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**ROBERT  
W.  
JOHNSON**

**An Accountancy Corporation  
Certified Public Accountant**

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**INDEPENDENT AUDITOR'S REPORT**

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the accompanying financial statements of Foresthill Public Utility District (the "District") as of and for the year ended June 30, 2008, as listed in the table of contents. These financial statements are the responsibility of the District's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Foresthill Public Utility District as of June 30, 2008 and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated September 2, 2008 on our consideration of the District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grants.

The Management's Discussion and Analysis is not a required part of the financial statements but is supplemental information required by the Government Auditing Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the supplemental information. However, we did not audit the information and express no opinion on it.

The supplemental information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements of Foresthill Public Utility District. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

Citrus Heights, California  
September 2, 2008

# FORESTHILL PUBLIC UTILITY DISTRICT

[www.foresthillpud.com](http://www.foresthillpud.com)

## BOARD OF DIRECTORS

Gregory L. Wells  
Duane L. Frink  
William L. Sadler, Jr.  
Brett C. Grant  
George S. Shaw

Kurt W. Reed, General Manager  
Paul Chamberlain, District Counsel

## Management's Discussion and Analysis For Fiscal Year July 1, 2007 - June 30, 2008

The following discussion and analysis of the Foresthill Public Utility District (the "District") and its financial performance provides an overview of the District's financial activities, prepared by its management for the year ended June 30, 2008. This discussion and analysis should be read in conjunction with the District's financial statements and accompanying notes, which follow this section.

### **Background**

The District was formed in 1950 pursuant to the provisions of Section 15501 et. seq. California Public Utilities Code for the purpose of operating a water system. The District's service area comprises the unincorporated community of Foresthill, California, located in Placer County approximately 60 miles Northeast of Sacramento. The District is governed by a five member Board of Directors, and currently employs 10 full-time employees. The District currently incorporates an area of approximately 13,300 acres and contains primarily residential development. The District has a population of approximately 5,900, and as of June 30, 2008 provided 1,960 water service connections.

### **Rates and Charges**

The District places a high priority on rate stability while providing exceptional service to its customers. To control rate increases the District implements a conservative, long-term planning approach that controls spending and focuses expenditures on the highest priorities. The District's water rates increased 13.65% in December 2006, the first increase since 2001. This brought the rate for basic residential service for 0-10,000 gallons from \$22.00 to \$25.00 per month. The District is proposing a 10% general water rate increase and a \$3.32 per month Infrastructure Repair/Replacement surcharge for Fiscal Year 2008-2009.

### **Financial Reporting**

Management's discussion and analysis of the Foresthill Public Utility District's financial performance provides an overview of the District's activities, as well as, its financial condition for the year ended June 30, 2008. For this report, the District has implemented Governmental Accounting Standards Board (GASB) Statement No. 34 that establishes financial reporting standards for state and local governments, including enterprise districts such as Foresthill PUD. In Fiscal Year 2007-2008 the District completed an actuarial regarding District paid retiree benefits in order to satisfy GASB Statement No. 45 with implementation scheduled for Fiscal Year 2009-2010.

P.O. Box 266 24540 Main Street Foresthill, California 95631-0266 (530) 367-2511 Fax (530) 367-4385

The District's finances span three separate funds:

1. Enterprise Fund – this is the operating fund of the District. It is used to account for the day-to-day operations, which is financed and operated in a manner similar to private business enterprises. This allows the District to determine that the costs (expenses, including depreciation) of providing drinking water on a continuing basis are financed or recovered primarily through user charges.  
Also accounted for within the Enterprise Fund: 2003 Certificate of Participation – Sugar Pine Project Acquisition – Issuance of Certificate(s) of Participation through California Special District Finance Corporation pledging revenues of District to repay twenty-five (25) year debt. November 2003 the District acquired the Sugar Pine Dam & Reservoir Project from U.S. Bureau of Reclamation. A \$6.50 Sugar Pine Surcharge is collected each month from each active water customer to provide sufficient revenues for retirement of debt service.
2. Improvement Bond Fund – in 1982 the District created the existing treatment plant by assessing all parcels within District boundaries. This assessment will continue for 40 years or until which time the assets equal the liabilities and the debt can be extinguished.
3. Assessment District No. 2 – in 1997 the District upgraded its distribution system to improve fire flow and pressures in the system. The improvements were funded by assessing each parcel within 500 feet of an existing main water line. This assessment also will continue for 40 years or until which time the assets equal the liabilities and the debt can be extinguished.

### **Financial Highlights**

- Fiscal Year 2007-2008 General Fund revenues were up 5.82% over Fiscal Year 2006-2007 (\$1,354,106 vs. \$1,279,578). Expenses were up 12.56% (\$1,366,947 vs. \$1,195,366).
- End of Fiscal Year 2007-2008 District General Reserve Fund decreased 8.72% compared to the previous (\$491,384 vs. \$538,286).
- Eco:Logic Consulting Engineers completed the 2008 Water System Master Plan (planning and feasibility analysis) Cost: \$97,325.
- District completed in house design, construction and installation of the District's treated water storage tank re-plumb effort to comply with California Department of Health Services 'Contact Time Value' requirements. Cost: \$55,589. Estimated cost savings by doing job in-house = \$150,000.
- There were no contributed capital projects during Fiscal Year 2007-2008.
- Economic conditions throughout Fiscal Year 2007-2008 remained slower than previous forecasts. Lack of housing starts, increased energy, fuel, material and labor costs have contributed to the increase in total expenditures, as well as, the decline in General Fund Reserves which has necessitated the District's proposed 10% general water rate increase.

### **Requests for Information**

Interested persons may direct their inquiries regarding the information contained in this Annual Financial Report to:

Kurt W. Reed, General Manager [kreed@foresthillpud.com](mailto:kreed@foresthillpud.com) (530) 367-2511  
Patricia L. Pappas, Business Manager [ppappas@foresthillpud.com](mailto:ppappas@foresthillpud.com) (530) 367-2511  
PO Box 266  
24540 Main Street  
Foresthill, CA 95631

**FORESTHILL PUBLIC UTILITY DISTRICT  
COMBINED BALANCE SHEET**

June 30, 2008

(with comparative totals for fiscal year ended June 30, 2007)

ASSETS

	Enterprise Fund	Improvement Bond Fund	Assessment District No. 2	Totals (Memorandum only)	
				2008	2007
<b>Current assets:</b>					
Cash in checking	\$ 22,420	\$	\$	\$ 22,420	\$ 12,640
Temporary investments	491,384			491,384	538,286
Accounts receivable	134,071			134,071	119,050
Prepaid expenses	-			-	-
Inventory - materials and supplies	<u>16,932</u>			<u>16,932</u>	<u>33,984</u>
<b>Total current assets</b>	<u>664,807</u>			<u>664,807</u>	<u>703,960</u>
Capital assets, at cost (Note 4)	12,402,744			12,402,744	12,275,413
Less, accumulated depreciation	<u>(4,368,664)</u>			<u>(4,368,664)</u>	<u>4,074,344</u>
	8,034,080			8,034,080	8,201,069
<b>Construction in progress</b>	<u>-</u>			<u>-</u>	<u>-</u>
	<u>8,034,080</u>			<u>8,034,080</u>	<u>8,201,069</u>
Debt issuance costs, net	<u>160,320</u>			<u>160,320</u>	<u>168,141</u>
<b>Restricted assets:</b>					
Temporary investment – reserves	346,192			346,192	526,593
Certif. of Partic. – reserve fund	<u>268,944</u>			<u>268,944</u>	<u>270,127</u>
	<u>615,136</u>			<u>615,136</u>	<u>796,720</u>
<b>Improvement Bond Fund:</b>					
Future assessments receivable		458,320		458,320	438,031
Temporary investments		175,918		175,918	215,371
<b>Assessment District No. 2:</b>					
Temporary investments			468,320	468,320	439,515
Future assessments receivable			<u>2,404,516</u>	<u>2,404,516</u>	<u>2,309,707</u>
	<u>\$ 9,474,343</u>	<u>\$ 634,238</u>	<u>\$ 2,872,836</u>	<u>\$12,981,417</u>	<u>\$13,272,514</u>

See notes to financial statements

LIABILITIES AND NET ASSETS

	Enterprise Fund	Improvement Bond Fund	Assessment District No. 2	Totals (Memorandum only)	
				2008	2007
Current liabilities:					
Current portion of long-term debt (Note 6)	\$ 100,000	\$	\$	\$ 100,000	\$ 100,000
Current portion of capital lease (Note 12)	34,286			34,286	34,465
Accounts payable	4,695			4,695	6,324
Compensated absences payable	26,013			26,013	37,369
Customer deposits	<u>26,538</u>			<u>26,538</u>	<u>28,163</u>
Total current liabilities	<u>191,532</u>			<u>191,532</u>	<u>206,321</u>
Long-term debt, net of					
current portion (Note 6)	2,695,000			2,695,000	2,795,000
Add, bond premium, net of amortization	<u>25,810</u>			<u>25,810</u>	<u>28,143</u>
	2,720,810			2,720,810	2,823,143
Capital lease (Note 12)	<u>12,382</u>			<u>12,382</u>	<u>49,171</u>
	<u>2,733,192</u>			<u>2,733,192</u>	<u>2,872,314</u>
Net assets:					
Invested in capital assets, net of related debt	5,192,412			5,192,412	5,222,433
Restricted (Note 11)	583,761			583,761	766,256
Unrestricted	<u>773,446</u>			<u>773,446</u>	<u>802,566</u>
	<u>6,549,619</u>			<u>6,549,619</u>	<u>6,791,255</u>
Improvement Bond Fund:					
Bonds payable (Note 5)		470,000		470,000	495,000
Fund equity		164,238		164,238	158,402
Assessment District No. 2:					
Bonds payable (Note 9)			3,035,300	3,035,300	3,081,600
Fund deficit	<u>                    </u>	<u>                    </u>	<u>( 162,464)</u>	<u>( 162,464)</u>	<u>( 332,378)</u>
	<u>\$9,474,343</u>	<u>\$ 634,238</u>	<u>\$2,872,836</u>	<u>\$12,981,417</u>	<u>\$13,272,514</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS**  
for the year ended June 30, 2008  
(with comparative totals for fiscal year ended June 30, 2007)

	<u>2008</u>	<u>2007</u>
Operating revenues:		
Sales - residential	\$ 839,750	\$ 751,871
- business	183,646	203,883
- industrial	300	311
Service connections	22,982	11,250
Will serve	85,171	74,300
Sugar Pine surcharge	176,719	175,597
Other	<u>56,326</u>	<u>65,105</u>
Total operating revenues	<u>1,364,894</u>	<u>1,282,317</u>
Operating expenses:		
Source of supply	70,315	61,864
Pumping	16,784	7,286
Water treatment	164,344	130,025
Transmission and distribution	229,887	186,856
Customer accounts	13,151	17,440
Administrative and general	640,155	561,375
Depreciation	<u>360,709</u>	<u>339,976</u>
Total operating expenses	<u>1,495,345</u>	<u>1,304,822</u>
Operating income (loss)	<u>( 130,451)</u>	<u>( 22,505)</u>
Non-operating income and (expense):		
Interest income	48,402	69,574
Property taxes	82,697	78,112
Interest expense	( 141,490)	( 145,070)
Assistance - Assessment District #2	( 100,000)	( 100,000)
Loss on disposal	<u>( 794)</u>	<u>( 56)</u>
	<u>( 111,185)</u>	<u>( 97,440)</u>
Loss before contributions	( 241,636)	( 119,945)
Capital contributions	<u>-</u>	<u>183,275</u>
Changes in net assets (carried forward)	( 241,636)	63,330

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS, continued**  
for the year ended June 30, 2008  
(with comparative totals for fiscal year ended June 30, 2007)

	<u>2008</u>	<u>2007</u>
Change in net assets (brought forward)	\$( 241,636)	\$ 63,330
Total net assets:		
Beginning	<u>6,791,255</u>	<u>6,727,925</u>
Ending	<u>\$6,549,619</u>	<u>\$6,791,255</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF CASH FLOWS**  
for the year ended June 30, 2008  
(with comparative totals for fiscal year ended June 30, 2007)

	<u>2008</u>	<u>2007</u>
Cash flows from operating activities:		
Receipts from customers	\$1,349,873	\$1,257,871
Payments to suppliers	( 622,168)	( 529,636)
Payments to employees	<u>( 504,538)</u>	<u>( 424,953)</u>
Net cash provided by operating activities	<u>223,167</u>	<u>303,282</u>
 Cash flows from noncapital financing activities:		
Receipts from property taxes and other nonoperating income	<u>82,697</u>	<u>78,112</u>
 Cash flows from capital and related financing activities:		
Capital contributions	-	183,275
Purchase of capital assets	( 193,331)	( 388,500)
Interest paid on capital debt	( 141,490)	( 145,070)
Establish Reserve Fund-COP issue	-	( 750)
Assistance to Assessment Dist. No. 2	( 100,000)	( 100,000)
Proceeds from capital leases	-	46,366
Principal payments on long-term debt	<u>( 136,968)</u>	<u>( 126,132)</u>
	<u>( 571,789)</u>	<u>( 530,811)</u>
 Cash flows from investing activities:		
Interest income	<u>48,402</u>	<u>69,574</u>
 Net increase (decrease) in cash and cash equivalents	( 217,523)	( 79,843)
 Cash and cash equivalents:		
Beginning of year	<u>1,077,519</u>	<u>1,157,362</u>
End of year	<u>\$ 859,996</u>	<u>\$1,077,519</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF CASH FLOWS, continued**  
for the year ended June 30, 2008  
(with comparative totals for fiscal year ended June 30, 2007)

	<u>2008</u>	<u>2007</u>
Reconciliation of operating income (loss) to net cash provided by operating activities:		
Operating income (loss)	\$( <u>130,451</u> )	\$( <u>22,505</u> )
Amortization on Certificates of Participation costs, net	5,488	5,488
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	360,709	339,976
Changes in operating assets and liabilities:		
Receivables	( 15,021 )	( 24,446 )
Prepaid expense	-	-
Inventory	17,052	7,017
Accounts payable	( 1,629 )	( 1,823 )
Customer deposits	( 1,625 )	950
Compensated absences	( <u>11,356</u> )	( <u>1,375</u> )
	<u>353,618</u>	<u>325,787</u>
Net cash provided by operating activities	\$ <u>223,167</u>	\$ <u>303,282</u>
Supplementary information:		
Cash paid for interest	\$ <u>133,670</u>	\$ <u>139,582</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS**

1. Organization:

The Foresthill Public Utility District was formed and operates under The Public Utility District Act. The Act confers upon the District the rights and powers to fix rates and charges for commodities or services furnished, to incur indebtedness and issue bonds or other obligations and, under certain circumstances, to levy and collect ad valorem property taxes. The District is exempt from payment of federal and state taxes on income.

2. Summary of Significant Accounting Policies:

The accounting policies of the Foresthill Public Utility District conform to generally accepted accounting principles applicable to enterprise funds. The District applies all relevant Governmental Accounting Standards Board (GASB) pronouncements. Proprietary funds apply Financial Accounting Standards Board (FASB) pronouncements and Accounting Principles Board (APB) opinions issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements, in which case, GASB prevails.

Basis of Accounting

The District's books and accounts are based upon the Uniform System of Accounts for Public Utilities as prescribed by the Division of Local Government Fiscal Affairs of the State of California. The records are maintained and the accompanying financial statements are presented on the accrual basis of accounting.

Fund Accounting

The accounts of the District are organized on the basis of funds and account groups, each of which is considered a separate accounting entity. The operations of each fund are accounted for with a separate set of self-balancing accounts that comprise its assets, liabilities, fund equity, revenues, and expenditures, or expenses, as appropriate. District resources are allocated to and accounted for in individual funds based upon the purposes for which they are to be spent and means by which spending activities are controlled. The various funds are grouped, in the financial statements in this report as follows:

Enterprise Fund - The Enterprise Fund is used to account for water operations that are financed and operated in a manner similar to private business enterprises. The intent of the District is that the costs (expenses, including depreciation) of providing goods and services to the general public on a continuing basis be financed or recovered primarily through user charges.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

2. Summary of Significant Accounting Policies, continued:

Improvement Bond Fund - This fund is to account for financing of public improvements or services deemed to benefit the properties against which special assessments are levied.

Assessment District No. 2 - This fund is to account for a new financing of public improvements.

Inventories

Inventories have been valued at the lower of cost (first-in, first-out) or market.

Depreciation

Water utility plant is recorded on the basis of purchase cost. Assets acquired by contributions are recorded at estimated cost or fair market value at the date of acquisition.

Depreciation is calculated by the straight-line method over the estimated useful lives of the respective assets that range from five to forty years.

Statement of Cash Flows

All highly liquid investments with a maturity of three months or less when purchased, are considered to be cash equivalents. The investment with the State Treasurer's Local Agency Investment Fund (LAIF) is also considered to be the equivalent of cash.

Investments

Investments consist of LAIF (State of California pooled investment fund). Investments are stated at market value. Such investment is within the State statutes and the District's investment policy.

Compensated Absences

Vested or accumulated vacation leave and comp. time that is expected to be liquidated with expendable available resources is reported as a current liability. Accumulated sick leave is vested upon age 60.

Budget and Budgetary Accounting

The Board of Directors annually adopts an operating budget. The operating budgets are prepared on the accrual basis to match the operating statements.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

2. Summary of Significant Accounting Policies, continued:

Total Columns

Total columns on the combined statements are captioned "Memorandum Only" to indicate that they are presented only to facilitate financial analysis. Data in these columns do not present financial position or results of operations in conformity with generally accepted accounting principles, nor is such data comparable to a consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

Bond Premium and Issuance Costs

Bond premium is deferred and amortized over the life of the Certificates of Participation using the effective interest method. Issuance costs are deferred and amortized over the life of the Certificates using the straight-line method.

3. Cash and Investments:

Cash and investments consist of the following at June 30, 2008:

Unrestricted	\$ 513,804
Restricted	<u>346,192</u>
Total cash and investments	<u>\$ 859,996</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

3. Cash and Investments (continued):

Deposits:

At year-end the carrying amount of the District's deposits was \$22,420 and the bank balance was \$51,101. All of the bank balance was covered by Federal depository insurance.

	<u>Balance, June 30, 2008</u>
Checking	\$ 22,145
Other deposits	25
Cash on hand	<u>250</u>
Total deposits	<u>\$ 22,420</u>

Investments:

California statutes authorize the District to invest in a variety of credit instruments as provided for in the California Government Code Section 53600, Chapter 4 - Financial Affairs. The Government Code allows investments in obligations of the U.S. Treasury, agencies, and instrumentalities, commercial paper rated A-1 by Standard & Poor's or P-1 by Moody's Commercial Paper Record, bankers' acceptances, repurchase agreements, medium-term corporate notes, mutual funds and the State Treasurer's Local Agency Investment Fund (LAIF). The investment in LAIF is reported at fair value.

	<u>Carrying Amount</u>	<u>Market Value</u>
Balance, June 30, 2008, Local Agency Investment Fund	\$ <u>837,576</u>	\$ <u>837,576</u>

Pursuant to Government Accounting Standards Board Statement 3, the investment in LAIF is not classified in categories of credit risk. The District's funds in LAIF are invested in a diversified portfolio (of underlying investments e.g. U.S. Treasury obligations) such that it considers the risk of material loss to be minimal. The funds held in LAIF can be withdrawn on demand.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

3. Cash and Investments (continued):

Restricted investments:

The District sets aside funds for future plant improvements. At June 30, 2008, the District had set aside the following in investments for special purposes:

	<u>Balance, June 30, 2008</u>
Capital reserve	\$ <u>346,192</u>

4. Capital Assets:

At June 30, 2008 the District's investment in plant consists of:

	<u>Cost</u>	<u>Accumulated Depreciation</u>
Land	\$ 36,568	\$ -
Source of supply	2,630,510	363,463
Pumping plant	20,962	20,027
Water treatment	1,181,172	898,682
Transmission and distribution	7,834,157	2,623,656
General plant	<u>699,375</u>	<u>462,836</u>
	<u>\$12,402,744</u>	<u>\$ 4,368,664</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

5. Bond Issue:

The District issued bonds dated May 2, 1982 pursuant to the Municipal Improvement Act of 1913 and the Improvement Bond Act of 1915 in the total amount of \$817,250. The bonds bear interest at five percent (5%) payable January 2 and July 2 of each year; such bonds may be called for redemption prior to maturity upon payment of 105 percent of par plus accrued interest. The bonds are secured by the unpaid assessments made for the payment of improvements in the assessment district. Maturity of the bonds (on July 2) is:

	<u>Principal</u>
2009	\$ 25,000
2010-11	50,000
2012-13	60,000
2014-18	165,000
2019-22	<u>170,000</u>
	<u>\$ 470,000</u>

6. Long-term Debt:

On October 1, 2003, the District issued Certificates of Participation – 2003 Series QQ (COP’s) for \$3,195,000 to the CSDA Finance Corporation. Proceeds from these Certificates were used to purchase the Sugar Pine Dam and Reservoir (including associated water rights) from the United States Bureau of Reclamation. The Certificates are secured by a lien on the District’s net revenues. Interest rates range from 1.05% to 3.75% on annual \$100,000 principal payments through 2014. Thereafter, through maturity, interest rates range from 5% to 5 ¼%. The District maintains a reserve fund with a Trustee equal to the maximum annual installment payable in a Certificate year. Interest is payable on May 1 and November 1 of each year.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

6. Long-term Debt, continued:

Principal on the Certificates is payable annually on November 1 through 2028 as follows:

<u>Payment Date</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
11/1/08	\$ 100,000	\$ 65,769	\$ 165,769
5/1/09	-	64,544	64,544
11/1/09	100,000	64,544	164,544
5/1/10	-	63,169	63,169
11/1/10	100,000	63,169	163,169
5/1/11	-	61,619	61,619
11/1/11	100,000	61,619	161,619
5/1/12	-	59,919	59,919
11/1/12	100,000	59,919	159,919
5/1/13	-	58,106	58,106
11/1/13 through 5/1/28	<u>2,295,000</u>	<u>1,074,667</u>	<u>3,369,667</u>
	<u>\$2,795,000</u>	<u>\$1,697,044</u>	<u>\$4,492,044</u>

7. Retirement Plan:

The District's policy is to fund retirement benefits with the State of California Public Employees' Retirement System (CALPERS). The amount of pension contributions by the District to CALPERS is actuarially determined under a program wherein contributions plus earnings of the retirement system are to provide the necessary funds to pay retirement benefits when due. The District relies on the competency of the State in determining the funding method, the adequacy of funding, and the spreading of actuarial gains and losses which is currently on a four-year basis.

A. Plan Description

Foresthill Public Utility District contributes to the California Public Employees Retirement System (CALPERS), an agent multiple-employer public employee retirement system that acts as a common investment and administrative agent for participating public entities within the State of California. CALPERS issues a publicly available financial report that includes financial statements and required supplementary information for the Foresthill Public Utility District. The financial report may be obtained by writing to CALPERS Actuarial Office, P.O. Box 942709, Sacramento, CA 94229-2709.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan:

B. Summary of Significant Accounting Policies

**Basis of Accounting:** The financial statements of the plan are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. The District's contributions are recognized when due and a formal commitment to provide the contributions has been made. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

**Method Used to Value Investments:** Plan investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments are discounted at prevailing interest rates for similar instruments. The fair value of real estate investments is based on independent appraisals. Investments that do not have an established market are reported at estimated fair value.

Under GASB 27, an employer reports an annual pension cost (APC) equal to the annual required contribution (ARC) plus an adjustment for the cumulative difference between the APC and the employer's actual plan contributions for the year. The cumulative difference is called the net pension obligation (NPO). The ARC for the period, July 1, 2007 to June 30, 2008, has been determined by an actuarial valuation of the plan as of June 30, 2005.

District employees' contribution is 8.0 percent of their annual salary to the System. The District pays the employees' contribution. The District is required to contribute the remaining amounts necessary to fund the benefits for its members, using the actuarial basis recommended by the PERS Actuaries and Actuarial Consultants and adopted by the Board of Administration. For year ended June 30, 2008 the District paid total contributions of \$98,351, including employees' portion.

**Pooled Report Format**

Since the District's plan has less than 100 active members, it is required to participate in a risk pool.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan, continued:

A summary of principle assumptions and methods used to determine the annual required contribution is shown below:

Valuation Date	June 30, 2005
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level Percent of Payroll
Average Remaining Period	17 Years as of the Valuation Date
Asset Valuation Method	15 Year Smoothed Market
Actuarial Assumptions	
Investment Rate of Return	7.75% (net of administrative expenses)
Projected Salary Increases	3.25% to 14.45% depending on Age, Service, and type of employment
Inflation	3.00%
Payroll Growth	3.25%
Individual Salary Growth	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.

Initial plan unfunded liabilities are amortized over a closed period equal to the average amortization period at the plan's date of entry into the CalPERS Risk Pool. Subsequent plan amendments are amortized over a closed 20-year period. Gains and losses that occur in the operation of the risk pool are amortized over a rolling 30 year period. If the plan's accrued liability exceeds the actuarial value of plan assets, then the amortization payment on the total unfunded liability may not be lower than the payment calculated over a 30 year amortization period. More complete information on assumptions and methods is provided in Appendix A of Section 2 of the report. Appendix B of Section 2 of the report contains a description of benefits included in the Risk Pool Actuarial Valuation.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan, continued:

The Schedule of Funding Progress below shows the recent history of the Risk Pool's actuarial value of assets, accrued liability, their relationship, and the relationship of the unfunded liability (UL) to payroll.

**Risk Pool's History of Funded Status and Funding Progress**

<u>Valuation Date</u>	<u>Accrued Liabilities</u>	<u>Actuarial Assets</u>	<u>Unfunded Liabilities (UL)</u>	<u>Funded Ratio</u>	<u>Annual Covered Payroll</u>	<u>UL As a % of Payroll</u>
June 30, 2004	\$426,958,282	\$334,956,019	\$ 92,002,263	78.5%	\$ 90,667,029	101.5%
June 30, 2005	\$499,323,280	\$405,480,805	\$ 93,842,475	81.2%	\$108,618,321	86.4%
June 30, 2006	\$620,492,183	\$501,707,110	\$118,785,073	80.9%	\$126,049,770	94.2%

8. Section 457 Plan:

The District adopted a California PERS Section 457 Deferred Compensation Plan. The District does not contribute to this plan. All contributions and administrative fees are paid by the employees.

9. Water System Assessment District No. 2:

On February 28, 1996 the District adopted a resolution authorizing the issuance of improvement bonds pursuant to the Improvement Bond Act of 1915. The proceeds of such bonds was used to finance the construction of public improvements under the Municipal Improvement Act of 1913.

The improvements consisted of two phases - Phase 1 Pipeline Relocation Project and Phase 2 Water System Rehabilitation Project.

The Improvement Bonds were financed by the U.S. Department of Agriculture, Rural Development.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

9. Water System Assessment District No. 2, continued:

On July 23, 1997 the District issued an improvement bond (Series 1997) for \$1,364,150 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.875% per annum, payable on March 2 and September 2 and matures as follows:

<u>Date</u>	<u>Principal</u>	<u>Interest</u>
9-2-08	\$ 19,800	\$ 29,499
3-2-09	-	29,016
9-2-09	20,800	29,016
3-2-10	-	28,509
9-2-10	21,800	28,509
3-2-11	-	27,978
9-2-11	22,900	27,978
3-2-12	-	27,419
9-2-12	24,000	27,419
3-2-13	-	26,834
9-2-13 through 9-2-36	<u>1,100,900</u>	<u>795,439</u>
	<u>\$1,210,200</u>	<u>\$1,077,616</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

9. Water System Assessment District No. 2 (continued):

On June 2, 1998 the District issued an improvement bond (Series 1998) for \$2,031,318 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.75% per annum, payable on March 2 and September 2 and matures as follows:

<u>Date</u>	<u>Principal</u>	<u>Interest</u>
9-2-08	\$ 28,700	\$ 43,346
3-2-09	-	42,665
9-2-09	30,000	42,665
3-2-10	-	41,952
9-2-10	31,500	41,952
3-2-11	-	41,204
9-2-11	33,000	41,204
3-2-12	-	40,420
9-2-12	34,500	40,420
3-2-13	-	39,601
9-2-13 through 9-2-37	<u>1,667,400</u>	<u>1,176,918</u>
	<u>\$1,825,100</u>	<u>\$ 1,592,347</u>

10. Risk of Loss:

Foresthill Public Utility District is exposed to various risks of loss related to theft of, damage to, and destruction of assets; and injuries to employees. During the 2008 fiscal year, the District purchased certain commercial insurance coverages to provide for these risks.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

11. Restricted Net Assets:

Reserves at June 30, 2008 consist of:

Capital improvement reserve	\$ 346,192
Sugar Pine Reserve	<u>237,569</u>
	<u>\$ 583,761</u>

12. Capital Leases:

The District entered into three capital lease agreements to finance the purchase of a dump truck, a utility bed truck, and two Chevy trucks. Assets under capital leases are recorded at the lower of the present value of the minimum lease payments or the fair value of the asset. The assets are depreciated over their estimated productive lives. Depreciation of assets under capital leases is included in depreciation expense.

The capitalized value of the trucks subject to the capital lease is \$144,908.

Minimum future lease payments under capital leases as of June 30, 2008 are:

2009		\$30,153
2010		<u>22,143</u>
Total payments		52,296
Less, amount representing interest		<u>5,628</u>
Present value of net minimum lease payments		<u>\$46,668</u>

13. Contingencies:

A suit has been filed against the District. In the opinion of management, such matter is considered not material. The District has requested for a dismissal of this lawsuit.

## **SUPPLEMENTAL DATA**

**ROBERT  
W.  
JOHNSON**

**An Accountancy Corporation  
Certified Public Accountant**

6234 BIRDCAGE STREET • CITRUS HEIGHTS, CA 95610-5949 • (916) 723-2555

**REPORT ON INTERNAL CONTROL OVER FINANCIAL  
REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT  
OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH  
*GOVERNMENT AUDITING STANDARDS***

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the financial statements of Foresthill Public Utility District (the “District”), as of and for the year ended June 30, 2008, and have issued our report thereon dated September 2, 2008. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control Over Financial Reporting

In planning and performing our audit, we considered the District's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the District's internal control over financial reporting.

A control deficiency exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A significant deficiency is a control deficiency, or combination of control deficiencies, that adversely affects the District's ability to initiate, authorize, record, process, or report financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the District's financial statements that is more than inconsequential will not be prevented or detected by the District's internal control.

A material weakness is a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the financial statements will not be prevented or detected by the District's internal control.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and would not necessarily identify all deficiencies in internal control that might be significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above.

#### Compliance and Other Matters

As part of obtaining reasonable assurance about whether the District's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We noted certain matters that we reported to management of the District, in a separate letter dated September 2, 2008.

This report is intended solely for the information and use of management, the audit committee and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Robert W. Johnson, An Accountancy Corporation  
September 2, 2008

**FORESTHILL PUBLIC UTILITY DISTRICT  
PRINCIPAL OFFICIALS**

**Board of Directors**

Gregory Wells	President
Duane Frink	Vice President
William Sadler, Jr.	Treasurer
Brett C. Grant	Director
George S. Shaw	Director

**Operations**

Kurt W. Reed	Manager Ex. Officio Secretary
Patricia L. Pappas	Business Manager

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES**  
**IN NET ASSETS – BUDGET AND ACTUAL**  
for the year ended June 30, 2008

	<u>Budget</u>	<u>Actual</u>	<u>Favorable (Unfavorable) Variance</u>
Operating revenues:			
Sales - residential	\$ 837,000	\$ 839,750	\$( 2,750)
- business	210,000	183,646	26,354
- industrial	325	300	25
Other	<u>246,050</u>	<u>341,198</u>	<u>( 95,148)</u>
Total operating revenues	<u>1,293,375</u>	<u>1,364,894</u>	<u>71,519</u>
Operating expenses:			
Source of supply	64,350	70,315	5,965
Pumping	7,600	16,784	9,184
Water treatment	142,800	164,344	21,544
Transmission and distribution	191,650	229,887	38,237
Customer accounts	17,700	13,151	( 4,549)
Administrative and general	613,950	640,155	26,205
Depreciation	<u>103,837</u>	<u>360,709</u>	<u>256,872</u>
Total operating expenses	<u>1,141,887</u>	<u>1,495,345</u>	<u>( 353,458)</u>
Operating income (loss)	<u>151,488</u>	<u>( 130,451)</u>	<u>( 281,939)</u>
Non-operating income and (expense):			
Interest income	1,100	48,402	47,302
Property taxes	80,000	82,697	2,697
Interest expense	( 232,588)	( 141,490)	91,098
Assistance - Assessment District #2	-	( 100,000)	( 100,000)
Other	<u>-</u>	<u>( 794)</u>	<u>( 794)</u>
Total non-operating income and (expense)	<u>( 151,488)</u>	<u>( 111,185)</u>	<u>40,303</u>
Income before contributions	-	( 241,636)	( 241,636)
Capital contributions	<u>-</u>	<u>-</u>	<u>-</u>
Change in net assets	<u>\$ -</u>	<u>\$( 241,636)</u>	<u>\$( 241,636)</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
OPERATING EXPENSES**

for the year ended June 30, 2008

Source of Supply:

Restoration payments	\$ 21,534	
Supervision and labor	5,516	
Maintenance	5,856	
Vehicle expense	514	
Power	3,015	
Inspection and water rights	<u>33,880</u>	
		\$ <u>70,315</u>

Pumping:

Power	8,047	
Vehicle expense	420	
Maintenance	1,313	
Propane	<u>7,004</u>	
		<u>16,784</u>

Water treatment:

Supervision and labor	104,916	
Maintenance	11,160	
Chemical and analysis	33,662	
Vehicle expense	3,149	
Power	9,775	
Propane	<u>1,682</u>	
		<u>164,344</u>

Transmission and Distribution:

Supervision and labor	173,086	
Maintenance	41,887	
Vehicle expense	14,354	
Propane	<u>560</u>	
		<u>229,887</u>

Customer Accounts:

Supervision and labor	11,881	
Maintenance	-	
Vehicle expense	<u>1,270</u>	
		<u>13,151</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**OPERATING EXPENSES, continued**  
for the year ended June 30, 2008

Administrative and General:

Salaries	\$ 190,585	
Legal services	31,254	
Collection charges	2,523	
Accounting	6,225	
Vehicle Expense	1,988	
Liability insurance	33,483	
Office expense	28,267	
Employee benefits and payroll taxes	292,561	
Seminars and travel	7,128	
Utilities	2,270	
Consulting services	5,000	
Maintenance	4,062	
Dues and subscriptions	8,049	
Computer services	11,205	
Uniforms	2,885	
Public information program	4,819	
Educational expense	651	
Election expense	-	
Board remuneration	<u>7,200</u>	<u>\$ 640,155</u>

Depreciation 360,709

Total operating expenses \$1,495,345

# **EXHIBIT 13**

**FORESTHILL  
PUBLIC UTILITY DISTRICT**

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**FINANCIAL STATEMENTS  
AND INDEPENDENT AUDITOR'S REPORT  
for the year ended June 30, 2009**

**ROBERT W. JOHNSON**  
**Certified Public Accountant**

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**ROBERT**

**W.**

**JOHNSON**

An Accountancy Corporation

Certified Public Accountant

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## **INDEPENDENT AUDITOR'S REPORT**

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the accompanying financial statements of Foresthill Public Utility District as of and for the year ended June 30, 2009, as listed in the table of contents. These financial statements are the responsibility of the District's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Foresthill Public Utility District as of June 30, 2009 and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated September 23, 2009, on our consideration of the District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

The Management's Discussion and Analysis is not a required part of the financial statements but is supplemental information required by the Government Auditing Standards Board. Management has elected to omit the Management's Discussion and Analysis.

The supplemental information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements of Foresthill Public Utility District. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

*Robert W. Johnson, An Accounting Corporation*

Citrus Heights, California  
September 23, 2009

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF NET ASSETS**  
June 30, 2009  
(with comparative totals for fiscal year ended June 30, 2008)

	ASSETS			Totals (Memorandum only)	
	Enterprise Fund	Improvement Bond Fund	Assessment District No. 2	2009	2008
<b>Current assets:</b>					
Cash in checking	\$ 26,168	\$	\$	\$ 26,168	\$ 22,420
Temporary investments	295,262			295,262	491,384
Accounts receivable	155,728			155,728	134,071
Prepaid expenses	33,103			33,103	-
Inventory - materials and supplies	<u>14,377</u>			<u>14,377</u>	<u>16,932</u>
<b>Total current assets</b>	<u>524,638</u>			<u>524,638</u>	<u>664,807</u>
<b>Capital assets, at cost (Note 4)</b>	12,541,304			12,541,304	12,402,744
Less, accumulated depreciation	<u>(4,703,934)</u>			<u>(4,703,934)</u>	<u>(4,368,664)</u>
	7,837,370			7,837,370	8,034,080
<b>Construction in progress</b>	<u>-</u>			<u>-</u>	<u>-</u>
	<u>7,837,370</u>			<u>7,837,370</u>	<u>8,034,080</u>
<b>Debt issuance costs, net</b>	<u>152,500</u>			<u>152,500</u>	<u>160,320</u>
<b>Restricted assets:</b>					
Temporary investment – reserves	241,745			241,745	346,192
Certif. of Partic. – reserve fund	<u>263,036</u>			<u>263,036</u>	<u>268,944</u>
	<u>504,781</u>			<u>504,781</u>	<u>615,136</u>
<b>Improvement Bond Fund:</b>					
Future assessments receivable		468,204		468,204	458,320
Temporary investments		134,479		134,479	175,918
<b>Assessment District No. 2:</b>					
Temporary investments			482,780	482,780	468,320
Future assessments receivable			<u>2,399,320</u>	<u>2,399,320</u>	<u>2,404,516</u>
	<u>\$ 9,019,289</u>	<u>\$ 602,683</u>	<u>\$ 2,882,100</u>	<u>\$12,504,072</u>	<u>\$12,981,417</u>

See notes to financial statements

LIABILITIES AND NET ASSETS

	<u>Enterprise Fund</u>	<u>Improvement Bond Fund</u>	<u>Assessment District No. 2</u>	Totals (Memorandum only)	
				<u>2009</u>	<u>2008</u>
<b>Current liabilities:</b>					
Current portion of long-term debt (Note 6)	\$ 100,000	\$	\$	\$ 100,000	\$ 100,000
Current portion of capital lease (Note 12)	27,802			27,802	34,286
Accounts payable	18,380			18,380	4,695
Compensated absences payable	43,008			43,008	26,013
Customer deposits	<u>27,563</u>			<u>27,563</u>	<u>26,538</u>
Total current liabilities	<u>216,753</u>			<u>216,753</u>	<u>191,532</u>
<b>Long-term debt, net of current portion (Note 6)</b>					
Add, bond premium, net of amortization	<u>23,477</u>			<u>23,477</u>	<u>25,810</u>
	2,595,000			2,595,000	2,695,000
	<u>2,618,477</u>			<u>2,618,477</u>	<u>2,720,810</u>
Capital lease (Note 12)	<u>24,567</u>			<u>24,567</u>	<u>12,382</u>
	<u>2,643,044</u>			<u>2,643,044</u>	<u>2,733,192</u>
<b>Net assets (Note 11):</b>					
Invested in capital assets, net of related debt	5,090,001			5,090,001	5,192,412
Restricted	397,732			397,732	583,761
Unrestricted	<u>671,759</u>			<u>671,759</u>	<u>773,446</u>
	<u>6,159,492</u>			<u>6,159,492</u>	<u>6,549,619</u>
<b>Improvement Bond Fund:</b>					
Bonds payable (Note 5)		445,000		445,000	470,000
Fund equity		157,683		157,683	164,238
<b>Assessment District No. 2:</b>					
Bonds payable (Note 9)			2,986,800	2,986,800	3,035,300
Fund deficit			<u>( 104,700)</u>	<u>( 104,700)</u>	<u>( 162,464)</u>
	<u>\$9,019,289</u>	<u>\$ 602,683</u>	<u>\$2,882,100</u>	<u>\$12,504,072</u>	<u>\$12,981,417</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS**  
for the year ended June 30, 2009  
(with comparative totals for fiscal year ended June 30, 2008)

	<u>2009</u>	<u>2008</u>
Operating revenues:		
Sales - residential	\$ 959,355	\$ 839,750
- business	135,619	183,646
- industrial	325	300
Service connections	6,205	22,982
Will serve	24,035	85,171
Sugar Pine surcharge	176,455	176,719
Other	<u>120,419</u>	<u>56,326</u>
Total operating revenues	<u>1,422,413</u>	<u>1,364,894</u>
Operating expenses:		
Source of supply	73,077	70,315
Pumping	10,120	16,784
Water treatment	174,397	164,344
Transmission and distribution	248,035	229,887
Customer accounts	20,884	13,151
Administrative and general	797,755	640,155
Depreciation	<u>371,184</u>	<u>360,709</u>
Total operating expenses	<u>1,695,452</u>	<u>1,495,345</u>
Operating income (loss)	<u>( 273,039)</u>	<u>( 130,451)</u>
Non-operating income and (expense):		
Interest income	40,744	48,402
Property taxes	78,625	82,697
Interest expense	( 140,966)	( 141,490)
Assistance - Assessment District #2	( 100,001)	( 100,000)
Gain on sale/(loss on disposal)	<u>4,510</u>	<u>( 794)</u>
	<u>( 117,088)</u>	<u>( 111,185)</u>
Loss before contributions	( 390,127)	( 241,636)
Capital contributions	<u>-</u>	<u>-</u>
Changes in net assets (carried forward)	( 390,127)	( 241,636)

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS, continued**  
for the year ended June 30, 2009  
(with comparative totals for fiscal year ended June 30, 2008)

	<u>2009</u>	<u>2008</u>
Change in net assets (brought forward)	\$( 390,127)	\$( 241,636)
Total net assets:		
Beginning	<u>6,549,619</u>	<u>6,791,255</u>
Ending	<u>\$6,159,492</u>	<u>\$6,549,619</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF CASH FLOWS**  
for the year ended June 30, 2009  
(with comparative totals for fiscal year ended June 30, 2008)

	<u>2009</u>	<u>2008</u>
Cash flows from operating activities:		
Receipts from customers	\$1,400,756	\$1,349,873
Payments to suppliers	( 756,274)	( 620,985)
Payments to employees	( 555,441)	( 504,538)
Net cash provided by operating activities	<u>89,041</u>	<u>224,350</u>
 Cash flows from noncapital financing activities:		
Receipts from property taxes and other nonoperating income	<u>83,135</u>	<u>82,697</u>
 Cash flows from capital and related financing activities:		
Capital contributions	-	-
Purchase of capital assets	( 174,475)	( 194,514)
Interest paid on capital debt	( 140,966)	( 141,490)
Assistance to Assessment Dist. No. 2	( 100,001)	( 100,000)
Proceeds from capital leases	50,545	-
Principal payments on long-term debt	( 144,844)	( 136,968)
	<u>( 509,741)</u>	<u>( 572,972)</u>
 Cash flows from investing activities:		
Interest income	<u>40,744</u>	<u>48,402</u>
 Net increase (decrease) in cash and cash equivalents	( 296,821)	( 217,523)
 Cash and cash equivalents:		
Beginning of year	<u>859,996</u>	<u>1,077,519</u>
End of year	<u>\$ 563,175</u>	<u>\$ 859,996</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF CASH FLOWS, continued**  
for the year ended June 30, 2009  
(with comparative totals for fiscal year ended June 30, 2008)

	<u>2009</u>	<u>2008</u>
Reconciliation of operating income (loss) to net cash provided by operating activities:		
Operating income (loss)	\$( <u>273,039</u> )	\$( <u>130,451</u> )
Amortization on Certificates of Participation costs, net	5,488	5,488
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	371,184	360,709
Changes in operating assets and liabilities:		
Receivables	( 21,657 )	( 15,021 )
Prepaid expense	( 33,103 )	-
Inventory	2,555	17,052
Cert. of Partic. – reserve fund	5,908	1,183
Accounts payable	13,685	( 1,629 )
Customer deposits	1,025	( 1,625 )
Compensated absences	<u>16,995</u>	<u>( 11,356 )</u>
	<u>362,080</u>	<u>354,801</u>
Net cash provided by operating activities	\$ <u>89,041</u>	\$ <u>224,350</u>
Supplementary information:		
Cash paid for interest	\$ <u>135,478</u>	\$ <u>133,670</u>

See notes to financial statements

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS**

1. Organization:

The Foresthill Public Utility District was formed and operates under The Public Utility District Act. The Act confers upon the District the rights and powers to fix rates and charges for commodities or services furnished, to incur indebtedness and issue bonds or other obligations and, under certain circumstances, to levy and collect advalorem property taxes. The District is exempt from payment of federal and state taxes on income.

2. Summary of Significant Accounting Policies:

The accounting policies of the Foresthill Public Utility District conform to generally accepted accounting principles applicable to enterprise funds. The District applies all relevant Governmental Accounting Standards Board (GASB) pronouncements. Proprietary funds apply Financial Accounting Standards Board (FASB) pronouncements and Accounting Principles Board (APB) opinions issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements, in which case, GASB prevails.

Basis of Accounting

The basis of accounting refers to when revenues and expenses are recognized in the accounts and reported in the financial statements. Basis of accounting relates to the timing of measurement made, regardless of the measurement focus applied.

The District's books and accounts are based upon the Uniform System of Accounts for Public Utilities as prescribed by the Division of Local Government Fiscal Affairs of the State of California. The records are maintained and the accompanying financial statements are presented on the accrual basis of accounting.

Operating revenues and expenses, such as water sales along with water expenses, result from exchange transactions associated with the principal activity of the District. Exchange transactions are those in which each party receives and gives up essentially equal values. Management, administration and depreciation expenses are also considered operating expenses. Other revenues and expenses not included in the above categories are reported as non-operating revenues and expenses. Non-operating revenues and expenses, such as grant funding, investment income and interest expense, result from non-exchange transactions, in which, the District gives (receives) value without directly receiving (giving) value in exchange.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

2. Summary of Significant Accounting Policies, continued:

Fund Accounting

The accounts of the District are organized on the basis of funds and account groups, each of which is considered a separate accounting entity. The operations of each fund are accounted for with a separate set of self-balancing accounts that comprise its assets, liabilities, fund equity, revenues, and expenditures, or expenses, as appropriate. District resources are allocated to and accounted for in individual funds based upon the purposes for which they are to be spent and means by which spending activities are controlled. The various funds are grouped, in the financial statements in this report as follows:

Enterprise Fund - The Enterprise Fund is used to account for water operations that are financed and operated in a manner similar to private business enterprises. The intent of the District is that the costs (expenses, including depreciation) of providing goods and services to the general public on a continuing basis be financed or recovered primarily through user charges.

Improvement Bond Fund - This fund is to account for financing of public improvements or services deemed to benefit the properties against which special assessments are levied.

Assessment District No. 2 - This fund is to account for a new financing of public improvements.

Inventories

Inventories have been valued at the lower of cost (first-in, first-out) or market.

Depreciation

Capital assets are recorded on the basis of purchase cost. Assets acquired by contributions are recorded at estimated cost or fair market value at the date of acquisition.

Depreciation is calculated by the straight-line method over the estimated useful lives of the respective assets that range from five to forty years.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

2. Summary of Significant Accounting Policies, continued:

Statement of Cash Flows

All highly liquid investments with a maturity of three months or less when purchased, are considered to be cash equivalents. The investment with the State Treasurer's Local Agency Investment Fund (LAIF) is also considered to be the equivalent of cash.

Investments

Investments consist of LAIF (State of California pooled investment fund). Investments are stated at market value. Such investment is within the State statutes and the District's investment policy.

Compensated Absences

Vested or accumulated vacation leave and comp. time that is expected to be liquidated with expendable available resources is reported as a current liability. Accumulated sick leave is vested upon age 60.

Budget and Budgetary Accounting

The Board of Directors annually adopts an operating budget. The operating budgets are prepared on the accrual basis to match the operating statements.

Total Columns

Total columns on the combined statements are captioned "Memorandum Only" to indicate that they are presented only to facilitate financial analysis. Data in these columns do not present financial position or results of operations in conformity with generally accepted accounting principles, nor is such data comparable to a consolidation.

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

2. Summary of Significant Accounting Policies, continued:

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

Bond Premium and Issuance Costs

Bond premium is deferred and amortized over the life of the Certificates of Participation using the effective interest method. Issuance costs are deferred and amortized over the life of the Certificates using the straight-line method.

3. Cash and Investments:

Cash and investments consist of the following at June 30, 2009:

Unrestricted	\$ 321,430
Restricted	<u>241,745</u>
Total cash and investments	<u>\$ 563,175</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

3. Cash and Investments (continued):

Deposits:

At year-end the carrying amount of the District's deposits was \$26,168 and the bank balance was \$61,014. All of the bank balance was covered by Federal depository insurance.

	<u>Balance, June 30, 2009</u>
Checking	\$ 25,893
Other deposits	25
Cash on hand	<u>250</u>
Total deposits	<u>\$ 26,168</u>

Investments:

California statutes authorize the District to invest in a variety of credit instruments as provided for in the California Government Code Section 53600, Chapter 4 - Financial Affairs. The Government Code allows investments in obligations of the U.S. Treasury, agencies, and instrumentalities, commercial paper rated A-1 by Standard & Poor's or P-1 by Moody's Commercial Paper Record, bankers' acceptances, repurchase agreements, medium-term corporate notes, mutual funds and the State Treasurer's Local Agency Investment Fund (LAIF). The investment in LAIF is reported at fair value.

	<u>Carrying Amount</u>	<u>Market Value</u>
Balance, June 30, 2009, Local Agency Investment Fund	\$ <u>537,007</u>	\$ <u>537,007</u>

Pursuant to Government Accounting Standards Board Statement 3, the investment in LAIF is not classified in categories of credit risk. The District's funds in LAIF are invested in a diversified portfolio (of underlying investments e.g. U.S. Treasury obligations) such that it considers the risk of material loss to be minimal. The funds held in LAIF can be withdrawn on demand.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

3. Cash and Investments (continued):

Restricted investments:

The District sets aside funds for future plant improvements. At June 30, 2009, the District had set aside the following in investments for special purposes:

	<u>Balance, June 30, 2009</u>
Capital reserve	\$ 166,194
Repair & replacement reserve	<u>75,551</u>
	<u>\$ 241,745</u>

4. Capital Assets:

Changes in capital assets for the year ended June 30, 2009 are as follows:

	<u>Balance July 1, 2008</u>	<u>Additions</u>	<u>Deletions</u>	<u>Balance June 30, 2009</u>
Land	\$ 36,568	\$ -	\$ -	\$ 36,568
Source of supply	2,630,510	-	-	2,630,510
Pumping plant	20,962	-	-	20,962
Water treatment	1,181,172	-	-	1,181,172
Transmission and Distribution	7,834,157	123,929	-	7,958,086
General plant	<u>699,375</u>	<u>50,545</u>	<u>35,914</u>	<u>714,006</u>
	<u>\$12,402,744</u>	<u>\$ 174,474</u>	<u>\$ 35,914</u>	<u>\$12,541,304</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

5. Bond Issue:

Long-term debt activity for the year ended June 30, 2009 for the bond issue is as follows:

	<u>Balance</u> <u>7/1/2008</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance</u> <u>6/30/2009</u>	<u>Current</u> <u>Portion</u>
Bond issue	\$ <u>470,000</u>	\$ <u>-</u>	\$ <u>25,000</u>	\$ <u>445,000</u>	\$ <u>25,000</u>

The District issued bonds dated May 2, 1982 pursuant to the Municipal Improvement Act of 1913 and the Improvement Bond Act of 1915 in the total amount of \$817,250. The bonds bear interest at five percent (5%) payable January 2 and July 2 of each year; such bonds may be called for redemption prior to maturity upon payment of 105 percent of par plus accrued interest. The bonds are secured by the unpaid assessments made for the payment of improvements in the assessment district.

The future annual maturities of long-term borrowings for the bond issue as of June 30, 2009 are as follows:

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2010	\$ 25,000	\$ 22,250	\$ 47,250
2011	25,000	21,000	46,000
2012	30,000	19,750	49,750
2013	30,000	18,250	48,250
2014	30,000	16,750	46,750
2015-2019	175,000	59,750	234,750
2020-2022	<u>130,000</u>	<u>13,250</u>	<u>143,250</u>
	<u>\$ 445,000</u>	<u>\$ 171,000</u>	<u>\$ 616,000</u>

6. Long-term Debt:

Long-term debt activity for the year ended June 30, 2009 is as follows:

	<u>Balance</u> <u>7/1/2008</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance</u> <u>6/30/2009</u>	<u>Current</u> <u>Portion</u>
2003 Certificates of Participation	\$ <u>2,795,000</u>	\$ <u>-</u>	\$ <u>100,000</u>	\$ <u>2,695,000</u>	\$ <u>100,000</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

6. Long-term Debt, continued:

On October 1, 2003, the District issued Certificates of Participation – 2003 Series QQ (COP’s) for \$3,195,000 to the CSDA Finance Corporation. Proceeds from these Certificates were used to purchase the Sugar Pine Dam and Reservoir (including associated water rights) from the United States Bureau of Reclamation. The Certificates are secured by a lien on the District’s net revenues. Interest rates range from 1.05% to 3.75% on annual \$100,000 principal payments through 2014. Thereafter, through maturity, interest rates range from 5% to 5 ¼%. The District maintains a reserve fund with a Trustee equal to the maximum annual installment payable in a Certificate year. Interest is payable on May 1 and November 1 of each year.

The future annual maturities of long-term borrowings as of June 30, 2009 are as follows:

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2010	\$ 100,000	\$ 129,088	\$ 229,088
2011	100,000	126,338	226,338
2012	100,000	123,238	223,238
2013	100,000	119,638	219,638
2014	100,000	116,213	216,213
2015-2019	555,000	509,815	1,064,815
2020-2024	715,000	355,815	1,070,815
2025-2029	<u>925,000</u>	<u>150,937</u>	<u>1,075,937</u>
	<u>\$2,695,000</u>	<u>\$1,631,082</u>	<u>\$4,326,082</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan:

The District's policy is to fund retirement benefits with the State of California Public Employees' Retirement System (CALPERS). The amount of pension contributions by the District to CALPERS is actuarially determined under a program wherein contributions plus earnings of the retirement system are to provide the necessary funds to pay retirement benefits when due. The District relies on the competency of the State in determining the funding method, the adequacy of funding, and the spreading of actuarial gains and losses which is currently on a four-year basis.

A. Plan Description

Foresthill Public Utility District contributes to the California Public Employees Retirement System (CALPERS), an agent multiple-employer public employee retirement system that acts as a common investment and administrative agent for participating public entities within the State of California. CALPERS issues a publicly available financial report that includes financial statements and required supplementary information for the Foresthill Public Utility District. The financial report may be obtained by writing to CALPERS Actuarial Office, P.O. Box 942709, Sacramento, CA 94229-2709.

B. Summary of Significant Accounting Policies

**Basis of Accounting:** The financial statements of the plan are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. The District's contributions are recognized when due and a formal commitment to provide the contributions has been made. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

**Method Used to Value Investments:** Plan investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments are discounted at prevailing interest rates for similar instruments. The fair value of real estate investments is based on independent appraisals. Investments that do not have an established market are reported at estimated fair value.

Under GASB 27, an employer reports an annual pension cost (APC) equal to the annual required contribution (ARC) plus an adjustment for the cumulative difference between the APC and the employer's actual plan contributions for the year. The cumulative difference is called the net pension obligation (NPO). The ARC for the period, July 1, 2009 to June 30, 2010, has been determined by an actuarial valuation of the plan as of June 30, 2007.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan, continued:

District employees' contribution is 8.0 percent of their annual salary to the System. The District pays the employees' contribution. The District is required to contribute the remaining amounts necessary to fund the benefits for its members, using the actuarial basis recommended by the PERS Actuaries and Actuarial Consultants and adopted by the Board of Administration. For year ended June 30, 2009 the District paid total contributions of \$105,097, including employees' portion.

Pooled Report Format

Since the District's plan has less than 100 active members, it is required to participate in a risk pool.

A summary of principal assumptions and methods used to determine the annual required contribution is shown below:

Valuation Date	June 30, 2007
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level Percent of Payroll
Average Remaining Period	16 Years as of the Valuation Date
Asset Valuation Method	15 Year Smoothed Market
Actuarial Assumptions	
Investment Rate of Return	7.75% (net of administrative expenses)
Projected Salary Increases	3.25% to 14.45% depending on Age, Service, and type of employment
Inflation	3.00%
Payroll Growth	3.25%
Individual Salary Growth	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.

Initial plan unfunded liabilities are amortized over a closed period equal to the average amortization period at the plan's date of entry into the CalPERS Risk Pool. Subsequent plan amendments are amortized over a closed 20-year period. Gains and losses that occur in the operation of the risk pool are amortized over a rolling 30 year period. If the plan's accrued liability exceeds the actuarial value of plan assets, then the amortization payment on the total unfunded liability may not be lower than the payment calculated over a 30 year amortization period. More complete information on assumptions and methods is provided in Appendix A of Section 2 of the report. Appendix B of Section 2 of the report contains a description of benefits included in the Risk Pool Actuarial Valuation.

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

7. Retirement Plan, continued:

The Schedule of Funding Progress below shows the recent history of the Risk Pool's actuarial value of assets, accrued liability, their relationship, and the relationship of the unfunded liability (UL) to payroll.

**Risk Pool's History of Funded Status and Funding Progress**

<u>Valuation Date</u>	<u>Accrued Liabilities</u>	<u>Actuarial Assets</u>	<u>Unfunded Liabilities (UL)</u>	<u>Funded Ratio</u>	<u>Annual Covered Payroll</u>	<u>UL As a % of Payroll</u>
June 30, 2005	\$499,323,280	\$405,480,805	\$ 93,842,475	81.2%	\$108,618,321	86.4%
June 30, 2006	\$620,492,183	\$501,707,110	\$118,785,073	80.9%	\$126,049,770	94.2%
June 30, 2007	\$699,663,524	\$576,069,687	\$123,593,837	82.3%	\$139,334,562	88.7%

8. Section 457 Plan:

The District adopted a California PERS Section 457 Deferred Compensation Plan. The District does not contribute to this plan. All contributions and administrative fees are paid by the employees.

9. Water System Assessment District No. 2:

Long-term debt activities for the year ended June 30, 2009 for Assessment District No. 2 are as follows:

	<u>Balance 7/1/2008</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance 6/30/2009</u>	<u>Current Portion</u>
Loan 91-02	\$1,210,200	\$ -	\$ 19,800	\$1,190,400	\$ 20,800
Loan 91-03	<u>1,825,100</u>	<u>-</u>	<u>28,700</u>	<u>1,796,400</u>	<u>30,000</u>
	<u>\$3,035,300</u>	<u>\$ -</u>	<u>\$ 48,500</u>	<u>\$2,986,800</u>	<u>\$ 50,800</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

9. Water System Assessment District No. 2 (continued):

On February 28, 1996 the District adopted a resolution authorizing the issuance of improvement bonds pursuant to the Improvement Bond Act of 1915. The proceeds of such bonds was used to finance the construction of public improvements under the Municipal Improvement Act of 1913.

The improvements consisted of two phases - Phase 1 Pipeline Relocation Project and Phase 2 Water System Rehabilitation Project.

The Improvement Bonds were financed by the U.S. Department of Agriculture, Rural Development.

On July 23, 1997 the District issued an improvement bond (Series 1997) for \$1,364,150 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.875% per annum, payable on March 2 and September 2.

On June 2, 1998 the District issued an improvement bond (Series 1998) for \$2,031,318 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.75% per annum, payable on March 2 and September 2.

The future annual maturities of long-term borrowings for Assessment District No. 2 as of June 30, 2009 are as follows:

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2010	\$ 50,800	\$ 142,142	\$ 192,942
2011	53,300	139,643	192,943
2012	55,900	137,021	192,921
2013	58,500	134,275	192,775
2014	61,300	131,399	192,699
2015-2019	353,700	608,761	962,461
2020-2024	447,100	513,062	960,162
2025-2029	565,000	392,105	957,105
2030-2034	714,600	239,152	953,752
2035-2038	<u>626,600</u>	<u>56,287</u>	<u>682,887</u>
	<u>\$2,986,800</u>	<u>\$2,493,847</u>	<u>\$5,480,647</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued**

10. Risk of Loss:

Foresthill Public Utility District is exposed to various risks of loss related to theft of, damage to, and destruction of assets; and injuries to employees. During the 2009 fiscal year, the District purchased certain commercial insurance coverages to provide for these risks.

11. Net Assets:

Net assets at June 30, 2009 is analyzed as follows:

Investment in capital assets, net of related debt		\$5,090,001
Restricted:		
Capital improvement reserve	\$ 166,194	
Sugar Pine Reserve	<u>231,538</u>	
		397,732
Unrestricted:		
Designated by the Board:		
Repair and replacement reserve	75,551	
Undesignated	<u>596,208</u>	
		<u>671,759</u>
Total net assets		<u>\$6,159,492</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**NOTES TO FINANCIAL STATEMENTS, continued**

12. Capital Leases:

The District entered into capital lease agreements to finance the purchase of a District vehicle. Assets under capital leases are recorded at the lower of the present value of the minimum lease payments or the fair value of the asset. The assets are depreciated over their estimated productive lives. Depreciation of assets under capital leases is included in depreciation expense.

The capitalized value of the trucks subject to the capital leases is \$100,427.

Minimum future lease payments under capital leases as of June 30, 2009 are:

2010	\$ 29,465
2011	17,886
2012	<u>7,453</u>
 Total payments	 54,804
 Less, amount representing interest	 <u>2,435</u>
 Present value of net minimum lease payments	 <u>\$ 52,369</u>

13. Governmental Accounting Standards Board Statements Issued, Not Yet Effective:

The Governmental Accounting Standards Board (GASB) has issued several pronouncements prior to June 30, 2009, that have effective dates that may impact future financial presentations.

*Governmental Accounting Standards Board Statement No. 45:*

In June 2004, the GASB issued Statement No. 45, *Accounting and Financial Reporting by Employers for Post-employment Benefits Other Than Pensions*. This Statement establishes standards for the measurement, recognition, and display of OPEB expense/expenditures and related liabilities (assets), note disclosures, and, if applicable, required supplementary information (RSI) in the financial reports of state and local government employers. This statement is not effective for this District until the fiscal year ended June 30, 2010. This statement is expected to have a significant impact on the presentation of the District's financial statements in future years.

## **SUPPLEMENTAL DATA**

**FORESTHILL PUBLIC UTILITY DISTRICT  
PRINCIPAL OFFICIALS**

**Board of Directors**

Duane L. Frink	President
William L. Sadler, Jr.	Vice President
Brett C. Grant	Treasurer
Adam W. Larsen	Director
George S. Shaw	Director

**Operations**

Kurt W. Reed	Manager Ex. Officio Secretary
Jo Ann Glover	Business Manager

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**STATEMENT OF REVENUES, EXPENSES AND CHANGES**  
**IN NET ASSETS – BUDGET AND ACTUAL**  
for the year ended June 30, 2009

	<u>Budget</u>	<u>Actual</u>	<u>Favorable (Unfavorable) Variance</u>
Operating revenues:			
Sales - residential	\$ 960,795	\$ 959,355	\$( 1,440)
- business	245,622	135,619	( 110,003)
- industrial	360	325	( 35)
Other	<u>235,200</u>	<u>327,114</u>	<u>91,914</u>
Total operating revenues	<u>1,441,977</u>	<u>1,422,413</u>	<u>( 19,564)</u>
Operating expenses:			
Source of supply	81,000	73,077	7,923
Pumping	8,900	10,120	( 1,220)
Water treatment	166,500	174,397	( 7,897)
Transmission and distribution	231,150	248,035	( 16,885)
Customer accounts	15,550	20,884	( 5,334)
Administrative and general	679,475	797,755	( 118,280)
Depreciation	<u>93,319</u>	<u>371,184</u>	<u>( 277,865)</u>
Total operating expenses	<u>1,275,894</u>	<u>1,695,452</u>	<u>( 419,558)</u>
Operating income (loss)	<u>166,083</u>	<u>( 273,039)</u>	<u>( 439,122)</u>
Non-operating income and (expense):			
Interest income	950	40,744	39,794
Property taxes	63,280	78,625	15,345
Interest expense	( 230,313)	( 140,966)	89,347
Assistance - Assessment District #2	-	( 100,001)	( 100,001)
Other	<u>-</u>	<u>4,510</u>	<u>4,510</u>
	<u>( 166,083)</u>	<u>( 117,088)</u>	<u>48,995</u>
Income before contributions	-	( 390,127)	( 390,127)
Capital contributions	<u>-</u>	<u>-</u>	<u>-</u>
Change in net assets	<u>\$ -</u>	<u>\$( 390,127)</u>	<u>\$( 390,127)</u>

**FORESTHILL PUBLIC UTILITY DISTRICT  
OPERATING EXPENSES**

for the year ended June 30, 2009

Source of Supply:

Restoration payments	\$ 24,650	
Supervision and labor	11,140	
Maintenance	1,005	
Vehicle expense	397	
Power	3,612	
Inspection and water rights	<u>32,273</u>	
		\$ <u>73,077</u>

Pumping:

Power	7,862	
Vehicle expense	220	
Maintenance	24	
Propane	1,600	
Supervision and labor	<u>414</u>	
		<u>10,120</u>

Water treatment:

Supervision and labor	109,407	
Maintenance	16,829	
Chemical and analysis	35,665	
Vehicle expense	3,122	
Power	6,832	
Propane	<u>2,542</u>	
		<u>174,397</u>

Transmission and Distribution:

Supervision and labor	180,898	
Maintenance	55,651	
Vehicle expense	11,245	
Propane	<u>241</u>	
		<u>248,035</u>

Customer Accounts:

Supervision and labor	19,220	
Maintenance	12	
Vehicle expense	<u>1,652</u>	
		<u>20,884</u>

**FORESTHILL PUBLIC UTILITY DISTRICT**  
**OPERATING EXPENSES, continued**  
for the year ended June 30, 2009

Administrative and General:

Salaries	\$ 234,362	
Legal services	45,287	
Engineering services	40,926	
Collection charges	4,638	
Accounting	7,700	
Vehicle Expense	1,218	
Liability insurance	34,716	
Office expense	45,210	
Employee benefits and payroll taxes	324,336	
Seminars and travel	6,055	
Utilities	3,318	
Consulting services	1,000	
Maintenance	2,171	
Dues and subscriptions	10,124	
Computer services	11,447	
Uniforms	4,716	
Public information program	5,372	
Educational expense	2,173	
Election expense	5,036	
Board remuneration	<u>7,950</u>	<u>\$ 797,755</u>

Depreciation 371,184

Total operating expenses \$1,695,452

**REPORT ON INTERNAL CONTROLS  
AND COMPLIANCE**

**ROBERT  
W.  
JOHNSON**

An Accountancy Corporation  
Certified Public Accountant

6234 BIRDCAGE STREET • CITRUS HEIGHTS, CA 95610-5949 • (916) 723-2555

**REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON  
COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL  
STATEMENTS PERFORMED IN ACCORDANCE WITH  
*GOVERNMENT AUDITING STANDARDS***

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the financial statements of Foresthill Public Utility District as of and for the year ended June 30, 2009, and have issued our report thereon dated September 23, 2009. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

In planning and performing our audit, we considered Foresthill Public Utility District's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the District's internal control over financial reporting.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented or detected and corrected on a timely basis.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be deficiencies, significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above. However, as described in the accompanying schedule of findings and responses, we identified certain deficiencies in internal control over

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

financial reporting that we consider to be significant deficiencies in internal control over financial reporting. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

We consider the deficiency described in the accompanying schedule of findings and responses (2009-1) to be a significant deficiency in internal control over financial reporting.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Foresthill Public Utility District's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We noted certain matters that we reported to management of the District, in a separate letter dated September 23, 2009.

The District's response to the findings identified in our audit is described in the accompanying schedule of findings and responses. We did not audit the District's response, and, accordingly, we express no opinion on it.

This report is intended solely for the information and use of the Board of Directors of Foresthill Public Utility District and its management, and is not intended to be and should not be used by anyone other than these specified parties.



Citrus Heights, California  
September 23, 2009

**FORESTHILL PUBLIC UTILITY DISTRICT**  
Schedule of Findings and Responses  
As of June 30, 2009

**Finding 2009-1:**

**Controls Over Financial Reporting Requirement: Significant Deficiency**

**Reliance upon Auditor for Financial Statement Preparation and Footnote Disclosures:**

**Condition:** Management relies upon the auditor to determine the proper presentation of financial statements and related footnote disclosures.

**Criteria:** Statement of Auditing Standards No. 112, states that the auditor may not be of the District's internal control system; specifically someone from the District must be knowledgeable enough in generally accepted accounting principles to know if a misstatement has occurred in the financial statements including the notes to the financial statements.

**Cause:** The District does not have either an employee experienced in generally accepted accounting principles or an accounting firm engaged to prepare financial statements in conformity with generally accepted accounting principles.

**Recommendation:** The District should consider the cost benefit of hiring an accountant familiar with generally accepted accounting principles or hiring an independent CPA firm to compile financial statements in conformity with generally accepted accounting principles.

**Management Response:** Management holds the opinion that there may be a benefit to hiring an accountant to prepare financial statements in conformity with generally accepted accounting principles prior to the annual audit of the financial statements; however, budget/fiscal constraints may preclude implementation.

# **EXHIBIT 14**

**FORESTHILL  
PUBLIC UTILITY DISTRICT**

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**FINANCIAL STATEMENTS  
AND INDEPENDENT AUDITOR'S REPORT  
for the year ended June 30, 2010**

**ROBERT W. JOHNSON**  
**Certified Public Accountant**

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INDEPENDENT AUDITOR'S REPORT

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the accompanying financial statements of Foresthill Public Utility District as of and for the year ended June 30, 2010, as listed in the table of contents. These financial statements are the responsibility of the District's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Foresthill Public Utility District as of June 30, 2010 and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated October 20, 2010, on our consideration of the District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

The Management's Discussion and Analysis is not a required part of the financial statements but is supplemental information required by the Government Auditing Standards Board. Management has elected to omit the Management's Discussion and Analysis.

Our audit was conducted for the purpose of forming an opinion on the financial statements that comprise the District's basic financial statements. The supplemental information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements of Foresthill Public Utility District. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

*Robert W. Johnson, An Accountancy Corporation*

Citrus Heights, California

October 20, 2010

FORESTHILL PUBLIC UTILITY DISTRICT  
STATEMENT OF NET ASSETS  
June 30, 2010  
(with comparative totals for fiscal year ended June 30, 2009)

ASSETS

	<u>2010</u>	<u>2009</u>
Current assets:		
Cash and cash equivalents (Note 2)	\$ 209,782	\$ 321,430
Accounts receivable	116,927	155,728
Prepaid expenses	-	33,103
Inventory - materials and supplies	<u>18,866</u>	<u>14,377</u>
Total current assets	<u>345,575</u>	<u>524,638</u>
Non-current assets:		
Capital assets, at cost (Notes 3 and 4)	12,541,304	12,541,304
Less, accumulated depreciation	<u>5,017,773</u>	<u>4,703,934</u>
	7,523,531	7,837,370
Construction in progress	<u>-</u>	<u>-</u>
	<u>7,523,531</u>	<u>7,837,370</u>
Debt issuance costs, net	<u>144,679</u>	<u>152,500</u>
Restricted cash and cash equivalents	<u>592,990</u>	<u>504,781</u>
Total non-current assets	<u>8,261,200</u>	<u>8,494,651</u>
Total assets	<u>\$ 8,606,775</u>	<u>\$ 9,019,289</u>

See notes to financial statements

## LIABILITIES AND NET ASSETS

	<u>2010</u>	<u>2009</u>
<b>Current liabilities:</b>		
Current portion of long-term debt (Note 4)	\$ 100,000	\$ 100,000
Current portion of capital lease (Note 5)	17,191	27,802
Accounts payable	33,845	18,380
Compensated absences payable	48,046	43,008
Other post-employment benefits payable (Note 8)	75,888	-
Customer deposits	<u>29,938</u>	<u>27,563</u>
Total current liabilities	<u>304,908</u>	<u>216,753</u>
<b>Non-current liabilities:</b>		
Long-term debt, net of current portion (Note 4)	2,495,000	2,595,000
Add, bond premium, net of amortization	<u>21,144</u>	<u>23,477</u>
	2,516,144	2,618,477
Capital lease (Note 5)	<u>7,376</u>	<u>24,567</u>
Total non-current liabilities	<u>2,523,520</u>	<u>2,643,044</u>
Total liabilities	<u>2,828,428</u>	<u>2,859,797</u>
<b>Net assets (Note 10):</b>		
Invested in capital assets, net of related debt	4,911,340	5,090,001
Restricted	416,850	397,732
Unrestricted	<u>450,157</u>	<u>671,759</u>
Total net assets	<u>5,778,347</u>	<u>6,159,492</u>
Total liabilities and net assets	<u>\$ 8,606,775</u>	<u>\$ 9,019,289</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS  
for the year ended June 30, 2010  
(with comparative totals for fiscal year ended June 30, 2009)

	<u>2010</u>	<u>2009</u>
Operating revenues:		
Sales - residential	\$ 930,558	\$ 959,355
- business	121,935	135,619
- industrial	334	325
Service connections	10,603	6,205
Will serve	14,421	24,035
Sugar Pine surcharge	180,362	176,455
Other	<u>160,233</u>	<u>120,419</u>
Total operating revenues	<u>1,418,446</u>	<u>1,422,413</u>
Operating expenses:		
Source of supply	71,311	73,077
Pumping	8,796	10,120
Water treatment	163,680	174,397
Transmission and distribution	247,409	248,035
Customer accounts	8,487	20,884
Administrative and general	829,439	797,755
Depreciation	<u>313,839</u>	<u>371,184</u>
Total operating expenses	<u>1,642,961</u>	<u>1,695,452</u>
Operating income (loss)	<u>( 224,515)</u>	<u>( 273,039)</u>
Non-operating income and (expense):		
Interest income	4,229	40,744
Property taxes	73,809	78,625
Interest expense	( 134,668)	( 140,966)
Assistance - Assessment District #2	( 100,000)	( 100,001)
Gain on sale/(loss on disposal)	<u>-</u>	<u>4,510</u>
	<u>( 156,630)</u>	<u>( 117,088)</u>
Loss before contributions	( 381,145)	( 390,127)
Capital contributions	<u>-</u>	<u>-</u>
Changes in net assets (carried forward)	( 381,145)	( 390,127)

See notes to financial statements

FORESTHILL PUBLIC UTILITY DISTRICT  
 STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS, continued  
 for the year ended June 30, 2010  
 (with comparative totals for fiscal year ended June 30, 2009)

	<u>2010</u>	<u>2009</u>
Change in net assets (brought forward)	\$( 381,145)	\$( 390,127)
Total net assets:		
Beginning	<u>6,159,492</u>	<u>6,549,619</u>
Ending	<u>\$5,778,347</u>	<u>\$6,159,492</u>

See notes to financial statements

FORESTHILL PUBLIC UTILITY DISTRICT  
STATEMENT OF CASH FLOWS  
for the year ended June 30, 2010  
(with comparative totals for fiscal year ended June 30, 2009)

	<u>2010</u>	<u>2009</u>
Cash flows from operating activities:		
Receipts from customers	\$1,457,247	\$1,400,756
Payments to suppliers	( 652,453)	( 762,182)
Payments to employees	<u>( 543,801)</u>	<u>( 555,441)</u>
Net cash provided by operating activities	<u>260,993</u>	<u>83,133</u>
Cash flows from noncapital financing activities:		
Receipts from property taxes and other nonoperating income	<u>73,809</u>	<u>83,135</u>
Cash flows from capital and related financing activities:		
Capital contributions	-	-
Purchase of capital assets	-	( 174,475)
Interest paid on capital debt	( 134,668)	( 140,966)
Assistance to Assessment Dist. No. 2	( 100,000)	( 100,001)
Proceeds from capital leases	-	50,545
Principal payments on long-term debt	<u>( 127,802)</u>	<u>( 144,844)</u>
	<u>( 362,470)</u>	<u>( 509,741)</u>
Cash flows from investing activities:		
Interest income	<u>4,229</u>	<u>40,744</u>
Net increase (decrease) in cash and cash equivalents	( 23,439)	( 302,729)
Cash and cash equivalents:		
Beginning of year	<u>826,211</u>	<u>1,128,940</u>
End of year	<u>\$ 802,772</u>	<u>\$ 826,211</u>
Reconciliation of cash and cash equivalents to the statement of net assets:		
Cash and cash equivalents	\$ 209,782	\$ 321,430
Restricted assets - cash and cash equivalents	<u>592,990</u>	<u>504,781</u>
Total cash and cash equivalents	<u>\$ 802,772</u>	<u>\$ 826,211</u>

See notes to financial statements

FORESTHILL PUBLIC UTILITY DISTRICT  
STATEMENT OF CASH FLOWS, continued  
for the year ended June 30, 2010  
(with comparative totals for fiscal year ended June 30, 2009)

	<u>2010</u>	<u>2009</u>
Reconciliation of operating income (loss) to net cash provided by operating activities:		
Operating income (loss)	\$( <u>224,515</u> )	\$( <u>273,039</u> )
Amortization on Certificates of Participation costs, net	5,488	5,488
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	313,839	371,184
Changes in operating assets and liabilities:		
Receivables	38,801	( 21,657 )
Prepaid expense	33,103	( 33,103 )
Inventory	( 4,489 )	2,555
OPEB payable	75,888	-
Accounts payable	15,465	13,685
Customer deposits	2,375	1,025
Compensated absences	<u>5,038</u>	<u>16,995</u>
	<u>485,508</u>	<u>356,172</u>
Net cash provided by operating activities	\$ <u>260,993</u>	\$ <u>83,133</u>
Supplementary information:		
Cash paid for interest	\$ <u>129,180</u>	\$ <u>135,478</u>

See notes to financial statements

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS

1. Reporting Entity and Summary of Significant Accounting Policies:

The basic financial statements of the Foresthill Public Utility District (the "District"), have been prepared in conformity with generally accepted accounting principles (GAAP) as applied to government units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles. As allowed by the GASB, the District has elected to apply to its proprietary activities Financial Accounting Standards Board Statements and Interpretations, Accounting Principles Board Opinions, and Accounting Research Bulletins of the Committee of Accounting Procedures issued after November 30, 1989 where not in conflict with GASB pronouncements. The more significant of the District's accounting policies are described below.

Reporting Entity

The Foresthill Public Utility District was formed and operates under The Public Utility District Act. The Act confers upon the District the rights and powers to fix rates and charges for commodities or services furnished, to incur indebtedness and issue bonds or other obligations and, under certain circumstances, to levy and collect advalorem property taxes. The District is governed by a five member Board of Directors elected by the voters within the District.

The District has created the Foresthill Public Utilities District Assessment District No. 1 and the Foresthill Public Utilities District Assessment District No. 2 to provide assistance to the District in the issuance of debt. The Assessment Districts make annual assessments against property owners who benefit from the improvements.

The Assessment Districts are legally separate from the District. The financial activities of the Assessment Districts have not been aggregated and merged with those of the District in the accompanying financial statements, as they do not meet the criteria for inclusion as set forth in the Governmental Accounting Standards Board (GASB) Statement No. 14 as amended by GASB Statement No. 39.

The long term debt activities of the Assessment Districts is disclosed in supplemental information.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

1. Reporting Entity and Summary of Significant Accounting Policies, continued:

Basis of Presentation – Fund Accounting

The District's resources are allocated to and accounted for in these basic financial statements as an enterprise fund type of the proprietary fund group. The enterprise fund is used to account for operations that are financed and operated in a manner similar to private business enterprises, where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges, or where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability, or other policies. Net assets for the enterprise fund represents the amount available for future operations.

Basis of Accounting

The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. The enterprise fund type is accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation of this fund are included on the Statement of Net Assets. Net assets are segregated into amounts invested in capital assets, net of related debt, amounts restricted and amounts unrestricted. Enterprise fund type operating statements present increases (i.e., revenues) and decreases (i.e., expenses) in net total assets.

The District uses the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred. Grant revenue is recognized when program expenditures are incurred in accordance with program guidelines. When such funds are received they are recorded as deferred revenues until earned. Earned but unbilled water services are accrued as revenue. Water lines are constructed by private developers and then dedicated to the District, which is then responsible for their future maintenance. These lines are recorded as capital contributions when they pass inspection by the District and the estimated costs are capitalized as part of the distribution system.

Operating revenues and expenses consist of those revenues and expenses that result from the ongoing principal operations of the District. Operating revenues consist primarily of charges for water service. Non-operating revenues and expenses consist of those revenues and expenses that are related to financing and investing types of activities and result from nonexchange transactions or ancillary activities.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

1. Reporting Entity and Summary of Significant Accounting Policies, continued:

Property Taxes

The District receives property taxes from Placer County. Property taxes receivable are recorded in the fiscal year for which the tax is levied based on the assessed value as of September 1 of the preceding fiscal year. They become a lien on the first day of the year they are levied. Secured property tax is levied on September 1 and due in two installments, on November 1 and March 1. They become delinquent on December 10 and April 10, respectively. Unsecured property taxes are due on July 1, and become delinquent on August 31. The District elected to receive the property taxes from the County under the Teeter Bill Program. Under this Program, the District receives 100% of the levied property taxes in periodic payments, with the County assuming responsibility for delinquencies.

Inventories

Inventories have been valued at the lower of cost (first-in, first-out) or market. Inventories consist of materials and supplies.

Depreciation

Capital assets are recorded at historical cost. Assets acquired by contribution are recorded at estimated fair value on the date received.

Depreciation is calculated by the straight-line method over the estimated useful lives of the respective assets that range from five to forty years.

Cash and Cash Equivalents

For purposes of the statement of cash flows, the District considers all highly liquid debt investments purchased with a maturity of three months or less to be cash equivalents, including restricted assets, along with all pooled deposits and investments in the Local Agency Investment Fund, which are available upon demand.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

1. Reporting Entity and Summary of Significant Accounting Policies, continued:

Investments

Investments, including LAIF, are stated at fair value, which represents the quoted or stated market value. Investments that are not traded on a market, such as investments in external pools, are valued based on stated fair value as represented by the external pool. Investments are within the State statutes and the District's investment policy.

Compensated Absences

Vested or accumulated vacation leave and comp. time that is expected to be liquidated with expendable available resources is reported as a current liability. Accumulated sick leave is vested upon age sixty.

Budget and Budgetary Accounting

The Board of Directors annually adopts an operating budget. The operating budgets are prepared on the accrual basis to match the operating statements.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

Bond Premium and Issuance Costs

Bond premium is deferred and amortized over the life of the Certificates of Participation using the effective interest method. Issuance costs are deferred and amortized over the life of the Certificates using the straight-line method.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

1. Reporting Entity and Summary of Significant Accounting Policies, continued:

Implementation of New Governmental Accounting Standards Board (GASB) Statements

**Governmental Accounting Standards Board Statement No. 45**

In June 2004, the GASB issued Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions (GASB Statement No. 45). This Statement established standards for the measurement, recognition, and display of Other Post Employment Benefits (OPEB) expense/expenditures and related liabilities (assets), note disclosures, and, if applicable, required supplementary information (RSI) in the financial reports of state and local government employers. The District adopted GASB Statement No. 45 in fiscal year ended June 30, 2010.

Reclassifications

Bond fund transactions have been reclassified as supplemental data in 2010.

2. Cash and Investments:

Cash and investments at June 30, 2010 are classified in the accompanying financial statements as follows:

Cash and cash equivalents	\$ 209,782
Restricted cash and cash equivalents	<u>592,990</u>
Total cash and investments	<u>\$ 802,772</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

2. Cash and Investments, continued:

Cash and investments at fair value at June 30, 2010 consist of the following:

Cash on hand	\$ 250
Deposits with financial institutions	<u>10,761</u>
Total cash and deposits	<u>11,011</u>
Investments in Local Agency Investment Fund (LAIF) Restricted with Fiscal Agent	529,950
	<u>261,811</u>
Total investments	<u>791,761</u>
Total cash and investments	\$ <u>802,772</u>

Investments:

California statutes authorize the District to invest in a variety of credit instruments as provided for in the California Government Code Section 53600, Chapter 4 - Financial Affairs. The Government Code allows investments in obligations of the U.S. Treasury, agencies, and instrumentalities, commercial paper rated A-1 by Standard & Poor's or P-1 by Moody's Commercial Paper Record, bankers' acceptances, repurchase agreements, medium-term corporate notes, mutual funds and the State Treasurer's Local Agency Investment Fund (LAIF).

Local Agency Investment Fund:

The District maintains an investment in the State of California Local Agency Investment Fund (LAIF), managed by the State Treasurer. This fund is not registered with the Securities and Exchange Commission as an investment company, but is required to invest according to California Government Code. Participants in the pool include voluntary and involuntary participants, such as special districts and school districts for which there are legal provisions regarding their investments. The Local Investment Advisory Board (Board) has oversight responsibility for LAIF. The Board consists of five members as designated by State Statute.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

2. Cash and Investments, continued:

Concentration of Credit Risk:

The investment policy of the District limits the amount that can be invested in any one issuer to the lesser of the amount stipulated by the California Government Code or 50% of total investments, with the exception of U.S. Treasury obligations, U.S. Agency Securities and LAIF. As of June 30, 2010, the District had no individual investment that exceeded 5% of its total investments.

Custodial Credit Risk:

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the District will not be able to recover its deposits or will not be able to recover collateral securities that are in possession of an outside party. For investments and deposits held with fiscal agents, custodial credit risk is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, the District will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The California Government Code and the District's investment policy do not contain legal or policy requirements that would limit the exposure to custodial credit risk for deposits, other than the following provision for deposits: The California Government Code requires that a financial institution secure deposits made by state or local governmental units by pledging securities in an undivided collateral pool held by a depository regulated under state law (unless so waived by the governmental unit). The market value of the pledged securities in the collateral pool must equal at least 110% of the total amount deposited by the public agencies. California law also allows financial institutions to secure public agency deposits by pledging first trust deed mortgage notes having a value of 150% of the secured public deposits.

At June 30, 2010, the carrying amount of the District's deposits was \$11,011 and the balance in financial institutions was \$113,886. All of the balance in financial institutions was covered by federal depository insurance.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

2. Cash and Investments, continued:

Restricted Cash and Cash Equivalents:

Restricted cash and cash equivalents are amounts required for debt service payments by the 2003 Certificates of Participation and funds set aside, at board discretion, for future plant improvements. At June 30, 2010, the District had set aside the following for special purposes:

		Balance, June 30, <u>2010</u>
155,038	Capital reserve (Board designated)	\$
	Repair & replacement reserve (Board designated)	176,141
	2003 Certificates of Participation Reserve Fund	<u>261,811</u>
		<u>\$ 592,990</u>

3. Capital Assets:

Changes in capital assets for the year ended June 30, 2010 are as follows:

	<u>Balance July 1, 2009</u>	<u>Additions</u>	<u>Deletions</u>	<u>Balance June 30, 2010</u>
Land	\$ 36,568	\$ -	\$ -	\$ 36,568
Source of supply	2,630,510	-	-	2,630,510
Pumping plant	20,962	-	-	20,962
Water treatment	1,181,172	-	-	1,181,172
Transmission and Distribution	7,958,086	-	-	7,958,086
General plant	<u>714,006</u>	<u>-</u>	<u>-</u>	<u>714,006</u>
	<u>\$12,541,304</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$12,541,304</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

4. Long-term Debt:

Long-term debt activity for the year ended June 30, 2010 is as follows:

	<u>Balance</u> <u>7/1/2009</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance</u> <u>6/30/2010</u>	<u>Current</u> <u>Portion</u>
2003 Certificates of Participation	<u>\$2,695,000</u>	<u>\$ -</u>	<u>\$ 100,000</u>	<u>\$2,595,000</u>	<u>\$ 100,000</u>

On October 1, 2003, the District issued Certificates of Participation - 2003 Series QQ (COP's) for \$3,195,000 to the CSDA Finance Corporation. Proceeds from these Certificates were used to purchase the Sugar Pine Dam and Reservoir (including associated water rights) from the United States Bureau of Reclamation. The Certificates are secured by a lien on the District's net revenues. Interest rates range from 1.05% to 3.75% on annual \$100,000 principal payments through 2014. Thereafter, through maturity, interest rates range from 5% to 5 ¼%. The District maintains a reserve fund with a Trustee equal to the maximum annual installment payable in a Certificate year. Interest is payable on May 1 and November 1 of each year.

The future annual maturities of long-term borrowings as of June 30, 2010 are as follows:

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2011	\$ 100,000	\$ 126,338	\$ 226,338
2012	100,000	123,238	223,238
2013	100,000	119,638	219,638
2014	100,000	116,213	216,213
2015	100,000	112,463	212,463
2016-2020	585,000	482,065	1,067,065
2021-2025	750,000	319,665	1,069,665
2026-2029	<u>760,000</u>	<u>102,374</u>	<u>862,374</u>
	<u>\$2,595,000</u>	<u>\$1,501,994</u>	<u>\$4,096,994</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

5. Capital Leases:

The District entered into capital lease agreements to finance the purchase of a District vehicle. Assets under capital leases are recorded at the lower of the present value of the minimum lease payments or the fair value of the asset. The assets are depreciated over their estimated productive lives. Depreciation of assets under capital leases is included in depreciation expense.

The capitalized value of the trucks subject to the capital leases is \$100,427.

Minimum future lease payments under capital leases as of June 30, 2010 are:

2011	\$ 17,886
2012	<u>7,453</u>
Total payments	25,339
Less, amount representing interest	<u>772</u>
Present value of net minimum lease payments	<u>\$ 24,567</u>

6. Retirement Plan:

The District's policy is to fund retirement benefits with the State of California Public Employees' Retirement System (CALPERS). The amount of pension contributions by the District to CALPERS is actuarially determined under a program wherein contributions plus earnings of the retirement system are to provide the necessary funds to pay retirement benefits when due. The District relies on the competency of the State in determining the funding method, the adequacy of funding, and the spreading of actuarial gains and losses which is currently on a four-year basis.

A. Plan Description

Foresthill Public Utility District contributes to the California Public Employees Retirement System (CALPERS), an agent multiple-employer public employee retirement system that acts as a common investment and administrative agent for participating public entities within the State of California. CALPERS issues a publicly available financial report that includes financial statements and required supplementary information for the Foresthill Public Utility District. The financial report may be obtained by writing to CALPERS Actuarial Office, P.O. Box 942709, Sacramento, CA 94229-2709.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

6. Retirement Plan, continued:

B. Summary of Significant Accounting Policies

**Basis of Accounting:** The financial statements of the plan are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. The District's contributions are recognized when due and a formal commitment to provide the contributions has been made. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

**Method Used to Value Investments:** Plan investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments are discounted at prevailing interest rates for similar instruments. The fair value of real estate investments is based on independent appraisals. Investments that do not have an established market are reported at estimated fair value.

Under GASB 27, an employer reports an annual pension cost (APC) equal to the annual required contribution (ARC) plus an adjustment for the cumulative difference between the APC and the employer's actual plan contributions for the year. The cumulative difference is called the net pension obligation (NPO). The ARC for the period, July 1, 2009 to June 30, 2010, has been determined by an actuarial valuation of the plan as of June 30, 2007.

District employees' contribution is 8.0 percent of their annual salary to the System. The District pays the employees' contribution. The District is required to contribute the remaining amounts necessary to fund the benefits for its members, using the actuarial basis recommended by the PERS Actuaries and Actuarial Consultants and adopted by the Board of Administration. For year ended June 30, 2009 the District paid total contributions of \$105,097, including employees' portion.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

6. Retirement Plan, continued:

Pooled Report Format

Since the District's plan has less than 100 active members, it is required to participate in a risk pool.

A summary of principal assumptions and methods used to determine the annual required contribution is shown below:

Valuation Date	June 30, 2007
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level Percent of Payroll
Average Remaining Period	16 Years as of the Valuation Date
Asset Valuation Method	15 Year Smoothed Market
Actuarial Assumptions	
Investment Rate of Return	7.75% (net of administrative expenses)
Projected Salary Increases	3.25% to 14.45% depending on Age, Service, and type of employment
Inflation	3.00%
Payroll Growth	3.25%
Individual Salary Growth	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.

Initial plan unfunded liabilities are amortized over a closed period equal to the average amortization period at the plan's date of entry into the CalPERS Risk Pool. Subsequent plan amendments are amortized over a closed 20-year period. Gains and losses that occur in the operation of the risk pool are amortized over a rolling 30 year period. If the plan's accrued liability exceeds the actuarial value of plan assets, then the amortization payment on the total unfunded liability may not be lower than the payment calculated over a 30 year amortization period. More complete information on assumptions and methods is provided in Appendix A of Section 2 of the report. Appendix B of Section 2 of the report contains a description of benefits included in the Risk Pool Actuarial Valuation.

FORESTHILL PUBLIC UTILITY DISTRICT  
 NOTES TO FINANCIAL STATEMENTS, continued

6. Retirement Plan, continued:

The Schedule of Funding Progress below shows the recent history of the Risk Pool's actuarial value of assets, accrued liability, their relationship, and the relationship of the unfunded liability (UL) to payroll.

**Risk Pool's History of Funded Status and Funding Progress**

<u>Valuation Date</u>	<u>Accrued Liabilities</u>	<u>Actuarial Assets</u>	<u>Unfunded Liabilities (UL)</u>	<u>Funded Ratio</u>	<u>Annual Covered Payroll</u>	<u>UL As a % of Payroll</u>
June 30, 2005	\$499,323,280	\$405,480,805	\$ 93,842,475	81.2%	\$108,618,321	86.4%
June 30, 2006	\$620,492,183	\$501,707,110	\$118,785,073	80.9%	\$126,049,770	94.2%
June 30, 2007	\$699,663,524	\$576,069,687	\$123,593,837	82.3%	\$139,334,562	88.7%

7. Section 457 Plan:

The District adopted a California PERS Section 457 Deferred Compensation Plan. The District does not contribute to this plan. All contributions and administrative fees are paid by the employees.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

8. Other Post-Employment Benefits (OPEB):

*Plan Description:* The District offers medical, dental or other health benefits to eligible retirees and their eligible dependents. The contribution requirements of the plan members and the District are established and may be amended by the District.

Under the current health plan, the District pays for coverage of the retiree and their eligible dependents. To be eligible, employee must retire with the District at age 60 or older or must be permanently disabled. At June 30, 2010, the District had five retirees that received benefits at a cost of approximately \$28,323.

*Annual OPEB Cost and Net OPEB Obligation:* The annual required contribution (ARC) is an amount actuarially determined in accordance with the parameters of GASB Statement 45 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pension*. The District’s ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover the normal cost each year and amortize the unfunded actuarial liability over a period of 30 years. The following table shows the components of the District’s annual OPEB cost for the year, the amount actually contributed to the plan, and changes in the District’s net OPEB obligation to the Retiree Healthcare Plan:

Annual OPEB Cost and Net OPEB Obligation

Annual required contribution	\$ 75,888
Interest on net OPEB obligation	-
Adjustment of annual required contribution	-
<b>Annual OPEB cost</b>	<u>75,888</u>
Contributions made	-
Change in net OPEB obligation	<u>75,888</u>
Net OPEB obligation beginning of year	-
<b>Net OPEB obligation end of year</b>	<u><u>\$ 75,888</u></u>

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

8. Other Post-Employment Benefits (OPEB), continued:

The District's Annual OPEB Cost, the percentage of Annual OPEB Cost contributed to the Plan (as described in the funding policy above), and the Net OPEB Obligation for June 30, 2010 is as follows:

<u>Date of Valuation</u>	<u>Annual OPEB Cost</u>	<u>Actual Employer Contribution</u>	<u>Percentage of Annual OPEB Cost Contributed</u>	<u>Net OPEB Obligation</u>
1-1-08	\$ 75,888	\$ -	0.00%	\$ 75,888

In future years, three year trend information will be presented. June 30, 2010 was the first year of implementation of GASB Statement 45, and the District elected to implement prospectively; therefore prior year comparative data is not available.

Funded Status and Funding Progress

The funded status of the plan, based on an actuarial valuation as of January 1, 2008 the plan's most recent actuarial valuation date, was as follows:

Actuarial accrued liability (AAL)	\$613,762
Actuarial value of plan assets	-
Unfunded actuarial accrued liability (UAAL)	<u>\$613,762</u>
Funded ratio (actuarial value of plan assets/AAL)	0.00%
Covered payroll	\$434,784
UAAL as percentage of covered payroll	141.16%

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

8. Other Post-Employment Benefits (OPEB), continued:

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding progress, presented as required supplementary information following the notes to the financial statements, presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and the plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of calculations.

In the January 1, 2008 actuarial valuation, the entry age normal cost method was used. The actuarial assumptions included a 5% investment rate of return, an assumed inflation rate, and an increase in covered payroll at the rate of 3.25% per year. Medical premiums have been assumed to rise at a decreasing rate (from 10% in 2008 to 5.5% in 2016) and dental premiums by 3%.

The OPEB plan's unfunded actuarial liability is being amortized by level percent of payroll contributions over 30 years. The remaining amortization period at June 30, 2010 was 30 years.

9. Risk of Loss:

Foresthill Public Utility District is exposed to various risks of loss related to theft of, damage to, and destruction of assets; and injuries to employees. During the 2010 fiscal year, the District purchased certain commercial insurance coverages to provide for these risks.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

10. Net Assets:

Net assets at June 30, 2010 is analyzed as follows:

Investment in capital assets, net of related debt		\$4,911,340
Restricted:		
Capital improvement reserve	\$ 155,038	
Sugar Pine Reserve	<u>261,812</u>	
		416,850
Unrestricted:		
Designated by the Board:		
Repair and replacement reserve	176,141	
Undesignated	<u>274,016</u>	
		<u>450,157</u>
Total net assets		<u>\$5,778,347</u>

11. Subsequent Events:

Management has evaluated subsequent events through October 20, 2010, the date these June 30, 2010 financial statements were available to be issued.

FORESTHILL PUBLIC UTILITY DISTRICT  
NOTES TO FINANCIAL STATEMENTS, continued

12. Proposition 1A Borrowing by the State of California:

Under the provisions of Proposition 1A and as part of the 2009-10 budget package passed by the California state legislature on July 28, 2009, the State of California borrowed 8% of the amount of property tax revenue, including those property taxes associated with the in-lieu motor vehicle license fee, the triple flip in lieu sales tax, and supplemental property tax, apportioned to cities, counties and special districts (excluding redevelopment agencies). The state is required to repay this borrowing plus interest by June 30, 2013. After repayment of this initial borrowing, the California legislature may consider only one additional borrowing within a ten-year period. The amount of this borrowing pertaining to the District was \$3,204.

This borrowing by the State of California was recognized as a receivable in the accompanying financial statements.

## SUPPLEMENTAL DATA

FORESTHILL PUBLIC UTILITY DISTRICT  
PRINCIPAL OFFICIALS

**Board of Directors**

Brett C. Grant	President
George S. Shaw	Vice President
Adam W. Larsen	Treasurer
Duane L. Frink	Director
Stevan Graham	Director

**Operations**

Kurt W. Reed	Manager Ex. Officio Secretary
Jo Ann Glover	Business Manager

FORESTHILL PUBLIC UTILITY DISTRICT  
STATEMENT OF REVENUES, EXPENSES AND CHANGES  
IN NET ASSETS – BUDGET AND ACTUAL  
for the year ended June 30, 2010

	<u>Budget</u>	<u>Actual</u>	<u>Favorable (Unfavorable) Variance</u>
Operating revenues:			
Sales - residential	\$ 965,000	\$ 930,558	\$( 34,442)
- business	184,000	121,935	( 62,065)
- industrial	325	334	9
Other	<u>228,950</u>	<u>365,619</u>	<u>136,669</u>
Total operating revenues	<u>1,378,275</u>	<u>1,418,446</u>	<u>40,171</u>
Operating expenses:			
Source of supply	72,700	71,311	1,389
Pumping	9,350	8,796	554
Water treatment	169,450	163,680	5,770
Transmission and distribution	218,400	247,409	( 29,009)
Customer accounts	15,700	8,487	7,213
Administrative and general	738,904	829,439	( 90,535)
Depreciation	<u>4,543</u>	<u>313,839</u>	<u>( 309,296)</u>
Total operating expenses	<u>1,229,047</u>	<u>1,642,961</u>	<u>( 413,914)</u>
Operating income (loss)	<u>149,228</u>	<u>( 224,515)</u>	<u>( 373,743)</u>
Non-operating income and (expense):			
Interest income	750	4,229	3,479
Property taxes	76,360	73,809	( 2,551)
Interest expense	( 226,338)	( 134,668)	91,670
Assistance - Assessment District #2	-	( 100,000)	( 100,000)
Other	-	-	-
	<u>( 149,228)</u>	<u>( 156,630)</u>	<u>( 7,402)</u>
Income before contributions	-	( 381,145)	( 381,145)
Capital contributions	-	-	-
Change in net assets	<u>\$ -</u>	<u>\$( 381,145)</u>	<u>\$( 381,145)</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
 OPERATING EXPENSES  
 for the year ended June 30, 2010

Source of Supply:		
Restoration payments	\$ 18,721	
Supervision and labor	13,996	
Maintenance	1,035	
Vehicle expense	867	
Power	2,989	
Inspection and water rights	<u>33,703</u>	
		\$ <u>71,311</u>
Pumping:		
Power	7,460	
Vehicle expense	439	
Maintenance	62	
Propane	230	
Supervision and labor	<u>605</u>	
		<u>8,796</u>
Water treatment:		
Supervision and labor	102,646	
Maintenance	12,178	
Chemical and analysis	32,748	
Vehicle expense	3,308	
Power	10,031	
Propane	<u>2,769</u>	
		<u>163,680</u>
Transmission and Distribution:		
Supervision and labor	211,091	
Maintenance	27,121	
Vehicle expense	8,496	
Propane	<u>701</u>	
		<u>247,409</u>
Customer Accounts:		
Supervision and labor	6,665	
Maintenance	115	
Vehicle expense	<u>1,707</u>	
		<u>8,487</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
 OPERATING EXPENSES, continued  
 for the year ended June 30, 2010

Administrative and General:

Salaries	\$ 215,621	
Legal services	67,521	
Engineering services	29,903	
Collection charges	1,083	
Accounting	8,160	
Vehicle Expense	789	
Liability insurance	33,128	
Office expense		33,399
Employee benefits and payroll taxes	394,089	
Seminars and travel	5,875	
Utilities	3,796	
Consulting services	-	
Maintenance	1,529	
Dues and subscriptions	11,554	
Computer services	12,868	
Uniforms	3,761	
Public information program	2,710	
Educational expense	3,503	
Election expense	-	
Board remuneration	<u>150</u>	<u>\$ 829,439</u>

Depreciation 313,839

Total operating expenses \$1,642,961

FORESTHILL PUBLIC UTILITY DISTRICT  
 SCHEDULE OF FUNDING PROGRESS –  
 Other Post-Employment Benefits (OPEB)  
 For the year ended June 30, 2010

The table below shows an analysis of the actuarial value of assets as a percentage of the actuarial accrued liability and the unfunded actuarial accrued liability as a percentage of the annual covered payroll as of June 30:

<u>Actuarial Valuation Date</u>	(1) Actuarial Value of Plan Assets	(2) Actuarial Accrued Liability (AAL)	(3) Funded Ratio	(4) Unfunded Actuarial Accrued Liability (UAAL) (2)-(1)	(5) Annual Covered Payroll	(6) UAAL as a Percentage of Covered Payroll (4) / (5)
1/1/08	\$ -	\$ -	0.00%	\$613,762	\$434,784	141.16%

No trend information is reported because the year ended June 30, 2010 is the first year the District implemented GASB 45.

FORESTHILL PUBLIC UTILITY DISTRICT  
 Foresthill Public Utility District Assessment District No. 1  
 Long Term Debt  
 for the year ended June 30, 2010

Long-term debt activity for the year ended June 30, 2010 for the bond issue is as follows:

	<u>Balance</u> <u>7/1/2009</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance</u> <u>6/30/2010</u>	<u>Current</u> <u>Portion</u>
Bond issue	\$ <u>445,000</u>	\$ <u>-</u>	\$ <u>445,000</u>	\$ <u>-</u>	\$ <u>-</u>

The District issued bonds dated May 2, 1982 pursuant to the Municipal Improvement Act of 1913 and the Improvement Bond Act of 1915 in the total amount of \$817,250. The bonds bear interest at five percent (5%) payable January 2 and July 2 of each year; such bonds may be called for redemption prior to maturity upon payment of 105 percent of par plus accrued interest. The bonds are secured by the unpaid assessments made for the payment of improvements in the assessment district.

In March 2010, the loan was repaid in full, twelve years early, and bonds were appropriately released.

FORESTHILL PUBLIC UTILITY DISTRICT  
Foresthill Public Utility District Assessment District No. 2  
Long Term Debt  
for the year ended June 30, 2010

Long-term debt activities for the year ended June 30, 2010 for Assessment District No. 2 are as follows:

	<u>Balance</u> <u>7/1/2009</u>	<u>Additions</u>	<u>Payments</u>	<u>Balance</u> <u>6/30/2010</u>	<u>Current</u> <u>Portion</u>
Loan 91-02	\$1,190,400	\$ -	\$ 20,800	\$1,169,600	\$ 21,800
Loan 91-03	<u>1,796,400</u>	<u>-</u>	<u>30,000</u>	<u>1,766,400</u>	<u>31,500</u>
	<u>\$2,986,800</u>	<u>\$ -</u>	<u>\$ 50,800</u>	<u>\$2,936,000</u>	<u>\$ 53,300</u>

On February 28, 1996 the District adopted a resolution authorizing the issuance of improvement bonds pursuant to the Improvement Bond Act of 1915. The proceeds of such bonds was used to finance the construction of public improvements under the Municipal Improvement Act of 1913.

The improvements consisted of two phases - Phase 1 Pipeline Relocation Project and Phase 2 Water System Rehabilitation Project.

The Improvement Bonds were financed by the U.S. Department of Agriculture, Rural Development.

On July 23, 1997 the District issued an improvement bond (Series 1997) for \$1,364,150 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.875% per annum, payable on March 2 and September 2.

On June 2, 1998 the District issued an improvement bond (Series 1998) for \$2,031,318 to United States of America, Rural Development, United States Department of Agriculture. The bond bears interest at 4.75% per annum, payable on March 2 and September 2.

FORESTHILL PUBLIC UTILITY DISTRICT  
Foresthill Public Utility District Assessment District No. 2, continued  
Long Term Debt  
for the year ended June 30, 2010

The future annual maturities of long-term borrowings for Assessment District No. 2 as of June 30, 2010 are as follows:

<u>Year</u>	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
2011	\$ 53,300	\$ 139,643	\$ 192,943
2012	55,900	137,021	192,921
2013	58,500	134,275	192,775
2014	61,300	131,399	192,699
2015	64,300	128,384	192,684
2016-2020	370,700	591,370	962,070
2021-2025	468,400	491,083	959,483
2026-2030	592,300	364,319	956,619
2031-2035	748,800	204,016	952,816
2036-2038	<u>462,500</u>	<u>30,195</u>	<u>492,695</u>
	<u>\$2,936,000</u>	<u>\$2,351,705</u>	<u>\$5,287,705</u>

FORESTHILL PUBLIC UTILITY DISTRICT  
ASSESSMENT DISTRICT No. 2  
BALANCE SHEET  
June 30, 2010

ASSETS

Cash – held at County	\$ 498,047
Future assessments receivable	<u>2,394,125</u>
	<u>\$2,892,172</u>

LIABILITIES AND NET ASSETS

Assessment bond payable	\$2,936,000
Net assets (deficit)	<u>( 43,828)</u>
	<u>\$2,892,172</u>

**REPORT ON INTERNAL CONTROLS  
AND COMPLIANCE**

REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON  
COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL  
STATEMENTS PERFORMED IN ACCORDANCE WITH  
*GOVERNMENT AUDITING STANDARDS*

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

We have audited the financial statements of Foresthill Public Utility District as of and for the year ended June 30, 2010, and have issued our report thereon dated October 20, 2010. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

In planning and performing our audit, we considered Foresthill Public Utility District's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the District's internal control over financial reporting.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented or detected and corrected on a timely basis.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be deficiencies, significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above.

To the Board of Directors  
Foresthill Public Utility District  
Foresthill, California

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Foresthill Public Utility District's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We noted certain matters that we reported to management of the District, in a separate letter dated October 20, 2010.

This report is intended solely for the information and use of the Board of Directors of Foresthill Public Utility District and its management, and is not intended to be and should not be used by anyone other than these specified parties.

*Robert W. Johnson, An Accountancy Corporation*  
Citrus Heights, California  
October 20, 2010

# **EXHIBIT 15**



# **EXHIBIT 16**



# **EXHIBIT 17**



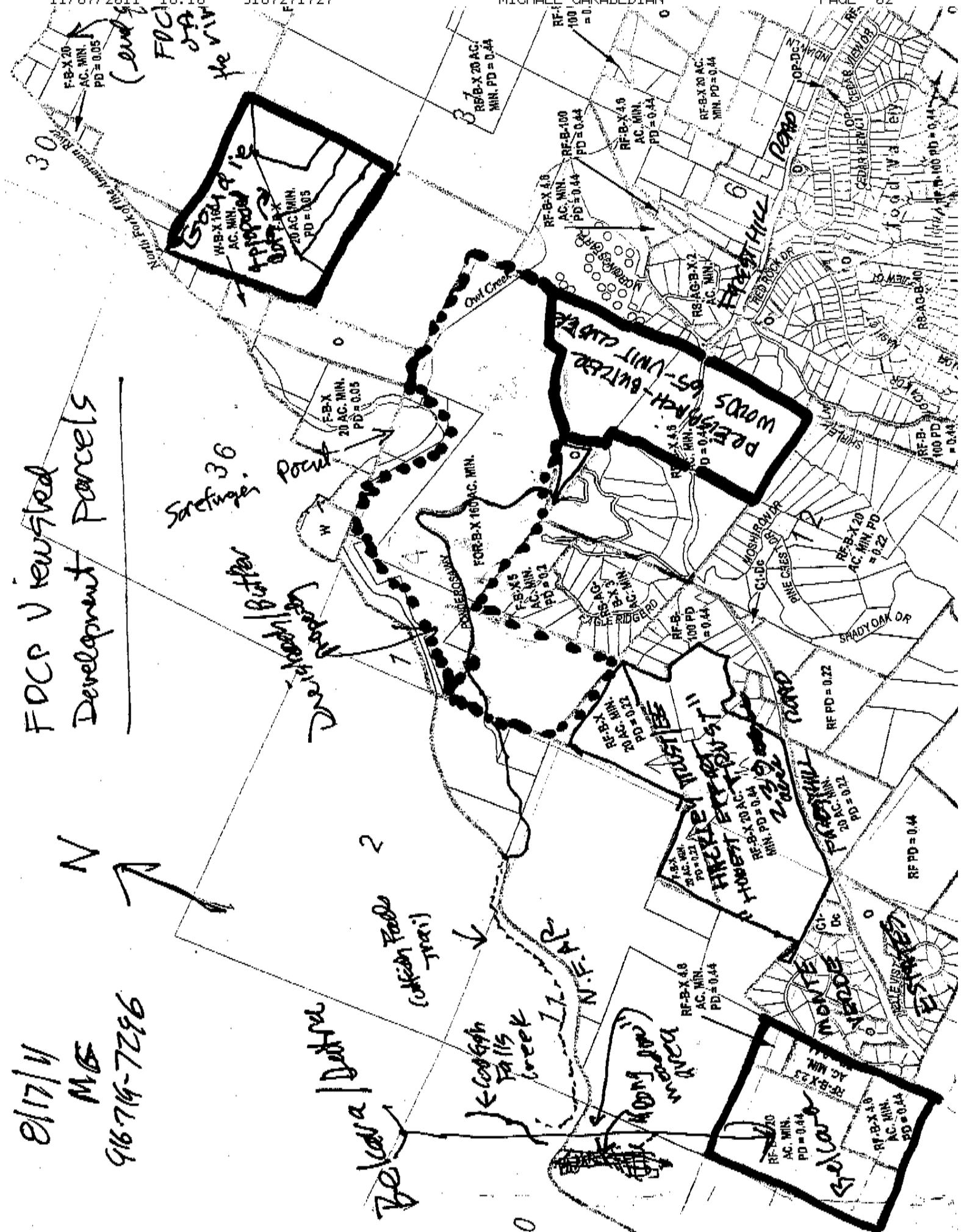
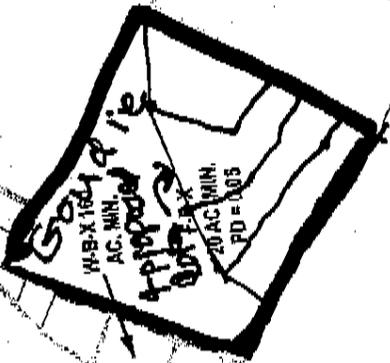
# **EXHIBIT 18**

FDCP Viewshed  
Development Parcels

8/17/11  
MB  
916719-7296

Sarcinieri 36

(cont'd)  
FDC  
off  
the view



# **EXHIBIT 19**



# **EXHIBIT 20**



# **EXHIBIT 21**



# **EXHIBIT 22**



# **EXHIBIT 23**



# **EXHIBIT 24**



# **EXHIBIT 25**

A photograph of a wooded area with a path covered in fallen leaves. A black sign with yellow text and a red symbol is placed on the path. The sign is rectangular and features a red circle with a diagonal slash over a black silhouette of a person walking. Below the symbol, the words "NO TRESPASSING" are written in yellow, bold, capital letters. The sign is positioned in the center of the path, flanked by two wooden posts connected by a thin wire. The background is filled with dense green foliage and trees.

**NO  
TRESPASSING**

# **EXHIBIT 26**



# **EXHIBIT 27**



# **EXHIBIT 28**



# **EXHIBIT 29**

**Soil Survey of**  
**Placer County, California**  
**Western Part**

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**United States Department of Agriculture**

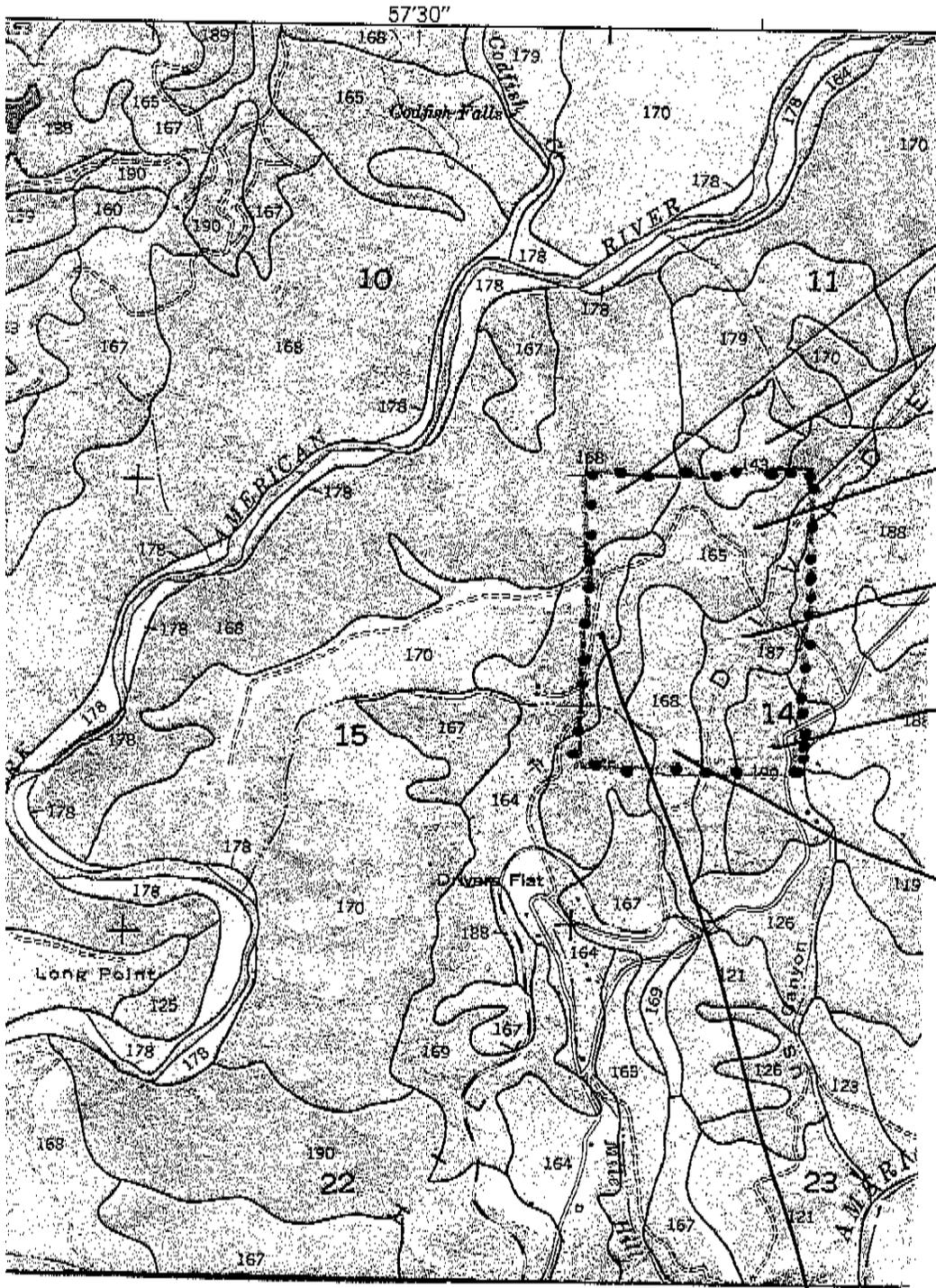
**Soil Conservation Service**

**in cooperation with**

**University of California Agricultural Experiment Station**

# Soil Survey of Placer County, California Western Part (1980) Sheet # 11

## Sheet # 11



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143 - Dubakella very stony loam, 9-50% slope

145 - Mariposa - Josephine complex, 30-50% slope

147 - Sites - Loam 3-15% slope

149 - Sites - Rock outcrop complex 15-50% slope

168 - Mariposa - Rock outcrop complex 50-70% slope

161 - Mariposa - Josephine complex, 5-30% slope

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Issued July 1980

## Preface

The Soil Survey of Placer County, Western Part, contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, ranchers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.

# SOIL SURVEY OF PLACER COUNTY, CALIFORNIA

## WESTERN PART

By John H. Rogers, Soil Scientist, Soil Conservation Service

Fieldwork by John H. Rogers, Paul G. Nazar, Harold R. Sketchley, Lynn A. Brittan, George F. Kliever  
Grant M. Kennedy, Thomas M. Ryan, and Charles B. Goudey  
Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, in cooperation with the  
University of California Agricultural Experiment Station

PLACER COUNTY, WESTERN PART, is in the east-central part of California (see map on facing page). Most of the privately owned land in the county is in the survey area. The total area is 411,544 acres.

Placer County, Western Part, is bounded by Sacramento and Sutter Counties on the west, the Bear River on the north, the Tahoe National Forest on the east, and the Middle Fork of the American River on the south. Elevations range from about 50 feet in the west to 5,000 feet in the east. Auburn is the county seat, and Roseville, population of about 20,000, the largest city.

Farming is of considerable importance in the survey area. The main crops in the western third are small grain, rice, and irrigated pasture. The crops in the central part are deciduous orchards and irrigated pasture. The acreage used for crops in the central part has been reduced by urban expansion. Livestock are important in the western two-thirds of the survey area, where forage is abundant. Wood crops are produced in the eastern third of the survey area.

### General nature of the county

The following paragraphs contain general information about Placer County, Western Part. They describe the physiography, relief, and drainage, the climate, the history, the farming, and the water development in the area.

### Physiography, relief, and drainage

Placer County, Western Part, is in the eastern part of the Great Valley of California and in the western part of the Central Sierra Nevada Mountains. The Great Valley area is dominantly nearly level to rolling old valley fill. The Sierra Nevada area is dominantly steep dipping, faulted, and folded metamorphic rocks that have been intruded by several types of igneous rocks. Overlying the

bedrock in many places is a mantle of river gravel and volcanic debris.

The ascent from the Central Valley is gentle, and the average slope through a west-to-east transect is about 5 percent. In general, the trend of the ridges and rock formations is northwest by southeast. Drainage is generally toward the southwest. The drainage channels have cut through geologic formations and followed the westward tilting of the Sierran fault block. The headward parts of the major streams and rivers are more deeply gouged by river canyons and drainageways than the rolling foothills, where river cutting is less. Typically, the folded and faulted areas of metamorphic rocks are steep and angular, the granitic areas are rounded and smooth and have a basinlike appearance, and the volcanic areas are flat topped and smooth.

The survey area is drained mainly by the Middle and North Forks of the American River and the Bear River. These rivers join the Sacramento River and flow into the San Francisco Bay. There are many major perennial streams in these major drainage areas.

### Climate

By Robert Elford, climatologist for California, National Weather Service, U.S. Department of Commerce.

Placer County, Western Part, is an area of abundant sunshine in summer, moderate to heavy precipitation in winter, and a wide temperature range. The strong flow of marine air from the Pacific Ocean in winter results in heavy precipitation, particularly at intermediate elevations in the mountains. At high elevations, much of the precipitation falls as snow, providing a water supply that lasts into summer. Precipitation in summer is light and generally is limited to a few scattered thundershowers at the highest elevations.

Temperatures range from hot on the terraces of the Sacramento Valley in summer to very cold in some of the high mountain areas in midwinter. All of the survey

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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the Bowman-Spaulling system. Water exports are 50,000 acre-feet to Nevada County and 1.5 million acre-feet to the Folsom Powerhouse, the Natomas Water Company, and the Folsom State Prison.

Sources of available water in Placer County are the Nevada Irrigation District, the Pacific Gas and Electric Company, the South Sutter Water District, the Camp Far West Irrigation District, the San Juan Suburban Water District, and the ground water sources limited to the valley area. A future water source will be the Placer County Water Agency via the Auburn dam.

The State Department of Water Resources projected annual water requirements for the district area in the year 2020 are irrigation 140,000 acre-feet, residential farms 85,000 acre-feet, and urban areas 41,000 acre-feet.

## How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpre-

tations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of rangeland and woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

## General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The 12 map units in this survey area have been grouped into three physiographic regions—terraces and alluvial bottoms, foothills, and mountainous uplands. Each group and its map units are described on the pages that follow.

### Soils on terraces and alluvial bottoms

The five map units in this group, about 30 percent of the survey area, are on terraces and alluvial bottoms in

This unit makes up about 5 percent of the survey area. It is about 40 percent Xerofluvents, 30 percent Kilaga soils, 10 percent Ramona soils, and 20 percent mainly Alamo, Cometa, and San Joaquin soils and Riverwash.

Xerofluvents are moderately well drained or somewhat poorly drained and are subject to occasional to frequent flooding. They vary in texture from sands to clay loams and in places are gravelly.

Kilaga soils are very deep and well drained. The surface layer is strong brown loam. The subsoil is reddish brown clay loam and clay.

Ramona soils are very deep and well drained. The surface layer is brown sandy loam and light brown loam. The subsoil is mixed reddish yellow and yellowish red sandy clay loam over reddish yellow gravelly sandy loam.

This unit is used mostly for irrigated crops and pasture. Some areas, particularly those adjacent to streams and rivers, are subject to occasional to frequent flooding.

#### 5. Redding-Corning

*Undulating to rolling, moderately deep and very deep, well drained soils that have a dense clay subsoil; on high terraces*

This map unit is near Sheridan. The soils formed in old gravelly alluvium from mixed sources. In many places, they are moderately deep over a silica indurated hardpan. Slopes are 2 to 15 percent. The plant cover is annual grasses and forbs. Elevations range from 100 to 240 feet.

This unit makes up 3 percent of the survey area. It is about 85 percent Redding and Corning soils and 15 percent Cometa, Fiddyment, and San Joaquin soils.

Redding soils are moderately deep over a claypan and indurated sediment. The surface layer is strong brown gravelly loam. The subsoil is reddish brown dense clay underlain at 28 inches by a silica indurated pan. Depth to the dense clay is 10 to 17 inches.

Corning soils are very deep. The surface layer is reddish brown gravelly loam. The subsoil is red dense clay underlain by strong brown clay loam. Depth to the dense clay is 12 to 22 inches.

This unit is used mostly for annual range. Some areas are used for winter grain and irrigated pasture.

#### Soils on foothills

The three units in this group, about 36 percent of the Placer survey area, are undulating to very steep uplands in the central third of the area. They are somewhat excessively drained to well drained gravelly coarse sandy loams to silt loams.

Elevations range from 200 to 1,600 feet. The average annual precipitation ranges from 18 to 36 inches. The average annual air temperature ranges from 60 to 62 degrees F. The average frost-free season is between 230 and 270 days.

These units are used mostly for annual range. Some of the acreage in orchards in the Loomis Basin is being converted to rural ranchettes. Also, some of the acreage is irrigated pasture.

#### 6. Exchequer-Inks

*Undulating to steep, well drained and somewhat excessively drained soils that are shallow over volcanic rock*

Most of this map unit is on ridges near Newcastle, Roseville, and Lincoln. The soils formed in cobbly material weathered from andesitic conglomerate and breccia. Slopes are 2 to 50 percent. The plant cover is annual grasses, blue oak, and live oak. Elevations range from 100 to 1,200 feet.

This unit makes up about 6 percent of the survey area. It is about 45 percent Exchequer soils, 25 percent Inks soils, and 30 percent the Alamo variant, Andregg, Caperton, and Inks variant soils and Rock outcrop.

Exchequer soils are somewhat excessively drained. They are brown very stony loams and cobbly loams 8 to 20 inches deep over hard andesitic breccia.

Inks soils are well drained. The surface layer is yellowish brown cobbly loam. The subsoil is brown very cobbly loam underlain at 12 to 20 inches by andesitic conglomerate.

This unit is used mainly for annual range. A few areas are used for irrigated pasture and deciduous orchards.

#### 7. Andregg-Caperton-Sierra

*Undulating to steep, well drained and somewhat excessively drained soils that are deep to shallow over granitic rock*

Most of this map unit is in the Loomis Basin. The soils formed in material weathered from granitic rock. Slopes are 2 to 50 percent. The plant cover is annual grasses and blue and live oak. Elevations range from 200 to 1,000 feet.

This unit makes up about 15 percent of the survey area. It is about 50 percent Andregg soils, 20 percent Caperton soils, 10 percent Sierra soils, and 20 percent Shenandoah soils and Rock outcrop.

Andregg soils are moderately deep and well drained. The surface layer is grayish brown coarse sandy loam. The subsoil is pale brown coarse sandy loam that is underlain at a depth of 24 to 40 inches by weathered granitic rock.

Caperton soils are shallow and somewhat excessively drained. The surface layer is dominantly grayish brown gravelly coarse sandy loam. The underlying material is pale brown gravelly coarse sandy loam that is underlain at a depth of 8 to 20 inches by weathered granitic rock.

Sierra soils are deep and well drained. The surface layer is dark grayish brown and brown sandy loam. The subsoil is yellowish red and red sandy clay loam and

clay loam that is underlain at a depth of 40 to 80 inches by weathered granitic rock.

This unit is used mostly for deciduous orchards and irrigated pasture. Many of the orchards are being subdivided into rural ranchettes.

### 8. Auburn-Sobrante

*Undulating to very steep, well drained soils that are shallow or moderately deep over metamorphic rock*

Most of this map unit occurs as a wide belt from Auburn northwest to Camp Far West Reservoir. The soils formed in material weathered from metabasic and meta-sedimentary rock. Slopes are 2 to 70 percent. The plant cover is annual grasses, oak, and scattered brush and pine. Elevations range from 200 to 1,600 feet.

This unit makes up about 15 percent of the survey area. It is about 55 percent Auburn soils, 20 percent Sobrante soils, and 25 percent Argonaut and Boomer soils and Rock outcrop.

Auburn soils are shallow and well drained. The surface layer is strong brown silt loam. The subsoil is yellowish red silt loam that is underlain at a depth of 12 to 28 inches by partly weathered basic schist.

Sobrante soils are moderately deep and well drained. The surface layer is yellowish red silt loam. The subsoil is yellowish red heavy loam that is underlain at 22 to 40 inches by hard basic schist.

This unit is used mostly for annual range, watershed, and habitat for wildlife. Some areas are used for irrigated pasture and orchards.

### Soils on mountainous uplands

The four map units in this group, about 34 percent of the Placer survey area, are undulating to very steep uplands in the eastern third of the area. They are well drained sandy loams and loams.

Elevations range from 1,200 to 5,300 feet. The average annual precipitation ranges from 35 to 60 inches, some of which falls as snow. The average annual air temperature ranges from 50 to 59 degrees F. The average frost-free season is between 130 and 250 days.

These units are used mostly for timber production or watershed. A few areas are used for irrigated pasture and orchards.

### 9. Mariposa-Josephine-Sites

*Undulating to steep, well drained soils that are shallow to deep over metamorphic rock*

This map unit occurs throughout the eastern third of the survey area. The soils formed in material weathered from metamorphic rock. Because of the vertical uplifting of the parent rock, its mixed mineralogy, and the varying degree of metamorphism, these soils are highly variable within short horizontal distances. Slopes are 2 to 50

percent. The plant cover is conifer-hardwood forest and scattered brush. Elevations range from 1,500 to 4,500 feet.

This unit makes up about 16 percent of the survey area. It is about 40 percent Mariposa soils, 30 percent Josephine soils, 15 percent Sites soils, and 15 percent Boomer and Boomer variant soils and Rock outcrop.

Mariposa soils are shallow to moderately deep. The surface layer is brown gravelly loam. The subsoil is reddish yellow gravelly clay loam that is underlain at 15 to 35 inches by fractured slate.

Josephine soils are deep. The surface layer is brown and dark reddish brown loam. The subsoil is reddish yellow clay loam that is underlain at 40 to more than 60 inches by weathered slate.

Sites soils are deep. The surface layer is dark reddish brown loam. The subsoil is red clay that is underlain at 40 to more than 60 inches by soft schistose.

This unit is used mainly for timber production. Some areas have been cleared and are used for orchards.

### 10. Maymen-Mariposa

*Hilly to very steep, well drained and somewhat excessively drained soils that are shallow or moderately deep over metamorphic rock*

This map unit is on the canyons of major drainageways in the eastern third of the survey area. The soils formed in material weathered from hard metamorphic rock. Slopes are 30 to 70 percent. The plant cover is brush and scattered stunted conifer and hardwood. Elevations range from 1,200 to 3,500 feet.

This unit makes up about 8 percent of the survey area. It is about 50 percent Maymen soils, 25 percent Mariposa soils, and 25 percent Rock outcrop and Josephine soils.

Maymen soils are shallow and somewhat excessively drained. They are brown and yellowish brown gravelly loams that are underlain at 8 to 20 inches by hard slate.

Mariposa soils are shallow to moderately deep and well drained. The surface layer is brown gravelly loam. The subsoil is reddish yellow gravelly clay loam that is underlain at 15 to 35 inches by fractured slate.

This unit is used for watershed.

### 11. Cohasset-Aiken-McCarthy

*Undulating to steep, well drained soils that are moderately deep to very deep over volcanic rock*

Most of this map unit occurs as three broad ridges in the eastern part of the survey area—the Dutch Flat-Alta, the Iowa Hill, and the Foresthill areas. The soils formed in material weathered from andesitic conglomerate. They are on broad, sloping, tabular ridges with steep side slopes. Slopes are 2 to 50 percent. The Aiken and most of the Cohasset soils are on the ridges. The McCarthy and the rest of the Cohasset soils are on the side

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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slopes. The plant cover is conifer-hardwood forest. Elevations range from 2,000 to 5,300 feet.

This unit makes up about 9 percent of the survey area. It is about 40 percent Cohasset soils, 30 percent Aiken soils, 20 percent McCarthy soils, and 10 percent Horse-shoe and Iron Mountain soils.

Cohasset soils are deep. The surface layer is dark brown cobbly loam. The subsoil is yellowish red and strong brown cobbly clay loam that is underlain at 40 to more than 80 inches by weathered andesitic conglomerate.

Aiken soils are very deep. The surface layer is brown and yellowish red loam. The subsoil is yellowish red clay loam and red clay that is underlain at 60 to 94 inches by weathered andesitic conglomerate.

McCarthy soils are moderately deep. The surface layer is brown cobbly sandy loam. The subsoil is strong brown and reddish yellow very cobbly sandy loam that is underlain at 22 to 40 inches by andesitic conglomerate.

This unit is used mainly for timber production.

## 12. Dubakella-Rock outcrop

*Rolling to steep, well drained soils that are moderately deep over serpentine; also Rock outcrop*

This map unit occurs as small scattered tracts throughout the eastern half of the survey area. Slopes are 9 to 50 percent. The plant cover is sparse brush and digger pine. Elevations range from 1,200 to 4,000 feet.

This unit makes up about 1 percent of the survey area. It is about 50 percent Dubakella soils, 40 percent Rock outcrop, and 10 percent Henneke soils, which occur as two small tracts north of Auburn.

Dubakella soils are moderately deep. The surface layer is reddish brown very stony loam. The subsoil is brown cobbly clay underlain at 21 to 33 inches by serpentine rock.

Rock outcrop consists of areas of hard serpentine and other ultrabasic rock formations. Rock outcrop and stones cover 50 to 90 percent of the surface. There is a thin mantle of soil material in crevices.

This unit is used mainly for watershed. Some areas provide a source of rock for roads. In other areas the rock is mined for chrome.

## Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for

each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have a profile that is almost alike make up a *soil series*. Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Aiken loam, 2 to 9 percent slopes, is one of several phases within the Aiken series.

Some map units are made up of two or more dominant kinds of soil. Such map units are called soil complexes and undifferentiated groups.

A *soil complex* consists of areas of two or more soils that are so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area includes some of each of the two or more dominant soils, and the pattern and proportion are somewhat similar in all areas. Alamo-Fiddymont complex is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because there is little value in separating them. The pattern and proportion of the soils are not uniform. An area shown on the map has at least one of the dominant (named) soils or may have all of them. Redding and Corning gravelly loams is an undifferentiated group in this survey area.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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The major limitations to urban use of the Cometa soil are the very slow permeability of the subsoil, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. The major limitation to urban use of the Ramona soil is the moderately slow permeability of the subsoil. Dwelling and road construction can be designed to offset the shrink-swell potential and the low bearing strength of the Cometa soil. Community sewage systems must be anticipated in medium and high density subdivisions. Septic tank absorption fields may not function properly because of the very slow permeability of the subsoil in the Cometa soil.

Capability unit IIIe-3(17) irrigated and nonirrigated; Storie index 50.

**143—Dubakella very stony loam, 9 to 50 percent slopes.** This is a moderately deep, well drained very stony soil underlain by ultrabasic rock. It formed in residuum in small, scattered areas of serpentinitic uplands in the eastern part of the survey area. Elevations are 1,000 to 4,000 feet. The average annual precipitation, some of which falls as snow, ranges from 40 to 60 inches. The average annual air temperature is about 57 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is brush, stunted conifer, and annual grasses.

About 20 percent of the acreage is included areas of a soil that is similar to this Dubakella soil but is only 10 to 20 inches deep to hard serpentine bedrock, 5 percent is Mariposa gravelly loam, and 10 percent is rock outcrop.

Typically, the surface layer of this Dubakella soil is reddish brown very stony loam and very cobbly loam about 17 inches thick. The subsoil is brown cobbly clay. At a depth of about 31 inches is weathered serpentinitized rock.

Permeability is slow. The available water capacity is 2.0 to 4.0 inches. The effective rooting depth is 21 to 33 inches. Fertility is very low because of a calcium to magnesium imbalance. Surface runoff is medium to rapid. The hazard of erosion is moderate to high.

This soil is used mainly for watershed. Some areas are used for wood crops.

This soil is not well suited to ponderosa pine production. It is capable of producing about 44 cubic feet, or 87 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. The major limitation to production is a calcium to magnesium imbalance that causes a very low level of fertility. There is some problem with windthrow because of the clay subsoil. Timber should not be harvested unless harvest is beneficial to the appearance of the stand or the soil is part of a block that contains better timber soils. Reforestation after harvest must be managed to reduce competition from brush.

Brushy areas provide good cover habitat for black-tailed deer and black bear.

Steepness of slope, depth to rock, and a slowly permeable clay subsoil are the major limitations to be considered in planning cabin and road construction. Soil slumps can be a hazard to road cuts because of the low strength and the lateral movement of water in winter. Septic tank absorption fields are marginal because of the slowly permeable subsoil and the depth to hard serpentine rock.

Capability subclass VIIs(22) nonirrigated; Storie index 13.

**144—Exchequer very stony loam, 2 to 15 percent slopes.** This is a shallow, somewhat excessively drained very stony soil underlain by hard andesitic breccia. It formed in residuum on long, broad volcanic ridges at elevations of 100 to 2,000 feet. The average annual precipitation ranges from 20 to 35 inches. The average annual air temperature is about 61 degrees F. The average frost-free season is between 230 and 270 days. Natural vegetation is annual grasses, forbs, and scattered blue and live oak.

About 15 percent of the acreage is included areas of Inks cobbly loam, 5 percent is a soil that is similar to the Inks soil but has a reddish brown loam subsoil, 5 percent is a shallow soil that has a brown clay subsoil, and 2 percent is areas of exposed andesitic breccia (lava cap) 10 to 50 square feet in size. Small areas of this Exchequer soil are strongly acid.

Typically, the soil is brown very stony loam and cobbly loam. At a depth of about 11 inches is hard andesitic breccia.

Permeability is moderate. The available water capacity is 0.5 to 2.5 inches. The effective rooting depth is 8 to 20 inches. Surface runoff is medium. The hazard of erosion is slight to moderate. After intense rainstorms, this soil is saturated and water flows across the surface for a short time.

Most areas are used for annual rangeland.

The major limitation to rangeland is the shallowness over rock. The grass is dry 1 to 2 weeks after the last spring rain. In a favorable year, the green feed period is from about March 15 to May 15. Grazing should be planned so that desirable vegetation, such as soft chess, wild oats, and filaree, is maintained and enough vegetation is left to protect the soil from depletion and erosion. Range plants should be grazed only when the soil is dry.

This soil has some potential as habitat for California quail and mourning dove.

Stones and the depth to hard rock are the major limitations to be considered in planning road construction. Septic tank absorption fields may not function properly because the depth to hard rock is less than 20 inches.

Capability subclass VIIs(18) nonirrigated; Storie index 15.

35 inches. Surface runoff is medium or rapid. The hazard of erosion is moderate or high.

Most areas are used for wood crops. A few areas where water is available for irrigation are used for irrigated pasture and for apple and pear orchards. The orchards are planted below elevations of 3,500 feet to help reduce crop losses resulting from freezes late in spring. Some areas provide homesites.

Erosion can be controlled by using permanent cover in the orchards. Cultivation should be across the slope. To avoid compaction, this soil should not be worked when wet. Gravel and the slope make tilling difficult. Sprinklers should be used in irrigating.

In pear orchards, a permanent cover crop can be annual grasses and weeds, which are mowed. A perennial permanent sod cover should consist of low growing legumes and perennial grasses, such as white Dutch clover, Salina strawberry clover, and Pomar orchardgrass. It should be mowed in spring and summer through fruit harvest. No legumes should be used in a cover crop in apple orchards.

Irrigated pasture can be a combination of legumes and grasses planted in a well prepared seedbed. A typical seed mixture is broadleaf trefoil and Akaroa orchardgrass. The legume seed is inoculated before planting. The pasture should be mowed to prevent clumping.

All crops respond to applications of nitrogen and phosphorus. Potassium is usually adequate. Apples and pears may need small applications of zinc, magnesium, and boron. In orchards under permanent cover, fertilizer rates are generally increased by about 50 percent.

On pasture and in apple and pear orchards, irrigation water is applied by sprinklers at a rate of 0.25 to 0.35 inch per hour. A total of 2.0 to 3.5 inches of water is applied at each irrigation. The frequency of irrigation is every 6 to 10 days during July and August. Approximately 3 1/2 acre-feet of water is used annually.

This Mariposa soil is well suited to ponderosa pine production. It is capable of producing about 93 cubic feet, or 486 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. Conventional methods can be used for tree harvest, but their use may be restricted in winter. There is some problem of windthrow because of the shallowness of the soil. Roads and skid trails should be protected from runoff. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable understory plants. Christmas trees are suited to this soil.

Orchard and pasture areas have good potential as habitat for California quail, mourning dove, and band-tailed pigeon. Forested areas provide habitat for black-tailed deer, black bear, gray squirrel, and wild turkey. To encourage wildlife populations, shrub hedgerows can be established along fence lines, roadsides, and stream-

banks to provide needed cover and nesting areas. Deer present serious depredation problems in orchards.

Homesite construction—primarily vacation homes—is increasing on this Mariposa soil. The major limitations to urban use are the slope and the depth to rock. In locating roads, special care is needed to minimize the heights of cuts and fills. Cuts and fills greater than 6 feet make access to building sites a problem. Septic tank absorption fields may not function properly because of the slope and the depth to rock.

Capability unit IVe-8(22) irrigated and nonirrigated; Storie index 33.

**164—Mariposa-Josephine complex, 5 to 30 percent slopes.** These rolling to hilly soils are on mountainous uplands at elevations of 1,500 to 4,000 feet. The unit is about 55 percent Mariposa soil and 35 percent Josephine soil. Generally, the Mariposa soil is on the ridges, the sharp breaks, and the south- and west-facing side slopes. In places the Josephine soil has concave slopes. In other places, it occupies smooth north- and east-facing side slopes. The average annual precipitation, some of which falls as snow, ranges from 35 to 60 inches. The average annual air temperature is about 56 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest and scattered brush and grasses.

About 8 percent of this unit is included areas of Sites loam, and 2 percent is scattered areas of rock outcrop.

The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured vertically tilted schist and slate.

Typically, the surface layer is brown gravelly loam about 6 inches thick. The subsoil is reddish yellow gravelly silt loam and gravelly clay loam. At a depth of 28 inches is partially weathered, highly fractured slate.

Permeability is moderate. The available water capacity is 1.5 to 5.0 inches. The effective rooting depth is 15 to 35 inches. Surface runoff is medium or rapid. The hazard of erosion is moderate or high.

The Josephine is a deep, well drained soil that formed in residuum from metamorphic rock.

Typically, the surface layer is brown loam about 11 inches thick. The subsoil is reddish yellow clay loam and silty clay loam. At a depth of about 52 inches is weathered slate.

Permeability is moderately slow. The available water capacity is 5.5 to 11.0 inches. The effective rooting depth is 40 to 60 inches. Surface runoff is medium or rapid. The hazard of erosion is moderate or high.

Most areas are used for wood crops. A few areas where water is available for irrigation are used for irrigated pasture and for apple and pear orchards. The orchards are planted below elevations of 3,500 feet to help reduce crop losses resulting from freezes late in spring. Some areas provide homesites.

Erosion can be controlled by using permanent cover in the orchards. All cultivation should be across the slope. To avoid compaction, the soil should not be worked when wet. The gravel and the slope make tilling difficult. Sprinklers should be used in irrigating.

In pear orchards, a permanent cover crop can be annual grasses and weeds, which are mowed. A perennial permanent sod cover should consist of low growing legumes and perennial grasses, such as white Dutch clover, Salina strawberry clover, and Pomar orchard-grass. It should be mowed in spring and summer through fruit harvest. No legumes should be used in a cover crop in apple orchards.

Irrigated pasture can be a combination of legumes and grasses planted in a well prepared seedbed. A typical seed mixture is broadleaf trefoil and Akaroa orchard-grass. The legume seed is inoculated before planting. The pasture should be mowed to prevent clumping.

All crops respond to applications of nitrogen and phosphorus. Potassium is usually adequate. Apples and pears may require small applications of zinc, magnesium, and boron. In orchards under permanent cover, fertilizer rates are generally increased by about 50 percent.

On pasture and in apple and pear orchards, irrigation water is applied by sprinklers at a rate of 0.25 to 0.35 inch per hour. A total of 2.0 to 4.5 inches of water is applied at each irrigation. The frequency of irrigation is every 6 to 12 days during July and August. Approximately 3 1/2 acre-feet of water is used annually.

This unit is well suited to ponderosa pine production. It is suited to moderately intensive management and is capable of producing about 111 cubic feet, or 617 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. Conventional methods can be used in tree harvest, but their use may be restricted in winter. Windthrow is a hazard because of the shallowness of the Mariposa soil. Roads and skid trails should be protected from runoff. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable understory plants. Christmas trees are well suited to this unit. Pruning can reduce excessive growth between whorls.

Orchard and pasture areas have good potential as habitat for California quail, mourning dove, and band-tailed pigeon. Forested areas provide habitat for black-tailed deer, black bear, gray squirrel, and wild turkey. To encourage wildlife populations, shrub hedgerows can be established along fence lines, roadsides, and stream-banks to provide needed cover and nesting areas. Deer present serious depredation problems in orchards.

Homesite construction—primarily vacation homes—is increasing on this unit. The major limitations to urban use are the slope and the depth to rock. In locating roads, special care is needed to minimize the heights of cuts and fills. Cuts and fills greater than 6 feet make access to building sites a problem. Septic tank absorption fields

may not function properly because of the slope and the depth to rock. They should be installed on the Josephine part of the unit if possible.

Capability unit IVe-8(22) irrigated and nonirrigated; Storie index 43.

**165—Mariposa-Josephine complex, 30 to 50 percent slopes.** These steep soils are on mountainous uplands at elevations of 1,500 to 4,000 feet. The unit is about 50 percent Mariposa soil and 35 percent Josephine soil. Generally, the Mariposa soil is on the ridges, the sharp breaks, and the south- and west-facing side slopes. In places, the Josephine soil has concave slopes. In other places, it is on smooth north- and east-facing side slopes. The average annual precipitation, some of which falls as snow, ranges from 35 to 60 inches. The average annual air temperature is about 55 degrees F. The average frost-free season is between 150 and 225 days. Natural vegetation is conifer-hardwood forest and scattered brush.

About 10 percent of this unit is included areas of Sites loam, and 5 percent is scattered areas of rock outcrop.

Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured, vertically tilted schist and slate.

Typically, the surface layer is brown gravelly loam about 6 inches thick. The subsoil is reddish yellow gravelly silt loam and gravelly clay loam. At a depth of about 28 inches is partly weathered, highly fractured slate.

Permeability is moderate. The available water capacity is 1.5 to 5.0 inches. The effective rooting depth is 15 to 35 inches. Surface runoff is rapid. The hazard of erosion is high.

The Josephine is a deep, well drained soil that formed in residuum from metamorphic rock.

Typically, the surface layer is brown loam about 11 inches thick. The subsoil is reddish yellow clay loam and silty clay loam. At a depth of about 52 inches is weathered slate.

Permeability is moderately slow. The available water capacity is 5.5 to 11.0 inches. The effective rooting depth is 40 to 60 inches. Surface runoff is rapid. The hazard of erosion is high.

This unit is used for wood crops. It is well suited to ponderosa pine production. It is suited to moderate management and is capable of producing about 111 cubic feet, or 617 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. The major limitation to timber production is the slope. Windthrow is a hazard because of the shallowness of the Mariposa soil. Conventional methods used in tree harvest can be used only with difficulty because of the slope. The slope can also be damaging to the soil resource because of the high erosion hazard. Roads and skid trails should be protected from runoff. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be

managed to reduce competition from undesirable plants. Christmas trees can be grown on this unit. Pruning can reduce excessive growth between whorls.

This unit provides good habitat for black bear, black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel.

Steepness of slope and the depth to rock are the major limitations to be considered in planning home and road construction. Soil slumps can be a hazard in road cuts on the Josephine soil because of low strength and the lateral movement of water in winter.

Capability subclass VIe(22) nonirrigated; Storie index 23.

**166—Mariposa-Josephine complex, 50 to 70 percent slopes.** These very steep soils are on canyon walls at elevations of 1,500 to 4,500 feet. The unit is about 45 percent Mariposa soil and 30 percent Josephine soil. Generally, the Mariposa soil is on the ridges, the sharp breaks, and the south- and west-facing side slopes. In places, Josephine soil has concave slopes. In other places, it is on smooth north- and east-facing side slopes. The average annual precipitation, some of which falls as snow, ranges from 35 to 60 inches. The average annual air temperature is about 55 degrees F. The average frost-free season is between 150 and 225 days. Natural vegetation is conifer-hardwood forest and scattered brush.

About 10 percent of this unit is included areas of Maymen gravelly loam, 5 percent is Sites loam, and 10 percent is areas of scattered rock outcrop.

The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured, vertically tilted schist and slate.

Typically, the surface layer is brown gravelly loam about 6 inches thick. The subsoil is reddish yellow gravelly silt loam and gravelly clay loam. At a depth of about 28 inches is partly weathered, highly fractured slate.

Permeability is moderate. The available water capacity is 1.5 to 5.0 inches. The effective rooting depth is 15 to 35 inches. Surface runoff is rapid. The hazard of erosion is very high.

The Josephine is a deep, well drained soil that formed in residuum from metamorphic rock.

Typically, the surface layer is brown loam about 11 inches thick. The subsoil is reddish yellow clay loam and silty clay loam. At a depth of about 52 inches is weathered slate.

Permeability is moderately slow. The available water capacity is 5.5 to 11.0 inches. The effective rooting depth is 40 to 60 inches. Surface runoff is rapid. The hazard of erosion is very high.

This unit is used for wood crops and watershed. It is suited to ponderosa pine production. It is suited to moderate management and is capable of producing about 111 cubic feet, or 617 board feet (International rule), per acre annually of merchantable timber from a fully

stocked, even-aged stand of 70 years. The major limitation to timber production is the steep slope. Windthrow is a hazard on the shallow Mariposa soil. Conventional methods used in tree harvest can be used only with great difficulty because of the slope. The slope can also be damaging to the soil resource because of the very high erosion hazard. High lead, balloon, or helicopter logging is the most efficient because damage to the soil surface by equipment is held to a minimum. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable plants.

This unit provides habitat for black bear, black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel. Capability subclass VIIe(22) nonirrigated; Storie index 14.

**167—Mariposa-Rock outcrop complex, 5 to 50 percent slopes.** This gently rolling to steep soil and Rock outcrop are on mountainous uplands at elevations of 1,500 to 4,500 feet. The unit is about 65 percent Mariposa soil and 10 percent Rock outcrop. The average annual precipitation, some of which falls as snow, ranges from 35 to 60 inches. The average annual air temperature is about 55 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest and scattered brush and grasses.

About 15 percent of this unit is included areas of Josephine loam, 5 percent is Maymen gravelly loam, and 5 percent is Sites loam.

The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured vertically tilted schist and slate.

Typically, the surface layer is brown gravelly loam about 6 inches thick. The subsoil is reddish yellow gravelly silt loam and gravelly clay loam. At a depth of about 28 inches is partly weathered, highly fractured slate.

Permeability is moderate. The available water capacity is 1.5 to 5.0 inches. The effective rooting depth is 15 to 35 inches. Surface runoff is medium or rapid. The hazard of erosion is moderate or high.

Rock outcrop consists of scattered areas of exposed metamorphic rock, generally 1 to 2 square feet, but some areas cover up to 500 square feet.

Surface runoff is very rapid. There is no hazard of erosion.

This unit is used mainly for wood crops. It is well suited to ponderosa pine production. It is suited to moderate management and is capable of producing about 85 cubic feet, or 425 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. The major limitation to timber production is the slope. Windthrow is a hazard because of the shallowness of the Mariposa soil. The outcrops of rock do not appreciably affect the use of this unit. Conventional methods used in tree harvest can be

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used only with difficulty because of the slope. The slope can also be damaging to the soil resource because of the high erosion hazard. Roads and skid trails should be protected from runoff. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable plants. Christmas trees can be grown on this Mariposa soil.

This unit provides good habitat for black bear, black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel.

Steepness of the slope, the depth to rock, and the rock outcrop are the major limitations to be considered in planning home and road construction.

Capability subclass VIs(22) nonirrigated; Storie index 22.

**168—Mariposa-Rock outcrop complex, 50 to 70 percent slopes.** This very steep soil and Rock outcrop are on canyon walls at elevations of 1,500 to 4,500 feet. The unit is about 60 percent Mariposa soil and 15 percent Rock outcrop. The average annual precipitation, some of which falls as snow, ranges from 35 to 60 inches. The average annual air temperature is about 55 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest and scattered brush and grasses.

About 10 percent of this unit is included areas of Josephine loam, 10 percent is Maymen gravelly loam, and 5 percent is Sites loam.

The Mariposa is a shallow or moderately deep, well drained gravelly soil that formed in residuum from fractured vertically tilted schist and slate.

Typically, the surface layer is brown gravelly loam about 6 inches thick. The subsoil is reddish yellow gravelly silt loam and gravelly clay loam. At a depth of about 28 inches is partly weathered, highly fractured slate.

Permeability is moderate. The available water capacity is 1.5 to 5.0 inches. The effective rooting depth is 15 to 35 inches. Surface runoff is rapid. The hazard of erosion is very high.

Rock outcrop consists of scattered areas of exposed metamorphic rock, generally 1 to 2 square feet, but in some areas it covers up to one-half acre.

Surface runoff is very rapid. There is no hazard of erosion.

This unit is used for wood crops and watershed.

This unit is suited to ponderosa pine production. It is suited to moderate management and is capable of producing about 85 cubic feet, or 425 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. The major limitation to timber production is the slope. Windthrow is a problem because of the shallowness of the Mariposa soil. Rock outcrop does not appreciably affect the use of this unit. Conventional methods used in tree harvest can be used only with difficulty because of the

slope. The slope can also be damaging to the soil resource because of the very high erosion hazard. High lead, balloon, or helicopter logging methods are the most efficient because equipment damage to the soil surface is held to a minimum. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable plants.

This unit provides habitat for black bear, black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel.

Capability subclass VIIs(22) nonirrigated; Storie index 9.

**169—Maymen-Rock outcrop complex, 9 to 50 percent slopes.** This rolling to steep soil and Rock outcrop are on mountainous uplands at elevations of 1,200 to 3,500 feet. The unit is about 50 percent Maymen soil and 20 percent Rock outcrop. The average annual precipitation, some of which falls as snow, ranges from 40 to 55 inches. The average annual air temperature is about 56 degrees F. The average frost-free season is between 150 and 225 days. Natural vegetation is brush and scattered stunted conifer and hardwood.

About 25 percent of this unit is included areas of Mariposa gravelly loam, and 5 percent is Josephine loam.

The Maymen is a somewhat excessively drained, shallow gravelly soil that formed in residuum from hard metamorphic rock.

Typically, the surface layer is brown gravelly loam about 2 inches thick. The subsoil is mixed yellowish brown and light yellowish brown gravelly loam. At a depth of 12 inches is hard slate.

Permeability is moderate. The available water capacity is 0.5 to 3.0 inches. The effective rooting depth is 8 to 20 inches. Surface runoff is rapid. The hazard of erosion is medium or high.

Rock outcrop occurs as scattered areas of metamorphic rock. Some are massive areas of up to 5 acres.

Surface runoff is very rapid. There is no hazard of erosion.

This unit is better suited to watershed than other uses because of the slope, the shallowness, and Rock outcrop.

Brushy areas provide browse and escape for black-tailed deer.

The steepness of slope, Rock outcrop, and the depth to hard rock are the major limitations to be considered in road construction. This unit is not suitable for home construction because the soil material is not deep enough for the installation of septic tank absorption fields.

Capability subclass VIIs(22) nonirrigated; Storie index 9.

**170—Maymen-Rock outcrop complex, 50 to 75 percent slopes.** This very steep soil and Rock outcrop are

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cover and nesting areas. Grain provides food. Deer present serious depredation problems in orchards.

There is increasing use of this soil for rural subdivisions. The major limitation to urban use is the slope. In locating roads, special care is needed to minimize the heights of cuts and fills. Cuts and fills greater than 6 feet make access to building sites a problem. Because of the erodibility of this soil and its parent material, all cuts and fills should be on at least a 2 to 1 slope. Community sewage systems must be anticipated in medium and high density subdivisions. Septic tank absorption fields may not function properly because of the slope and the moderately slow permeability.

Capability subclass Vle(18) irrigated and nonirrigated; Storie index 48.

**186—Sites loam, 2 to 9 percent slopes.** This is a deep, undulating to gently rolling, well drained soil underlain by weathered metamorphic rock. It formed in residuum, mainly from metasedimentary and metabasic rock on ridges and foot slopes at elevations of 2,000 to 4,000 feet. The average annual precipitation, some of which falls as snow, ranges from 40 to 60 inches. The average annual air temperature is about 56 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest.

About 15 percent of the acreage is included areas of Josephine loam, 5 percent is Mariposa gravelly loam, and 5 percent is a soil that is similar to this Sites soil but is 30 to 40 inches deep to weathered rock. Also included are scattered areas of rock outcrop.

Typically, the surface layer of this Sites soil is dark reddish brown and reddish brown loam about 16 inches thick. The subsoil is red clay loam and clay. At a depth of about 65 inches is soft schistose rock.

Permeability is moderately slow. The available water capacity is 6.5 to 10.0 inches. The effective rooting depth is 40 to 60 inches or more. Surface runoff is medium. The hazard of erosion is slight.

Most areas are used for wood crops. A few areas where water is available for irrigation are used for irrigated pasture or for apple and pear orchards. Selected varieties of grapes are also grown. The orchards are planted below elevations of 3,500 feet to help reduce crop losses resulting from freezes late in spring. Some areas provide homesites.

Erosion can be controlled by tilling across the slope and using cover crops in orchards in winter. To avoid compaction, this soil should not be cultivated or have equipment moved across it when wet. Sprinklers should be used in irrigating.

Wimmera 62 ryegrass and Blando bromegrass provide a satisfactory cover crop in orchards. The annual cover should set seed before it is disked or mowed.

In pear orchards, a permanent cover crop can be annual grasses and weeds, which are mowed. A perennial permanent sod cover should consist of low growing

legumes and perennial grasses, such as white Dutch clover, Salina strawberry clover, and Pomar orchard-grass. It should be mowed in spring and summer through fruit harvest. No legumes should be used in a cover crop in apple orchards.

Irrigated pasture can be a combination of legumes and grasses planted in a well prepared seedbed. A typical seed mixture is broadleaf trefoil and Akaroa orchard-grass. The legume seed is inoculated before planting. The pasture should be mowed to prevent clumping.

All crops respond to applications of nitrogen and phosphorus. Potassium is usually adequate. Apples and pears may need small applications of zinc, magnesium, and boron. In orchards under permanent cover, fertilizer rates are generally increased by about 50 percent.

On pasture and in apple and pear orchards, irrigation water is applied by sprinklers at a rate of 0.25 to 0.35 inch per hour. A total of 3.5 to 5.5 inches of water is applied at each irrigation. The frequency of irrigation is every 10 to 14 days during July and August. Approximately 3 1/2 acre-feet of water is used annually.

This Sites soil is one of the best soils in the area for ponderosa pine production. It is suited to highly intensive management and is capable of producing about 130 cubic feet, or 776 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. Conventional methods can be used for tree harvest, but their use may be restricted in winter. Reforestation after harvest must be managed to reduce competition from undesirable understory plants. Christmas trees are well suited to this soil. Intensive pruning is needed to reduce excessive growth between whorls.

Orchard and pasture areas have good potential as habitat for California quail, mourning dove, and band-tailed pigeon. Forested areas provide habitat for black-tailed deer, black bear, gray squirrel, and wild turkey. To encourage wildlife populations, shrub hedgerows can be established along fence lines, roadsides, and streambanks to provide needed cover and nesting areas. Protective strip planting of grain provides food. Deer present serious depredation problems in orchards and vineyards.

Homesite construction—primarily vacation homes—is increasing on this Sites soil. The major limitations to urban use are the moderately slow permeability in the subsoil, the shrink-swell potential of the subsoil, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the moderately slow permeability.

Capability unit Ille-1(22) irrigated, and Ille-1(22) nonirrigated; Storie index 65.

**187—Sites loam, 9 to 15 percent slopes.** This is a deep, rolling, well drained soil underlain by weathered metamorphic rock. It formed in residuum, mainly from

metasedimentary and metabasic rock, on ridges and foot slopes at elevations of 2,000 to 4,000 feet. The average annual precipitation, some of which falls as snow, ranges from 40 to 60 inches. The average annual air temperature is about 56 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest.

About 10 percent of the acreage is included areas of Josephine loam, 5 percent is Mariposa gravelly loam, 10 percent is a soil that is similar to this Sites soil but is 30 to 40 inches deep to weathered rock, and 2 percent is scattered rock outcrop.

Typically, the surface layer of this Sites soil is dark reddish brown and reddish brown loam about 16 inches thick. The subsoil is red clay loam and clay. At a depth of about 65 inches is soft schistose rock.

Permeability is moderately slow. The available water capacity is 6.5 to 10.0 inches. The effective rooting depth is 40 to 60 inches or more. Surface runoff is medium. The hazard of erosion is moderate.

Most areas are used for wood crops. A few areas where water is available for irrigation are used for irrigated pasture or for apple and pear orchards. Selected varieties of grapes are also grown. The orchards are planted below elevations of 3,500 feet to help reduce crop losses resulting from freezes late in spring. Some areas provide homesites.

Erosion can be controlled by tilling across the slope and by using cover crops in orchards in winter. Cultivation should be limited to the control of weeds. To avoid compaction, this soil should not be cultivated or have equipment moved across it when wet. Sprinklers should be used in irrigating.

Wimmera 62 ryegrass and Blando bromegrass provide a satisfactory cover crop in orchards. The annual cover should set seed before it is disked or mowed.

In pear orchards, a permanent cover crop can be annual grasses and weeds, which are mowed. A perennial permanent sod cover should consist of low growing legumes and perennial grasses, such as white Dutch clover, Salina strawberry clover, and Pomar orchardgrass. It should be mowed in spring and summer through fruit harvest. No legumes should be used in a cover crop in apple orchards.

Irrigated pasture can be a combination of legumes and grasses planted in a well prepared seedbed. A typical seed mixture is broadleaf trefoil and Akaroa orchardgrass. The legume seed is inoculated before planting. The pasture should be mowed to prevent clumping.

All crops respond to applications of nitrogen and phosphorus. Potassium is usually adequate. Apples and pears may need small applications of zinc, magnesium, and boron. In orchards under permanent cover, fertilizer rates are generally increased by about 50 percent.

On pasture and in apple and pear orchards, irrigation water is applied by sprinklers at a rate of 0.25 to 0.35 inch per hour. A total of 3.5 to 5.5 inches of water is

applied at each irrigation. The frequency of irrigation is every 10 to 14 days during July and August. Approximately 3 1/2 acre-feet of water is used annually.

This Sites soil is one of the best soils in the area for ponderosa pine production. It is suited to highly intensive management and is capable of producing about 130 cubic feet, or 776 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. Conventional methods can be used in tree harvest, but their use may be restricted in winter. Reforestation after harvest must be managed to reduce competition from undesirable understory plants. Christmas trees are well suited to this soil. Intensive pruning is needed to reduce excessive growth between whorls.

Orchard and pasture areas have good potential as habitat for California quail, mourning dove, and band-tailed pigeon. Forested areas provide habitat for black-tailed deer, black bear, gray squirrel, and wild turkey. To encourage wildlife populations, shrub hedgerows can be established along fence lines, roadsides, and streambanks to provide needed cover and nesting areas. Protective strip plantings of grain provide food. Deer present serious depredation problems in orchards and vineyards.

Homesite construction—primarily vacation homes—is increasing on this Sites soil. The major limitations to urban use are the moderately slow permeability in the subsoil, the shrink-swell potential of the subsoil, the slope, and the limited ability of the soil to support a load. Dwelling and road construction can be designed to offset most of these limitations. Septic tank absorption fields may not function properly during periods of rain or heavy use because of the moderately slow permeability.

Capability unit 111e-1(22) irrigated and nonirrigated; Storie index 58.

**188—Sites loam, 15 to 30 percent slopes.** This is a deep, hilly, well drained soil underlain by weathered metamorphic rock. It formed in residuum, mainly from metasedimentary and metabasic rock, on uplands at elevations of 2,000 to 4,000 feet. The average annual precipitation, some of which falls as snow, ranges from 40 to 60 inches. The average annual air temperature is about 56 degrees F. The average frost-free season is between 150 and 250 days. Natural vegetation is conifer-hardwood forest.

About 10 percent of the acreage is included areas of Josephine loam, 5 percent is Mariposa gravelly loam, 10 percent is a soil that is similar to this Sites soil but is 30 to 40 inches deep to weathered rock, and 2 percent is scattered rock outcrop.

Typically, the surface layer of this Sites soil is dark reddish brown and reddish brown loam about 16 inches thick. The subsoil is red clay loam and clay. At a depth of about 65 inches is soft schistose rock.

Permeability is moderately slow. The available water capacity is 6.5 to 10.0 inches. The effective rooting

ed from runoff. Grades on unsurfaced roads should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable plants. Christmas trees can be grown on this soil. Pruning is needed to reduce excessive growth between whorls.

This soil provides good habitat for black bear, black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel.

Steepness of slope is the major limitation to be considered in planning home and road construction. Soil slumps can be a hazard in road cuts because of the low strength and the lateral movement of water in winter.

Capability subclass VIe(22) nonirrigated; Storie index 29.

**190—Sites-Rock outcrop complex, 15 to 50 percent slopes.** This hilly to steep soil and Rock outcrop are on mountainous uplands at elevations of 2,000 to 4,000 feet. The unit is about 60 percent Sites soil and 15 percent metamorphic Rock outcrop. The average annual precipitation, some of which falls as snow, ranges from 40 to 60 inches. The average annual air temperature is about 55 degrees F. The average frost-free season is between 150 and 230 days. Natural vegetation is conifer-hardwood forest and brush.

About 15 percent of this unit is included areas of Josephine loam, 5 percent is Mariposa gravelly loam, and 5 percent is a soil that is similar to this Sites soil but is 30 to 40 inches deep to weathered rock.

The Sites is a deep, well drained soil that formed in residuum from metasedimentary rock.

Typically, the surface layer is dark reddish brown and reddish brown loam about 16 inches thick. The subsoil is red clay loam and clay. At a depth of about 65 inches is soft schistose rock.

Permeability is moderately slow. The available water capacity is 6.5 to 10.0 inches. The effective rooting depth is 40 to 60 inches. Surface runoff is medium or rapid. The hazard of erosion is moderate or high.

The Rock outcrop is metamorphic rock about 1 to 10 square feet.

Surface runoff is very rapid. There is no hazard of erosion.

Most areas are used for wood crops.

This unit is well suited to ponderosa pine production. It is suited to moderate management and is capable of producing about 130 cubic feet, or 776 board feet (International rule), per acre annually of merchantable timber from a fully stocked, even-aged stand of 70 years. The major limitation to timber production is the slope. The Rock outcrop does not appreciably affect the use of this unit. Conventional methods used in tree harvest can be used only with difficulty because of the slope. The slope can also be damaging to the soil resource because of the high erosion hazard. Roads and skid trails should be protected from runoff. Grades on unsurfaced roads

should be less than 10 percent. Reforestation after harvest must be managed to reduce competition from undesirable plants. Christmas trees can be grown on this unit. Pruning is needed to reduce excessive growth between whorls.

This unit provides good habitat for black-tailed deer, band-tailed pigeon, wild turkey, and gray squirrel.

Steepness of slope and the Rock outcrop are the major limitations to be considered in planning home and road construction. Soil slumps can be a hazard in road cuts because of the low strength and the lateral movement of water in winter.

Capability subclass VIe(22) nonirrigated; Storie index 36.

**191—Sobrante silt loam, 2 to 15 percent slopes.**

This is a moderately deep, undulating to rolling, well drained soil underlain by weathered metabasic rock. It formed in residuum on foothills at elevations of 600 to 1,500 feet. Most slopes are plane or slightly concave. The average annual precipitation ranges from 25 to 35 inches. The average annual air temperature is about 60 degrees F. The average frost-free season is between 230 and 270 days. Natural vegetation is annual grasses, forbs, blue and live oak, and scattered pine.

About 5 percent of the acreage is included areas of Argonaut loam, 5 percent is Auburn silt loam, and 5 percent is a soil that is similar to this Sobrante soil but is 40 to 55 inches deep to weathered rock.

Typically, the surface layer of this Sobrante soil is yellowish red silt loam about 7 inches thick. The subsoil is yellowish red silt loam and heavy loam. At a depth of about 33 inches is highly weathered basic schist. At about 40 inches is hard unweathered schist.

Permeability is moderate. The available water capacity is 3.0 to 7.0 inches. The effective rooting depth is 22 to 40 inches. Surface runoff is medium. The hazard of erosion is slight or moderate.

Most areas are used for deciduous orchards and irrigated pasture. Some areas are used as rangeland. A few are being urbanized.

Erosion can be controlled by tilling across the slope and using cover crops in orchards in winter. Cultivation should be limited to the control of weeds. To avoid compaction, this soil should not be cultivated or have equipment moved across it when wet. Sprinklers should be used in irrigating.

Wimmera 62 ryegrass, Blando bromegrass, or Cucamonga bromegrass provide a satisfactory cover crop in orchards. The annual cover should set seed before it is disked or mowed.

In deciduous orchards, a permanent cover crop can be annual grasses and weeds, which are mowed. A perennial permanent sod cover should consist of low growing legumes and perennial grasses, such as white Dutch clover, Salina strawberry clover, and Pomar orchardgrass. It should be mowed in spring and summer through

**194—Xerofluvents, frequently flooded.** Xerofluvents, frequently flooded, consist of narrow stringers of somewhat poorly drained recent alluvium adjacent to stream channels. Natural vegetation is annual grasses, forbs, sedges, valley oak, and willow.

These are variable colored, stratified gravelly sandy loams, gravelly loams, and gravelly clay loams that generally grade to sand and gravel with increasing depth. The depth to underlying restrictive material is greater than 36 inches.

Permeability is variable. The available water capacity is 2.5 to 6 inches. The effective rooting depth is greater than 36 inches. Surface runoff is slow. The hazard of erosion is high. Areas are subject to frequent flooding and channelization.

Because of the frequent flooding, most of the acreage is idle. Some of the acreage is pasture. A plant cover is needed in winter to protect these soils from erosion and channelization during periods of flooding.

Idle areas have good potential as cover and nesting habitat for wildlife.

These Xerofluvents are not suited to urban use because of the flood hazard.

Capability unit IVw-2(17, 18, 22) irrigated and nonirrigated; Storie index 36.

**195—Xerofluvents, hardpan substratum.** Xerofluvents, hardpan substratum, consist of small areas of somewhat poorly drained loamy alluvium in minor drainageways on terraces. Natural vegetation is annual grasses, forbs, and sedges.

These are variable colored, stratified loams and clay loams. Depth to the underlying hardpan ranges from 20 to 36 inches. About 20 percent of the area is Alamo clay.

Permeability is moderately slow. The available water capacity is 2.5 to 5 inches. The effective rooting depth is 20 to 36 inches. Surface runoff is slow. The hazard of erosion is slight. The water table rises to within 20 inches of the surface in winter, but disappears late in spring. These soils are occasionally flooded by stream overflow.

The use of these soils generally is the same as that of adjacent soils. Most areas are cultivated. Crops commonly grown are winter grain, irrigated pasture, and rice. A protective strip of vegetation left on each side of the channel can prevent the meandering of stream channels through areas of these soils.

Capability unit IIIw-2(17) irrigated and nonirrigated; Storie index 47.

**196—Xerorthents, cut and fill areas.** Xerorthents, cut and fill areas, consist of mechanically removed and mixed soil material in which horizons are no longer discernible. Most of this material is in the right-of-way of Interstate 80, the town of Auburn, and the Southern Pacific trainyard in Roseville. Some fill areas contain

rocks, concrete, asphalt, and other debris. Included are small areas of similar soils.

Cut and fill areas are typically well drained. Surface runoff is very rapid. The hazard of erosion is moderate. Permeability and available water capacity are variable.

These cut and fill areas are used primarily for highways and urban development.

Capability subclass VIII(17, 18, 22) nonirrigated; Storie index less than 10.

**197—Xerorthents, placer areas.** Xerorthents, placer areas, consist of stony, cobbly, and gravelly material commonly adjacent to streams that have been placer mined. Natural vegetation varies but generally is annual grasses, browse, oak, alder, willow, and cottonwood.

The soil material is derived from a mixture of rocks. It is stratified or poorly sorted. It contains enough fine sand and silt to support some grass. Depth of soil material ranges from 6 inches to more than 5 feet. Permeability, available water capacity, runoff, erosion hazard, and drainage are variable. Areas in streambeds are frequently flooded during the rainy season.

These soils have some value for grazing and for watering livestock. They also provide a good cover and water for wildlife.

Capability subclass VII(17, 18, 22) nonirrigated; Storie index less than 5.

## Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland, and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil

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properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

### Crops and pasture

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 62,000 acres in the survey area was used for crops and pasture in 1974, according to the Placer County Agricultural Commissioner's Report. Of this total 27,000 acres was irrigated pasture; 1,000 acres row crops, mainly corn; 14,000 acres close-grown crops, mainly wheat and oats; 5,000 acres rotation hay and pasture; 9,000 acres rice; 500 acres seed crops; and 5,000 acres fruit and nut crops, mainly pears and plums.

The soils in Placer County have good potential for increased production of food. About 20,000 acres of potentially good cropland is currently used as woodland and about 80,000 acres as pasture. In addition to the reserve productive capacity represented by this land, food production could also be increased considerably by

extending the latest crop production technology to a cropland in the county. This soil survey can greatly facilitate the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. It was estimated that in 1967 the county has about 36,000 acres of urban and built-up land; this acreage has been growing at the rate of about 200 acres per year. The use of this soil survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "General soil maps for broad land use planning."

Erosion control provides a protective surface cover that reduces runoff, and increases infiltration. A cropping system that keeps a plant cover on the soil for extended periods during the rainy season can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land and also provide nitrogen and improve tilth for the following crop.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide available in local offices of the Soil Conservation Service.

### Yields per acre

The average yields per acre that can be expected on the principal crops under a high level of management are shown in table 2. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the crop is not suited to or not commonly grown on the soil or that a given crop is not commonly irrigated.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 2.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum

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7.—A limitation caused by rocks, stones, or cobblestones.

8.—A limitation in the root zone, which generally is less than 40 inches over massive bedrock and lacks moisture for plants.

9.—A limitation caused by low or very low fertility, by acidity, or by toxicity that cannot be corrected by adding normal amounts of fertilizer, lime, or other amendments.

**Land resource areas**

Placer County, Western Part has been divided into 3 land resource areas, based on soils, climate, topography, vegetation, and use. These resource areas are designated nationally as 17, 18, and 22. In the survey area, land resource area 17 consists of the terraces of the Sacramento Valley; 18, the grass-oak foothills of the Sierra Nevadas; and 22, the forested mountainous uplands of the Sierra Nevadas.

Soils in two or more resource areas may be similar and have the same capability unit symbol but management needs differ. These management differences result from differences in climate, vegetation, and the kinds of crops that can be grown. For this reason, capability unit symbols are followed by the numbers (17), (18), and (22) to identify the several resource areas. For example, IVe-8(17), IVe-8(18), and IVe-8(22) all include well drained soils that are shallow to bedrock or a hardpan. Unit IVe-8(17) is in the irrigated valley, unit IVe-8(18) is in the oak-grass covered foothills, and IVe-8(22) is in the conifer-forested mountains.

*Land resource area 17* is on terraces in the eastern part of the Sacramento Valley. Vegetation is dominantly grass and scattered oak. Slopes are undulating to rolling. Elevations are 50 to 250 feet. Rainfall is 18 to 23 inches. In this resource area, irrigation water is available, or a source is being developed for most soils suitable for irrigation. The frost-free season is 260 to 285 days. Grazing and grain are the main farm uses. As irrigation water is developed, more soils are being used for pasture, field crops, and rice.

*Land resource area 18* is the foothills of the Sierra Nevada Range. Vegetation is generally oak-grass. The area is rolling to steep and is dissected by rivers and streams that flow southwestward. Slopes are steep at the higher elevations, but they gradually level off as they merge with the terraces in the Sacramento Valley. Elevations are 200 to 1,600 feet. Rainfall is 18 to 36 inches. The frost-free season is 230 to 270 days. Grazing is the most common use. Where irrigation has been developed, this land is used for deciduous orchards and pasture.

*Land resource area 22* is the mountainous uplands of the Sierra Nevada Range. Vegetation is coniferous forest and associated hardwood. The area is characterized by hilly to steep slopes, deep V-shaped canyons, and some narrow valleys. Ridges on volcanic material are generally tabular and gently sloping. Elevations are 1,200 to 5,300

feet. Precipitation, some of which falls as snow, is 35 to 60 inches. The frost-free season is 130 to 250 days. Wood crop production is the most common use. Where irrigation water has been developed, suitable soils are used for deciduous orchards.

**Storie Index**

Prepared by E. L. Begg, lecturer and soil specialist, University of California, Davis.

The soils of this survey area are rated according to the Storie Index (5,6). This index expresses numerically the relative degree of suitability of a soil for general intensive agriculture as it exists at the time of evaluation. The rating is based on soil characteristics only and is obtained by evaluating such factors as soil depth, surface texture, subsoil characteristics, drainage, salts and alkali, and relief. Other factors, such as availability of water for irrigation, climate, and distance from markets, that might determine the desirability of growing certain plants in a given locality, are not considered. Therefore, in itself, the index should not be considered as a direct index of land value. Where economic factors are known to the user, however, the Storie Index provides additional objective information for comparisons of land tract value. In this publication, the index rating is given at the end of each soil description.

Four general factors are considered in the index rating. These factors are: (A) the characteristics of the soil profile and soil depth; (B) the texture of the surface soil; (C) the dominant slope of the soil; and (X) other factors more readily subject to management or modification. In this area, the X factors include drainage, flooding, and general nutrient level of the soil. For some soils more than one X-factor may be used. Each of the four general factors is evaluated on the basis of 100 percent. A rating of 100 percent expresses the most favorable or ideal condition for general crop production; lower percentage ratings are assigned for conditions that are less favorable. Factor ratings are selected from tables prepared from data and observations that related soil properties, plant growth, and crop yield (4). Where ranges of values for these factors exist within a given soil unit, the modal condition for a factor is used in assigning a rating value.

The index rating for a soil is obtained by multiplying the four factors, A, B, C, and X; thus any factor may dominate or control the final rating. For example, a soil such as Aiken loam, 2 to 9 percent slopes, is a very deep soil with a moderately slowly permeable profile. This warrants a rating of 85 percent for factor A. This soil has a friable, workable loam surface texture, warranting a rating of 100 percent for factor B. The smooth, gently to moderately sloping surface of this soil justifies a rating of 90 percent for factor C. The moderate nutrient level justifies a rating of 90 percent for factor X. Multiply-

ties and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

*Playgrounds* require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

*Paths and trails* for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

## Engineering

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock that is within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay min-

erals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational uses; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

*Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.*

The information is presented mainly in tables. Table 7 shows, for each kind of soil, the degree and kind of limitations for building site development; table 8, for sanitary facilities; and table 10, for water management. Table 9 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

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Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

### Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 7. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

*Shallow excavations* are made for pipelines, sewerlines, communications and power transmission lines, basements, and open ditches. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

*Dwellings and small commercial buildings* referred to in table 7 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings. Susceptibility to flooding is a serious hazard.

*Local roads and streets* referred to in table 7 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

### Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 8 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good*, *fair*, or *poor*, which, respectively, mean about the same as the terms *slight*, *moderate*, and *severe*.

*Septic tank absorption fields* are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere with installation. Excessive slope can cause lateral seep-

age and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand and gravel or fractured bedrock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have cobbles, stones, or boulders are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

*Sanitary landfill* is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 8 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or

moderate may not be valid. Site investigation is needed before a site is selected.

*Daily cover for landfill* should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

### Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 9 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction materials. Each soil is evaluated to the depth observed, generally about 6 feet.

*Roadfill* is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 11 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low potential frost action, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and

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have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, wetness, or many stones. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

*Sand and gravel* are used in great quantities in many kinds of construction. The ratings in table 9 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Coarse fragments of soft bedrock material, such as shale and siltstone, are not considered to be sand and gravel. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 11.

*Topsoil* is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result at the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, slope, and amount of stones. The ability of the soil to support plantlife is determined by texture, structure, and the amount of soluble salts or toxic substances. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can limit or prevent plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick or soils that have appreciable amounts of gravel, stones, or soluble salt.

Soils rated *poor* are very sandy soils and very firm clayey soils; soils with suitable layers less than 8 inches thick; soils having large amounts of gravel, stones, or soluble salt; steep soils; and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of

moisture and nutrients for plant growth are greatly increased by organic matter.

### Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 10 soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

*Embankments, dikes, and levees* require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of a soil for use in embankments, dikes, and levees.

*Drainage* of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; salinity and alkalinity; and availability of outlets for drainage.

*Irrigation* is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, presence of salts and alkali, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to intercept runoff. They allow water to soak into the soil or flow slowly to an outlet. Features that affect suitability of a soil for terraces are uniformity and steepness of slope; depth to bedrock, hardpan, or other unfavorable material; large stones; permeability; ease of establishing vegetation; and resistance to water erosion, soil blowing, soil slipping, and piping.

*Grassed waterways* are constructed to channel runoff to outlets at a nonerosive velocity. Features that affect the use of soils for waterways are slope, permeability, erodibility, wetness, and suitability for permanent vegetation.

### Soil properties

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.
- Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.
- Coarse fragments.** Mineral or rock particles up to 3 inches (2 millimeters to 7.5 centimeters) in diameter.
- Coarse textured (light textured) soil.** Sand or loamy sand.
- Cobblestone (or cobble).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.5 to 25 centimeters) in diameter.
- Colluvium.** Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the bases of steep slopes.
- Complex slope.** Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures is difficult.
- Complex soil.** A mapping unit of two or more kinds of soil occurring in such an intricate pattern that they cannot be shown separately on a soil map at the selected scale of mapping and publication.
- Compressible.** Excessive decrease in volume of soft soil under load.
- Concretions.** Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.
- Consistence, soil.** The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—  
*Loose.*—Noncoherent when dry or moist; does not hold together in a mass.  
*Friable.*—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.  
*Firm.*—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.  
*Plastic.*—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.  
*Sticky.*—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.  
*Hard.*—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.  
*Soft.*—When dry, breaks into powder or individual grains under very slight pressure.  
*Cemented.*—Hard; little affected by moistening.
- Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).
- Corrosive.** High risk of corrosion to uncoated steel or deterioration of concrete.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cutbanks cave.** Unstable walls of cuts made by earth-moving equipment. The soil sloughs easily.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** A delay in grazing until range plants have reached a specified stage of growth. Grazing is deferred in order to increase the vigor of forage and to allow desirable plants to produce seed. Contrasts with continuous grazing and rotation grazing.
- Depth to rock.** Bedrock at a depth that adversely affects the specified use.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Drainage class (natural).** Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:  
*Excessively drained.*—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.  
*Somewhat excessively drained.*—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the

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water they receive is lost as runoff. All are free of the mottling related to wetness.

**Well drained.**—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

**Moderately well drained.**—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

**Somewhat poorly drained.**—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

**Poorly drained.**—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

**Very poorly drained.**—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Erosion.** The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

**Erosion (geologic).** Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

**Erosion (accelerated).** Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

**Excess fines.** Excess silt and clay. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime.** Excess carbonates. Excessive carbonates, or lime, restrict the growth of some plants.

**Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

**Fast intake.** The rapid movement of water into the soil.

**Favorable.** Favorable soil features for the specified use.

**Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

**Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

**Fine textured (heavy textured) soil.** Sandy clay, silty clay, and clay.

**First bottom.** The normal flood plain of a stream, subject to frequent or occasional flooding.

**Flooding.** The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

- Pan.** A compact, dense layer in a soil. A pan impedes the movement of water and the growth of roots. The word "pan" is commonly combined with other words that more explicitly indicate the nature of the layer; for example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.
- Parent material.** The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.
- Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.
- Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
- Percolation.** The downward movement of water through the soil.
- Percolates slowly.** The slow movement of water through the soil adversely affecting the specified use.
- Permeability.** The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).
- Phase, soil.** A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characteristic that affects management. These differences are too small to justify separate series.
- pH value.** (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.
- Piping.** Moving water of subsurface tunnels or pipelike cavities in the soil.
- Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plastic limit.** The moisture content at which a soil changes from a semisolid to a plastic state.
- Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- Polypedon.** A volume of soil having properties within the limits of a soil series, the lowest and most homogeneous category of soil taxonomy. A "soil individual."
- Poorly graded.** Refers to soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Productivity (soil).** The capability of a soil for producing a specified plant or sequence of plants under a specified system of management. Productivity is measured in terms of output, or harvest, in relation to input.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Range (or rangeland).** Land that, for the most part, produces native plants suitable for grazing by livestock; includes land supporting some forest trees.
- Range condition.** The health or productivity of forage plants on a given range, in terms of the potential productivity under normal climate and the best practical management. Condition classes generally recognized are—*excellent*, *good*, *fair*, and *poor*. The classification is based on the percentage of original, or assumed climax vegetation on a site, as compared to what has been observed to grow on it when well managed.
- Range site.** An area of range where climate, soil, and relief are sufficiently uniform to produce a distinct kind and amount of native vegetation.
- Reaction, soil.** The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—
- |                             | pH             |
|-----------------------------|----------------|
| Extremely acid.....         | Below 4.5      |
| Very strongly acid.....     | 4.5 to 5.0     |
| Strongly acid.....          | 5.1 to 5.5     |
| Medium acid.....            | 5.6 to 6.0     |
| Slightly acid.....          | 6.1 to 6.5     |
| Neutral.....                | 6.6 to 7.3     |
| Mildly alkaline.....        | 7.4 to 7.8     |
| Moderately alkaline.....    | 7.9 to 8.4     |
| Strongly alkaline.....      | 8.5 to 9.0     |
| Very strongly alkaline..... | 9.1 and higher |
- Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock. Soil scientists regard as soil only the part of the regolith that is modified by organisms and other soil-building forces. Most engineers describe the whole regolith, even to a great depth, as "soil."
- Relief.** The elevations or inequalities of a land surface, considered collectively.
- Residuum (residual soil material).** Unconsolidated, weathered, or partly weathered mineral material that accumulates over disintegrating rock.
- Rill.** A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.
- Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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TABLE 7.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
100----- Aiken	Moderate: too clayey.	Moderate: shrink-swell, low strength.	Severe: low strength.	Moderate: slope, shrink-swell, low strength.	Severe: low strength.
101----- Aiken	Moderate: too clayey, slope.	Moderate: slope, shrink-swell, low strength.	Severe: low strength.	Severe: slope.	Severe: low strength.
102----- Aiken	Moderate: too clayey, large stones, slope.	Moderate: slope, shrink-swell, low strength.	Severe: low strength.	Severe: slope.	Severe: low strength.
103----- Aiken	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.	Severe: slope, low strength.
104*: Alamo-----	Severe: wetness, too clayey, floods.	Severe: wetness, floods, shrink-swell.	Severe: wetness, floods, shrink-swell.	Severe: wetness, floods, shrink-swell.	Severe: wetness, low strength, shrink-swell.
Fiddymont-----	Moderate: depth to rock, cemented pan, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
105----- Alamo variant	Severe: wetness, too clayey.	Severe: wetness, shrink-swell, low strength.	Severe: wetness, shrink-swell, low strength.	Severe: slope, wetness, shrink-swell.	Severe: shrink-swell, low strength.
106----- Andregg	Moderate: depth to rock.	Slight-----	Moderate: depth to rock.	Moderate: slope.	Slight.
107----- Andregg	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Moderate: slope.
108----- Andregg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
109----- Andregg	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Moderate: slope.
110, 111----- Andregg	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
112*: Andregg----- Rock outcrop.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
113*: Andregg-----	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Moderate: slope.

See footnote at end of table.

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TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
141*: Cometa-----	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
Fiddymnt-----	Moderate: depth to rock, cemented pan, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
142*: Cometa-----	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
Ramona-----	Slight-----	Slight-----	Slight-----	Slight-----	Slight.
143----- Dubakella	Severe: depth to rock, too clayey, slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, low strength.
144----- Exchequer	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
145*: Exchequer-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
Rock outcrop.					
146----- Fiddymnt	Moderate: depth to rock, cemented pan, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
147*: Fiddymnt-----	Moderate: depth to rock, cemented pan, too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.
Kaseberg-----	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: cemented pan, depth to rock.
148*: Henneke-----	Severe: slope, depth to rock, too clayey.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.
Rock outcrop.					
149----- Horseshoe	Slight-----	Moderate: shrink-swell, low strength.	Moderate: shrink-swell, low strength.	Moderate: slope, shrink-swell, low strength.	Severe: low strength.
150----- Horseshoe	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.

See footnote at end of table.

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
151*: Horseshoc	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Rubble land.					
152, 153 Inks	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.
154*: Inks	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: depth to rock.
Exchequer	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.
155 Inks variant	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
156*: Iron Mountain	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Rock outcrop.					
157 Josephine	Moderate: too clayey.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: slope, low strength, shrink-swell.	Severe: low strength.
158 Josephine	Moderate: too clayey, slope.	Moderate: slope, low strength, shrink-swell.	Moderate: slope, low strength, shrink-swell.	Severe: slope.	Severe: low strength.
159, 160 Josephine	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
161*: Josephine	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Rock outcrop.					
162 Kilaga	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
163 Mariposa	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.
164*, 165*, 166*: Mariposa	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.
Josephine	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.

See footnote at end of table.

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## SOIL SURVEY

TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
157*, 166*: Mariposa Rock outcrop.	Severe: slope.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.
169*, 170*: Waymen Rock outcrop.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.
171, 172 McCarthy	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
173*. Silt and dumps					
174 Ramona	Slight	Slight	Slight	Slight	Slight.
175 Ramona	Slight	Slight	Slight	Moderate: slope.	Slight.
176*: Bedding	Severe: cemented pan.	Severe: low strength.	Severe: cemented pan.	Severe: low strength.	Severe: low strength.
177 Corning	Severe: too clayey.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.
177*: Bedding	Severe: cemented pan.	Severe: low strength.	Severe: cemented pan.	Severe: slope, low strength.	Severe: low strength.
178 Corning	Severe: too clayey.	Severe: low strength, shrink-swell.	Severe: low strength, shrink-swell.	Severe: slope, shrink-swell, low strength.	Severe: shrink-swell, low strength.
178*. Riverwash					
179*. Rock outcrop					
180* Rubble land					
181 San Joaquin	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.
182*: San Joaquin	Severe: cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, cemented pan.	Severe: shrink-swell.	Severe: shrink-swell, low strength.
Cometa	Severe: too clayey.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.	Severe: shrink-swell, low strength.

See footnote at end of table.

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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TABLE 7.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
183----- Sierra	Slight-----	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell, slope.	Moderate: low strength, shrink-swell.
184----- Sierra	Moderate: slope.	Moderate: low strength, shrink-swell, slope.	Moderate: low strength, shrink-swell, slope.	Severe: slope.	Moderate: low strength, shrink-swell, slope.
185----- Sierra	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
186----- Sites	Moderate: too clayey.	Moderate: low strength, shrink-swell.	Moderate: low strength, shrink-swell.	Moderate: slope, shrink-swell, low strength.	Severe: low strength.
187----- Sites	Moderate: slope, too clayey.	Moderate: slope, low strength, shrink-swell.	Moderate: slope, low strength, shrink-swell.	Severe: slope.	Severe: low strength.
188, 189----- Sites	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
190*: Sites-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.
Rock outcrop.					
191----- Sobrante	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, low strength, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Moderate: slope, low strength, shrink-swell.
192*----- Xerofluvents	Severe: too sandy, floods.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.
193*, 194*----- Xerofluvents	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.
195*----- Xerofluvents	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness, cemented pan.	Severe: floods, wetness.	Moderate: wetness, floods.
196*. Xerorthents					
197*----- Xerorthents	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods.

\* See map unit description for the composition and behavior of the map unit.

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
112*: Andregg-----  Rock outcrop.	Severe: slope, depth to rock.	Severe: slope, seepage.	Severe: seepage, depth to rock.	Severe: slope, seepage.	Poor: slope, thin layer, area reclaim.
113*: Andregg-----  Shenandoah-----	Severe: depth to rock.	Severe: slope, seepage.	Severe: seepage, depth to rock.	Severe: seepage.	Poor: thin layer, area reclaim.
114----- Auburn	Severe: wetness, percs slowly, depth to rock.	Severe: slope, wetness.	Severe: wetness, depth to rock.	Severe: wetness.	Poor: wetness.
115*: Auburn-----  Argonaut-----	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer, area reclaim.
116*: Auburn-----  Argonaut-----  Rock outcrop.	Severe: percs slowly, depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Poor: too clayey, thin layer, area reclaim.
117*: Auburn-----  Rock outcrop.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer, area reclaim.
118*: Auburn-----  Sobrante-----	Severe: percs slowly, depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Poor: too clayey, thin layer, area reclaim.
119*: Auburn-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.

See footnote at end of table.

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## SOIL SURVEY

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
142*: Ramona	Severe: percs slowly.	Moderate: slope, seepage.	Slight	Slight	Good.
143 Dubakella	Severe: slope, depth to rock, percs slowly.	Severe: slope, depth to rock, large stones.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, slope, area reclaim.
144 Exchequer	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer, large stones, area reclaim.
145*: Exchequer	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Poor: slope, thin layer, large stones.
Rock outcrop.					
146 Fiddymnt	Severe: depth to rock, cemented pan, percs slowly.	Moderate: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Slight	Poor: thin layer, area reclaim.
147*: Fiddymnt	Severe: depth to rock, cemented pan, percs slowly.	Moderate: depth to rock, cemented pan, slope.	Severe: depth to rock, cemented pan.	Slight	Poor: thin layer, area reclaim.
Kaseberg	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Severe: depth to rock, cemented pan.	Slight	Poor: thin layer, area reclaim.
148*: Henneke	Severe: slope, depth to rock, percs slowly.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope.	Poor: thin layer, area reclaim, slope.
Rock outcrop.					
149 Horseshoe	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Slight	Fair: too clayey, small stones.
150 Horseshoe	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope.	Poor: slope.
151*: Horseshoe	Severe: slope.	Severe: slope, seepage.	Severe: seepage.	Severe: slope.	Poor: slope.
Rubble land.					
152 Inks	Severe: slope, depth to rock.	Severe: slope, depth to rock, small stones.	Severe: depth to rock.	Severe: slope.	Poor: slope, area reclaim, small stones.

See footnote at end of table.

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SOIL SURVEY

TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
164*: Josephine-----	Severe: slope, percs slowly, depth to rock.	Severe: slope.	Severe: depth to rock.	Severe: slope.	Poor: slope.
165*, 166*: Mariposa-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
Josephine-----	Severe: slope, percs slowly, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope.
167*, 168*: Mariposa-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
Rock outcrop.					
169*, 170*: Maymen-----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Poor: slope, thin layer, area reclaim.
Rock outcrop.					
171----- McCarthy	Severe: slope, depth to rock.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: slope, seepage.	Poor: slope, small stones, area reclaim.
172----- McCarthy	Severe: slope, depth to rock.	Severe: seepage, slope.	Severe: slope, seepage, depth to rock.	Severe: slope, seepage.	Poor: slope, small stones, area reclaim.
173*. Pits and dumps					
174----- Ramona	Severe: percs slowly.	Moderate: seepage.	Slight-----	Slight-----	Good.
175----- Ramona	Severe: percs slowly.	Moderate: slope, seepage.	Slight-----	Slight-----	Good.
176*: Redding-----	Severe: percs slowly, cemented pan.	Moderate: cemented pan, seepage, slope.	Severe: cemented pan.	Slight-----	Fair: thin layer, area reclaim.
Corning-----	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Poor: too clayey.
177*: Redding-----	Severe: percs slowly, cemented pan.	Severe: slope.	Severe: cemented pan.	Moderate: slope.	Fair: thin layer, area reclaim, slope.

See footnote at end of table.

## PLACER COUNTY, CALIFORNIA, WESTERN PART

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TABLE 8.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
177*: Corning-----	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Poor: too clayey.
178*. Riverwash					
179*. Rock outcrop					
180*. Rubble land					
181----- San Joaquin	Severe: percs slowly, cemented pan.	Moderate: seepage, cemented pan, slope.	Severe: cemented pan.	Slight-----	Fair: thin layer, area reclaim.
182*: San Joaquin-----	Severe: percs slowly, cemented pan.	Moderate: seepage, cemented pan, slope.	Severe: cemented pan.	Slight-----	Fair: thin layer, area reclaim.
Cometa-----	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight-----	Poor: too clayey.
183----- Sierra	Severe: percs slowly.	Moderate: seepage, slope.	Severe: depth to rock.	Slight-----	Good.
184----- Sierra	Severe: percs slowly.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Fair: slope.
185----- Sierra	Severe: slope, percs slowly.	Severe: slope.	Severe: depth to rock.	Severe: slope.	Poor: slope.
186----- Sites	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight-----	Fair: too clayey.
187----- Sites	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey, slope.
188----- Sites	Severe: slope, percs slowly.	Severe: slope.	Severe: too clayey.	Severe: slope.	Poor: slope.
189----- Sites	Severe: slope, percs slowly.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope.
190*: Sites-----	Severe: slope, percs slowly.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope.
Rock outcrop.					
191----- Sobrante	Severe: depth to rock.	Severe: slope.	Severe: depth to rock.	Moderate: slope.	Fair: thin layer, area reclaim, slope.
192*----- Xcrofluents	Severe: floods, wetness.	Severe: wetness, floods, seepage.	Severe: floods, wetness, seepage.	Severe: wetness, floods, seepage.	Poor: too sandy.

See footnote at end of table.