

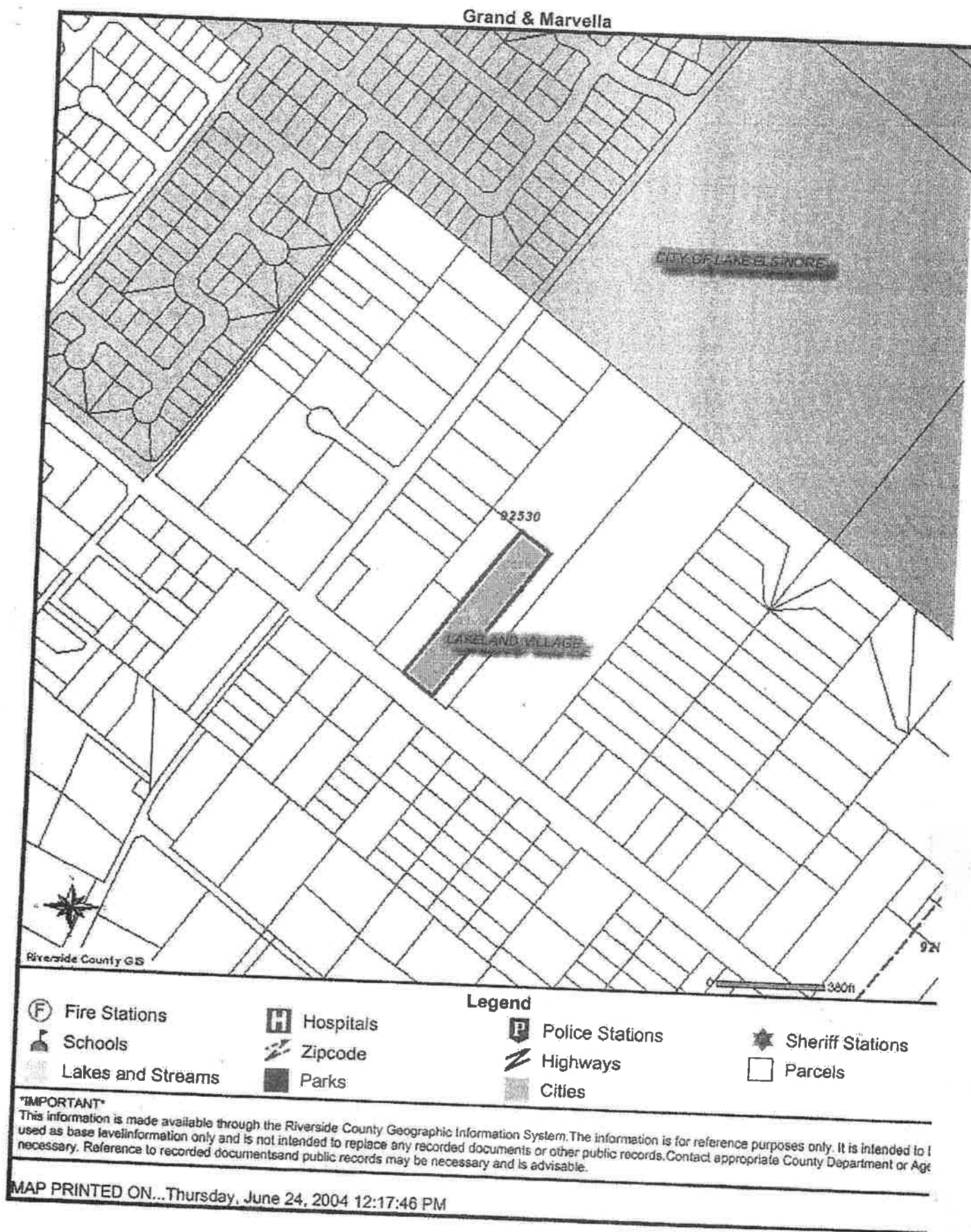
FEASIBILITY STUDY

AT: GRAND AVENUE / LAKE SIDE VILLAGE
LAKE ELSINORE, COUNTY OF RIVERSIDE, CALIFORNIA

APN No. 370280013

Lot Size: 132'x 660' (2 acres)

Prepared by: **First Century Co.**
Land Development
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MH = MANHOLE

SEWER MAP
1" = 177'

SUNRISE COMMUNITY
FIRST CENTURY CO.
LAND DEVELOPMENT

BLOCK WALL 6' HEIGHT

NEW CHURCH

BLOCK WALL 6' HEIGHT

CHURCH PARKING

660'

70'
TYP

29'

103'
TYP

BLOCK WALL 6' HEIGHT

30'

NOT TO SCALE

60'

PROPOSED 8" SEWER (900')

M.H.

TO SKYLARK DR.

M.H.

GRAND AVE.

TO BRECHTEL ST.

AVE. SIZE PER LOT: $70 \times 103 = 7210 \text{ ft}^2$
PARCEL APN #: 370280013
ALTERNATIVE 1 (SEWER HOOK UP)
9 LOTS - 9 TRACK HOMES

SUNRISE COMMUNITY

FIRST CENTURY CO.
LAND DEVELOPMENT
(909) 753-2252

1. DESCRIPTION OF THE PARCEL

The parcel is located near Grand Ave. and Skylark Dr. in the area of Lakeland Village / Otega Mountain, Riverside County. The parcel area is approximately 2.0 acres, (132 ft by 660 ft); its assessor number is 370-280-013.

Based on the existing County of Riverside, Land Use record, the zoning classification is Rural Residential (R-R). There is no existing sewer on the street in front of the property. The storm drain is available, located in the Northeast side of the parcel and maintained by the County Flood Control Agency and Department of Transportation. Water, electric is also available and maintained by the local utility companies.

2. PROJECT SUMMARY

The project is build as many as possible single-family homes on the parcel. There are two alternatives to choose for this project.

The first and simple way to do is to subdivide in 4 lots that are based on the current zoning classification, RR. One and haft (1/2) acre per lot per home for the total of 4 homes. The minimum lot area requirement is 1/2 acre, one septic tank per lot per home as to comply with the County, Department of Health Services.

The second alternative is to request to the County for the zoning change from RR to R1 to construct 9 single-family tract homes on the parcel. The minimum lot area requirement is 7,200 square feet. Under this scenario, a 900', 8" sewer pipe shall be constructed in front of the parcel to provide sewer hook up and sanitation services.

3. DISCUSSION OF THE EXISTING SEWER PIPE

There is an existing sewer pipe in the area. The closest sewer manhole is located at the mid point of Scales Way and Skylark Dr., approximately 900' in the west site of the parcel at the Grand Ave. (see the attached map). The local sewer is operated and maintained by Elsinore Valley Municipal Water District.

Extending the existing sewer to the project site creates numerous advantages. It eliminates the installation of the septic tank, provides the sewer services through local sewer hook-up thus enhance the public health and safety and finally **increase the property value** in the long range.

The construction cost of 900', 8" diameter, PVC sewer pipe is quite expensive, in the range of over \$100,000 plus engineering design and local agency permits.

The developer is responsible to pay for this cost since it is part of the land development and the District (Elsinore Valley Municipal Water District) will not share for the cost. However, the District will, after the completion of the project to collect the sewer connection fee from other property owner(s) who may want to use this sewer pipe to hook up to their own domestic sewer pipe.

4. DEVELOPMENT OF THE ALTERNATIVES

- Four single family homes

Under this scenario, the septic tank must be installed for each home to comply with the County of Riverside, Department of Health Services regulations.

A typical septic tank for a single family home has a volume of 750-1500 gallons; may be made of concrete, steel, or fiberglass and is approximately eight feet long, five feet deep and wide (8 x 5 x 5). Septic tanks are watertight chambers, which promote the growth of anaerobic bacteria for the biological decomposition of sewage and the separation of grease and organic particles from the wastewater. They are sized for a minimum detention period of twenty-four hours and are constructed with a pair of baffles or sanitary tees to prevent the flow through of floating solids, to minimize the raw sewage to leaving the tank and from disturbing the settled sludge and floating scum.

Septic is designed to handle all the normal, daily (24-hour) discharge flow, which a household can produce. For this reason, design is based on the maximum capacity of a single family home in terms of personal occupancy, and bedrooms, i.e. 2 bedroom (4 people); 3 bedroom (6 people); 4 bedroom (8 people) etc. **Note that roof and footing drainage, garage drains, and water softener waste must not be drained into the septic system.**

Size a septic tank for a single family home:

Assume that a four bedroom home to be build on each lot. Per County guidelines, 8 people maximum for each home. The wastewater discharge is as follows:

Typical discharge per resident per day is 100 gallons (use it as a design parameter to size the tank). We have a total maximum discharge of 800 gallons of sewerage per day. For this reason it is recommended that a tank volume of 1,500 gallons to be installed for each home for this project.

Larger tank may have many advantages. Longer detention times due to the larger capacity, better separation and less carry over of scum and sludge. Larger tank requires less frequent cleaning, is slightly more expensive but it will allow for future expansion of the home (Additional bedrooms or waste discharge fixtures). If the septic tank is

upsized, the corresponding size of the leachfield must also be increased. The total septic tank process then produces an effluent that can be leached into most soils without clogging.

The lay out of four lots with four single-family homes is shown in the following page. Basically, if four homes are to be build in this parcel, the following applications and fees must be submitted to the County, Planning Department to obtain the approval for the project:

a) Change Zone:	\$ 3,577
b) General Plan Amendment	\$ 7,333
c) Parcel Maps	\$ 5,919
d) Fish & Game	\$ 64
e) CEQA	\$ 474

Total: \$13,367

Note: CEQA: California Environmental Quality Act

This is a non-refundable fee and it must be submitted to the County to initiate the project.

- **Nine track homes (SFR)**

Under this scenario, it is recommended that an 8 inches PVC sewer pipe shall be build to accommodate the additional wastewater flow discharged from this community of 9 homes. The nearest sewer manhole to the parcel in the Grand Ave. is located approximately 400', north of Skylark Dr. The proposed 900' PVC sewer pipe can tap to this manhole. Currently, the Elsinore Municipal Water District handles the operation and maintenance of the wastewater collection system in the area.

The lay out of the proposed 9 track homes is shown in the following page, in which the each lot size is 7,240 sq. ft.

The proposed 8" diameter, 900' long PVC sewer pipe.

It was verified that the connection of 900' long, 8" PVC sewer pipe to the existing 8" sewer located in Grand Ave. north of Skylark Dr. will not overload the that sewer that is currently maintained by the Elsinore Municipal Water District (EMWD). An 8" diameter pipe is an adequate pipe for the connection. See the attached hydraulic of circular sewer calculation sheet. The sewer construction permit is under jurisdiction of EMWD.

Basically, if nine homes are to be build in this parcel, the following applications and fees must be submitted to the County, Planning Department to obtain the approval for the project:

• Cost to build nine track homes

The following costs include Engineering and Construction for the project.

1) Boundary and Topography Survey	\$ 4,000.00
2) Soil Test	\$ 7,000.00
3) Conceptual Grading Plan	\$ 6,000.00
4) Engineering Drawings (including sewer design)	\$ 65,000.00
5) Architectural Drawing	\$ 45,000.00
6) Landscape Architectural Design	\$ 8,000.00
7) Construction Staking	\$ 13,000.00
8) Block walls	\$ 55,000.00
9) Sunrise Road	\$ 70,000.00
10) Home Constructions (\$100/sq. ft.) (2,200 sq. ft. per home)	\$1,980,000.00
11) Landscape	\$ 120,000.00
12) 900' Sewer pipe	\$ 120,000.00

Total:

\$2,493,000.00 ✓

In addition, the following items are specifically excluded from this estimate:

- Cost to local agencies (City and County review, hearings, meetings etc.)
- Blueprinting and reproduction
- Any plan not covered in consultants specific services
- Design of any retaining walls
- Design of any dry utilities. Utilities should be designed by service planner of utility company.

*Need to revise
based on the current
cost - P.T.
11/1/06*

This report is prepared with the intention to provide the best available alternatives to develop this vacant parcel to the property owner. It is an Engineer's opinion that the "sewer alternative" is feasible and offers the most benefits in term of public health & safety and investment.

a) Change of Zone	\$3,577
b) General Plan Amendment	\$7,333
c) Single Family Tracks	\$9,806
d) Firsh & Game	\$ 64
e) CEQA	\$ 474

Total: \$21,254

This is a non-refundable fee and it must be submitted to the County to initiate the project. Since the cost is high and it take approximately from 12 to 18 months to obtain the approval from the County, Planning Department. Consequently, it is suggested that the owner should apply for P.A.R. (Preliminary Approval Report). Its cost to the County is only \$1,500 and it takes only 2 months to obtain the result. Once P.A.R. is approved, the owner could move ahead to commit more time and fund to spend on the project. PAR could be used as a tool to apply for a loan from the bank to fund the project.

However, depending on the owner 's financial conditions, the availability of funding and the time needed to complete the project; he/she should choose the one that will be suitable to his/her desire and motivation to accomplish this development.

Phil P. Tran, P.E.



HYDRAULIC CALCULATIONS OF CIRCULAR SEWER

Each proposed track home has 4 bedrooms. Per County guideline, 8 people maximum per home. The typical wastewater discharge is 100 gal / cap / day.

$$\begin{aligned} Q \text{ (ave)} &= 8 \times 100 = && 800 \text{ gal / home / day} \\ Q \text{ Total (ave)} &800 \times 9 = && 7200 \text{ gpd} \\ Q \text{ Total (ave)} &0.0072 \text{ mgd} = && 0.1116 \text{ cfs} \end{aligned}$$

$$\frac{Q \text{ (peak)}}{Q \text{ (Ave)}} = 3.5 \quad Q \text{ (peak)} = 3.5 Q \text{ (Ave)}$$

Design of Sewer and Storm Drain (WPCF, page 33. Fig. 4)

$$Q \text{ (peak)} = 3.5 \times 0.0116 = 0.0392 \text{ cfs} \quad \text{say } 0.04 \text{ cfs}$$

Q (full) of the existing 8" sewer pipe Full pipe capacity

$$\begin{aligned} Q \text{ (full)} &= (1.49/n) \times A \times R^{2/3} \times S^{1/2} \\ D &= 8" \quad n = 0.012 \\ A &= \pi D^2 / 4 \\ R &= (D/4)^{2/3} \\ S &= 0.004 \end{aligned}$$

$$Q \text{ (full)} = 0.84 \text{ cfs}$$

Existing flow at the closed manhole (Grand Ave. & Skylark Dr.) is low, about 20 % by visual observation.

$$Q \text{ (total)} = Q \text{ (peak)} + Q \text{ (existing)}$$

$$Q \text{ (total)} = 0.04 + 0.2 \times 0.84 = 0.208 \text{ cfs} < 0.84 \text{ cfs}$$

Since $Q \text{ (total)} = 0.208 \text{ cfs} < 0.84 \text{ cfs}$, OK

The connection of a new sewer pipe to the existing 8" sewer will not create an overflow situation.

Size the pipe diameter of a new sewer:

Design at $d/D = 0.50$

$$\frac{Q}{Q \text{ (full)}} = 0.5 \quad \text{(Hydraulic of circular sewer, WPCF)}$$

$$Q \text{ (full)} = (Q/0.50) = (0.04/0.50) = 0.08 \text{ cfs}$$

$$D = 1.335 \frac{(n Q_{full})^{3/8}}{S^{1/2}} = \frac{1.335 (0.012 \times 0.08)^{3/8}}{0.004^{1/2}} = 0.28' \quad \text{say } 4"$$

8" sewer is recommended because:

- be consistent with existing sewer pipe size
- to accommodate the future hook up in the area

Marty Nicholas

LND Active

00000 abcdefg

Land

Lake Elsinore (LKE)

P611934 Media: 0

Have

XSTS East Lake Shore Drive

Lot Dim

Builder Tract Unknown (UNKN)

Features Lot Over 40,000 SqFt

List Type Exclusive Agency/Full Service

Certificate of Compliance Unknown

Zip 90000 -

Wed, Jan 30, 2008 07:51 AM

Zone: M3

Price \$ 450,000

Ref: 1

Riverside County (RI)

APNO 370-280-013

Area Lake Elsinore North (245)

View

Pr Per-SQFT \$ 5.17

TG 370g28

Equity

Acres 2

SQFT 87,120

No picture available.

Description of Property		Infrastructure	
Dist-To Water	Stores	Water Dist Name	Septic?
Schools	Churches	Storm Drains?	Pavd Str? No
Freeway	Bus	Existing Bonds?	Street Lights? No
Phone Ser	Sewer	Sewer	
Elect	Gas	Telephone	Gas Unknown
St Frntge	Min Rights?		Electric Available
Poss New Zn	Redev Area		
Ing/Egress			
Easements?	Horse Prop?	Tax Information	
Fence'd	Cond	Tax Area 65134	
Cleared	Elev	Tax Rate Yr	
Typ Soil	Current Geological No	Land %	Tax Rate
Owner Surv?	%Usable %	Imprvmnts %	
Trees	Tract Map Final	Per Prop %	
Topogpy	Survey Buyer Pays	Total 2725 %	
Pres Use		Legal Lot# 43	
Potential Use		Parcel#	Blk# D
Improvements			Parcel Map#

Contact Information

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