vista Subdivision. These three points will be retained as release points for developed drainage.

The Sproul property, in addition to its contribution to Daskalos runoff, contains two basins, Basin 5 and Basin 6, shown on Plate 1. Due to the rocky and steep nature of the property, the 9.5 acres release approximately 41 cfs to the north and west.

DEVELOPED RUNOFF

Development on the study parcels will be single-family residential. Lots that occur on rock outcroppings will not be ponded since "C" development on already hardened surfaces does not increase the runoff. These lots are shaded on Plate 2.

All other lots will pond runoff from the center of the roof to the back yard. Runoff for ponded lots was computed using an

accepted method of assuming that landscaped areas do not contribute to the storm peak and assigning a runoff factor C=1.0 to all hardened surfaces. This applies to 71 of 78 lots on the Daskalos property.

Upland runoff will be intercepted by a temporary swale and desilting basin in the Scenic Drive right-of-way. The desilting basin will be constructed with an outflow weir located to release desilted upland flows into a 10-foot drainage easement and onto Daskalos Drive. Details regarding the swale and basin are provided in the Appendix and on Plate 2. As Scenic Drive is completed, a dip section will be constructed to release flows into the 10-foot drainage easement.

Construction of the swale along Scenic Drive and development of the Daskalos property will redefine the natural basins 1, 2, and 3. The majority of the development will drain as Basin 3, whose release point is a 40-foot drainage and utility easement at the west property line. This easement coincides with a 40-foot easement between Lots 5 and 6 of Block 2 in the Ciudad Vista Subdivision. The easement will release flows onto Turner Drive with turning vanes to direct the flow. This basin definition and release point serve the advantage of reducing the amount of runoff released at the Turner Drive-Marquette Drive intersection and at Oro Real and the south property line where street capacities are less. To insure this flow pattern, waterblocks will be constructed on Marquette Drive and Oro Real Drive as shown on Plate 2.

Drainage on the Sproul property will remain natural with the exception of a bar-ditch type swale along the proposed private drive to direct half of Basin 3C flows onto Daskalos Drive.

The remaining 5.4 cfs from Basin 3C will travel west along a 2-foot high retaining wall at the Daskalos north property line to a 10-foot drainage easement at the Daskalos west property line, which will conduct it to the release point for Basin 3.

Ten-foot drainage easements along the Daskalos west property line will conduct flows from Basin 4 to Basin 2 and Basin 3 release points as shown on Plate 2.

Total developed runoff for the Daskalos property is approximately 62.1 cfs for a 100-year storm as compared to 65.5 cfs in the undeveloped condition.

Developed runoff for the Sproul property, Basins 5 and 6, remains at approximately 41 cfs, its undeveloped rate for a 100-year storm.

CONCLUSION

The development proposed for the Sproul property will not increase runoff for the 100-year-frequency storm. No ponding is required for this development.

Development of the Daskalos property with the recommended drainage improvements will not increase the 100-year storm runoff. Due to the computed decrease in runoff, eight additional lots may be developed without ponding. Developed runoff would then equal undeveloped runoff for the 100-year storm.

RECOMMENDATIONS

1. Construct a temporary swale and desilting basin with weir in the Scenic Drive right-of-way as shown on Plate 2 and described in the Appendix.

2. When Scenic Drive is completed, a dip section should replace the desilting basin and weir.

3. Construct 10-foot drainage easements on the Daskalos property in the locations shown on Plate 2.

4. Construct waterblocks on Marquette Drive and Oro Real Drive as shown on Plate 2.

5. Provide back yard ponding from the centerline of roofs on at least 63 lots of the Daskalos development.

6. Construct a curb opening in the Oro Real Drive cul-de-sac and a drainage easement in the 40-foot drainage and utility easement as shown on Plate 2.

7. Construct a bar-ditch type swale along the south edge of the private drive on the Sproul property to release flows into the Daskalos Drive cul-de-sac.

8. Construct 2-foot high retaining wall along the Sproul-Daskalos property line from Daskalos Drive to the Daskalos west property line as shown on Plate 2.

APPENDIX

BASIN		UPLAND	INTERIOR	
1	AREA L = LENGTH	2.02 acre 400 ft	4.53 1300'	
	ΔH S = SLOPE B = GROUND FACTOR	36 ft 9.0% 1.8	86' 6.62	
	$T_c = \text{Log}^{-1}[.3641 B + .3854 \text{Log}(L) - .191 \text{Log}(S) - .8673]$	12.85 min	21.5 min	
	$I = \frac{189}{25 + T_c}$	4.99	4.06	
	C factor Q = CIA	0.35 3.5 cfs	0.35 5.8 cfs	
2	AREA L	1.89 ac 300'	(8) 6.6 ac 1060'	(4) 1.4 200'
	ΔH S B	34' 11.3% 1.8	78' 7.36% 1.8	55' 27.5% 1.8
	T_c I	11.0 min 5.25 in/hr	17.47 min 4.25	10 min 5.40
	C	0.35	0.35	0.9 (plastic)
	Q	3.5 cfs	12.5 cfs	6.8 cfs

PROJECT NAME DAN ALOS
PROJECT NO. 78-017
SUBJECT UNDEVELOPED RUNOFF
SHEET ____ OF ____
BY JLP DATE 2/6/78
CH'D ____ DATE ____

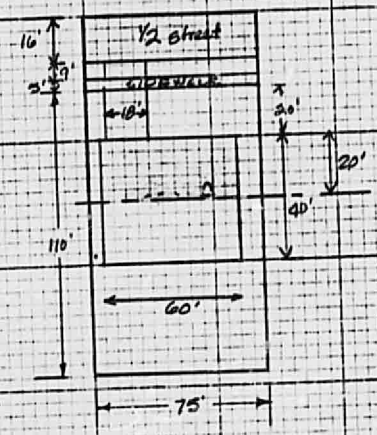
BASIN		UPLAND		INTERIOR	
		b	c		
3	Area	4.60	2.48	11.77	
	L	400	650'	920'	
	ΔH	28'	8.2	10'	
	S	7%	13%	8%	
	B	1.8	1.2	1.8	
	Tc	13.5	14.41	18.13	
	I	4.91	4.80	4.30	
	C	.35	.90 (rock)	.35	
	Q	7.90	10.7	18.2	← TOTAL 65.3 cfs
5	A			4.92	
	L			650	
	ΔH			107'	
	S			16.5%	
	B			1.8	
	Tc			13.75	
	I			4.88	
	C			0.90 (rock)	
	Q			21.6 cfs	
6	A			4.47 ac	
	L			650'	
	ΔH			87	
	S			13%	
	B			1.8	
	Tc			14.41 min	
	I			4.80	
	C			0.90 (rock)	
	Q			19.4 cfs	

PROJECT NAME [illegible] SHEET 2 OF

PROJECT NO. 78-017 BY J.P. DATE 2/6/78

SUBJECT UNDEVELOPED RUNOFF CH'D DATE

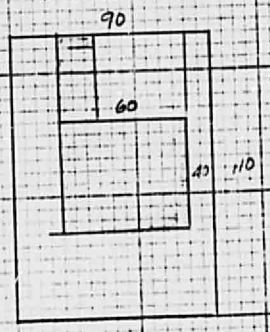
TYPICAL LOT



16 x 75 = 1200
18 x 9 = 162
5 x 75 = 375
18 x 20 = 360
20 x 60 = 1200
3297 ft²

@ C = 1.0

TYP. LOT IN BASIN 2a (see Plate 2)



Primarily Rocky

C = 0.70 undeveloped
4000 ft² 5 C 7
2400 ft² house 0.25
20x30 driveway 0.70
10x30 landscaping 0.15
700 ft² sidewalk
C average = 0.82

PROJECT NAME _____ SHEET _____ OF _____
PROJECT NO. _____ BY _____ DATE _____
SUBJECT _____ CH'D _____ DATE _____

Basin 1. 3297 ft²
$T_c = 10$ (minimum)
$I = 5.4$

$C = 1.0$ 1 lot
$C = 0.41$

Basin 2. 7 lots × 3297 = 0.530 ac (4) A = 1.4 ac
$T_c = 10$ $T_c = 10$ min
$I = 5.4$ $I = 5.4$
$C = 1.0$ $C = 0.83$
$Q = 2.9$ cfs $Q = 6.3$ cfs

Basin 3. A = (68 × 3297 SF) = 5.15 acres

L = 1300'
Δ = 37
S = 4.4%

B = 0.77 68 lots
$T_c = 11.14$
I = 5.23

C = 1.0

Q = 26.92 cfs

$Q_{Developed}$ = 29.7 + 10.0 + 0.41 + 3.5 + 3.5 + 7.9 + 10.7 = 62.1
upland

PROJECT NAME Dorado Property SHEET ____ OF ____
PROJECT NO. 78-017 BY JT. DATE 2/6/78
SUBJECT Developed Runoff CH'D ____ DATE ____

SWALE ALONG SCENIC DRIVE

To carry 15 cfs

Min. 8' bottom

2:1 Sideslopes

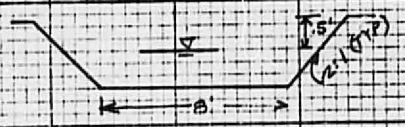
Solve for depth by Manning's Formula

channel slope 4.5% d = .8' V = 4.5 fps FR = 1.34

½% d = .75' V = 2.2 FR = .42

depth 1.25'

to allow .5' freeboard



DESILTING BASIN - SCENIC DR

70' wide weir discharging 15 cfs → H = 0.7'

silt settling velocity 4"/min

Q_a = 10cfs

settling time $\frac{0.70'}{4''/min} \times \frac{12''}{ft} = 2.1$ min

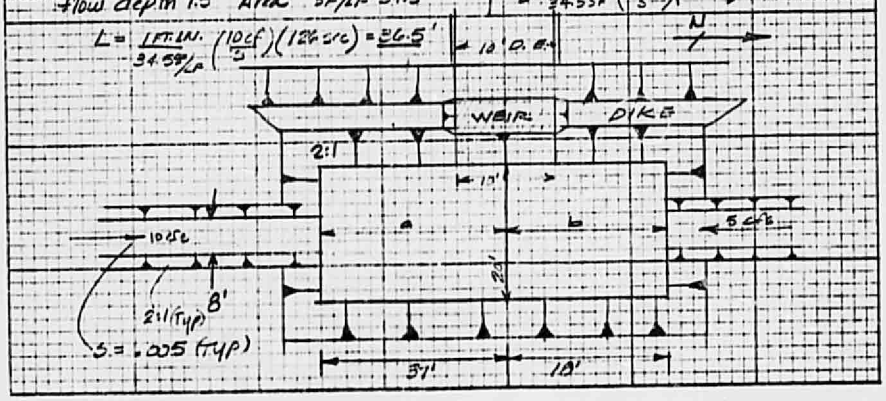
flow depth 1.5' Area 3'/LF 34.5

$L = \frac{1 ft/min}{34.5 ft^2/LF}\left(\frac{10 cf}{s}\right)(126 sec) = 36.5'$

Q_b = 5 cfs $\frac{0.70'}{.33'/m} = 2.1$ min

settling time

$L = \frac{1 LF}{34.5 ft^2}\left(\frac{5 cf}{s}\right)(126 sec) = 18.2'$



PROJECT NAME DAGGETT PROPERTY SHEET ____ OF ____

PROJECT NO. 78-011 BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____

BOHANNAN WESTMAN HUSTON & ASSOCIATES, INC.