HYDROLOGY

F13/D10
ONE PLAN

F13/D10

1 Plan

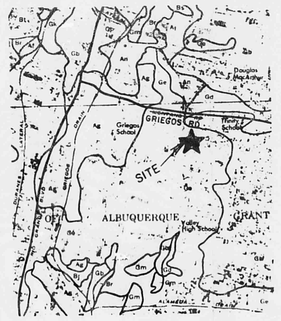
VICINITY MAP *From ABQ. ZONE ATLAS F-13*

ZONE ATLAS F-13

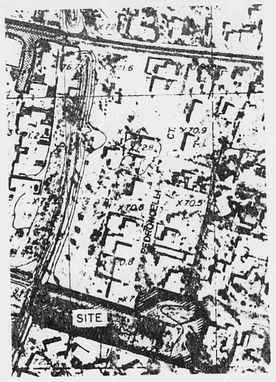
LEGAL DESCRIPTION

LAS TRUCHAS, A Replat of Lot 9-A Pedroncelli Addition And Lots 20-A + 20-B Freeman Addition

SOILS MAP *From Soil Survey, Bernalillo County - USDA, SCS*



FLOOD HAZARD MAP *From ABQ. Master Drainage Study*

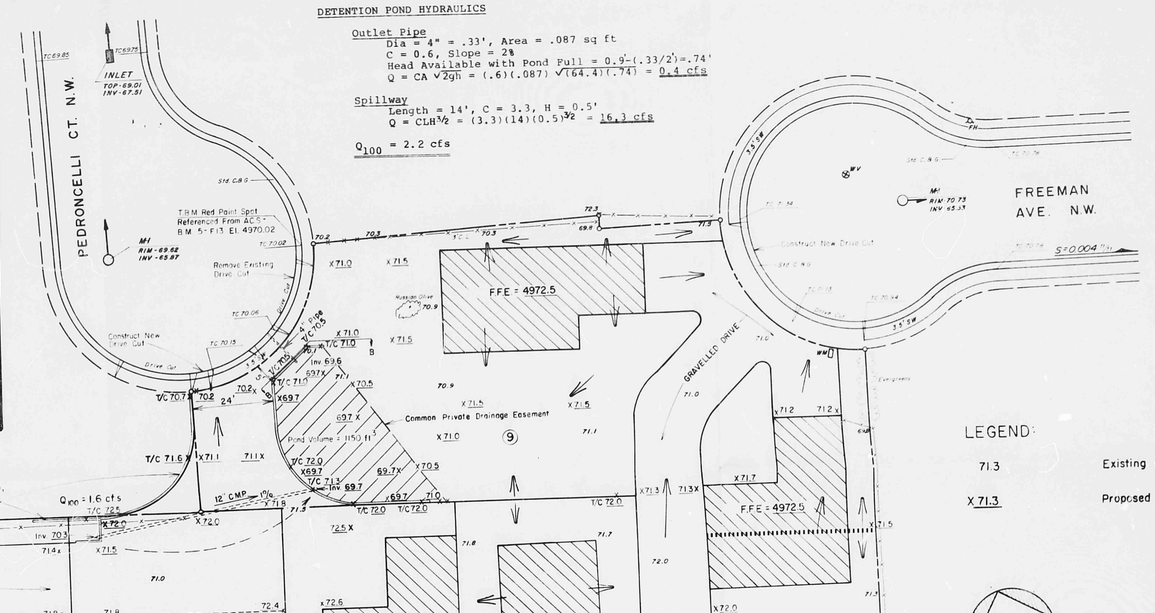


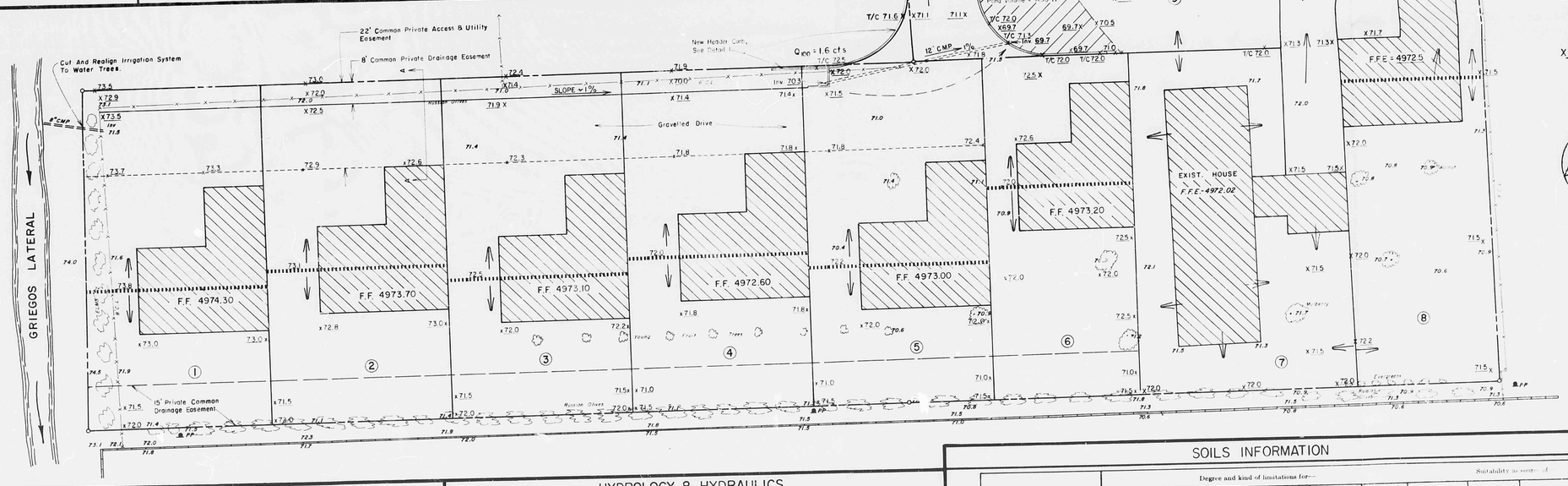
DETENTION POND HYDRAULICS

Outlet Pipe
Dia = 4" = .33', Area = .087 sq ft
C = 0.6, Slope = 2%
Head Available with Pond Full = 0.9'-(.33/2')=.74'
$Q = CA\sqrt{2gh} = (.6)(.087)\sqrt{(64.4)(.74)} = \underline{0.4\ cfs}$

Spillway
Length = 14', C = 3.3, H = 0.5'
$Q = CLH^{3/2} = (3.3)(14)(0.5)^{3/2} = \underline{16.1\ cfs}$

$\underline{Q_{100} = 2.2\ cfs}$





DESCRIPTION

Ge - Gila clay loam. This level soil is in the irrigated Rio Grande Valley. It has a profile similar to that described as representative of the series, but the surface layer differs in texture and is about 10 inches thick. In about 2 percent of the mapped area this soil is moderately saline, and in about 0.5 percent it is moderately alkali affected. Slopes are 0 to 1 percent.

Included with this soil in mapping are small areas of a Gila soil that has a sandy clay loam surface layer and areas of Brazito fine sandy loam.

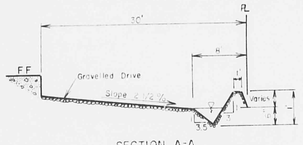
Runoff is slow, and the hazard of water erosion is slight.

This soil is used for irrigated alfalfa, row crops, and pasture. It is also used for wildlife habitat and community development. Irrigated capability unit I-1.

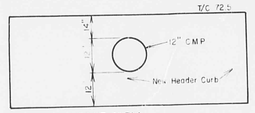
SOILS INFORMATION

Soil series and map symbols	Degree and kind of limitations for— Septic tank absorption fields	Sewage lagoons	Shallow excavations	Dwellings without basements	Sanitary landfill (trench type)[1]	Local road and streets	Suitability as source of— Road fill	Sand	Gravel	Topsoil	Soil features affecting— Pond reservoir areas	Dikes, levees, and other embankments	Hydrologic soil group
*Gila: GA, Gb, Ge, GH. For Hanta part of GH, see Hanta series.	Moderate: percs slowly.	Moderate: seepage.	Slight	Slight	Slight	Moderate: low strength	Fair: low strength.	Poor: excess fines.	Poor: excess fine...	Good	Seepage	Piping	B

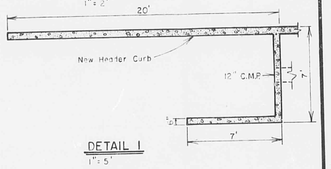
DETAILS



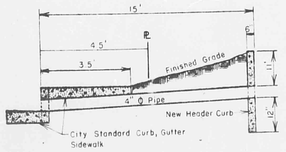
SECTION A-A
1" = 10' Horizontal, 1" = 2' Vertical



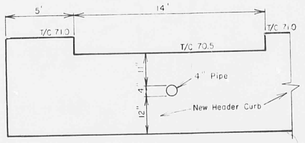
FRONT VIEW
1" = 2'



DETAIL I
1" = 5'



PROFILE, SECTION B-B
N.T.S.



SECTION C-C
1" = 5' Horizontal, 1" = 2' Vertical

HYDROLOGY & HYDRAULICS

EXISTING CONDITIONS:

The 1.63 acre site is currently occupied by one existing house and numerous fruit trees. No runoff either enters or leaves the site except in extreme runoff events (>100-yr.). There is a storm drain in Pedroncelli Court which flows to the 12th Street storm drain. The storm drain system is currently undersized downstream of the site but is scheduled for major improvement in the immediate future.

DEVELOPED CONDITIONS:

There are eight new single family detached houses proposed for the Site on nine lots. Minimum lot size is 6000 square feet and the new houses average 1620 square feet. The existing house will remain and will be partially renovated. The Six houses which will take their access off of Pedroncelli Court will be served by a gravelled 22' wide drive. Each of Lots 1-6 will be drained partially to the rear (into common private drainage easements) and partially to the front to be detained and released to Pedroncelli Court. Because of the existence of a storm drain nearby and its improvement in the near future, it is proposed that the detention area be sized for the 10-year runoff volume. A variance from the DPM criteria which allows no credit for backyard ponding is hereby requested, due to the special circumstances which exist in this valley infill subdivision. The proposed house on Lot 6 will require special foundation treatment on the north wall due to its proximity (6') to the proposed detention pond. The proposed backyard retention areas will hold water infrequently and will not look like ponds to the residents; therefore, they will be likely to remain. The residents may want to irrigate the backyard trees using water from the Griegos Lateral, which is possible on Lots 1-6 with the proposed grading plan.

Lot 7 which contains the existing house will retain almost all of its runoff on-site as it does currently. Some runoff may exit the site via the driveway to Freeman Avenue NW.

Lot 8 is a large lot (>7500 square feet) and will retain most of its runoff in the backyard as it is currently graded. Some runoff may exit the site via the driveway.

Lot 9 will drain to the proposed detention pond except for a portion of the driveway which will exit onto Freeman Avenue. Peak rates and runoff volumes leaving the site from Lots 7, 8, and 9 are too small to be reasonably calculated and should be considered negligible.

HYDROLOGY/HYDRAULICS

GENERAL
Hydrologic Group B Soils, $P_{100} = 2.2$ in, $P_{10} = 1.45$ in, $P_2 = 0.98$ in

Lots 1-6
Area Draining to Front CN=87 C=.71
Area = 3615 sq ft/lot (typical)

Volumes		
100 yr	346 cu ft/lot =	2079 cu ft
10 yr	160 cu ft/lot =	959 cu ft
2 yr	72 cu ft/lot =	434 cu ft

Peak Rates (Lots 1-6) Area = 21,690 sq ft = .50 ac

100 yr	Q=(.71)(4.7 in/hr)(.50 ac) =	1.7 cfs
10 yr	Q=(.71)(3.1 in/hr)(.50 ac) =	1.2 cfs
2 yr	Q=(.71)(2.1 in/hr)(.50 ac) =	0.8 cfs

Lot 9 CN=70 C=.4 Area = 12,120 sq ft = .28 ac

Volumes		Peak Rates
100 yr	333 cu ft	Q=(.4)(4.7)(.28) = 0.5 cfs
10 yr	71 cu ft	Q=(.4)(3.1)(.28) = 0.3 cfs
2 yr	-0-	-0-

TOTAL DRAINAGE TO DETENTION POND

	Volumes		Rates
100 yr	2079 + 333 =	2412 cu ft	1.7 + .5 = 2.2 cfs
10 yr	959 + 71 =	1030 cu ft	1.2 + .3 = 1.5 cfs
2 yr	434 + 0 =	434 cu ft	0.8 + 0 = 0.8 cfs

Backyard Ponding Lots 1-6 Area ≥ 2377.5 sq ft
Typical Lot 612.5 sq ft Roof, 1765 sq ft Yard
CN = 76 C = .51

	Volumes	Rates
100 yr	103 cu ft	Q=(.51)(4.7)(.055) = 0.12 cfs
10 yr	52 cu ft	Q=(.51)(3.1)(.055) = 0.09 cfs
2 yr	8 cu ft	Q=(.51)(2.1)(.055) = 0.06 cfs

Area Available for Ponding = 6 x 63' x 15' = 5670 sq ft
Total Volume Required (100 yr) = 6 x 120 cu ft = 721 cu ft
Average Depth = 0.14 ft

Lot 7 Area = 8614 sq ft Existing House = 3000 sq ft approx.
100 yr Runoff Volume = 488 cu ft
Area Available for Ponding 4000 sq ft
Average Depth = 0.1 ft

Lot 8 Area = 8000 sq ft New house = 1620 sq ft
100 yr Runoff Volume = 290 cu ft
Area Available for Ponding = 4500 sq ft
Averge Depth = 0.06 ft

GRADING AND DRAINAGE PLAN
LAS TRUCHAS
MAY 1984 ZONE ATLAS F-13

REV. 6-15-84

LEVERTON - EASTERLING, INC.
CONSULTING ENGINEERS • LAND SURVEYING • LAND PLANNING
5329 PARADISE BLVD. NW • ABQ. NM 87114 • (505) 898-8021

RECEIVED JUN 20 1984 HYDROLOGY SECTION

SHEET 1 OF 1