

December 18, 2014

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**Subject: CONTRA COSTA COUNTY SANITATION DISTRICT No. 6
Opinion of Probable Cost of Annexation Alternatives**

Dear Jason:

Harris & Associates is pleased to provide this Opinion of Probable Cost of the Annexation Alternatives for Sanitation District No. 6 (SD-6) for the Stonehurst Subdivision. The alternatives are described in more detail in two separate studies;

- *Alternatives Development Scoping Phase Report, December 8, 2014*
- *System Evaluation and Recommended Improvements Report, January 22, 2014.*

This report provides our opinion of the probable costs of the alternatives. The Introduction discusses assumptions that were used about costs and develops unit costs for many items, especially those that are used in multiple alternatives.

There is then a separate chapter for each of the alternatives. A separate table is also provided for each alternative.

In the last chapter, a comparison of the alternatives is presented.

We look forward to discussing the information presented in this report.

Sincerely,
Harris & Associates

A handwritten signature in black ink, appearing to read "Vern Phillips".

Vern Phillips, PE

SANITATION DISTRICT NO. 6

OPINION OF PROBABLE COST OF THE ANNEXATION ALTERNATIVES

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1. INTRODUCTION

Contra Costa County Sanitary District 6 (SD-6) is the Stonehurst Subdivision, which contains 47 parcels.

From the time SD-6 was established in 1991, it has been envisioned that the wastewater treatment and disposal facilities in the District would be abandoned when the Central Contra Costa Sanitary District (CCCSD) sewer system was extended to the vicinity of the site. This is mentioned in the original discharge permit. The CCCSD sewer system has now reached the intersection of Alhambra Valley Road and Quail Court, which is approximately one mile from the Stonehurst Subdivision.

Five alternatives for connecting SD-6 to CCCSD were developed in a separate report. At the request of the Homeowners Association (HOA), an alternative for operating the existing system for approximately five years before implementing one of the alternatives for connection to the CCCSD sewer system, and an alternative of operating the existing system for 30 years have been included. Also as requested by the HOA, the costs include capital costs, operating costs, and debt service costs.

This report presents the opinion of probable cost of the alternatives.

Cost Data

Costs of items that appear in multiple alternatives are discussed below. Costs of items that are unique to an alternative are discussed in the chapter that discusses that alternative and are presented in Tables 1 through 8.

As of July 1, 2014, the CCCSD annexation fee for a house with a pump and with a mother-in-law apartment was \$17,917. This will increase slightly by the time annexation occurs, perhaps by one to two percent per year, but the current value will be used in this report.

If the existing treatment facilities are abandoned, the existing tanks will have to be removed or will have to be abandoned by punching holes in the bottoms and filling them with sand or lean concrete. There is a possibility that a contractor might remove the tanks and/or some of the other equipment for use elsewhere and thus offset at least some of the cost of abandoning the treatment facilities. It is envisioned that the existing recirculating gravel filters would be covered with 12-inches of soil and that the leach fields at the top of the hill will be abandoned in place. The cost of abandoning the existing wastewater treatment facilities is estimated to be \$50,000.

The existing septic tanks on each lot would be abandoned by punching holes in the bottom and filling them with inert material. CCCSD estimates that the cost of abandonment of a septic tank is \$2,000.

The installed cost of a lateral on private property from the house to the pipe in the street is estimated to be \$75 per linear foot. Much of this work might have to be done by hand to minimize damage to the existing facilities on the lot. It is assumed that each lateral would be 100-feet long, thus that the cost of a new lateral would be \$7,500.

The installed cost of a high quality simplex grinder pump at each house is estimated to be also approximately \$7,500. A solids handling pump might cost only \$2,000, but as discussed in the "Alternatives Development Scoping Phase Report", a solids handling pump requires a 2-inch lateral, but the existing laterals are only 1.5-inches in diameter. A grinder pump can use a lateral that is as small as 1.25-inches. For the purposes of this report, in the applicable alternatives it will be assumed that a grinder pump will be installed and that the existing 1.5-inch diameter laterals will continue to be used.

Based on our recent experience, the installed cost of an 8-inch gravity sewer at relatively shallow depths (10-foot depth or less) under relatively easy conditions (stable soil, minimal dewatering, minimal traffic control) is about \$200 per linear foot, not including manholes or repaving. Under the same conditions, for depths between 10 and 15-feet, the cost of an 8-inch sewer increases to \$250 per linear foot; for depths between 15 and 20-feet, the cost increases to \$300 per linear foot.

Manholes are estimated to cost \$7,500 each. The 2011 CCCSD specifications allow manholes to be spaced up to 500 feet apart, but due to the curvature of the roads and the numerous intersections, it is assumed that the actual average spacing will be 300-feet.

Pavement restoration is estimated to add \$40 per linear foot for sewers, assuming a 4-foot width of pavement and base will be removed and replaced.

As discussed in the *Alternatives Development Scoping Phase Report*, the Homeowners Association expects to re-pave all of the roads in the subdivision within the next five years. If pipeline installation projects can be coordinated with the re-paving work, some savings may be possible.

The installed cost of a small diameter force main in the street is estimated to be \$75 per linear foot. The force main usually would be at a shallow depth, i.e. it would have only 30-inches of cover and it would follow the grade of the street. Air release valves would be required at high points. The cost of restoring pavement over force mains is estimated to be \$20 per linear foot since the trench width will be approximately half what is required for the larger diameter gravity sewers.

It is assumed in the tables that the cost of engineering, administration, construction management, etc. will be 25 percent of the construction cost. A contingency of 25 percent of the construction cost has also been included in the tables.

Non-Capital Costs

For the alternatives that do not result in CCCSD taking responsibility for all of the wastewater system, some sort of separate entity will have to exist. The entity, whatever it turns out to be, will face costs for operation and maintenance, the cost of administration of the entity, and permitting and other fees.

If there is little or no mechanical equipment, the operation and maintenance costs will be much lower than they are at present. Occasionally there will be a break in the piping, locations of piping may have to be marked when other utilities are being installed or repaired (the Underground Services Alert program), air relief valves may need to be serviced, a Sewer System Management Plan will need to be revised periodically, and some amount of reporting will be required.

The current charge for routine operation and maintenance is \$3,800 per month.

Even if there is little or no mechanical equipment, the monthly cost of operation and maintenance may be between \$500 and \$1,000, say \$750 or \$9,000 per year.

The separate entity will have reporting requirements and probably will have to pay separate fees. These might cost around \$5,000 per year.

If the sewer system is controlled by a separate entity, it probably will have a separate permit from the Regional Water Quality Control Board. The fees paid to the Regional Board in November, 2013 were \$1,940 for the wastewater treatment plant (Facility ID 2SSO10120) and \$970 for the collection system (Facility ID 2 071184001), a total of \$2,910.

If the existing wastewater treatment facilities are kept in service, it is assumed that the annual cost of laboratory work will be \$5,000.

It is assumed that there will be \$1,000 of various types of other fees per year.

The annual and monthly non-capital costs have been entered in the tables.

Debt Service

If annexation proceeds, each home owner will face a significant cost for financing the facilities that are required to connect to CCCSD. Depending on which alternative is selected, the capital cost will be \$63,000 to \$142,000 per parcel.

Financing of sewer improvements is available through the CCCSD Contractual Assessment District (CAD) program. The minimum interest rate in this program is six (6) percent. The usual term for loans under the CAD program is 10 years but 15 years

is allowed in Alhambra Valley. This relatively short term would increase the monthly debt service payment by about 40 percent over the payment with a 30 year term.

For the purposes of this report, it is assumed that the subdivision will be able to borrow money at six percent interest rate and with a 30 year term.

2 ALTERNATIVE A. GRAVITY SEWER IN REGIONAL PARK TRAIL

In Alternative A, a gravity sewer line would be built from the existing wastewater treatment plant in the Regional Parks trail alongside the creek that passes by the treatment plant out to Vaca Creek Road. From that point, a gravity sewer would be built in Vaca Creek Road and Alhambra Valley Road to the CCCSD manhole at Quail Court. The existing wastewater treatment facilities would be abandoned.

Because CCCSD will not accept septic tank effluent due to concerns about odors and corrosion, the septic tanks at each house would be abandoned and onsite grinder pumps would be installed. As discussed in Chapter 1, grinder pumps can use force mains as small as 1.25-inches, thus the existing 1.5-inch laterals could be kept in service.

The sewers and force mains in the subdivision streets would be kept in service, but since they do not meet the CCCSD standards, CCCSD would not take responsibility for them. Some other entity would have to be responsible for the facilities in the subdivision streets. There would be operation and maintenance costs for this other entity.

It is assumed that CCCSD would also charge each house the standard annual service fee, which was \$439 as of July 1, 2014.

Because the wastewater would be treated at the CCCSD wastewater treatment plant, there would be no laboratory fees.

The estimated cost of Alternative A is presented in Table 1.

The costs of the first five line items were developed in Chapter 1.

At a spacing of 300-feet per manhole, approximately 10 manholes would be required along the creekside trail.

For sewers that are not in paved streets, CCCSD requires that the access road be covered with 11-inches of Clayton Blue crushed rock. The cost of the gravel paving is estimated to be \$84,130. (See Table 1.)

Approximately 3,000-feet of gravity sewer, manholes, and paving are required to reach from the end of the creekside trail to the manhole at Quail Court.

Due to the sensitive environment along the creekside trail, considerable environmental review and remediation measures may be necessary. This alternative will be more expensive if habitat restoration or other requirements are mandated by the East Bay Regional Parks District. For the purposes of this report, it is assumed that the environmental studies and mitigation work will cost \$100,000.

The capital costs per lot would be \$95,193.

The total cost for the CCCSD annual service fee, operation etc. and the debt service is \$639 per month.

3. ALTERNATIVE B. PUMP STATION AND FORCE MAIN

In Alternative B, a submersible pump station would be built at the site of the existing wastewater treatment plant and a 4-inch diameter force main would be laid in Stonehurst Drive out to a point near Vaca Creek Road. From that point onward, the sewer would be similar to that in Alternative A.

As in Alternative A, the septic tanks on the lots would be abandoned and grinder pumps would be installed. The existing small diameter sewers and force mains in the subdivision streets would be kept in service but would have to be operated and maintained by some entity other than CCCSD. CCCSD will not accept responsibility for the condition nor maintenance of the existing force mains.

The estimated cost of Alternative B is presented in Table 2.

The costs of the first five line items were developed in Chapter 1.

From the end of the force main, the gravity sewer is similar to the gravity sewer in Alternative A.

The capital cost per lot is estimated to be \$96,019.

It is assumed that CCCSD would impose their annual service fee of \$439 since the lots are being serviced.

The total cost for the CCCSD annual service fee, operation etc. and the debt service is \$644 per month.

4 ALTERNATIVE C. ONSITE PUMPS WITH CCCSD FORCE MAINS

In Alternative C, each lot would have an onsite grinder pump, as in Alternatives A and B, but the pressure laterals from each lot would connect to a double contained force

main that meets the CCCSD standards. Because the force mains in the streets would meet the CCCSD standards, CCCSD would take over the force mains. Each homeowner would be responsible for the onsite grinder pump and lateral out to the double contained CCCSD force main. There would be no need for a separate entity to operate or maintain any of the wastewater facilities.

The septic tanks on the lots would be abandoned. and grinder pumps would be installed and would use the existing 1.5-inch diameter laterals.

There would be a double contained force main in virtually every street in the subdivision.

The estimated cost of Alternative C is presented in Table 3.

The costs of the first five line items were developed in Chapter 1.

The double contained force mains would be similar to other force mains, i. e. the outer pipe would be 4-inches in diameter and the force main would be laid with minimum cover, but because the pipes are double contained, the cost will be higher than for non-double contained force mains.

The CCCSD standard plans require that connections of laterals to the double contained force main be made at manholes, but more than one lateral can be connected at a single manhole, and the manholes are shallower than gravity sewer manholes. It is assumed that there will be about two-thirds as many manholes as there are lots.

From the end of the force main, the gravity sewer is Identical to the gravity sewer in Alternative B.

The capital cost per lot is estimated to be \$98,671.

Because the system would now be fully owned and operated by CCCSD, the only operation and maintenance cost would be the standard CCCSD residential service charge, which is \$439 per year in late 2014.

The total cost for the CCCSD annual service fee, operation etc. and the debt service is \$628 per month.

5. ALTERNATIVE D. ONSITE PUMPS WITH SUBDIVISION FORCE MAINS

Alternative D is similar to Alternative C, except that the existing force mains and sewers would be re-used, i.e. double contained force mains would not be installed. Small diameter force mains or small diameter gravity sewers, which could be used as force mains, already exist in most of the subdivision streets. It would be necessary to extend

a force main from the existing piping near the lift station up to the top of the hill near the entrance to the subdivision, a distance of about 350-feet.

Because the existing force mains do not meet the CCCSD standards, CCCSD would not accept responsibility for operating and maintaining them. A separate entity would be required to operate and maintain force main system.

The big advantage of Alternative D is that most of the very significant cost of installing new double contained force mains would be avoided. This reduces the capital cost by about three-quarters of a million dollars.

A disadvantage of Alternative D is that a separate entity would be necessary for operating and maintaining the piping in the streets of the subdivision and thus that the annual non-capital costs would be higher by about \$18,000 per year.

The estimated cost of Alternative D is presented in Table 4.

The costs of the first five line items were developed in Chapter 1.

From the end of the force main, the gravity sewer is identical to the gravity sewer in Alternatives B and C.

The capital cost per lot is estimated to be \$69,054.

The total cost for the CCCSD annual service fee, operation etc. and the debt service is \$482 per month.

6. ALTERNATIVE E. GRAVITY SEWERS IN SUBDIVISION STREETS

In Alternative E, which was added at the request of the Homeowners Association, there would be gravity sewers throughout the subdivision. As discussed in the separate study, *Alternatives Development Scoping Phase Report*, about 900-feet of trenchless technology will be required to get through the hill near the entrance to the subdivision. (See Figure 3-6 of that report). The most appropriate form of trenchless technology appears to be horizontal directional drilling (HDD).

In addition, about 750-feet of trenchless technology or rather deep open cut will be required to get from the vicinity of the existing wastewater treatment plant to the vicinity of Stonehurst Court. (See Figure 3-7 of that report). Because Stonehurst Drive curves significantly in this area, multiple pits would be required for a trenchless technology. It appears that deep open cut installation of the sewers will be less costly in this area than a trenchless technology.

The septic tanks on the lots would be abandoned. The laterals to reach from the house to the gravity sewer could be either conventional 4-inch gravity laterals or grinder pumps

that would use the existing 1.5-inch diameter laterals could be used. There is very little difference in cost between gravity laterals and grinder pumps using the existing laterals. The choice could be left to each individual homeowner. The determining factor probably would be the amount of disruption caused to existing facilities on the lot, such as landscaping, paving, retaining walls, etc.

The estimated cost of Alternative E is presented in Table 5.

The costs of the first five line items were developed in Chapter 1.

The overall length of the gravity sewers was scaled off the construction drawings of the existing sewer system. The lengths of the various types of gravity sewers are presented in the table below.

Type Of Gravity Sewer	Length, Feet
Sewer, 8", 10' deep or less.	7,511
Sewer, 8", 10' to 15' deep.	350
Sewer, 8", 15' to 20' deep.	400
Trenchless horizontal directional drill.	900
Total length of the gravity sewers in the subdivision streets.	9,161

Most of the unit costs of the above sections were presented in Chapter 1.

The capital cost per lot is estimated to be \$146,704.

The total cost for the CCCSD annual service fee, operation etc. and the debt service is estimated to be \$916 per month.

7. ALTERNATIVE F. CONTINUED OPERATION OF THE EXISTING FACILITIES FOR FIVE YEARS

Alternative F considers continued operation of the existing system for five years, then adopting one of the alternatives for annexing to CCCSD. This alternative was added to this report at the request of the Homeowners Association.

This alternative will inevitably occur for a while because several years, perhaps as many as five years, will be required to annex to CCCSD and build the required facilities.

The cost of this alternative is presented in Table 11 of the *System Evaluation And Recommended Improvements Report* (Evaluation Report).

The needed improvements were presented in Table 8 of the Evaluation Report. There were \$70,000 of improvements needed immediately and another \$144,000 of improvements that probably could be deferred for five years or more. It was assumed in Table 8 that the costs would be spread over three years.

Line items 4 and 5 of Table 11 address the cost of needed *improvements* and *replacements*.

- Annual *improvements* costs per parcel, that are needed immediately from Table 8 is:

$\$70,000 \text{ Improvements Needed Immediately (Table 8) / (47 Lots * 3 Years) = \$496/Lot Per Year.}$

- Annual *replacement* costs are presented in Table 9 of the Evaluation Report. If the existing system is to be maintained for only five years, it is assumed that only those items with a remaining life of five years or less will require replacement. There are only four items with remaining lives of five or less years. They total \$8,667. Again assuming that these costs are spread over three years, the annual cost will be:

$\$8,667 \text{ Replacements Needed In Five Years Or Less (Table 9) / (47 Lots * 3 Years) = \$184/Lot Per Year.}$

Adding other fees and costs to the *improvement* and *replacement* costs above, as shown in Table 11, the total annual cost per lot for the alternative of operating the existing facilities for only five years is \$4,497 per lot per year, or \$375 per month.

8. ALTERNATIVE G. CONTINUED OPERATION OF THE EXISTING FACILITIES FOR 30 YEARS

Alternative G considers continued operation of the existing system for 30 years, i. e. more or less in perpetuity. This alternative was also added to this report at the request of the Homeowners Association.

The cost of this alternative is also presented in Table 11 of the Evaluation Report. Line items 4 and 5 of Table 11 address the needed improvements and replacements.

For this 30 year alternative, all of the improvements in Table 8, which equal \$214,000, would have to be provided.

Line items 4 and 5 of Table 11 address the cost of needed *improvements* and *replacements*.

- Annual *improvements* costs per parcel, that are needed immediately from Table 8 is

$\$214,000 \text{ (Table 8) / (47 Lots * 3 Years) = \$1,518/Lot Per Year.}$

- Annual *replacement* costs are presented in Table 9 of the Evaluation Report and total \$133,801. The annual per lot replacement cost thus is:

$$\text{\$133,801/Year (Table 9) / 47 Lots} = \text{\$2,847/Lot Per Year.}$$

Adding other fees and costs to the *improvement* and *replacement* costs above, as shown in Table 11, the total annual cost per lot for the alternative of operating the existing facilities in perpetuity is \$7,982 per lot per year, or \$665 per month.

In the calculation above, it is assumed that the average cost is spread evenly over all future years. This assumption may not be realistic. First, the costs may be higher in earlier years rather than the average over the whole 30 years. Second, SD-6 may be forced to annex to CCCSD prior to the end of the 30 year period. As discussed elsewhere, it has always been envisioned that SD-6 would annex to CCCSD when the CCCSD sewer system became available "in the vicinity of" SD-6.

Alternative G may therefore be only a "not-at-this-time" alternative.

Alternative G also runs the risk that there might be an early catastrophic event, such as earth slippage that destroys a major part of the facilities, for which no repair funds have been collected in a reserve fund. Another risk is that there might be a sewage spill that incurs a significant fine and which might cause the Regional Board to order the immediate annexation of SD-6 into CCCSD.

As in Alternative F, it is assumed that capital expenses are not financed but are paid as they are incurred.

9. COMPARISON OF THE ALTERNATIVES

The capital costs and monthly and costs of the seven alternatives are presented in Table 6.

For Alternatives A through E, it is assumed that the capital costs of the facilities that are needed to connect to CCCSD are financed. Most of the monthly payment is for debt service. For Alternatives F and G, it is assumed that the capital expenses are paid as they are incurred.

The gravity sewer alternative, Alternative E, is much more expensive than the other annexation alternatives.

The non-financial aspects of the alternatives are compared in Table 7.

The sewer and force main lengths that were used in the tables are presented in Table 8.

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 1. ALTERNATIVE A. GRAVITY SEWER IN REGIONAL PARK TRAIL

No.	Description	Cost, \$
1	CCCSD annexation fees. \$17,917/lot * 47 lots.	842,099
2	Abandon wastewater treatment facilities and effluent pump station. Fill tanks and pit. Cover recirculating gravel filters with 12" of soil.	50,000
3	Abandon septic tanks at each lot. \$2,000/per tank * 47 lots	94,000
4	Install grinder pump at each lot. \$7,500/pump * 47 lots	352,500
5	Laterals. Re-use existing laterals since grinder pumps are used.	-
6	Gravity sewer in trail. 2,950 LF * \$200/LF	590,000
7	Manholes, 10 @ \$7,500 each	75,000
8	Clayton Blue crushed rock. (11" deep x 12' wide x 2950')/27 CF/CY = 1,344 CY * 1.75 Tons/CY (130 Lbs/CF) * \$40/Ton	84,130
9	Gravity sewer in Vaca Creek Road and Alhambra Valley Road. (2250+300+450) LF * \$200/LF	600,000
10	Manholes, 10 @ \$7,500 each	75,000
11	Paving in Vaca Creek and Alhambra Valley Roads. (2250+300+450) LF * \$40/LF	120,000
12	Environmental studies.	100,000
	Total Construction Cost	2,982,729
	Engineering, Administration, Etc. @ 25%	745,682
	Contingency @ 25%	745,682
	Total project cost (not including financing cost).	4,474,093
	Capital cost per lot for 47 lots	95,193
Non-Capital Costs Per Year		
	CCCSD Annual Service Fee. \$439/year (in late 2014) * 47 lots.	20,633
	Operation and maintenance.	9,000
	Entity costs.	5,000
	Permits.	2,910
	Laboratory work.	-
	Fees, various.	1,000
	Total Non-Capital Annual Costs	38,543
	Annual cost per parcel	820
	Monthly cost per parcel	68
	Monthly financing cost 30 years @ 6 percent interest.	571
	Total monthly cost of non-capital costs and debt repayment.	639
	Total annual cost of non-capital costs and debt repayment.	7,669

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 2. ALTERNATIVE B. PUMP STATION AND FORCE MAIN

No.	Description	Cost, \$
1	CCCSD annexation fees. \$17,917/lot * 47 lots.	842,099
2	Abandon wastewater treatment facilities and effluent pump station. Fill tanks and pit. Cover recirculating gravel filters with 12" of soil.	50,000
3	Abandon septic tanks at each lot. \$2,000/per tank * 47 lots	94,000
4	Install grinder pump at each lot. \$7,500/pump * 47 lots	352,500
5	Laterals. Re-use existing laterals since grinder pumps are used.	-
6	Submersible pump station at the treatment plant site, with standby generator	600,000
7	Force main to top of hill at entrance to the subdivision. 2,920 LF * \$75/LF for 4" force main	219,000
8	Paving in Stonehurst Drive. 2,920 LF * \$20/LF	58,400
9	Gravity sewer from top of hill to manhole at Quail Lane. (2250+300+440) LF * \$200/LF for 8"	598,000
10	Manholes, 10 @ \$7,500	75,000
11	Paving in Vaca Creek and Alhambra Valley Roads. (2250+300+440) LF * \$40/LF	119,600
	Total Construction Cost	3,008,599
	Engineering, Administration, Etc. @ 25%	752,150
	Contingency @ 25%	752,150
	Total project cost (not including financing cost).	4,512,899
	Capital cost per lot for 47 lots	96,019
<u>Non-Capital Costs Per Year</u>		
	CCCSD Annual Service Fee. \$439/year (in late 2014) * 47 lots.	20,633
	Operation and maintenance.	9,000
	Entity costs.	5,000
	Permits.	2,910
	Laboratory work.	
	Fees, various.	1,000
	Total Non-Capital Annual Costs	38,543
	Annual cost per parcel	820
	Monthly cost per parcel	68
	Monthly financing cost 30 years @ 6 percent interest.	576
	Total monthly cost of non-capital costs and debt repayment.	644
	Total annual cost of non-capital costs and debt repayment.	7,728

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 3. ALTERNATIVE C. ONSITE PUMPS WITH CCCSD FORCE MAINS

No.	Description	Cost, \$
1	CCCSD annexation fees. \$17,917/lot * 47 lots.	842,099
2	Abandon wastewater treatment facilities and effluent pump station. Fill tanks and pit. Cover recirculating gravel filters with 12" of soil.	50,000
3	Abandon septic tanks at each lot. \$2,000/per tank * 47 lots	94,000
4	Install grinder pump at each lot. \$7,500/pump * 47 lots	352,500
5	Laterals. Re-use existing laterals since grinder pumps are used.	-
6	Double contained force mains in all streets and to the top of the hill near the entrance of the subdivision. 8,261 LF * \$100/LF.	826,100
7	Manholes at connections to double contained force mains. Assume two-thirds as many MHs as lots, i.e. that some manholes serve more than one lot. 32 MH * \$4,000 each.	134,400
9	Gravity sewer from top of hill to manhole at Quail Lane. (2250+300+440) LF * \$200.LF for 8"	598,000
10	Manholes, 10 @ \$7,500	75,000
11	Paving in Vaca Creek and Alhambra Valley Roads. (2250+300+440) LF * \$40/LF	119,600
	Total Construction Cost	3,091,699
	Engineering, Administration, Etc. @ 25%	772,925
	Contingency @ 25%	772,925
	Total project cost (not including financing cost).	4,637,549
	Capital cost per lot for 47 lots	98,671
Non-Capital Costs Per Year		
	CCCSD Annual Service Fee. \$439/year (CCCSD annual fee in late 2014) * 47 lots.	20,633
	Operation and maintenance.	
	Entity costs.	
	Permits.	
	Laboratory work.	
	Fees, various.	
	Total Non-Capital Annual Costs	20,633
	Annual cost per parcel	439
	Monthly cost per parcel	37
	Monthly financing cost 30 years @ 6 percent interest.	592
	Total monthly cost of non-capital costs and debt repayment.	628
	Total annual cost of non-capital costs and debt repayment.	7,538

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 4. ALTERNATIVE D. ONSITE PUMPS WITH SUBDIVISION FORCE MAINS

No.	Description	Cost, \$
1	CCCSD annexation fees. \$17,917/lot * 47 lots.	842,099
2	Abandon wastewater treatment facilities and effluent pump station. Fill tanks and pit. Cover recirculating gravel filters with 12" of soil.	50,000
3	Abandon septic tanks at each lot. \$2,000/per tank * 47 lots	94,000
4	Install grinder pump at each lot. \$7,500/pump * 47 lots	352,500
5	Laterals. Re-use existing laterals since grinder pumps are used.	-
6	Force mains. Re-use the existing force mains and add about 340-feet to get from the existing lift station over the hill at the entrance of the subdivision. 340-feet * \$75/LF.	25,500
7	Re-pave the trench for the additional force main. 350-feet * \$20/LF.	7,000
9	Gravity sewer from top of hill to manhole at Quail Lane. (2250+300+440) LF * \$200/LF for 8"	598,000
10	Manholes, 10 @ \$7,500	75,000
11	Paving in Vaca Creek and Alhambra Valley Roads. (2250+300+440) LF * \$40/LF	119,600
	Total Construction Cost	2,163,699
	Engineering, Administration, Etc. @ 25%	540,925
	Contingency @ 25%	540,925
	Total project cost (not including financing cost).	3,245,549
	Capital cost per lot for 47 lots	69,054
<u>Non-Capital Costs Per Year</u>		
	CCCSD Annual Service Fee. \$439/year (in late 2014) * 47 lots.	20,633
	Operation and maintenance.	9,000
	Entity costs.	5,000
	Permits.	2,910
	Laboratory work.	
	Fees, various.	1,000
	Total Non-Capital Annual Costs	38,543
	Annual cost per parcel	820
	Monthly cost per parcel	68
	Monthly financing cost 30 years @ 6 percent interest.	414
	Total monthly cost of non-capital costs and debt repayment.	482
	Total annual cost of non-capital costs and debt repayment.	5,788

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 5. ALTERNATIVE E. GRAVITY SEWERS IN SUBDIVISION STREETS

No.	Description	Cost, \$
1	CCCSD annexation fees. \$17,917/lot * 47 lots.	842,099
2	Abandon wastewater treatment facilities and effluent pump station. Fill tanks and pit. Cover recirculating gravel filters with 12" of soil.	50,000
3	Abandon septic tanks at each lot. \$2,000/per tank * 47 lots	94,000
4	Install grinder pump at each lot. \$7,500/pump * 47 lots or install 100' of 4" gravity sewer lateral * \$75/LF.	352,500
5	Laterals. Re-use existing laterals if grinder pumps are used or install 4" gravity sewer lateral (included above).	-
6	Sewer, 8", 10' deep or less. 7,511 LF * \$200/LF.	1,502,200
7	Sewer, 8", 10' to 15' deep. 350 LF * \$250/LF.	87,500
8	Sewer, 8", 15' to 20' deep. 400 LF * \$300/LF.	120,000
9	Manholes, 28 @ \$7,500	210,000
10	Re-paving for sewers, 8,261 LF * \$40/LF.	330,440
11	Horizontal directional drill under the hill. 900 LF * \$400/LF.	360,000
12	Gravity sewer from top of hill to manhole at Quail Lane. 2,450 LF * \$200/LF for 8" sewer.	490,000
13	Manholes, 8 @ \$7,500	60,000
14	Paving in Vaca Creek and Alhambra Valley Roads. 2,450 LF * \$40/LF	98,000
	Total Construction Cost	4,596,739
	Engineering, Administration, Etc. @ 25%	1,149,185
	Contingency @ 25%	1,149,185
	Total project cost (not including financing cost).	6,895,109
	Capital cost per lot for 47 lots	146,704
Non-Capital Costs Per Year		
	CCCSD Annual Service Fee. \$439/year (CCCSD annual fee in late 2014) * 47 lots.	20,633
	Operation and maintenance.	
	Entity costs.	
	Permits.	
	Laboratory work.	
	Fees, various.	
	Total Non-Capital Annual Costs	20,633
	Annual cost per parcel	439
	Monthly cost per parcel	37
	Monthly financing cost 30 years @ 6 percent interest.	880
	Total monthly cost of non-capital costs and debt repayment.	916
	Total annual cost of non-capital costs and debt repayment.	10,994

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 6. COMPARISON OF THE COSTS OF THE ALTERNATIVES

Alt	Description	Capital Cost Per Lot, \$000	O&M And Debt Svc. Per Month, \$	O&M And Debt Svc. Per Year, \$
A	Gravity Sewer In Regional Park Trail.	95	639	7,669
B	Pump Station And Force Main.	96	644	7,728
C	Onsite Pumps With CCCSD Force Main.	99	628	7,538
D	Onsite Pumps With Subdivision Force Mains.	69	482	5,788
E	Gravity Sewers In Subdivision Streets.	147	916	10,994
F	Continued Operation Of The Existing Facilities For Five Years. (Annual capital cost. Not financed.)	NA	375	4,497
G	Continued Operation Of The Existing Facilities For Thirty Years. (Annual capital cost. Not financed.)	NA	665	7,982

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 7. COMPARISON OF THE NON-FINANCIAL ASPECTS OF THE ALTERNATIVES

Advantages	Disadvantages
<u>Alt. A. Gravity Sewer In Regional Park Trail</u>	
All gravity flow.	May be opposed by Regional Parks.
Minimum work in the subdivision streets.	CCCSD required access may be difficult to provide.
	May require extensive environmental review and mitigation work
	A spill might quickly reach the creek and might not be noticed promptly
	Requires a separate entity.
<u>Alt. B. Pump Station And Force Main</u>	
All new facilities in existing rights-of-way in the streets.	CCCSD does not want any more pump stations.
	Requires a separate entity.
<u>Alt. C. Onsite Pumps With CCCSD Force Main</u>	
Does not require a separate entity.	
All new facilities in existing rights-of-way in the streets.	
<u>Alt. D. Onsite Pumps With Subdivision Force Mains</u>	
Lowest cost annexation alternative.	Requires a separate entity.
Least disruptive.	
<u>Alt. E. Gravity Sewers In Subdivision Streets</u>	
All gravity flow.	Most expensive alternative.
Does not require a separate entity.	
<u>Alt. F. Continued Operation Of The Existing Facilities For Five Years</u>	
Will more or less occur anyway.	Still have to select a "permanent" alternative after five years.
<u>Alt. G. Continued Operation Of The Existing Facilities For 30 Years</u>	
Lowest cost alternative.	Requires a separate entity.
	May be only a "not-at-this-time" alternative
	Risks of spills, fines, or major failures.

STONEHURST SUBDIVISION (SD-6) OPINION OF PROBABLE COST

FACILITIES REQUIRED TO CONNECT TO CCCSD

TABLE 8. SEWER AND FORCE MAIN LENGTHS

Line	Drawing	Start Station	End Station	Length	Notes
FROM THE PROFILE SHEETS OF THE CONSTRUCTION DRAWINGS					
A	3	960	3000	2040	From ARV at top of hill above tennis courts.
A	4	3000	5052	2052	
B	5	0	1189	1189	
C	5	0	270	270	
D	6	0	450	450	
E	6	5370	6870	1500	
F	7	1100	1860	760	May not have been included in earlier estimates.
Total				8261	
	3	0	520	520	Alhambra Valley Road to subdivision gate. (Approximate).
	3	520	960	440	Subdivision gate to top of hill above tennis courts.
Total			1480		
	3&4	960	3880	2920	WWTP to top of hill above tennis courts. Alternative B.
NA	3	960	1310	350	Lift station to the top of the hill above the tennis courts.
		350	900	550	Length of gravity sewer from top of hill replaced by HDD. Alternative E.
FROM GOOGLE EARTH					
			Rounded Off		
			2250	2229	Quail Court to intersection of Alhambra Valley Road and Vaca Creek Road.
			300	290	Intersection to subdivision entrance.
			450	446	Subdivision entrance to intersection of Vaca Creek Road and the creekside trail.
			2950	2954	Creekside trail to wastewater treatment plant. (Somewhat approximate.) Alt. A.