HYDROLOGY L23/D5 NINE PLANS

To
Bruno Conegliano A.C.E
P.O Box
Albuquerque N.M.

5/16/77

I Tom Hoack have received a copy of the drainage study pertaining to Los Cerros Subdivision on this date. I will return the study with the revisions necessary for the OSUNA Subd.

Very Truly Yours

GENE Murray-McCormick
2601 Wyoming Blvd NE
87110

Genge/Murray-McCormick
2601 Wyoming Blvd., N.E. Suite F
Albuquerque, N.M. 87110/505-292-1936
Engineering · Surveying · Planning
Tucson · Phoenix · Denver · Pueblo

Bruno

RECEIVED
MAY 27 1977
CITY ENGINEERS

May 27, 1977

City of Albuquerque
Department of Public Works
P. O. Box 1293
Albuquerque, New Mexico 87103

Attention: Mr. V. M. Kimmick, City Engineer
Mr. Bruno Conegliano, Asst. City Engineer, Hydrology

Re: Orona Addition, Albuquerque, New Mexico

Gentlemen:

Pursuant to our meeting of Monday, May 23, 1977, with Col. Ron Senac of Go Realty and Mr. Senac's agreement to support a detailed investigation of the watershed draining toward the northeast corner of Orona Addition, we would appreciate your concurrence with the following definition of scope. As you know, it is Go REalty's intent to develop fourteen R-2 lots in this addition and therefore it is necessary that this study and report provide the City and AMAFCA with sufficient data to approve interim flood protection measures for this project as well as area wide flow definition and flood routing.

DEFINITION AND SCOPE

It will be the direction and intent of the study to:

Define the existing and probable watershed boundaries predicated on existing topographic maps provided by the City of Albuquerque and the United States Geological Survey.

Define sub-watersheds and their respective contribution of flows to the various watercourses within the subject watershed.

Determine existing flow quantities and routing of the existing watercourses, and therefrom determine with the advice and consultation of the Engineering Division various methods of relief and channelization of 100 year storm flows.

It is understood that the above effort is for the establishment of definitive data to plan ultimate drainage improvements. Further, that although design and installation of these ultimate drainage improvements may not be undertaken immediately, development of the affected area will be allowed to proceed upon submission and approval of detailed engineering plans accommodating the hydraulics and hydrology of the above study.

Genge/Murray--McCormick

Upon your concurrence with the outline and intent of this study, we will submit a proposal to Go Realty. As time is of the essence, your early consideration of this matter would be greatly appreciated.

Very truly yours,

GENGE/MURRAY-McCORMICK, INC.

Thomas J. Haack

TJH:dw

cc: Go Realty

building permits, soil investigations by a registered professional engineer, and opinions by a registered professional engineer as to the adequacy of the soil for the proposed type of construction.

F. The present City Park Policy, DEDICATION OF LAND FOR PARKS AND RECREATION PURPOSES, as amended, shall be applied to the acquisition of water infiltration areas, open space, and rights-of-way for joint use (excluding natural drainage channels).

G. R-1 height restrictions shall apply to all development east of Tramway.

H. Future commercial zoning east of Tramway Boulevard shall be no more intensive than C-1 in order to maintain sign controls and other satisfactory relationships with the neighboring residential development. Commercial sites east of Tramway shall be held to sizes that can be supported primarily by the anticipated residential development in the area.

I. An overall density limit for development in the total area east of Tramway Boulevard shall be maintained at 3 DU/ gross acre with a maximum of 12 DU/net acre allowed for any individual parcel within the area.

J. All requests for residential zoning other than R-1 shall be handled under SU-1 zoning.

K. Planned unit or cluster-type plans are encouraged.

L. The land above the Demarcation Line shown on the Sandia Foothills Master Plan, is designated for Flood Control/Recreational Open Space purposes and it is the intent of the City that such land be acquired by agencies of the public in order to protect the development below, preserve the natural amenities of the area, and achieve the most efficient use of public funds for services and utilities in such areas. All efforts shall be made by the City of Albuquerque to purchase the land from City funds for through extension of the forest boundaries and acquisition by the Federal Government, with due regard to the interests of the private property owners and the public.

In the event the land above the Demarcation Line shown in the Sandia Foothills Master Plan is not acquired by Public Agencies within a reasonable time, pursuant to the foregoing, the development of the land shall be subject to the following additional policies:

1. A developer shall demonstrate, as determined by appropriate City Departments, that the safety of residents' lives and property can be reasonably protected against landslide, flood, fire, and other potential hazards.

2. The City staff is instructed to study and formulate recommendations for consideration and possible adoption by the City Commission on the most appropriate and equitable means by which developers of property in this area can be charged for that portion of the full costs of publicly provided services which exceed system-wide operating and capital costs, so that in no event will such public investment in this, or similarly situated areas, exceed the system-wide average costs incident to three dwelling units per acre.

3. Maximum street grade shall not exceed 12%.

4. The priority of utility extensions shall be determined for such land as a part of the normal Capital Improvements Program of the City of Albuquerque.

PASSED AND ADOPTED this 23rd day of July, 1973.

/s/ Louis E. Saavedra
Chairman, City Commission

ATTEST:

/s/ Gisele Gatignol
City Clerk

Genge/Murray-McCormick
2601 Wyoming Blvd., N.E. Suite F
Albuquerque, N.M. 87110/505-292-1936
Engineering · Surveying · Planning
Tucson · Phoenix · Denver · Pueblo

June 1, 1977

RECEIVED
JUN - 3 1977
CITY ENGINEERS

City of Albuquerque
Department of Public Works
Engineering Division
P. O. Box 1293
Albuquerque, New Mexico 87103

Attention: Mr. Bruno Conegliano
Asst. City Engineer-Hydrology

Re: Orona Addition
Lot Ponding Requirements

Gentlemen:

At the request of Col. Ron Senac and Go Realty, I hereby provide the following analysis of the volume of lot ponding required by the typical 60'x120' lots within this subdivision.

RUNOFF ANALYSIS

		% of Total		"C"	
Roof Area	1867 S.F.	26%	@	0.80	0.20
Walk Area	250 S.F.	3%	@	0.90	0.03
Parking Area	2200 S.F.	31%	@	0.90	0.27
Lawn Area	2883 S.F.	40%	@	0.12	0.05
TOTAL	7200 S.F.	100%			0.58

Pond Volume per lot 750 Cu.Ft.

Due to the nature of the 4% slope from east to west it will be virtually impossible to grade and construct a uniform ponding system for all lots within the project. Therefore, it is recommended that 100 cubic feet of storage be provided within the lawn areas between the parking lot, building, and within the limits of the service walks. For those lots on the east side of the street, roofs, rear and side yard areas should be graded to drain to parking area. The parking area should then be back pitched to create an additional pond of 650 cubic feet adjacent to the wheelstop curb and adjacent french drain.

Genge/Murray-McCormick

Those lots on the west side of the street should be graded such that the parking lot, roof, side and rear yards drain to a 650 cubic foot pond in the rear yard. This method will require the installation of precast concrete parking bumpers in lieu of curb to allow parking lot water to enter the ponds between building and parking lot.

I trust that the above analysis will allow you to release building permits for this project pending completion of the area analysis we dicusssed with Mr. Kimmick.

Very truly yours,

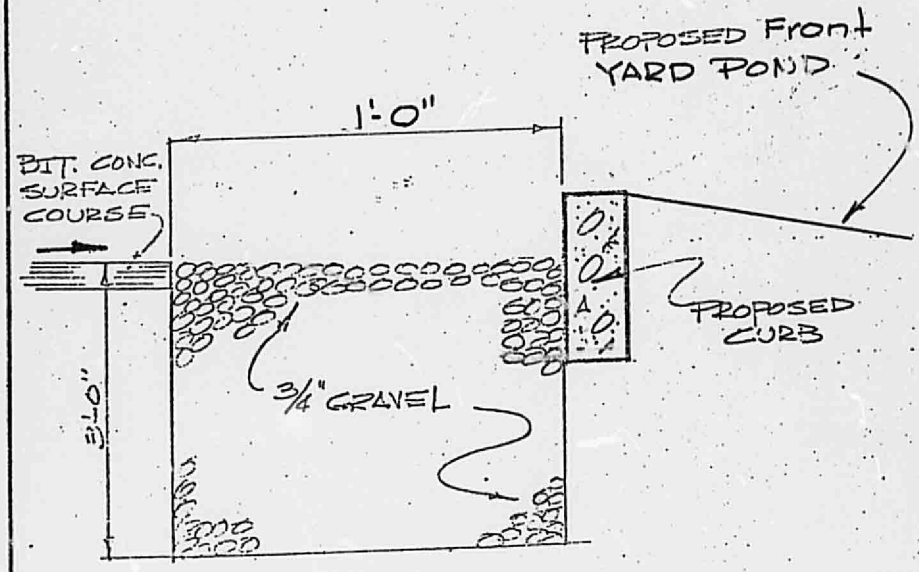
GENGE/MURRAY-McCORMICK, INC.

Thomas J. Black

TJH:dw

cc: Go Realty
Bill Buckley, Architect

DRAINAGE STUDY
ORONA ADDITION



FRENCH DRAIN DETAIL
ORONA ADDITION
WEST SIDE OF STREET

MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ENGINEERING·PLANNING·SURVEYING
2801 WYOMING BLVD., NE SUITE F / ALBUQUERQUE, NEW MEXICO 87110 / 505-292-1938

JOB NO. _____ DATE 6-1-77
PROJECT _____
SCALE _____

drainage file

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

June 1, 1977

L 23-05

Mr. Tom Haack
Genge/Murray-McCormick
2601 Wyoming Blvd., N.E. Suite F
Albuquerque, New Mexico 87110

Re: Orona Addition, Albuquerque, New Mexico

Dear Tom:

I am in general concurrence with the definition and the scope of your study. I feel, nevertheless, that a clarification is in order regarding the execution of the ultimate drainage improvements.

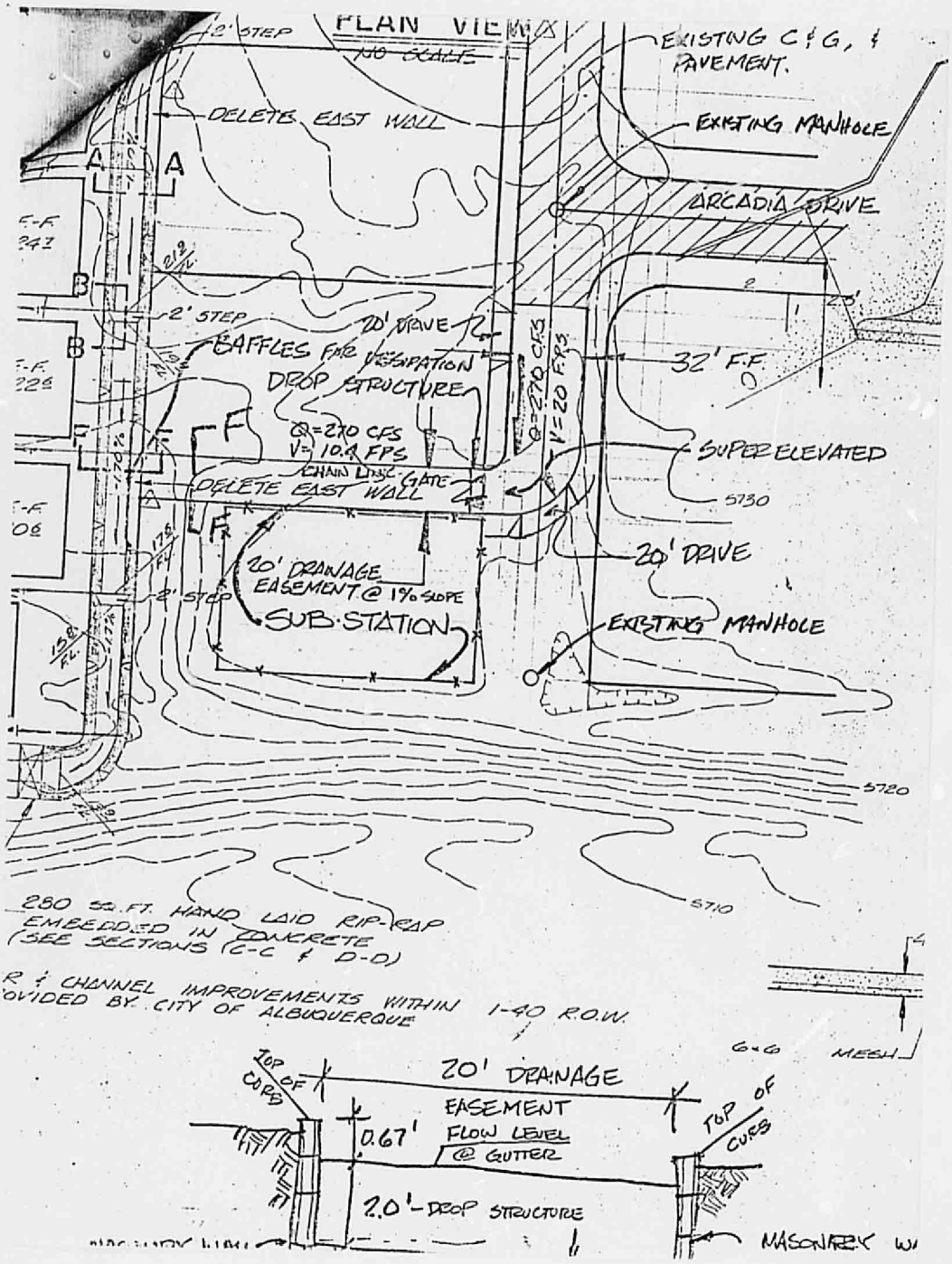
The drainage improvements within the Orona Addition will have to be constructed concurrently with the street and the other utilities. No building permits will be granted beyond the four already agreed upon unless a contract for the execution of the drainage improvements is under way.

Very truly yours,

Bruno Conegliano
Assistant City Engineer-Hydrology

BC/kr

cc-V. M. Kimmick
Drainage File


PLAN VIEW
NO SCALE
2' STEP
EXISTING C & G, & PAVEMENT.
DELETE EAST WALL
EXISTING MANHOLE
ARCADIA DRIVE
A
A
B
B
2' STEP
20' DRIVE
BAFFLES FOR DISSIPATION
DROP STRUCTURE
Q=270 CFS
V=10.4 FPS
Q=270 CFS
V=20 FPS
32' F.F.
SUPERELEVATED
CHAIN LINK GATE
DELETE EAST WALL
5730
20' DRIVE
20' DRAINAGE EASEMENT @ 1% SLOPE
2' STEP
SUB-STATION
EXISTING MANHOLE
5720
5710
280 SQ. FT. HAND LAID RIP-RAP EMBEDDED IN CONCRETE (SEE SECTIONS (C-C & D-D)
R & CHANNEL IMPROVEMENTS WITHIN I-40 R.O.W.
PROVIDED BY CITY OF ALBUQUERQUE
C-C
MESH
TOP OF CURB
20' DRAINAGE EASEMENT
0.67'
FLOW LEVEL @ GUTTER
TOP OF CURB
2.0' DROP STRUCTURE
MASONRY WALL

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

MAYOR
Harry E. Kinney

CHIEF
ADMINISTRATIVE OFFICER
Frank A. Kleinhenz

drainage file

attachment C

July 14, 1977

Mr. Ernest Orona
c/o Co Realty, Inc.
10701 Lomas Blvd., NE
Albuquerque, New Mexico 87112

Re: ORONA SUBDIVISION

Gentlemen:

Pursuant the resolution of the City Commission dated 7-23-1973 adopting the Sandia Foothills Master Plan, I request that all construction not formally reviewed and accepted by this office be stopped.

Due to the potential flooding in the area, no further building construction will be allowed until full compliance with the above mentioned resolution is achieved, in particular with Section D which reads: "Development in areas which require flood protection shall not be permitted prior to completion of the required temporary or permanent drainage protection facilities."

It is also hereby stated that the building permits for lots 12 and 15 of the Orona Addition were obtained in the absence of any knowledge by this office and contrary to a specific verbal understanding that the office of the City Engineer obtained from a representative of the developer and of the engineer, Messrs. Col. Ron Senac and Tom Haack.

Very truly yours,

Bruno Conegliano

Bruno Conegliano
Assist. City Engineer-Hydrology

BC/kr

cc - Tom Haack
Rip Orr, Jr., Acting Director of Public Works
Malcomb de Vesty, Assistant City Attorney
V. M. Kimmick, City Engineer
Grant Snyder, Special Assessments Engineer
Cliff Gilbert, Building and Inspection
Drainage File

Bruce

MEURER, SERAFINI AND MEURER, INC.

CONSULTING ENGINEERS • SURVEYORS • PLANNERS

2601 WYOMING BLVD., N.E., SUITE F • ALBUQUERQUE, NEW MEXICO 87110 • (505) 292-1936

January 4, 1978

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

Attention: Mr. V. M. Kimmick
City Engineer

Re: Orona Addition

Gentlemen:

Gc Realty, 10601 Lomas Boulevard N.E., has retained us to prepare the improvement plans for the above subdivision.

In accordance with the ordinances of the City of Albuquerque ordinances and procedural requirements, we hereby request the City's approval to proceed in the preparation of the remaining improvement documents.

Very truly yours,

MEURER, SERAFINI AND MEURER, INC.

Thomas J. Haack

RLL:dw

APPROVED:

BY: V. M. Kimmick, City Engineer

Date: 1-12-78

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE May 30, 1980 REF. NO._____

Reading file

TO: Malcolm deVesty, Assistant City Attorney

FROM: Bruno Conegliano, Assistant City Engineer/Hydrology

SUBJECT: ORONA SUBDIVISION

L23-DS

I am requesting that you investigate possibility of taking legal action against Ernest Orona, or Go Realty because of their failure in meeting the obligations assumed at the time of platting of the subdivision. The facts of this case are as follows:

On April 4, 1977, Mr. Kimmick signed a replat for a portion of Los Cerros Subdivision. (Attachment 1) A drainage report had been submitted and was approved for the Los Cerros Subdivision by AMAFCA. (Attachment 2) The original drainage report, which was prepared in the absence of any construction on the platted lots west of Lawrence Street, in the Wells Sandia Subdivision, anticipated the construction of a concrete lined channel. This channel was expected to intercept all the flows from the east and convey them to a 66" pipe culvert located under the Interstate Highway 40 (See Exhibit 2).

The new plat (Exhibit 1) indicated the replacement of a proposed ponding area with Lots 14 and 15. The engineer for Mr. Orona initially submitted a plan to implement the concept of the original drainage report and the plan was approved by the Office of the City Engineer on September 22, 1977. (Attachment 3) These plans were submitted and accepted after my letter dated July 14, 1977 (See Attachment C and previous correspondence, Attachments A & B). In the meantime, residential construction was taking place on the vacant lots in the Wells Sandia Manor Subdivision. This development caused the consulting firm of Meurer, Serafini & Meurer to submit an alternative to the original plans (See Attachment D). After further discussion with the Engineer, the plans were revised to intercept the flows from the east with a storm sewer beginning at the south end of Lawrence Street. After the preparation of the plans by Meurer, Serafini & Meurer (See Attachment 4), the Design Section prepared an estimate but the work order was never issued because Mr. Orona reneged on his obligation. Obviously, errors were committed by the City Engineer's Office, by allowing development to proceed without the execution of the necessary drainage improvements. This condition now needs to be corrected since the original drainage concept was violated and no compensatory facility was built. Therefore, I am asking for the assistance of your Office to resolve this question.

BC/tsl

cc: R. S. Heller, City Engineer

Attachments

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

June 10, 1980

Tom Shaffer
New Mexico State Highway Dept.
Right-of-Way Section
P.O. Box 1149
Santa Fe, New Mexico 87503

Dear Mr. Shaffer:

Please find attached a copy of the plan for drainage improvements which are proposed for construction in the New Mexico Highway Dept. right-of-way. Exhibit 2 supplies a vicinity map indicating the location of the project. Specifically, it is the intention of the City to collect the flow generated by the Wells Sandia Manor Subdivision and convey said flows to the 66 inches pipe culvert constructed under Interstate Highway 40.

I hope that your Department will be able to give favorable consideration to this request.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/tsl

Attachment

cc: R. S. Heller, City Engineer
Barbara Stevenson, City Attorney's Office
File (Project)

GARDNER ENGINEERS, INC.

June 18, 1980

Mr. Bruno Conegliano
Assistant City Engineer/Hydrology
City of Albuquerque
Albuquerque, New Mexico 87103

RE: Orona Subdivision
Drainage Structure

Dear Mr. Conegliano:

Transmitted herewith are two copies of estimated costs and drawings for the subject drainage structure.

As you have requested, we have determined the size of the new drainage pipe that will parallel the existing 48" R.C.P. Together these two pipe will have sufficient capacities for the anticipated flows.

Detail costs of the installation of the new pipe along with outlet improvements, and other associated work are as shown in the attached estimates. These estimates are based on downstream improvements only (west of Lawrence Drive, N.E.). The upstream inlet improvements can be included in the Special Assessment District.

Should you have any questions, please call us.

Sincerely,

Richard Mason

Richard Mason, P.E.

Attachments

RM/mg

7833 LOMAS BLVD. N.E., SUITE 23/ ALBUQUERQUE, N.M. 87110/ [505] 266-5868

PRELIMINARY COST ESTIMATE
FOR
ORONA SUBDIVISION
DRAINAGE STRUCTURE
June 18, 1980

Description	Unit	Quantity	Price	Total
Clearing, removal & disposal of obstructions including existing concrete headwalls	LS	LS	$300.00	$ 300.00
Remove and reinstall chain link fence	SF	480	2.89	1,387.20
60" RCP, Class IV, complete in place in trench	LF	150	90.10	13,515.00
Reinforced concrete headwall	CY	2.3	346.50	796.95
Grouted, wire-enclosed riprap, complete in place	CY	16	127.05	2,032.80
Excavation, backfill and compaction of material for headwall and riprap	CY	26	5.78	150.28
				$18,182.23

Reading file

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE June 19, 1980 REF. NO._____

TO: Barbara Stevenson, City Attorney's Office

FROM: Bruno Conegliano, Asst. City Engineer/Hydrology BC

SUBJECT: Orona Subdivision

The consulting firm, Gardner Engineers, Inc. has been retained by the City to design the public facilities needed in the Wells Sandia Manor Subdivision. They have also been requested to prepare a rough design and cost estimate for the computation of the inlet and pipe to collect the runoff generated by the land east of the Orona Subdivision.

They find that, in order to extend the sewer lines to drain this area, a 60" pipe rather than a 48" pipe will be necessary, and this pipe will also have to be constructed at a slightly lower elevation than originally indicated by Meurer, Serafini and Meurer. As you can see, the preliminary estimate exceeds the contribution that was requested of Mr. Orona. It is my opinion that we should forward the attached estimate to Mr. Orona and request a contribution in the form of a bond, for the amount of $10,000, as tentatively agreed during our last discussion. On the basis of past conversations and agreements, the indicated amount appears to be the maximum that we can expect Mr. Orona to furnish before we allow further development in this subdivision.

BC/fs
Enclosure

cc - Richard Heller

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

October 27, 1980

RECEIVED
OCT 28 1980
CITY ENGINEER

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

Re: Lomas Basin Drainage Improvements, Phase II and Orona Townhouse Development

Dear Mr. Conegliano:

We have recently met with Ernest Orona and Walter Reed to discuss the slope encroachment on the Orona property directly east of the Tramway Channel Station 33+00. We have acknowledged that the encroachment does exist and have directed the Contractor to correct the problem by restoring the private property adjacent the channel to its pre-construction topography. The Contractor intends to remedy the problem immediately beginning October 28, 1980.

We regret any delay this problem has caused in the design review process and the development schedule planned by Mr. Orona. If you should have any questions concerning this matter, please contact me at your earliest convenience.

Sincerely,

Jack Eichorn
Construction Manager

cc: Mr. Ernest Orona
Mr. Walter Reed
Mr. Greg Olson
Mr. Ron P. Bohannan

RPB/cs
Job No. 79-104.1

Sheet 1

Crona Addn. 5/20/77

Total Watershed = 137 Ac.

Area Draining to N.E Corner 115 Ac.

Area Draining to S.E Corner

P.S.C.o Sub-Station 22 Ac.

Δ Elev = 6760 - 5710 = 1050

$L = 7{,}000$ FT. $L_1 = 3{,}200$ FT ; $L_2 = 3{,}800$ FT.

$S = 15\%$ Average.

$S_1 = 5.6\%$ $S_2 = 22.9\%$. $A_1 = 81$ (59%) $A_2 = 56$ Ac. (41%)

Time of Concentration

$T_c = 0.0078 K^{0.77}$ $K_1 = \sqrt{\frac{(3200)^3}{180}}$ $K_2 = \sqrt{\frac{(3800)^3}{870}}$

$K = \sqrt{\frac{L^3}{H}}$

$K = \sqrt{\frac{(7{,}000)^3}{1050}}$ K_1 13,492

K_2 7,942

$T_{c(1)} = 11.81$ min K_3 18,074

$T_{c(2)} = 7.85$ min

$T_c = 14.79$ Say (15 min) Average $V = 7.89$'/sec.

$I_{(15)} = 4.73$ in/hour.

$Q = C.I.A.$	Flow to N.E. Cor. Crona.	Total Flow to Culvert A=137
$Q_{(.5)} = 0.5(4.73)115 =$	272 c.f.s.	324 c.f.s.
$Q_{(.6)} = 0.6(4.73)115 =$	326 c.f.s.	389 c.f.s.
$Q_{(.7)} = 0.7(4.73)115 =$	381 c.f.s.	454 c.f.s.

Cap. of Culver per E.P. Ross Raport 190 c.f.s.

Run-off Coefficient Analysis

59% @ 0.40 = 0.24
41% @ 0.80 0.33
0.57

59% @ 0.40 0.24
41% @ 0.90 0.37
0.61

59% @ 0.40 = 0.24
41% @ 1.00 = 0.41
0.65

Use Average x 0.60 = C_{11}

Area Draining to Skyline R.

A = 105 Ac.

Qcap of Skyline = 40' F.F. @ 4.50%

Δ ELEV. = 6760 - 5754 = 1006

L = 5900' L_1 = 2,100 FT L_2 = 3,800 Ft.

S = 17.05% Average S_1 = 5.6% S_2 = 22.9%

A_1 = 49 Ac 47% A_2 = 56 Ac 53%

T_{c_1} = 11.81 min

T_{c_2} = 8.08 min

T_c = 12.34 use 12 min.

Average V = 7.98 '/Sec.

I = 5.11 in/hr.

$$K_2 = \sqrt{\frac{(2,100)^3}{136}}$$

$$K = \sqrt{\frac{(5900)^3}{1006}}$$

K_2 = 8252

K = 14,288

$Q = C.I.A.$

$Q_{(.5)} = 0.5\,(5.11)(105) = 268$ c.f.s.

$Q_{(.6)} = 0.6\,(5.11)(105) = 321$ c.f.s.

$Q_{(.7)} = 0.7\,(5.11)(105) = 376$ c.f.s.

CHECK ENERGY HEAD

Depth of Flow = 0.80'

V = 13.' FT/sec.

$\frac{V^2}{2g} = 2.68$

CHANNEL TO EAST.

3.-4.'/s Vel on 10 yr Flow volume.

$I_{10} = \frac{91}{t+24}$ $I_{(25)} =$

$I_{10} = \frac{91}{15+24} = 2.33$

$Q_{10} = 0.60\,(2.33)\,115 = 161$ cfs.

$Q_{10} = 0.60\,(2.33)\,137 = 192$ cfs.

Ground Slope 16'/380' = 4.21%

Channel Slope 380' @ 0.50% = 1.90'
= 14.1' @ Drop Structure.

Drop Structures & Earthen Channel to be flared to flow to existing Culvert South of Orona.

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= .89898
r 2/3= .93146
A= 22.00
P= 24.47
Bottom Width= 20.0
Depth Of Flow= 1.000
V= 3.26
Q= 71.77

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .05000
r= 1.65835
r 2/3= 1.40104
A= 48.00
P= 28.94
Bottom Width= 20.0
Depth Of Flow= 2.000
V= 15.51
Q= 744.86

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= .97996
r 2/3= .98659
A= 24.42
P= 24.91
Bottom Width= 20.0
Depth Of Flow= 1.100
V= 3.45
Q= 84.38

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= 1.05966
r 2/3= 1.03938
A= 26.88
P= 25.36
Bottom Width= 20.0
Depth Of Flow= 1.200
V= 3.64
Q= 97.85

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= 1.65835
r 2/3= 1.40104
A= 48.00
P= 28.94
Bottom Width= 20.0
Depth Of Flow= 2.000
V= 4.90
Q= 235.54

10 yr Flow <235
(200 cfs).

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= 1.79900
r 2/3= 1.47918
A= 53.68
P= 29.83
Bottom Width= 20.0
Depth Of Flow= 2.200
V= 5.18
Q= 278.11

Flow Quantities
Channel With 2:1 Side Slopes

n= .03000
S= .00500
r= 1.93667
r 2/3= 1.55371
A= 59.52
P= 30.73
Bottom Width= 20.0
Depth Of Flow= 2.400
V= 5.44
Q= 323.90

100 yr flow.

Gross Lot Area 7200 SF.

Roof = 1867 SF. 26% @ .90 = 0.23

Walks. 250 SF. 3% @ .90 = 0.03

Parking 2200 SF. 31% @ 0.90 = 0.27

Lawn Area 2883 40% @ 0.12 = 0.05

100%

751.68

Ponding Volume

1453 RIO RANCHO ESTATES DR., RIO RANCHO ESTATES, NEW MEXICO 87124 (505) 898-4150

May 31, 1977

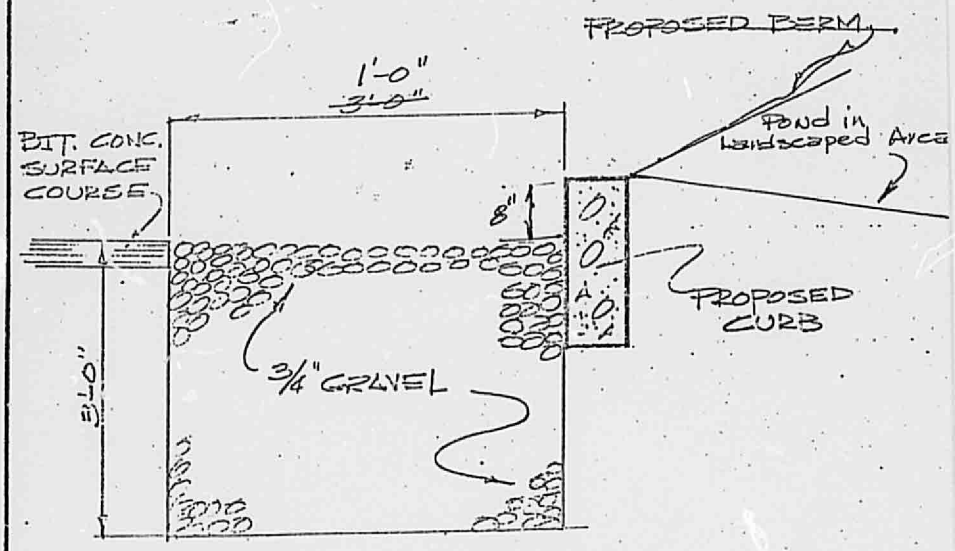
ORONA "ADD"

~~ADDENDUM TO~~

~~DRAINAGE STUDIES:~~

~~MONARCH VILLAGE (11-29-77)~~

~~GRAND CENTRAL (2-25-77)~~



Lots on East side of streets only.

FRENCH DRAIN DETAIL

~~GRAND CENTRAL STORES INC.~~

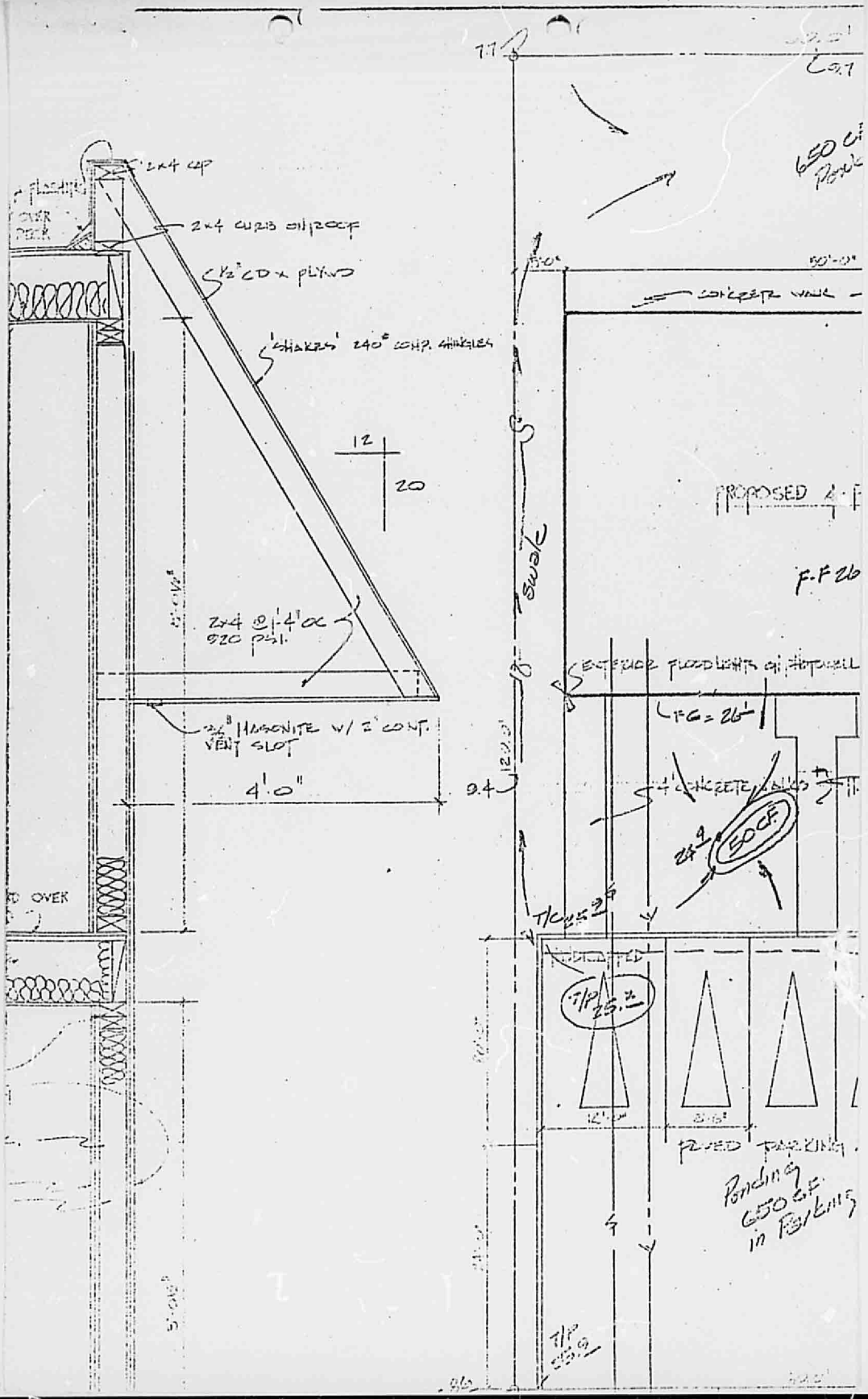
~~JUAN TABO + COPPER~~

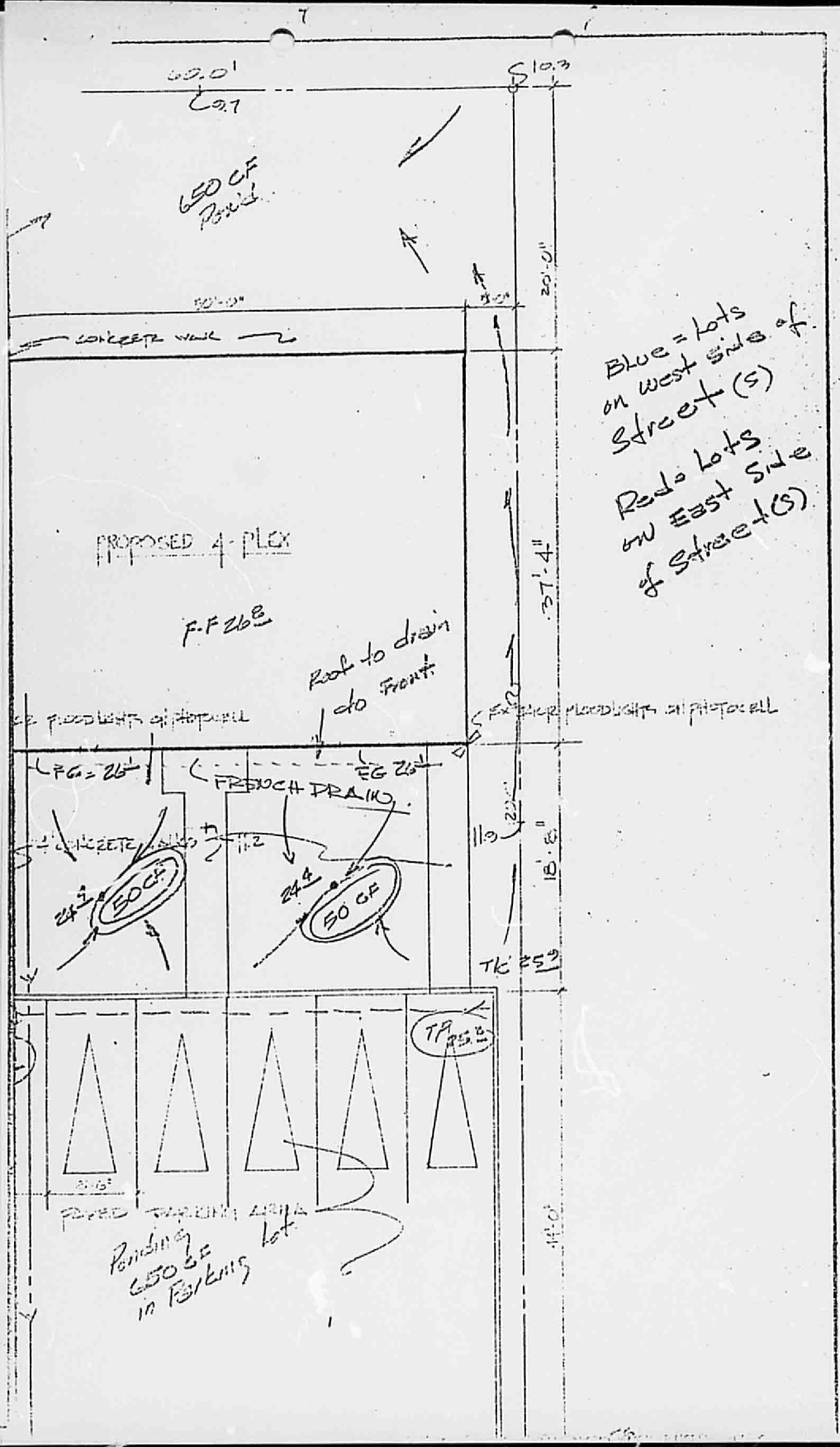
MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ENGINEERING·PLANNING·SURVEYING
2401 WYOMING BLVD., NE SUITE F / ALBUQUERQUE, NEW MEXICO 87110 / 505-292-1938

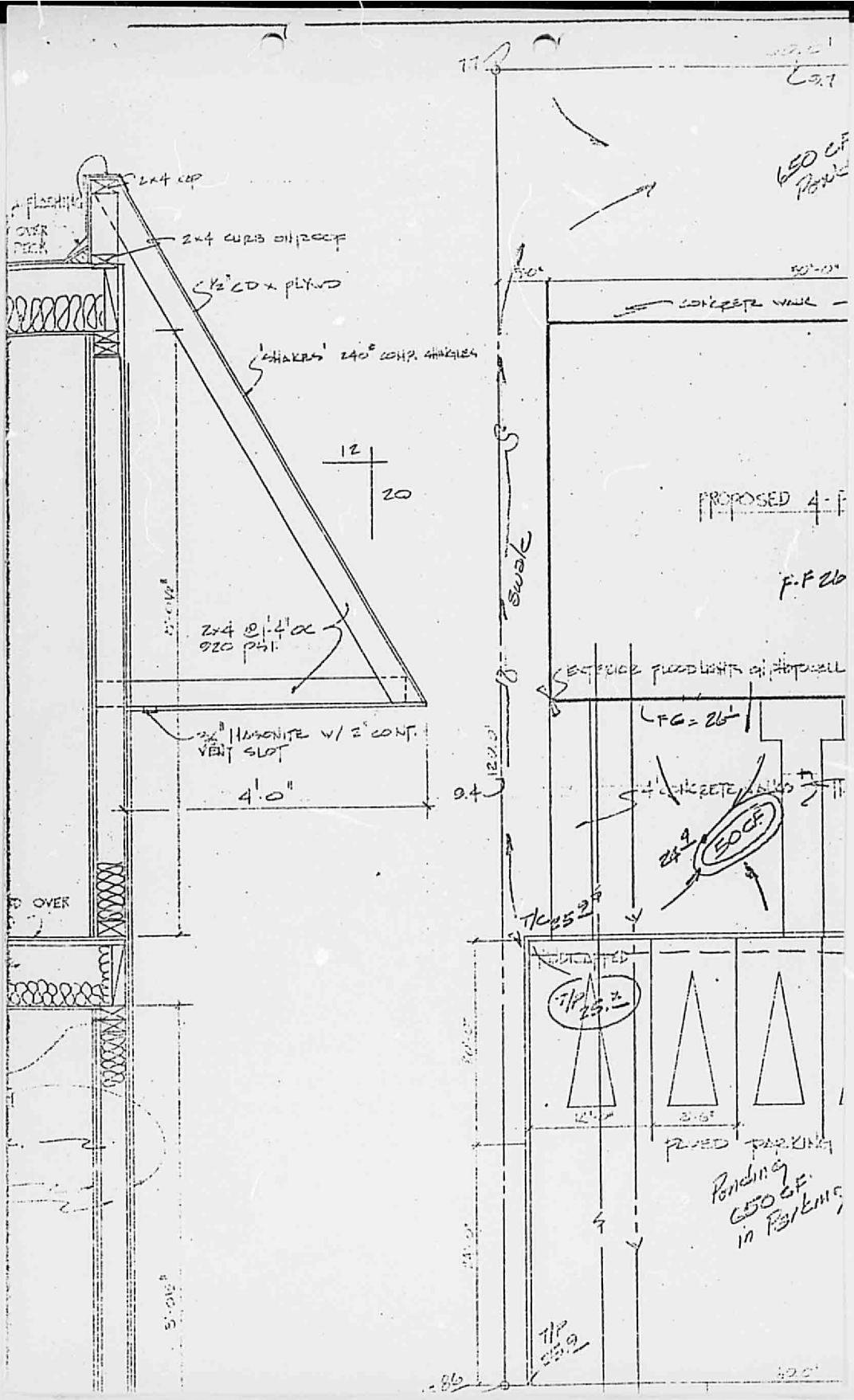
JOB NO. _____ DATE 4-8-

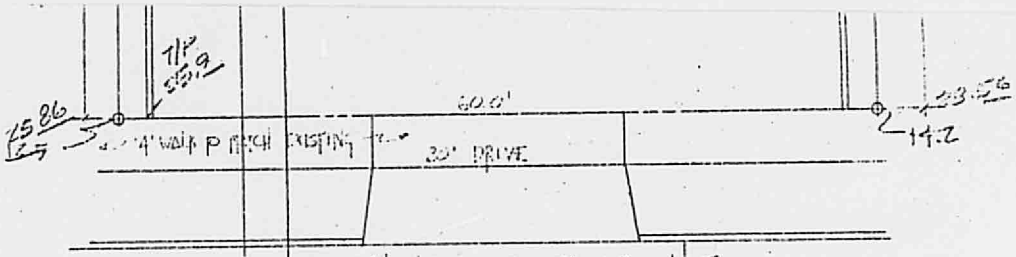
PROJECT _____

SCALE _____


2x4 CAP
2x4 CURB @ 12" OC
5 1/2" CD x PLYWD
'SHAKES' 240# COMP. SHINGLES
12
20
2x4 @ 1'-4" OC
920 psf.
3/8" MASONITE W/ 2" CONT.
VENT SLOT
4'-0"
CONCRETE WALL
PROPOSED
F.F 26
EXTERIOR FLOODLIGHTS @ HOTWELL
FG = 26'
4" CONCRETE
50 C.F.
T/C = 2'
T/P 25.2
PAVED PARKING
Ponding
650 C.F.
in Parking


60.0'
10.3
650 CF Pond
20'-0"
CONCRETE WALL
Blue = Lots on west side of Street (S)
Red = Lots on East Side of Street (S)
PROPOSED 4-PLEX
F.F 26.8
37'-4"
Rock to drain to Front
FLOODLIGHTS ON PHOTOCELL
EXTERIOR FLOODLIGHTS ON PHOTOCELL
FG = 26'
EG 26'
FRENCH DRAIN
CONCRETE WALKS
24.4
50 CF
24.4
50 CF
18'-6"
TC 25.5
TF 25.8
PAVED PARKING AREA
Ponding 650 CF in Parking lot


2x4 CUP
FLASHING
OVER DECK
2x4 CURB ON ROOF
5½" CD x PLYWD
'SHAKES' 240# COMP. SHINGLES
12
20
2x4 @ 1'-4" OC
920 PSI
½" HARDIWIRE W/ 2" CONT. VENT SLOT
4'-0"
OVER
CONCRETE WALL
PROPOSED 4-
F.F 26
SWALE
ELECTRIC FLOOD LIGHTS ON HOUSE
FG = 26'
4' CONCRETE WALKWAY
2x4
50 CF
T/C 25.2
T/P 25.2
PROPOSED PARKING
Ponding 650 CF in Parking



MONTE ALTO PLACE, N.E.

PLOT PLAN

SCALE 1" = 10'-0"

LEGAL DESCRIPTION

LOT 9
ORONA ADDITION
ALBUQUERQUE, NEW MEXICO

NORTH

DESIGN DATA

FIRE ZONE 2
SEISMIC ZONE 2
TYPE OF CONSTRUCTION 5N
AREA:

1ST FLOOR HEATED	1595.0	SQ. FT.
2ND FLOOR HEATED	1458.0	
TOTAL HEATED	3053.0	SQ. FT.
COV. BALCONY & PATIO	940.0	SQ. FT.
OPEN SPACE REQ.	2000.0	SQ. FT.
OPEN SPACE SUPPLIED	3557.0	SQ. FT.
RATIO .30		

OCCUPANCY GROUP R DIVISION 1
OCCUPANT LOAD 10
WIND LOAD 25 PSF
ROOF LOAD 35 PSF
FLOOR LOAD 55 PSF

See
L-23-D5

ORONA ADDITION DRAINAGE AGREEMENT

THIS AGREEMENT, made and entered into this 8th day of October, 1980, by and between the City of Albuquerque, a New Mexico Municipal Corporation, hereinafter referred to as the "City", and Ernest J. Orona and GO Realty, Inc., hereinafter referred to as the "Owners".

WITNESSETH:

WHEREAS, the Owners are the owners of the following described parcels of real property:

> Tract A and Lot 14 of the Orona Addition in Albuquerque, New Mexico, a replat of the Los Cerros Addition; and

WHEREAS, the Owners' desire to obtain Building Permits from the City for construction of certain buildings on the above-described properties; and

WHEREAS, the major condition for the issuance of said Building Permits is a guarantee by the Owners that they will pay an amount not to exceed Ten Thousand dollars ($10,000.00) for certain drainage improvements to be made on land abutting Lot 14 of the Orona Addition, by the City pursuant to plans to be approved by the City Engineer.

NOW THEREFORE, in consideration of the premises and the covenants hereinafter contained, the parties hereto hereby agree as follows:

1. The Owners have obtained from Coronado Savings and Loan Association a construction loan in the amount of Three Hundred Forty-Seven Thousand Six Hundred Dollars ($347,600.00) for construction of a nine (9) unit condominium complex to be located at Tract A of the Orona Addition described above.

2. Coronado Savings and Loan Association shall, as set forth in their letter of September 23, 1980, attached hereto and made a part hereof as Exhibit A, withhold Ten Thousand Dollars ($10,000.00) from the construction loan described in paragraph 1 for payment to the City for certain drainage improvements.
3. The City shall make demand upon the Coronado Savings and Loan Association for payment thirty (30) days prior to issuance of work orders to the block to block contractor then under contract with the City.
4. Upon such demand, payment shall be made to the City in the manner set forth in Exhibit B, attached hereto and made a part hereof.
5. The Owners shall hold the City harmless and release the City from any claims for damage to their property resulting from the lack of flood and erosion protection only until such time as the above-described drainage improvements are completed.
6. The City shall have issued work orders for the above-described drainage improvements within eighteen (18) months of the date hereof; upon this not occurring within eighteen (18) months of the date hereof, the Owners shall be released from any obligation contained herein.
7. Upon execution of this Agreement, the City will not withhold issuance of Building Permits for any structures within the Orona Addition.
8. This instrument contains the entire Agreement between the parties, and no statement, promises,

or inducements made by any party or agent of any party that is not contained in this written contract shall be valid or binding.

Ernest J. Orona

GO REALTY

By: Ernest J. Orona, President

CITY OF ALBUQUERQUE

ATTEST:

City Clerk/Recorder
Mary Lou Cooper

By James C. Jaramillo
Chief Administrative Officer

REVIEWED BY THE LEGAL DEPARTMENT:

Barbara Stephenson
Assistant City Attorney

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

The foregoing instrument was acknowledged before me on this 8th day of Oct. 8th, 1980, by Ernest J. Orona, individually, and as President of G. O. Realty, Inc.

Notary Public

My Commission Expires:

OFFICIAL SEAL
Signature
WALTER W. REED
NOTARY PUBLIC - NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires: