LAGRIMA DE ORO

SUBDIVISION

F21- D32A

4 PLANS

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. F-21 DATE: 8/11/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: LAFFINA de Oro Subd

WHO	REPRESENTING
ATTENDANCE:	

FINDINGS:

1. DRAINAGE ~~PLAN~~ REPORT REQUIRED PER THE D.P.M.
2. CONTROLLED DISCHARGE REQUIRED FROM THE PROPOSED DEVELOPMENT BECAUSE OF INADEQUATE DOWNSTREAM CAPACITY.
3. ADDRESS THE STATUS OF THE SAD PROPOSED FOR THE AREA. FINANCIAL GUARANTEE MAY BE APPROPRIATE FOR DRAINAGE, UTILITIES AND STREET IMPROVEMENTS.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: _____ SIGNED: _____

TITLE: _____ TITLE: _____

DATE: 8/11/83 DATE: _____

TRINITY ENTERPRISES, INC.
TRINITY HOMES

Civil Engineers
Land Planners
Developers
Home Builders

9800 Lagrima de Oro Road N.E.
Albuquerque, New Mexico 87111
(505) 293-6904

October 14, 1983

RECEIVED
OCT 14 1983
CITY ENGINEER

C. Dwayne Sheppard, P.E.
Acting City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Lagrima de Oro, Unit 1
Letter of Agreement

Dear Dwayne:

Pursuant to our conversation of October 12, 1983, please find enclosed a draft copy of the Agreements and Letters of Credit for the subdivision infra-structure improvements for Lagrima de Oro, Unit 1.

I will contact you in the next few days to obtain your input as to these documents.

Thank you for your cooperation and early attention to this matter.

Sincerely,

TRINITY ENTERPRISES, INC.

Rick Squires
Vice President
RS:ksr
Enclosures

F21-D32A

Toffered A— for Review & Comment (2 agreements, one for H2O & San., one for paving — don't see one for Storm Drage, but don't know if needed)
10/17/83

Memo to File 10/27/83

From: Billy Gooksby

Subject: Lagrima de Oro Subd. (F21/032A)

Met with Rick Squires today. I told him that backyard ponding would not be allowed. He is therefore required to analyze the downstream capacities.

I also told him that crossing water on Eubank Blvd @ Doña Margarita Ave was not a good idea. He is going to investigate the capacity of the SD in Eubank.

A portion of the runoff may have to be directed down Doña Margarita Ave. whereby the downstream capacity of the street in the vicinity of Wyoming Blvd. will also have to be analyzed.

It was suggested to detain on-site as much as possible to reduce runoff rate, or to provide a community pond such that discharge to Lagrima de Oro could be routed back into the pond for a controlled discharge.

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 28, 1983

Mr. Rick Squires
Trinity Enterprises, Inc.
2104 San Mateo NE
Albuquerque, NM 87111

REF: CONCEPTUAL DRAINAGE PLAN FOR LAGRIMA DE ORO SUBDIVISION (F21-D32A)

Dear Mr. Squires:

To recap and document what we discussed in our meeting on October 27, 1983, I am forwarding the following comments:

1. Backyard ponding is not acceptable because the City has no means to enforce the maintenance or provision of these ponds.

2. On-site detention (front, side, roof or set-aside lot) should be provided if at all possible, unless downstream capacities can be quantified to justify free discharge.

3. Discharged flows that cross Eubank Boulevard to the west are strongly discouraged; therefore, the storm-sewer system on Eubank Boulevard needs to be analyzed for possible utilization.

4. If the capacity of the Eubank Boulevard system is not sufficient to accept all the contributing flows, then the watershed west of Eubank Boulevard to Wyoming Boulevard will need to be analyzed. The analysis is to include the general contribution from the basin, including the overflow from the subject site, the street capacities of Doña Margarita Avenue, Lagrima De Oro, Barranca Avenue, Gutierrez Road and the storm drain system on Wyoming Boulevard.

If you have any questions or comments regarding the comments, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby P.E.

Billy Goolsby
Civil Engineer/Hydrology

BG:mrk

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

LE COPY

November 1, 1983

Mr. Rick Squires
Trinity Enterprises, Inc.
2104 San Mateo Boulevard NE
Albuquerque, NM 87110

REF: CONCEPTUAL DRAINAGE PLAN FOR LAGRIMA DE ORO SUBDIVISION (F21-D32A)

Dear Mr. Squires:

You are hereby given conceptual approval for the above referenced plan.

This approval is contingent upon the provision of an inlet on the east side of Eubank Boulevard at the intersection with Doña Margarita Avenue to intercept the discharges from this specific site only.

The next submittal will be reviewed in accordance with the DPM and checklists; therefore, I suggest you refer to the checklist in the preparation of the next submittal.

Should you have any questions or comments regarding this response to our meeting on October 31, 1983, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

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

November 18, 1983

Mr. Bo K. Johnson
Trinity Enterprises, Inc.
2104 San Mateo Boulevard NE
Albuquerque, NM 87109

REF: GRADING AND DRAINAGE PLAN FOR LAGRIMA DE ORO SUBDIVISION (F21-D32A)

Dear Mr. Johnson:

The revised grading and drainage plan dated November 7, 1983, with the inclusion of the drop inlet on Eubank Boulevard is approved.

A copy of this approved plan along with the appropriate "Construction Within Public R/W" document will need to be included in the construction plans prior to building permit sign-off.

It is recommended that any future submittals are to be a complete package type to be reviewed in the normal process by city personnel.

If I can be of further assistance, please do not hesitate to contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

A DRAINAGE REPORT FOR THE REVISED PLAN

OF LAGRIMA DE ORO

(FORMERLY A SIX-BUILDING FOUR PLEX PROJECT)

UNIT REPLATTED AS A 17-UNIT PATIO HOME SUBDIVISION

RECEIVED

OCT 14 1983

ENGINEERING

F21-D32a

Prepared by: Trinity Enterprises, Inc.
2104 San Mateo Blvd., NE
Albuquerque, NM 87109
293-6904

Prepared for: The Lagrima de Oro Partnership
9800 Lagrima de Oro NE
Albuquerque, NM 87111

NMPE 5922

TABLE OF CONTENTS

TEXT	Page 1-4
DRAINAGE BASINS	Exhibit 1
SITE PLAN & DRAINAGE DETAILS	Exhibit 2
OFFSITE SURVEY-DRAINAGE STUDY	Exhibit 3
EUBANK BLVD. STORM DRAIN PLAN & PROFILE	Exhibit 4

I. GENERAL CONDITIONS

The original plat for Lagrima de Oro consisted of six, four-plex units and was approved on 11-19-81. Due to the high interest rates the product sold poorly and only one (1) unit was constructed and the project remained dormant for approximately eighteen (18) months.

At this point in time, it is intended to replat the remaining lands into seventeen (17) lots for the purpose of constructing affordable patio homes. These patio homes are not unlike the concept in Stonegate just north of this site.

The original concept in terms of drainage was approved as private ponds to be maintained by the home owners. Since that approval, the concept of individual ponds has not been found satisfactory by current drainage and would not be approved except in severe circumstances. This project, due to its unique shape, has rather deep lots and completely enclosed yards which would lend themselves very well to on-site ponding. With onsite ponding the downstream flows would be reduced and the subdivision would not suffer any more than the countless others that have been approved under this concept.

However, as this engineer understands current policy retention and detention of storm runoff is not required when the developed runoff is discharged into completed City improvements designed to carry such developed flow. It is the engineer's belief that this condition exists due to the unique location of this project.

Constructed just north of Montgomery and just east of Eubank, the proposed Lagrima de Oro Street drains west to Eubank. The street will slope at approximately three to four percent and carry the runoff from this project. The enclosed drainage sheet prepared for the earlier submittal shows the unique site and topography. The small drainage basin areas are evident as well as the high and low elevations of Eubank Blvd.

The adjacent ground drains to the Arroyo del Oso to the north or to Montgomery Blvd. to the south.

It warrants repeating that the only change in this drainage report from the earlier approved version is that the lot configuration has been revised to reflect a longer, thinner lot with room to pond in the rear yard.

II. EXISTING IMPROVEMENTS

At this time, street water from Lagrima de Oro Road enters Eubank Blvd., is diverted north in a proposed concrete cross cutter and travels roughly 100 feet when it reaches a depressed low area in Eubank across from Dona Margarita Avenue. On the west side of Dona Margarita Avenue, there are two existing catch basins that

collect water in this Eubank Blvd. depression. The main line for this storm drain system discharges water to the north into the Arroyo del Oso. It seems possible that an overflow condition exists at the intersection of Dona Margarita Avenue allowing high volume and intensity design flows to proceed westwardly down that aforementioned street. The enclosed drainage facility map indicates that the runoff would continue in Dona Margarita Avenue to Lagrima de Oro Road, turn again westwardly, and continue to the intersection of Lagrima de Oro Road and Piedra Negra where the flow again could split; the low flows turning southward into Montgomery and the larger intensity storm water continuing westwardly in Lagrima de Oro to La Barranca Avenue where it turns north to Gutierrez Road, where it turns west again discharging into Wyoming Blvd.

The purpose of this report is not to do a detailed intersection analysis at Lagrima de Oro Road and Piedra Negra Street. It is sufficient to say that the low flow waters entering Eubank and Lagrima de Oro should reach the existing catch basin system at Don Margarita Avenue. Any overflow will, without a doubt, proceed westwardly down the previously mentioned subdivision streets. The high volume flows will reach Wyoming Blvd.

Recently, major storm drain improvements have been made in Wyoming Blvd. Namely, Project No. 1637, widens Wyoming and provides for a series of catch basins along the east side of Wyoming Blvd. designed to eliminate an unusual flooding condition that had existed due to the runoff coming from the east.

The low flows in Lagrima de Oro Road will enter Montgomery at Piedra Negra and be collected in the series of sump catch basins located approximately at the intersections of La Barranca and Montgomery Blvd. This engineer has not experienced any flooding of Montgomery Blvd. at this point.

It is the purpose of this report and this engineer's understanding of present policy that the developed runoff from the proposed subdivision, when it is accepted into adequately sized permanent storm drain structures, no ponding will be required.

This last discussion of storm water routing offsite from this proposed subdivision shows that all surface flows terminate in completed public permanent storm drain systems.

III. ANALYSIS

The 2.6 acre site has been replatted to seventeen (17) lots with an average lot depth of 125' using a 20' front yard 65' deep building and 15' to the beginning of the pond, the remaining 17' could be constructed into a pond. (4' from the rear wall). Using 30' as

III. ANALYSIS (Cont.)

the width (again a minimum of 4' from the yard side fence) a potential of 17 x 30 or 510 sq. ft. exists as pond area. With a naturaly sloping rear yard created by previous grading a 2' deep pond is very possible and not offensive for a volume of 1020 cu. ft.

With all the runoff draining to the street the total discharge will be:

A = [illegible]5 acres

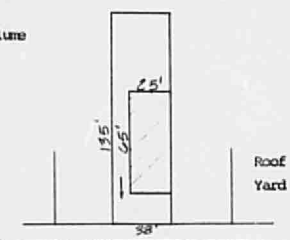
C =

i = [illegible] minute time of concentration

Q = CiA

or 0.43 x 5.8 x 2.7 = 6.6 cfs.

Runoff Volume



Runoff Factors
Roof 0.95
Yard 0.15
Roof A = 65 x 25 - 1625 sq. ft.
Yard A = 4370 sq. ft.
Total Area 5130

$$\frac{0.95 \times 1625 + 0.15 \times 4370}{5130} = 0.43$$

$V = \frac{2.6}{12} \times 0.43 \times 6$ hrs. = 478 cu ft

The 1020 cu. ft. is obviously sufficient to cover the volume required.

If all was discharged the flow was shown to be 6.6 cfs.

The natural runoff for the site would be 0.15 x 58 x 2.65 or 2.3.

The additional 4.3 cfs can well be handled by the two (2) existing catch basins on the west side of Eubank Blvd.

If ponding is allowed the flows,developed flows, would be on a much reduced area.

Q = 0.6 x 5.8 x 1.1 = 3.8 cfs. (included full street section)

The flows from remaining drainage areas are shown on the original report and the contour sheet is enclosed.

III. CONCLUSIONS AND RECOMMENDATIONS

It is intended and requested that this engineer be allowed onsite ponding in the replatting of the Lagrima de Oro subdivision due to the unique characteristics of the public improvements already

III. CONCLUSIONS AND RECOMMENDATIONS (Cont.)

installed.
In a worst case analysis, it is requested that there be allowed back yard pools to retain the developed flows with natural flows being discharged.

REVISED
ADDENDUM
to
LAGRIMA DE ORO
DRAINAGE
REPORT

As stated in the original report there exists a low point on the west side at Eubank Blvd. 100 feet north of Lagrima de Oro Street. This low point allows surface flows to cross Eubank and flows into the catch basin of Eubank and Montgomery.

As the enclosed survey data shows the south catch basin could best be described as on grade due to the fact that there is no elevation difference to build up any usable head. The north catch basin is a better sump condition. Both basins are single "C" types.

With a clogging factor at 0.5 due to the high undeveloped drainage basin the flow into the basins would at best be:

SUMP 4.0 cfs
GRADE 2.0 cfs

Any additional catch basin at the east curb of Eubank will be required to take the 11.2 cfs developed runoff from the Lagrima de Oro Subdivision.

The total flow in the existing 24" R.C.P. is then 17.2 cfs at a slope of 0.0044 ft/ft.

Check main 24" R.C.P.

Q= 17.2 cfs

$Q = AM\, S^{\frac{1}{2}}$ laterial into existing 24" main
AM-226.2 n - 0.013

$S^{\frac{1}{2}} = \frac{Q}{AM} = \frac{17.2}{226.2}$

$S = \left(\frac{17.2}{226.2}\right)^2 = 0.0058$ Friction slope just greater than main slope
h_f - 300 (0.0058 - 0.0044) - 0.42 There is sufficient core over pipe to account for this increase in head over pipe soffit.

Try 18" lateral into existing 24" main

$S^{\frac{1}{2}} = \frac{Q}{AM} = \frac{11.5}{106}$

$S = \left(\frac{11.5}{106}\right) = 0.0117$ ok laterial slope at 1.2%

S= 0.0117
Use 18" R.C.P. lateral

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NOV 1 0 1983
ENGINEERING

DRAINAGE REPORT REVISIONS

RUNOFF COEFFICIENT

Consider street
1150 lf x 30 = 34,500 sq. ft. - 0.79 ac
17 lot subdivision 87,050 sq. ft. = 2.00 ac

On each lot impervious surface
Roof 65 x 25 = 1625 sq. ft.
Driveway 30 x 20 600
2225 sq. ft. x 17 = 37,825

Parway (Pervious)
9' x 1125' = 10,125 sq. ft.

Existing Structure
141' x 138' = 19,460 sq. ft. - 0.45 ac
12,500 sq. ft. - roof + asphalt
6,950 landscaping

Total acres
Subdivision 2.00
Streets 0.79
Exist Four Plex 0.45

3.24 ac - 141,125 sq. ft.

Total impervious		Total pervious
		49,225 sq.ft.
Sub 2225' x 17'	37,825 sq. ft.	10,125
Street	24,500	6,950
Exist Structure	12,500	66,300
	74,834	1.522 ac
	1.718 ac	

Composite "C" Value

$$\frac{0.95\ (1.718) + 0.15\ (1.522)}{3.24}$$

$$"C_c" \quad \frac{1.632 + 0.228}{3.24}$$

C_c - 0.57

Q= 0.57 x 5.8 x 3.4

Q= 11.2 cfs

See revised pipe calculations.

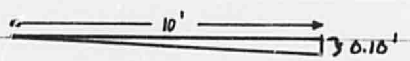
Lagrima de Oro Unit 1
Drainage Report Addendum #2

$$V = \frac{1.49}{A} R^{2/3} S^{1/2}$$

$N = 0.015$

$S = \frac{77.94 - 77.27}{200} = 0.00335$

SAY 10' COVERED WITH WATER FLOW



$A = \frac{10 \times 0.10}{2} = 0.5 \text{ ft}^2$

$R = \frac{A}{P} = \frac{0.5}{10.1} = 0.049$

$R^{2/3} = 0.1337$

$S = 0.00355$

$S^{1/2} = 0.057$

$V = \frac{1.49}{0.015}(0.049)(0.057)$

$V = 0.277$ FT./SEC.

$Q = VA$

$Q = 0.277 \times 10.1 = 2.8$ C.F.S.

AT FULL STREET FLOW – 21.5'

A = 21.5 × 0.21 = 4.51

WP = 21.7

A = 4.51

$R = \frac{4.51}{21.7} = 0.207$

$R^{\frac{2}{3}} = 0.35$

$V = \frac{1.49}{0.015}(0.35)(0.057) = 1.98$ FT./SEC.

$Q = VA = 1.98 \times 4.51 = 8.93$ C.F.S. – O.K.

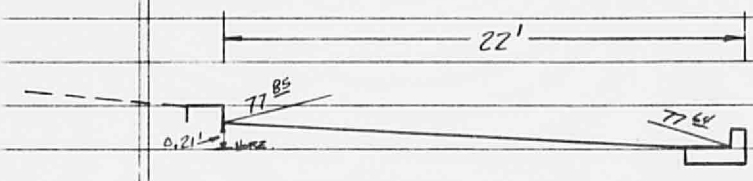
$\text{LENGTH} = \frac{6.78}{8.93}(21) = 15.9'$ $\quad 21' - 16' = 5'$

DEPTH OF WATER IS 0.10' AT DEEP WHEEL IN FAST LANE.

FOR 10 YEAR FLOW:

$Q_{10} = 0.57 \times 3.5 \times 3.4$

$Q_{10} = 6.78$ C.F.S. – OK



TYP. SECTION: EUBANK BLVD.