



Harris & Associates.



CONTRA COSTA COUNTY

Sanitation District No. 6 (SD-6) Alternatives Development Scoping Phase Report

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SANITATION DISTRICT NO. 6

ALTERNATIVES DEVELOPMENT SCOPING PHASE REPORT

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1. INTRODUCTION

The Stonehurst Subdivision is located in the southwest corner of the City of Martinez, California. It includes 47 parcels. The first house was built around 1991.

When the subdivision was started, existing sewer connection to the regional wastewater treatment facility at the Central Contra Costa Sanitary District (CCCSD) was approximately two miles away so the subdivision was allowed to have its own wastewater collection, treatment and disposal system.

Each house has its own septic tank, which provides primary treatment. Septic tank effluent then flows by gravity or is pumped from each house to the lift station near the entrance to the subdivision or directly to the subdivision wastewater treatment plant. The lift station pumps to the treatment plant.

At the wastewater treatment plant, the septic tank effluent receives biological secondary treatment in two re-circulating gravel filters. The wastewater is then pumped through a ultra-violet (UV) disinfection system, and then pumped by the high pressure effluent pump station to leach fields that are located on top of the hill that is west of the main part of the subdivision.

The wastewater facilities are under the jurisdiction of Contra Costa County Sanitation District No. 6 (SD-6), which is administered by the Contra Costa County Department of Public Works. This is the only wastewater facility that the County is responsible for and the County has no staff or equipment for dealing with sewers or wastewater treatment facilities. Operation and maintenance of SD-6 is contracted out.

From the time the wastewater facilities were first constructed, it was always envisioned that ultimately SD-6 would annex to the CCCSD. Paragraph 5 on the first page of the Regional Board discharge permit, WDR 91-096, states that the wastewater system was "unique and unusual" and that it was only being permitted due to the fact that "...in the event that sanitary sewers are constructed in the vicinity of the site, wastewater flows from the subdivision will be directed to the local sanitary district...."

In January, 2013, Harris & Associates completed a System Evaluation And Recommended Improvements Report, which concluded that the existing wastewater facilities were in need of significant improvements and that the annual wastewater fee that was necessary to sustain the facilities was much higher than the current fee. This report estimated the cost of continuing to operate the existing facilities in perpetuity.

The objective of this study is to evaluate the alternative of annexing to CCCSD versus the alternative of continuing to operate and maintain the existing wastewater facilities in perpetuity, which was developed in the study by Harris & Associates January 22, 2013, *System Evaluation and Recommended Improvements Report*. It should be noted that the alternative of "operating-the-existing-system-in-perpetuity" is really only an alternative of "not-annexing-at-this-time" since the discharge permit requires connection

of SD-6 to the local sanitary district when the regional sewer collection system is in the vicinity of the subdivision.

2. CENTRAL CONTRA COSTA SANITARY DISTRICT (CCCSD)

a. CCCSD Background Information

CCCSD is the entity into which SD-6 would annex. CCCSD serves the central part of Contra Costa County and currently has gravity sewers that extend out Alhambra Valley Road to the intersection with Quail Lane. This point is about one half mile from the entrance to the Stonehurst Subdivision.

A meeting was held on 2/27/2014 with staff of the Environmental Services Division of CCCSD to discuss the CCCSD requirements and preferences for annexation of SD-6. Present at the meeting were:

Ms. Dana Gemmell, Division Manager
Tom Godsey, Senior Engineer
Russell B. Leavitt, Engineering Assistant III
Thomas Brightbill, Senior Engineer
Warren Lai, Contra Costa County
Jason Chen, Contra Costa County
Vern Phillips, Harris & Associates
Bonneau Dickson, Harris & Associates.

Tom Godsey is the point of contact for CCCSD for this annexation study.

b. CCCSD Requirements And Preferences

Based on the discussion at the meeting, it is understood that the following are the requirements and preferences of CCCSD for the wastewater facilities.

1. The use of small diameter sewers on the individual lots will be acceptable. Similar facilities are in use in the Toyonal region of Orinda, nearby in Creekside Oaks Estates, and in the 700 block of St. Mary's Road in Lafayette, CA. The project on Creekside Oaks Estates has four lots, but none of them have been developed yet so there are not yet any connections to the sewer system. The St. Mary's Road project includes about 1,132-feet of multiple user low pressure sewer system (MULPSS), ranging in size from 1-1/4-inches to 2-inches and serving about 11 properties.
2. Small diameter sewers shall comply with Section 15.13200 Multiple-User Low Pressure Sewer Systems of the CCCSD standard specifications. In general, the CCCSD specifications require that the low pressure piping be double contained. This usually consists of a 1.25-inch HDPE pipe inside a 4-inch PVC pipe. All

connections of the laterals from individual houses to the force main must be made at manholes.

3. CCCSD will not accept septic tank effluent because of concerns about odors and corrosion. The existing septic tanks have screens, thus the pumps that were used did not have to handle solids. Without septic tanks, it will be necessary to replace the existing pumps with grinder pumps or with solids handling pumps. The septic tanks must be abandoned in accordance with the regulations of the County Department of Environmental Health. In the experience of CCCSD, septic tank abandonment typically costs approximately \$1,500 to \$2,500.
4. There shall be no facilities outside of public roads east of Vaca Creek Road. Once the facilities reach Vaca Creek Road, they shall be gravity sewers in Vaca Creek Road and Alhambra Valley Road and shall be laid out to accommodate future development. There is adequate slope along Alhambra Valley Road to produce self cleansing velocities in gravity sewers. A reimbursement agreement will be possible for the parts of facilities that can serve other users.
5. If a gravity sewer is provided in the creekside trail, CCCSD wants all weather access to the manholes and a maximum manhole spacing of 500-feet. Curved horizontal alignment is acceptable. The CCCSD standard specifications Section 15.02702 allows the access road to be a minimum of 11-inches of newly quarried crushed "Clayton Blue" material or equal if the slope is less than 10 percent. The trail alongside the creek is relatively flat, thus this crushed material rather than paving would be acceptable to CCCSD.
6. CCCSD strongly prefers that there not be any pump stations. The maintenance staff currently takes care of 17 pump stations and cannot take care of any additional ones without adding more staff. Grinder pumps at individual lots are not considered to be pump stations, and CCCSD would not be responsible for these private facilities anyway.

Harris & Associates presented two alternatives for connecting SD-6 to the CCCSD system. The CCCSD staff added two additional alternatives. Later the Stonehurst Subdivision Homeowners Association (HOA) added a fifth alternative. The alternative facilities for connecting SD-6 to CCCSD are discussed in Chapter 3.

The CCCSD staff also provided some information on alternative legal arrangements for annexing SD-6 into CCCSD and on possible financing arrangements. These are discussed in Chapters 9 and 10 of this report, respectively.

c. Annexation Fees

During the meeting, the CCCSD staff provided information on the fees that are required to annex to CCCSD. There are different fee schedules for zones that are pumped

versus zones that are not pumped and for connecting existing houses versus new construction. The Stonehurst Subdivision is in a "pumped" zone.

If the property includes a "mother-in-law" apartment, there is an extra \$400 fee. A "mother-in-law" apartment is defined to be a separate unit that includes a kitchen. It is understood that some of the properties in the Stonehurst Subdivision have "mother-in-law" units, usually over the garages.

The application/permit fees for existing houses in Stonehurst with on-site pumps as of July 1, 2014 are presented in Table 2-1 below.

TABLE 2-1

CCCSD ANNEXATION FEES FOR AN EXISTING HOUSE IN A PUMPED ZONE

Fee Description	\$
Application fee, existing parcel.	156
Avad A V indirect trunk	7,7439
Annexation fee	485
Plan review--pre app pump	214, Note 1
SSC, current residential	439
Capacity fee, residential, Zone 1	5,995
Capacity fee, residential, Zone 2	1,585
Inspection fees--residential side sewer	900, Note 2
Total	\$17,517
Mother-in-law unit	400
Total	\$17,917

Note 1. No cost for lots served by gravity.

Note 2. \$360 for lots served by gravity.

The fees in the table above are discussed below.

The AVAD A V indirect trunk is a reimbursement fee for a trunk sewer that was built in Alhambra Valley. Phase 2 of this project was completed in 2008. This trunk sewer allowed the sewer system to be extended closer to the Stonehurst Subdivision.

The annexation fee covers the cost of annexing the parcels into CCCSD. The fee of \$485 is for a single parcel. It might be less costly per parcel if all 47 of the parcels are annexed into CCCSD at one time and the cost is paid by the hour.

The plan review--pre app pump fee covers the cost of having CCCSD review the plans for a proposed grinder pump installation. The fee of \$214 is based on the review of a single installation. If all of the on-site pumps are identical, it might be less costly to have this review done on an hourly basis.

The SSC, current residential fee is the annual sewer use fee. It is included on the tax bill.

The capacity fees are the "buy-in" fees to purchase a share of the existing capital facilities. Zone 1 is the basic gravity zone near the CCCSD treatment plant. Zone 2 is an additional charge for a pumped zone. Sewage from the Alhambra Valley area passes through three pump stations before reaching the CCCSD wastewater treatment plant.

The inspection fee is for inspecting the side sewer from the house to the CCCSD sewer or low pressure force main. If the existing laterals are re-used, it might be possible to get this fee waived.

These standard CCCSD fees were used as the basis of the planning level costs for developing the costs of the alternatives. As noted above, if all of the lots in the subdivision are handled at the same time, some economies in the fees may be possible.

3. ALTERNATIVE METHODS TO CONNECT TO CCCSD COLLECTION SYSTEM

a. Alternative Sewer Systems

Five alternatives have been identified for connecting the Stonehurst Subdivision to the CCCSD manhole at the intersection of Alhambra Valley Road and Quail Lane.

These alternatives are:

Alternative A. Gravity Sewer in Regional Park Trail. All sewer flows currently going to the existing wastewater treatment plant would be redirected to a new conventional gravity sewer pipeline. This pipeline would run along the East Bay Regional Park Trail and then along Vaca Creek Road and thence along Alhambra Valley Road to the manhole at Quail Lane.

Alternative B. Pump Station and Force Main. A pump station at the existing wastewater treatment plant site would be constructed and a conventional single-pipe force main would be constructed along Stonehurst Drive to the top of the hill near the entrance to the subdivision. From there the pipeline would be a gravity sewer running to and along Vaca Creek Road and thence along Alhambra Valley Road to the Quail Lane manhole.

Alternative C. CCCSD Conforming Force Mains. A double contained (pipeline inside of another pipeline, see Chapter 2) force main conforming to CCCSD requirements would be required in every subdivision street. The on-site pumps at all parcels would discharge directly into the CCCSD force mains at MULPSS manholes. The force mains would send sewage flows to the top of the hill near the entrance to the subdivision, and then a conventional gravity sewer would carry flows to and along Vaca Creek Road and thence along Alhambra Valley Road to the Quail Lane manhole. CCCSD would be responsible for the force mains and gravity sewer.

Alternative D. Subdivision (CCCSD non-conforming) Force Mains. This alternative is similar to Alternative C in that the on-site pumps at all parcels would discharge directly into force mains. However, instead of constructing new double-contained force mains in subdivision streets, existing forcemain pipes would be re-used where feasible. These forcemains would terminate at the top of the hill near the entrance to the subdivision and a new gravity sewer would carry the flows in an alignment described in Alternate C. In this alternative the reused force mains would be the responsibility of the HOA, the County, or some entity other than CCCSD.

Alternative E. Gravity Sewers In Subdivision Streets. In this alternative, all of the sewers would be conventional gravity sewers in the streets, i.e. there would be no off-lot pump stations and no sewer in the creek-side trail. Some downslope lots would still have to have on-site pumps. Major challenges with this alternative would be the need for two long, deep pipeline sections, at least one of which would have to be constructed using specialized drilling/boring techniques, which are often referred to as "trenchless technology".

In all alternatives, the homeowners would be responsible for the laterals on their properties and the on-site pumps, if any.

CCCSD has indicated that they will not accept septic tank effluent because of concerns about corrosion and odors. Therefore, the septic tank at each house would be removed or abandoned and an on-site pump would be installed. See Chapter 2.

The facilities at the wastewater treatment plant and the leach fields would also be abandoned in all alternatives.

New piping located in the subdivision streets has advantages and disadvantages. The advantage is that the pipes are easily accessible when repairs must be made in the future. The disadvantages are that construction in the street is disruptive during the construction project and that the pavement may not be as good after construction as it was before. The Stonehurst Subdivision HOA has indicated that it intends to repave all of the streets within the next five years due to ground movement and settlement. Some reduction in cost could be possible if the pipelines are constructed in coordination with the re-paving work.

A disadvantage is that the existing piping in the streets is now almost 25 years old. In the past there were some problems with failing joints. It is believed that these problems have been resolved but further problems could develop as the system ages.

Some piping will be installed in Vaca Creek Road in all alternatives. Vaca Creek Road is a private road thus an easement will be required.

Each of the alternatives is discussed below. The facilities required in each alternative are presented in Figures 3.1 through 3.5.

b. Alternative A. Gravity Sewer In Regional Park Trail

In Alternative A, an 8-inch gravity sewer would be constructed from the site of the existing wastewater treatment plant down the trail alongside the creek to Vaca Creek Road, then along Vaca Creek Road to Alhambra Valley Road, then along Alhambra Valley Road to the existing manhole at Quail Lane.

Another 8-inch gravity sewer would be constructed from the lift station to connect to the gravity sewer in the trail. The small diameter gravity line that serves the upper end of Stonehurst Drive would connect to the new gravity sewer near the same point.

CCCSD requires all weather access to all manholes but for slopes of less than 10 percent, the surface can be 11-inches of crushed rock. A layer of crushed rock would therefore have to be placed on the trail to satisfy CCCSD.

Both the effluent pump station and the lift station would be abandoned.

Issues

CCCSD has indicated that they will accept the common force mains in the streets only if they are a double wall pipe that meets the CCCSD specifications. The existing force mains in the streets do not meet the CCCSD specifications. If these force mains are kept in service, some legal entity will be required to maintain them. See Chapter 9.

The East Bay Regional Parks District may have jurisdiction over the trail (see Chapter 7) and might object to having a sewer pipe in the trail and/or crushed rock placed on the trail.

Advantages

In Alternative A, there would be no pump stations in the common parts of the system. There would be on-site pumps at all houses. All of the flow would be by gravity to the existing CCCSD sewer system.

All of the existing piping in the streets would be retained.

There would also be only minimal work in the subdivision streets.

Disadvantages

Disadvantages of Alternative A are that the trail is likely to be under the control of the East Bay Regional Parks District (EBRPD) and that access to the manholes is somewhat difficult.

In addition, if there is a blockage in the gravity sewer and a spill occurs, the spill is likely to reach the creek quickly and might not be noticed for a long time because few people may be using the trail.

Existing piping in the streets is already 25 years old and future maintenance issues and costs are unknown.

This alternative might also require considerable environmental review.

Another disadvantage is that CCCSD would only be responsible for the gravity sewer. Some other entity would be responsible for the force mains and gravity sewers in the subdivision streets.

c. Alternative B. Pump Station And Force Main

In Alternative B, a pump station would be built at the site of the existing wastewater treatment plant, and would discharge through a 4-inch force main in Stonehurst Drive to the top of the hill at the entrance to the subdivision. From that point there would be an 8-inch gravity sewer in Stonehurst Drive, Vaca Creek Road, and Alhambra Valley Road.

During detailed design, consideration might be given to routing the force main around the north side of the hill or of boring through the hill to reduce the static head on the pumps. These options would reduce the power consumption of the pumps but would have only minimal effect on the capital cost or other operating costs. These options have not been covered in this report.

Consideration might also be given to extending the force main from the top of the hill to Vaca Creek Road.

The lift station and the existing force mains and small diameter sewers in the streets would remain in service.

Issues

CCCSD has indicated a strong preference *not* to take over a pump station but did not completely rule out this possibility. As noted in Chapter 2, CCCSD feels that taking over another pump station would require additional staff.

CCCSD indicated that they will not take over the existing small diameter sewers and force mains in the streets because they do not meet the CCCSD specifications. Thus some other entity would be required to service and maintain these pipelines.

Advantages

All of the piping in the streets would be retained.

An advantage of Alternative B over Alternative A is that all the new piping would be in existing streets.

Disadvantages

Disadvantages of Alternative B are that CCCSD would not take over the existing lift station or the existing piping in the streets, thus some other entity would have to take responsibility for these facilities.

Existing piping in the streets is already 25 years old and future maintenance issues and costs are unknown.

d. Alternative C. CCCSD Double Contained Force Mains

In Alternative C, a double-contained force main would be constructed in every street in the subdivision and the on-site pump at each house would discharge directly into the force main. Because the force mains would be built to the CCCSD standards, CCCSD would accept responsibility for maintaining the force mains.

There would be no pumps in the system other than the on-site pumps. The homeowners would be responsible for maintaining their pumps and laterals. No entity other than CCCSD would be required.

A review of the drawings from which the existing wastewater facilities were built reveals that the top of the hill near the entrance to the subdivision is at an elevation of approximately 380'. The lowest pad elevation is 354' at Lot 3, the lot just west of the lift station. The static lift at Lot 3 is only 26-feet. There would be some friction head but only a little. Typical grinder pumps can produce a head of 60 PSI (137-feet) thus pressure in the system is not an issue.

The highest pad elevation in the subdivision is 633' at Lot 22. The lowest part of the piping is at an elevation of approximately 340' on Line E which leads from Lot 17 to the lift station. If a blockage developed just downstream of the lift station and the piping filled up all the way to the highest pad elevation, the piping would be under a static pressure of 293-feet (127 PSI). The working pressure rating of 3-inch diameter Schedule 40 PVC pipe is 260 PSI, thus even in the unlikely scenario of the system filling completely up the existing piping is strong enough to resist the maximum pressure.

Trenches for the new force main piping would be relatively narrow and shallow (36 inches deep), and would follow the existing topography. Alternatively, they might be constructed "trenchlessly" by using horizontal directional drilling methods of installation. This would minimize the cost and construction impacts to the residents.

Issues

This alternative will require that a small diameter pipeline and new manholes be constructed in every street in the subdivision.

Advantages

Advantages of Alternative C are that CCCSD would be responsible for all the wastewater facilities in the streets. No other entity would be needed. Organizationally, this is the easiest alternative.

All piping would be in public streets and easy to maintain.

Disadvantages

Construction would be required in all streets in the subdivision.

e. Alternative D. Subdivision Force Mains

Alternative D is similar to Alternative C, except that the existing small diameter force mains and gravity sewers would be used as the low pressure force mains. There is existing piping in nearly all of the streets thus only a small amount of additional piping would be required. This would include about 600-feet of piping from the lift station to the top of the hill at the entrance to the subdivision where it would connect to a new gravity pipeline described in Alternate C.

Issues

The existing common piping system is now about a quarter of a century old. There were problems in the past with joints failing. It is believed that the joint problems have been corrected but these or other problems with the piping system could develop and might require expensive repairs.

Advantages

All of the existing piping in the streets would be retained.

A minor amount of construction would be required in the subdivision streets, mainly for the construction of the gravity pipeline.

When the project is complete, all of the piping will be in the streets.

Disadvantages

Because the existing piping in the streets is not double-contained as required by the CCCSD specifications, CCCSD would not take responsibility for this piping. A separate entity would be required to service and maintain the reuse of existing forcemain pipelines.

Problems might arrive with the existing piping in the streets, especially since parts of the piping that are currently not pressurized would be pressurized and parts that are currently pressurized would be subjected to higher pressures.

f. Alternative E. Gravity Sewers In Subdivision Streets.

In Alternative E, there would be conventional 8-inch gravity sewers in all of the streets in the subdivision.

According to the construction drawings, ten (10) of the 47 lots require "on-site" pumps. The on-site pumps could be grinder pumps or solids handling pumps. Typically, solids handling pumps are required to be able to pass a 2-inch sphere. The plumbing code requires that the force mains from solids handling pumps have a minimum diameter of 2-inches. According to the construction drawings, the existing laterals are only 1.5-inches in diameter. The plumbing code allows the force main from a grinder pump to be as small as 1.25-inches. Solids handling pumps are less expensive than grinder pumps and require less maintenance, but if solids handling pumps are used the existing 1.5-inch laterals would have to be replaced with 2-inch or larger laterals. The existing 1.5-inch laterals can be re-used if grinder pumps are used.

In Alternative E, the 37 lots that can be served by gravity could be served by conventional 4-inch gravity laterals. Construction of these laterals might, however, be very disruptive of landscaping, paving and other improvements on these lots. Installation of grinder pumps and re-use of the existing 1.5-inch laterals might be a preferred option in many cases.

Issues

The major challenges with this alternative are the deep excavations that would be required to maintain a constant gravity flow in two areas of the subdivision. Options to construct in these areas are:

- A. Trenchless installation of about 900' of 8" gravity sewer near the entrance to the subdivision, approximately from the existing lift station to the tennis courts.

B. Trenchless installation or cut and cover at a depth of approximately 10' to 18' for about 750' from the wastewater treatment plant to the vicinity of Stonehurst Court

These areas are shown in Figures 3.6 and 3.7 and are called "Installation A" and "Installation B" in this report.

Installation A. (Figure 3.6)

A sewer would be installed by a trenchless methodology to a point near the tennis courts. At the top of the hill, the sewer will be 56' deep and open trenching is not feasible.

A considerable slope is available in this area so great accuracy in trenchless construction would not be needed. (See Figure 3.6)

Stonehurst Drive is slightly curved in this area thus the pipe might be slightly out of the existing right-of-way. The best alignment probably would be to angle the trenchless sewer somewhat to the south so that it passes under the tennis court area. It would not pass under the tennis courts themselves. Part of the sewer would be outside the road right-of-way, but still under land that is part of the subdivision but not privately owned.

To serve Lot 2, which is down the driveway on the east side of the lift station and across the creek, and six or seven lots at the extreme end of Stonehurst Drive a gravity sewer would replace the existing small diameter pipe. To get under the creek, the sewer would have to be down at an elevation of about 340'. This would require that the sewer in Stonehurst Drive near the lift station be at a depth of about 17-feet.

Consideration might be given to having the gravity sewer cross the creek above grade so that the sewer in Stonehurst Drive at the lift station would not have to be so deep. This would result in a shallower pit near the lift station and potentially a lower cost, however the sewer pipe would probably need to be in a protective casing to reduce the risk of a sewage spill to the creek.

Installation B. (Figure 3.7).

There is a lower but longer hill between the wastewater treatment plant and Stonehurst Court (Line B on the construction drawings). Stonehurst Court is the first street on the left off of Stonehurst Drive.

At the peak of this hill, the sewer would be about 18' deep. (See Figure 3.7)

Assuming that trenchless construction would be used when the depth of the sewer exceeds 10', the length of the trenchless construction would be about 750' if the sewer is at a minimum slope of 0.33 percent. Increasing the slope to 1.00 percent would

extend the length of this section by only about 225-feet and the extra length would be constructed by open cut trenching.

Stonehurst Drive curves significantly along this alignment, thus intermediate pits would be required to stay within the existing road right-of-way.

Feasible Trenchless Technologies

Drilling/boring construction methods which are most feasible for installing the 8-inch sewers include, microtunneling, horizontal directional drilling (HDD), and guided boring.

Microtunneling

Microtunneling is very accurate in horizontal and vertical alignment and can easily handle a length of 900-feet. The sewer pipe can be installed directly into the soil using vitrified clay pipe, or a steel casing pipe of a larger diameter can be installed and the gravity sewer can later be slipped inside the casing pipe. A major disadvantage of microtunneling is that the construction costs are very high because the equipment is very expensive and requires specialized skills to operate. Costs can run more than \$1,000 per foot for relatively short distances as we have here since the mobilization and demobilization costs are high.

Horizontal Directional Drilling

HDD is a technology which most people have seen installing telecommunication or power conduits around neighborhoods. An above ground drill rig drills a small diameter pilot hole to the required sewer depth and horizontal alignment and then maintains a relatively accurate slope for the required length of the sewer. At the termination point of the sewer the pilot drill is brought to the surface where a larger diameter back-reamer is attached to the drill rod to enlarge the hole as the drill rod is brought back to the drilling machine. Multiple passes of progressively larger reamers enlarge the hole to the size required to install the new sewer pipe. For an 8-inch sewer in relatively good soil this can be done in one or two passes. Flexible, butt-fusion welded, high density polyethylene pipe is typically used as the sewer pipe. HDD can handle lengths of 2,000-feet or more.

The accuracy of HDD technology is much less than the accuracy of microtunneling. HDD is not recommended if the required slope is less than 1 percent. HDD is quite feasible if the slope is more than 2 percent. If the slope is in the range of 1 percent to 2 percent, HDD may be feasible but the best equipment and a skilled contractor are required and there is some risk that the required slope may not be achieved.

Within limits, HDD bores can curve. This might allow more of the alignment to be within the existing street rights-of-way and might allow fewer pits to be needed at Installation B. Curved alignments, however, usually increase the cost by about one third and might

be difficult to control accurately on Installation A due to the great depth of cover (greater than 50-feet). At such depths, the sensors that guide the drilling lose some accuracy.

The entry pits for HDD installations must allow the angle of the pipe at the pits to be no steeper than 15 degrees. This adds 30 to 50-feet to the total length of the bore path at each pit.

Costs for this type of trenchless construction usually are in the \$300 to \$400 per foot range.

Guided Boring

Guided boring is a hybrid of microtunneling and directional drilling. It has nearly the accuracy of microtunneling and can handle slopes as low as 1 percent. It requires launching and receiving pits, and uses a pilot drill to bore the initial alignment. It then uses back-reamers to enlarge the hole to the size required for the new sewer which is pulled in behind the reamer in a manner similar to that used for HDD.

Alternative guided boring technologies include Pilot Tube Guided Boring (PTGB) in soft soils or Front Steer Guided Boring (FSGB) in hard soils. As with HDD, these technologies also install a pipe directly without a casing.

The maximum feasible length with these technologies is 300-feet, with 250-feet being more comfortable. These technologies would therefore not be feasible for Installation A. They would be feasible for Installation B, if the pits are spaced no more than 300-feet apart.

The cost of guided boring is much less than for microtunneling because the equipment is much less expensive and the labor does not have to be so specialized. The cost of guided boring tends to be about 50 percent greater than for HDD.

HDD is included in the CCCSD standard specifications. Microtunneling and guided boring are not included in the CCCSD standard specifications but have been used by CCCSD and almost certainly would be accepted by CCCSD.

The use of any of these trenchless technologies will require that a thorough geotechnical report be prepared.

Considering the limitations and cost of the trenchless construction alternatives discussed above, HDD appears to be the best trenchless technology alternative.

Advantages Of Alternative E

All of the main sewers would be conventional gravity sewers.

It is highly likely that CCCSD would accept ownership of the system.

There would be no pump stations, except individual on-site pumps at some downslope lots.

Disadvantages Of Alternative E

Due to the long trenchless or deep cut sections to get under two hills, the cost of this alternative is likely to be high.

Construction would be required in all streets in the subdivision.

4. SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

A meeting was held at the Regional Board office in Oakland on March 25, 2014 to discuss the requirements and preferences of the Regional Board with regard to the potential annexation of SD-6 into CCCSD. The attendees were:

Blair D. Allen, Regional Board
Warren Lai, Contra Costa County
Jason Chen, Contra Costa County
Bonneau Dickson, Harris & Associates

a. Requirement to Connect to a Public Sewer System.

The discharge permit for SD-6, Waste Discharge Requirements (WDR) 91-096, states that SD-6 will connect to the public sewer system when sewers become available "in the vicinity of the site". It was stated that the distance that would be used for determining if the public sewer system was "in the vicinity of" the site often is taken as the distance used in the local ordinance for determining when connection is required.

The sewers in Martinez are maintained by CCCSD or the Mountain View Sanitary District, thus the City has no sewer ordinances.

While CCCSD has the power (under Health and Safety Code Section 6520) to compel property owners to connect their properties to the public sewer system involuntarily, it has been the policy of CCCSD not to use that power. Furthermore, that Section does not identify a distance to be used.

County Ordinance Code Section 420-6.115 requires that parcels less than 40,000 square feet in size must connect to a public sewer if the public sewer is within 300 feet from the property boundary. Existing septic systems that are operating properly are not required to connect to the sewer until the septic system needs repair or replacement. This ordinance can be found at (<https://library.municode.com/index.aspx?clientId=16286>).

It was stated that the Regional Board was unlikely to mandate that SD-6 connect to the public sewer if it is farther away than the 300 feet distance noted above.

b. Annexation Requirements.

If annexation proceeds, the Regional Board would like for the plans and specifications to include requirements for the abandonment of the existing facilities. As noted elsewhere in this report, it is envisioned that the underground tanks and pit at the wastewater treatment plant would be punctured at the bottom and filled similar to standard abandonment of septic tanks, above ground facilities would be removed, the recirculating gravel filters would be covered with a layer of soil, and the leach fields would be abandoned in place.

If annexation proceeds, the procedure for closing out the existing permit is to send a letter to the Regional Board. There is no prescribed format or form. The Regional Board staff might make an inspection. The Regional Board staff will present the letter to the Board, recommending that the permit be rescinded after SD-6 is connected to CCCSD. It is likely that the letter will be circulated to the public, meaning the Home Owners Association (HOA), among others, to allow interested parties an opportunity to comment. From the submittal of the letter by staff until approval by the Board will take at least two months.

It was agreed that SD-6 will not apply for a revised WDR until the results of the annexation study are known. If the existing system is to be kept in service, a request might be submitted to allow the ultraviolet (UV) disinfection system to be taken out of service and possibly other permit modifications. It was noted that the UV disinfection system may not be turned off until the WDR is modified to remove the coliform limit.

Because the annexation process may take several years, SD-6 may apply for a revised monitoring program in the near future even if annexation is proceeding, with the understanding that the requested modifications probably can be approved by the Executive Officer.

c. Waste Discharge Requirements.

Because SD-6 has a publically owned wastewater treatment and disposal system, it has a permit (Waste Discharge Requirements 91-096). If the wastewater treatment and disposal system is abandoned, SD-6 will no longer have to have a permit.

Because SD-6 is a publically owned sewer system with more than one mile of pipe, it is subject to the requirements of Water Quality Order (WQO) 2006-003 of the State Water Resources Control Board. This order requires, among other things, that the public agency prepare a Sewer System Management Plan (SSMP) and that the agency review the plan not less frequently than once every two years. An SSMP has been prepared for SD-6.

If the common elements of the sewer system in the subdivision are taken over by a private entity, then WQO 2006-003 does not apply at this time because it currently only covers publically owned sewer systems. It has been noted, however, that restricting WQO 2006-003 only to publically owned sewer systems does not necessarily make much sense from a water quality point of view. For example, the University of California at Berkeley is covered by the WQO because it is public, but Stanford University is not covered because it is privately owned.

There have been discussions of revising WQO 2006-003 so that it also covers privately owned sewer systems but this may not happen soon. In any event, at least temporarily having a private entity take over the common elements of the sewer system would exempt the system from having to comply with WQO 2006-003.

5. LOCAL AGENCY FORMATION COMMISSION (LAFCO)

a. LAFCO Procedures

Contact was made with Ms. Lou Anne Texeira, the LAFCO Executive Officer and the issue of annexing SD-6 into CCCSD was discussed.

Ms. Texeira suggested that CCCSD should handle the annexation, since they have done it hundreds of times and, in fact, won an award for their annexation program.

If the reorganization is public agency to public agency (SD-6 to CCCSD), with no substantive change in services, the reorganization may not have to go through LAFCO.

Ms. Texeira provided an "Inhabited District Annexation" flow chart. See Appendix A. Initiation of the annexation procedure is covered by Government Code Sections 56650, 56653, 56654, and 56864.

A request for annexation can be made by resolution of the affected agency or by a petition signed by 25 percent or more of the landowners, who represent at least 25 percent of the area.

The annexing agency, in this case CCCSD, can object to the annexation, but it is understood that CCCSD will not object to annexation of SD-6. It is also understood that LAFCO will approve of annexation of SD-6 into CCCSD.

After LAFCO approval, if less than 25 percent of the land owners protest, the annexation will be ordered. If the protests are between 25 and 50 percent of the affected land owners, LAFCO will order an election. If 50 percent or more of the land owners protest, the annexation process will be terminated. If the HOA can get more than 50 percent of the homeowners to approve, then the annexation process is sure to proceed.

b. LAFCO Required Documents

LAFCO has a list of "Filing Requirements For Submitting Boundary Change Applications". The documents that probably will be required for the annexation of SD-6 into CCCSD include:

1. A cover letter listing the materials being submitted.
2. Resolution of Application or signed registered voter or landowner petition.
3. Completed proposal questionnaire.
4. Assessor parcel map with application area highlighted in color.
5. Map and legal description.
6. Certified EIR or Negative Declaration and Notice of Determination or Notice of Exemption.
7. Copy of proof of Fish and Game filing and filing fee payment.
8. Excel spreadsheets for affected property owners from the Contra Costa County Assessor and registered voters from Contra Costa County Elections and for property owners and registered voters within 300 feet.
9. LAFCO processing fees.
10. \$1,100 map check deposit for the County Surveyor.
11. Indemnification agreement.
12. Pertinent reports, studies and other information.
13. Financial disclosure statement.

c. CCCSD Actions

If CCCSD handles the annexation documents, they will take care of all of the paperwork. CCCSD has gone through this process numerous times and had three such processes underway in May 2014. The time required for the process is relatively short.

It is likely that a Notice of Exemption will be issued rather than a Negative Declaration for Alternatives B, C, D and E. Because Alternative A would involve construction near the creek and the possibility of a spill into the creek, additional environmental review might be required.

A resolution would be presented to the CCCSD Board of Directors for approval.

In general, CCCSD prefers that annexation not be done until construction of the necessary facilities is complete or nearly complete.

A Memorandum Of Understanding (MOU) would be required that would allow CCCSD to review the plans and inspect the construction. With such a MOU in place, it might be possible to allow connection prior to completion of the annexation procedures. SD-6 would continue to exist for a while.

d. Fees

The LAFCO fees include a \$2,765 fee for annexation only and a \$4,750 fee for dissolution of SD-6, if these two processes are done separately. If the annexation and dissolution are done in one application, the fee is \$3,885 for this "reorganization".

The fee for the State Board Of Equalization is based on acreage. For the 115 acres in the Stonehurst Subdivision, the fee is \$2,000. There is an addition \$50 filing fee.

There is a LAFCO fee for environmental review. For the exemption that the annexation would be is likely to get, the fee is \$200.

A filing must also be made with the California Department of Fish And Game. The fee depends upon the complexity of the environmental review. For the exemption that this annexation would be likely to get, the fee is \$50. The CCCSD fee for handling the LAFCO process is \$465 per lot, but if there are more than 10 lots, the process is likely to be less expensive if it is done on a time and materials basis.

6. CONTRA COSTA COUNTY HEALTH SERVICES DIVISION

A letter was sent to Dr. Marilyn Underwood, the Environmental Health Director for Contra Costa County describing the annexation study and requesting input from her division. In her reply, Dr. Underwood stated that:

- Mr. John Wiggins (John.Wiggins@hsd.cccounty.us), the Land Use Program Supervisor, is the point of contact for the Health Services Division.
- The Environmental Health Division recommends annexation.
- The wastewater system would have to be properly abandoned under permit once the homes are connected to the sewer. An abandonment permit would have to be obtained for each septic tank, and the septic

tanks either removed and properly disposed of, or abandoned in place depending on the type of tank.

- The Health Services Division has no standards for leach field removal. Leach fields typically are abandoned in place.

Mr. Wiggins noted that the Health Services Division does not have any procedures or guidance for abandoning the wastewater treatment plant facilities. There was no objection to the concept of removing all above ground equipment, covering the recirculating gravel filters with soil, and abandoning the underground tanks in a manner similar to the abandonment of septic tanks.

The current fee for a permit to abandon a septic tank is \$396 per tank and covers up to one and one half hours of inspection time. This may change in the future. Any other work that is performed by the Environmental Health Department is charged at a rate of \$174 per hour.

As discussed in Chapter 4, the County ordinance requires that properties with septic systems connect to the public sewer if the sewer is within 300-feet of the property boundary, but connection is not required until the septic system requires repair or replacement.

7. EAST BAY REGIONAL PARKS DISTRICT (EBRPD)

Alternative A includes a conventional gravity sewer in the EBRPD trail that follows the Arroyo Del Hambre creek.

The cadastral survey for the Stonehurst Subdivision, Subdivision 7091, was provided by Jason Chen of Contra Costa County. The survey shows that the trail alongside the creek is on multiple parcels. Most of the trail is on Parcels G, J, and K. According to the fourth paragraph of the Owner's Statement on Sheet 1 of 17, these parcels were to be granted in fee (not easement) to EBRPD.

There are a few parcels along the trail that are not shown as being granted to EBRPD but EBRPD has easements on these parcels to allow them to be crossed.

Based on the County Assessor's records, parcels G, J, and K are still owned by the HOA. It is possible that the paperwork has been processed to grant these parcels to the EBRPD and that the County Assessor's records are wrong. It is also possible that the actual conveyance paperwork was never processed. In either case, it seems likely that the EBRPD would claim that they have the rights to these parcels and can dictate what can be constructed within them.

As discussed elsewhere in this report, if a gravity sewer is placed in the EBRPD trail, CCCSD would require all weather access to the manholes. This would require that the

trail be surfaced with crushed rock. This might not be acceptable to EBRPD and might be opposed by equestrians who use the trail.

Because a spill from the gravity sewer could quickly reach the creek, the gravity sewer alternative might require significant environmental review.

8. HOME OWNERS ASSOCIATION (HOA)

A draft of this report was submitted to the Board of Directors of the HOA for their review and comments. The HOA requested that an alternative using conventional gravity sewers throughout the subdivision be added to the report. This was done as Alternative E above.

The HOA also noted that it will need to replace all of the streets in the subdivision, including replacement of the roadway bedding, due to soil slope instability throughout the subdivision. The cost of construction of new sewers and force mains would be reduced somewhat if the work is done simultaneously with the road construction because the pipeline work would not have to include pavement replacement.

The HOA also made some suggestions about how to minimize disruption on the private lots. As discussed above, if there is an on-site grinder pump at a property, then the existing lateral could be re-used. This would minimize the disruption that would be caused by constructing a new lateral. Design details will be submitted to the HOA for review during detailed design work which would incorporate these suggestions as appropriate.

9. LEGAL ARRANGEMENTS

SD-6 of Contra Costa County currently provides wastewater services to the Stonehurst Subdivision.

If SD-6 annexes to CCCSD and the facilities that connect SD-6 to the CCCSD system are built to the standards of CCCSD, then CCCSD would take responsibility for all the wastewater facilities, except the pumps and laterals on each parcel. SD-6 would then be dissolved.

If SD-6 is annexed to CCCSD, but the facilities do not meet CCCSD standards, some entity would be required to take responsibility for those facilities that CCCSD does not accept. The entity could be a continuation of SD-6, the HOA, the City of Martinez or some other type of special district.

If the HOA takes over responsibility for the piping in the streets, this piping would be considered by CCCSD to be a private sewer system, such as are often found in shopping centers and mobile home parks. Private sewer systems are not currently

subject to the State Water Resources Control Board's Water Quality Order (WQO) 2006-003, which requires that a Sewer System Management Plan be prepared. The WQO may, however, be modified in the future to include private sewer systems. See the discussion in Chapter 4.

10. FINANCING

a. Financing Needs

This chapter explores some alternatives that might be used to finance the capital cost of the wastewater facilities.

A difficulty in all of the financing alternatives is that someone must come up with the money up front.

b. CCCSD Contractual Assessment Districts (CADs) And Other Programs

Financing of sewer improvements may be available through the CCCSD Contractual Assessment District (CAD) program. A guide to the CAD program is available online from CCCSD and is presented in Appendix B.

In general the CAD process probably would consist of the Home Owners Association or SD-6 applying for wastewater service from CCCSD, obtaining letters from Home Owners expressing a willingness to consider participation in a CAD, and hiring a civil engineer to design the improvements.

The applying entity would have to pay the design engineer initially but would be reimbursed later for these costs, if the project proceeds to construction.

CCCSD has other financing programs that might be applicable.

If a suitable Memorandum of Understanding (MOU) can be developed between CCCSD and the applying entity, it may be possible for the subdivision to be connected to the sewer system prior to annexation.

Prior to annexation, SD-6 can contract with CCCSD for CCCSD to provide interim sanitary sewer service. LAFCO approval would not be needed for such a contract.

If CCCSD provides the funds for the improvements, the project would have to be designed to CCCSD standards; be inspected by CCCSD; and have progress payments approved by CCCSD. CCCSD charges for plan review and inspection services, but not for other construction management services. The current plan review charge is \$2,556. The current charge for inspections is \$727 plus \$11.56 per linear foot of pipe.

Regarding CAD financing costs, the percent interest that is charged for financing through the CCCSD CAD loans is the State of California Local Agency Investment Fund (LAIF) rate plus 1 percent, but with a 6 percent minimum. In recent years, the index has been sufficiently low that the minimum interest rate of 6 percent has been in effect.

The usual term of a CAD loan is 10 years, however in the Alhambra Valley area, a 15-year term is allowed. The possibility of allowing a 20 year term has been discussed but this has not yet been done.

c. Private Financing

Considering the value of the homes in the Stonehurst Subdivision, it seems likely that individual owners might obtain private financing at favorable terms from institutional or portfolio lenders.

Our research indicates that loans for multifamily or commercial projects costing less than \$3 million have been financed at interest rates slightly less than 5 percent and amortization over 20 or 30 years. These loans usually had fixed rates for only 5 to 10 years and they usually would provide a loan to value ratio of only 75 to 80 percent.

If some entity is set up to manage the wastewater facilities in the subdivision, it is possible that some large investor, such as a pension fund, might offer financing on all of the lots.

The Home Owners Association (HOA) is organized as a public benefit corporation, which gives it the power to levee fees. This capability increases the likelihood that lenders will be repaid.

d. Assessment District And Bonds

Another alternative might be a traditional assessment district. CCCSD has created non-contractual assessment districts in the somewhat distant past, but switched to Contractual Assessment Districts as the voluntary nature of participation was a better fit for most projects. CCCSD staff is willing to consider forming a non-contractual assessment district for SD-6 and has started discussions with District Council to review issues including how the timing of assessment district formation and annexation would need to be handled. A complication for CCCSD forming an assessment district might be that the SD-6 area is currently outside the CCCSD boundary.

A variation of this alternative would be for SD-6 to form the assessment district and turn it over to CCCSD. CCCSD would administer the assessment district once the area is annexed to CCCSD. The County probably would prefer that CCCSD form the assessment district.

There is a significant cost for bond counsel, etc. if bonds are issued.

e. Method Of Collecting Repayments

Whatever method of financing is selected, there must be a method of paying off the loan.

The HOA has the authority to levy fees against the individual properties in the subdivision. Thus the HOA could collect the re-payments if CCCSD funds are used, if a private party finances the improvements, or if bonds are issued.

If an assessment district is formed and bonds are issued, the assessment district could collect the re-payments or it could contract with the HOA to have the HOA collect the re-payments.

f. Reimbursement

The portion of the improvements in Vaca Creek Road and Alhambra Valley Road could potentially be used by other properties in the future. Arrangements could be established whereby the entity that funds the improvements can be reimbursed when non-Stonehurst lots connect directly to these facilities within 20 years of completion of the improvements.

If CCCSD provides funding for the improvements that can serve others in the future, CCCSD may cover the share of costs from the as-yet undeveloped properties. As these properties connect, the reimbursements would go to CCCSD.

If a party other than CCCSD funds the improvements, then the reimbursements would go to that party.

g. Non-Capital O&M Costs

For the three alternatives that do not result in CCCSD taking responsibility for all of the wastewater system, some sort of separate entity will have to exist. (See Chapter 9). Whoever the entity is, it would face costs for operation and maintenance, administration, 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 may need to be written and periodically revised, and some amount of reporting may be needed.

The charge for routine operation and maintenance of the SD-6 system in mid-2014 was \$3,245.45 per month. Post-connection to CCCSD, 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 may have reporting requirements and may have to pay separate fees. These might cost around \$5,000 per year.

If the sewer system is controlled by a separate public entity, it will have to comply with WQO 2006-003. In the future, this might also be true if it is a private entity.

The separate entity might also have to have a separate permit from the Regional Water Quality Control Board. The annual fee in recent years was \$2,281.

11. OTHER FACTORS

If responsibility for some portion of the wastewater facilities is retained by some entity other than CCCSD, consideration also needs to be given to several non-financial factors. These factors include:

- A fine if there should be a spill from the portion of the wastewater system that the entity controls.
- A large expense if some portion of the wastewater system that the entity controls fails catastrophically.
- Entity personnel problems.
- Operating personnel problems.
- Liability.
- Effect Of A Public Sewer On Real Estate Values

These issues are discussed briefly below.

a. Fine

If there is a spill from the portion of the wastewater system that the entity controls, the Regional Board might impose a large fine. The fines can be up to \$10 per gallon spilled. The entity would have few or no resources available to control the spill and would have to hire contractors. The contractors might be slow to respond, thus allowing the spill to continue for a long period of time.

Fines in the range of tens of thousands of dollars or even higher are not uncommon.

b. Unexpected Large Expenses

Some portion of the facilities for which the entity is responsible might experience a large and costly failure. Such a failure might be associated with a landslide or deterioration of the facilities that the entity owns.

c. Entity Personnel Problems

The entity will have to have someone who speaks and acts for it. If the entity is private, this person might suddenly leave without adequately briefing a replacement, might fail to make required reports, etc. If one entity person leaves, it may be difficult to find a replacement.

d. Operating Personnel Problems

If the entity owned facilities contain little or no mechanical equipment, there will be relatively little operation and maintenance requirement but there will still be some. Pipes might leak, air relief valves require a little maintenance and occasionally fail. There may be regulatory reporting requirements. The entity owned facilities might have to be marked as a part of an Underground Services Alert (USA) operation if work is being done by others in the streets.

The facilities that the entity would control are so small that relatively few contract operations firms would be interested in serving them.

If one contract operations firm left, it might be difficult to get a replacement, or at least to get a replacement quickly.

e. Liability

There is always the possibility that someone might be injured by the system or at least claim that they had been injured. A child might fall into a manhole and be killed or injured. Someone might claim that pathogens from the system have migrated on to their property and made them ill.

Even if the lawsuit is unfounded or frivolous, the cost of defending it could be significant.

The homeowners would be protected against all of these non-financial factors if CCCSD take over control of the whole system.

f. Effect Of A Public Sewer On Real Estate Values

There is a perception among some real estate agents that having a public sewer is preferable in the mind of potential buyers to having onsite systems. There might also be a preference for having a public agency such as CCCSD be responsible for all parts

of the wastewater system rather than having the HOA be responsible for parts of the system.

It is difficult or impossible to place a monetary value on these possible perceptions but there may in fact be some impact on real estate values.

12. COMPARISON OF ALTERNATIVES

The requirements for annexing to CCCSD were discussed above and five alternatives were developed for connecting to CCCSD. The input from various off-site stakeholders was obtained and discussed and various legal arrangements and financing mechanisms were reviewed. Various non-financial factors were presented.

A follow-on report will develop the cost of these alternatives.

As previously discussed, it should be noted that continuing to operate the existing system in perpetuity is not really a "no project" alternative because the existing permit for the system requires that the subdivision connect to the public sewer when the sewer becomes available in the vicinity of the subdivision. The alternative of continuing to operate the existing system thus is really only a "not at this time" alternative.

If there is a significant problem with the existing system, such as a major spill, the Regional Board might require that connection be made to CCCSD no matter how close the sewer is to the subdivision.

FIGURES

STONEHURST SUBDIVISION – SD-6

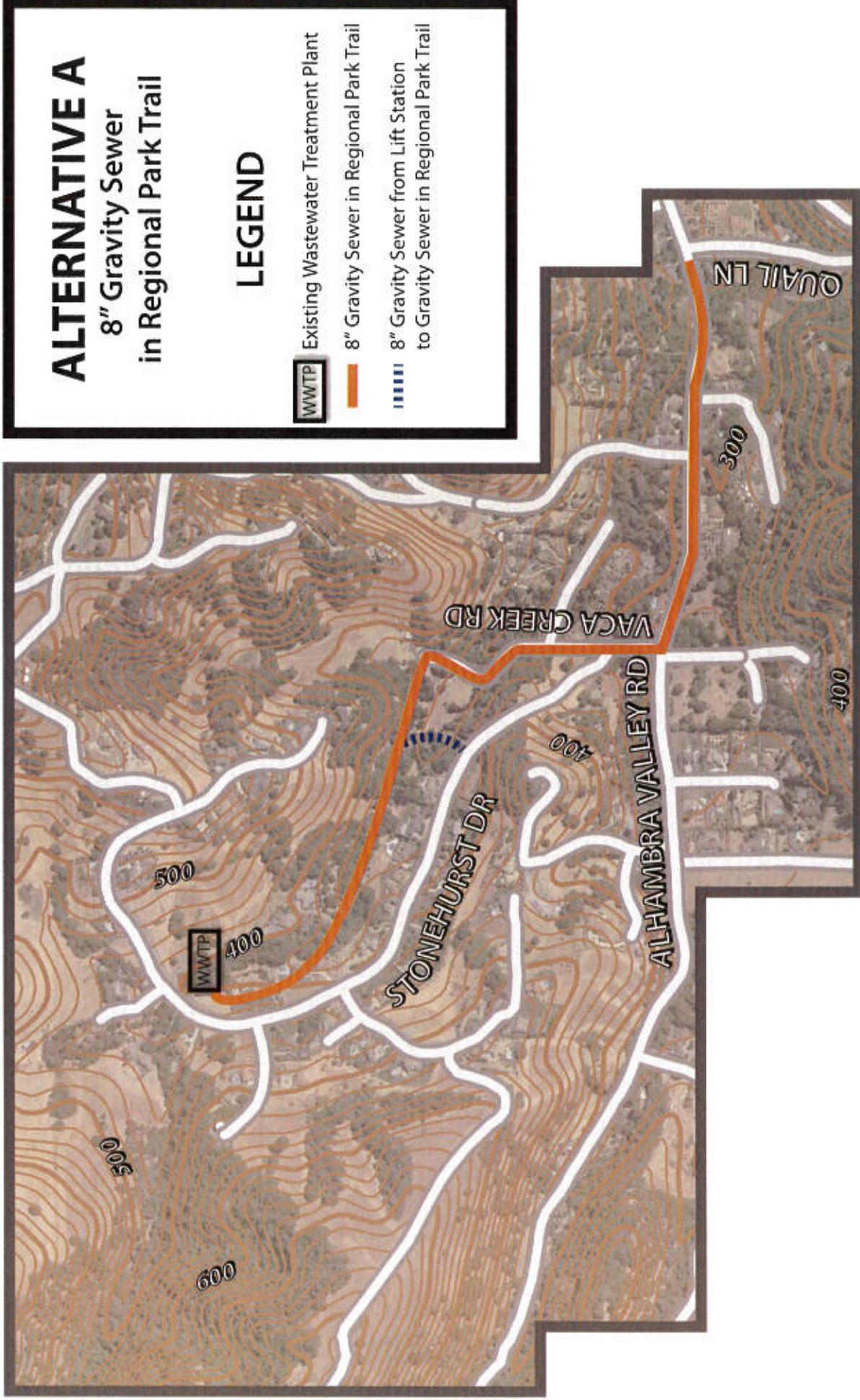


Figure 3.1: 8" Gravity Sewer in Regional Park Trail

STONEHURST SUBDIVISION – SD-6

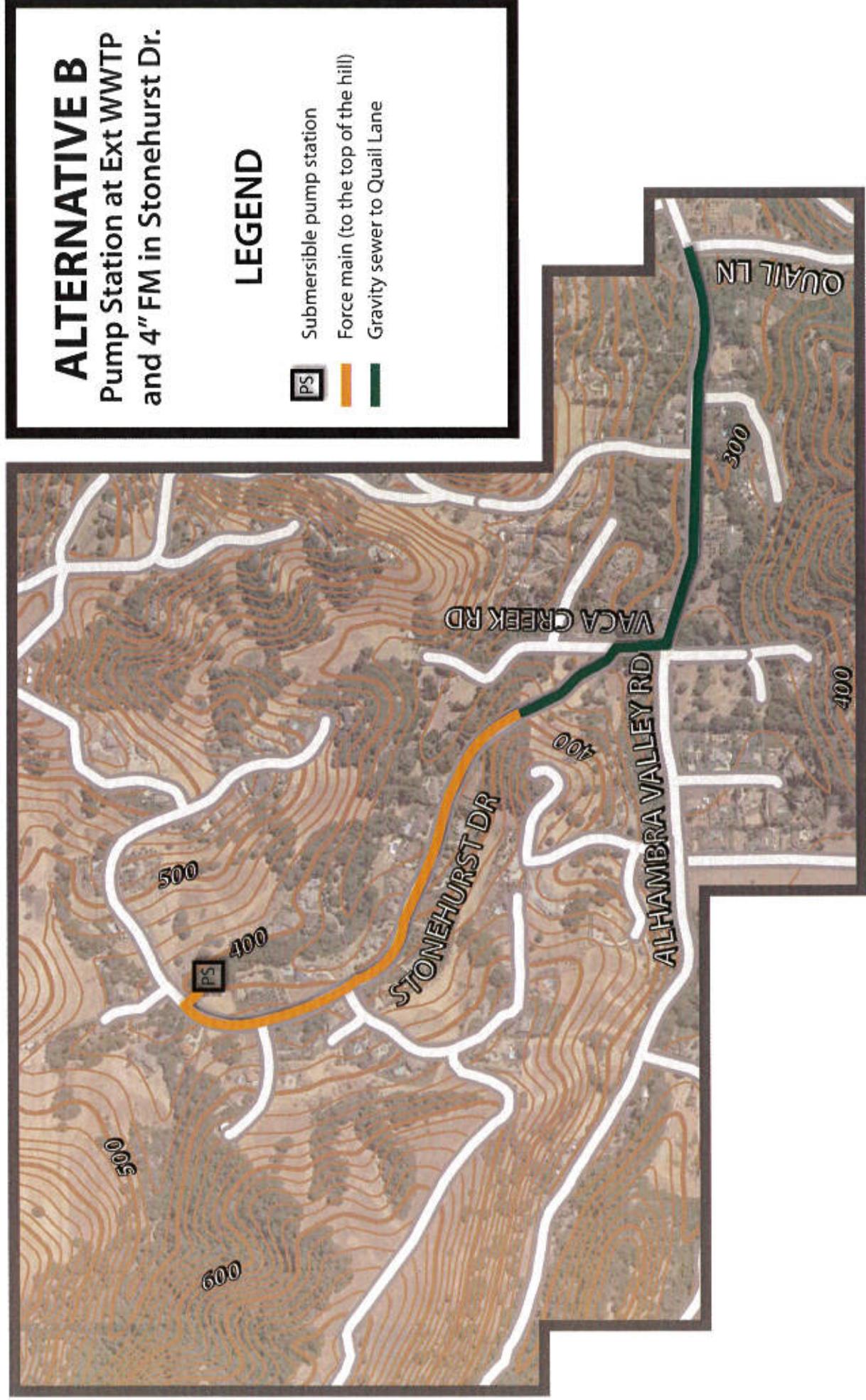


Figure 3.2: Pump Station and Force Main

STONEHURST SUBDIVISION – SD-6



Figure 3.3: Onsite Grinder Pumps with CCCSD Double Contained Force Mains

STONEHURST SUBDIVISION – SD-6

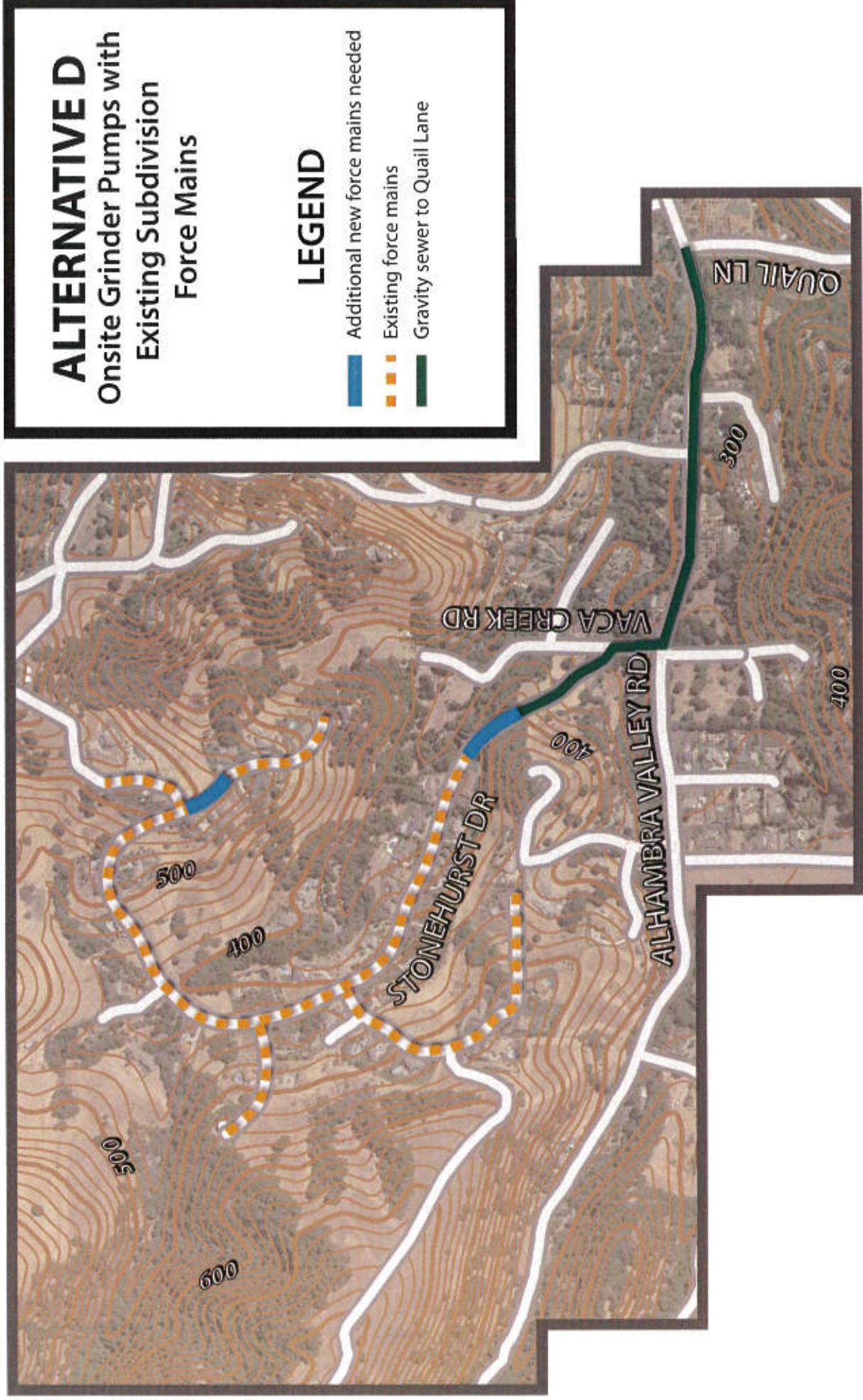


Figure 3.4: Onsite Grinder Pumps with Subdivision Force Mains

STONEHURST SUBDIVISION – SD-6

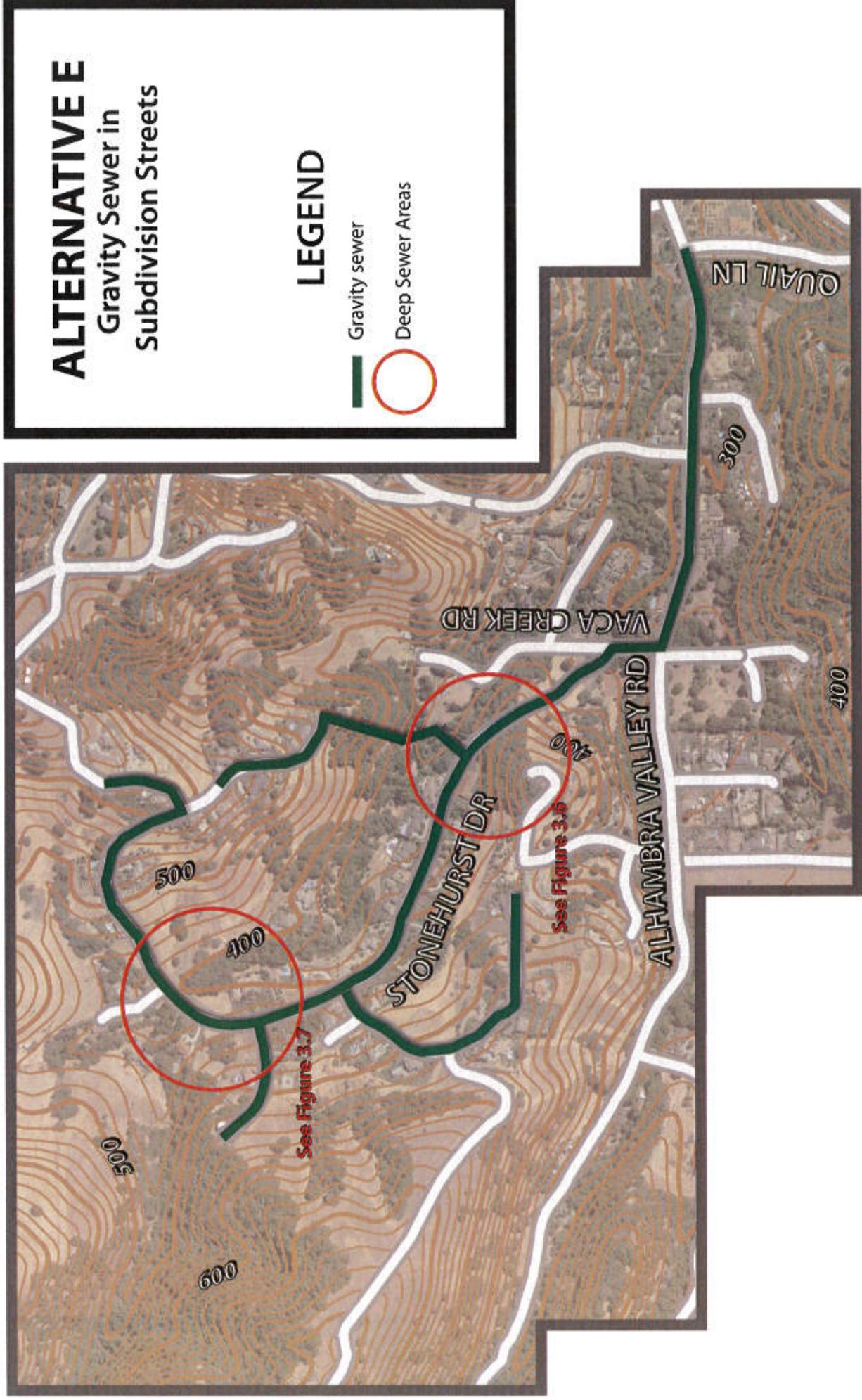


Figure 3.5: Gravity Sewer in Subdivision Streets

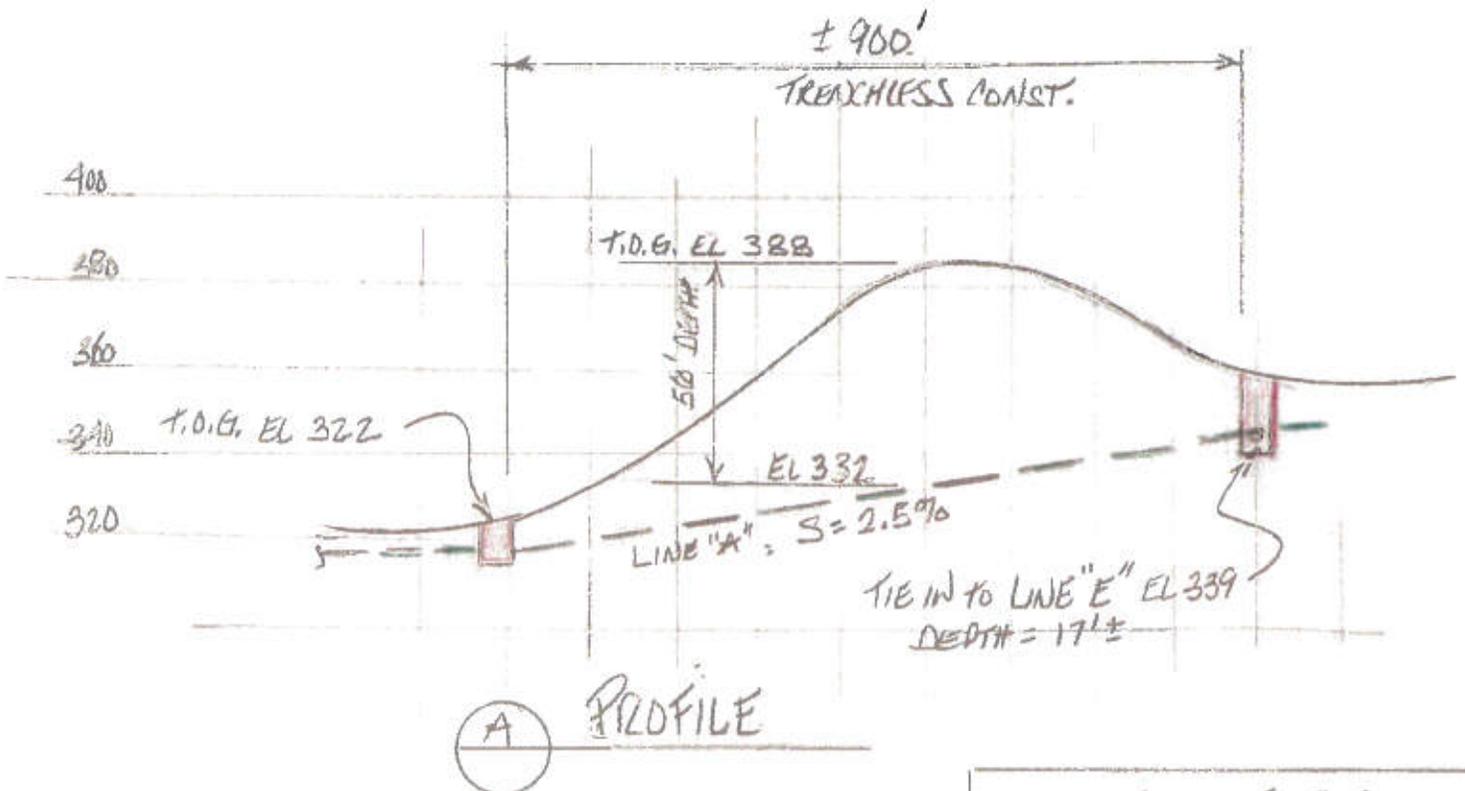
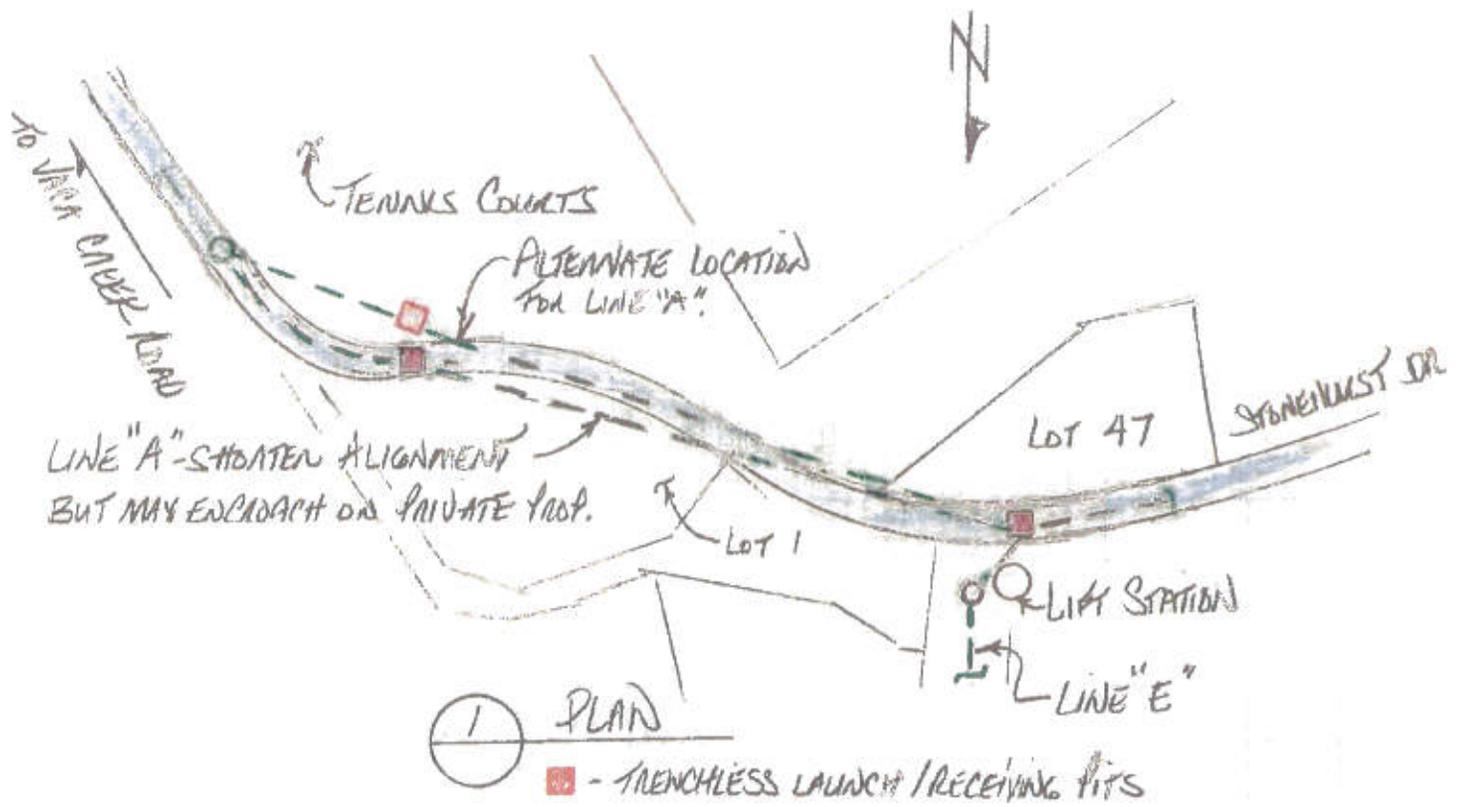
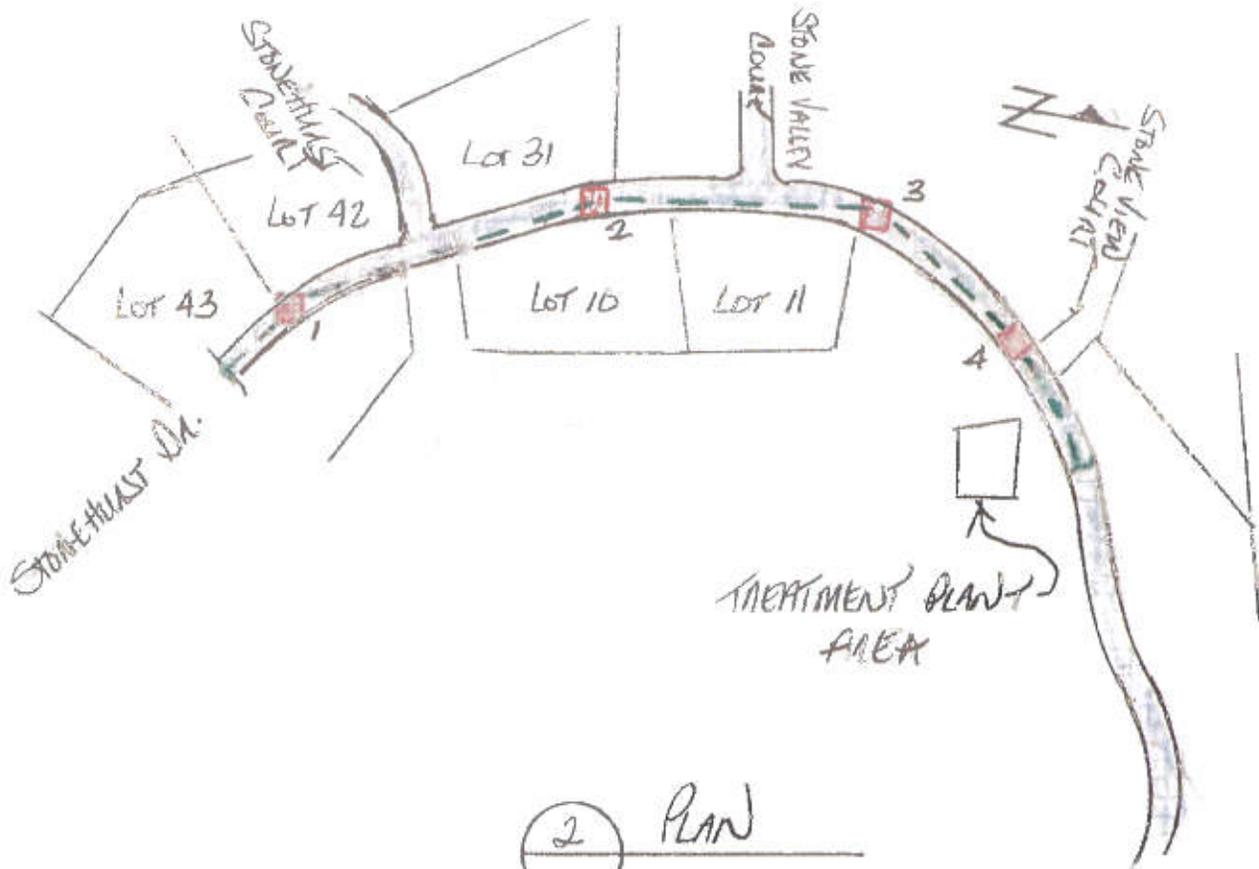


FIGURE 3.6

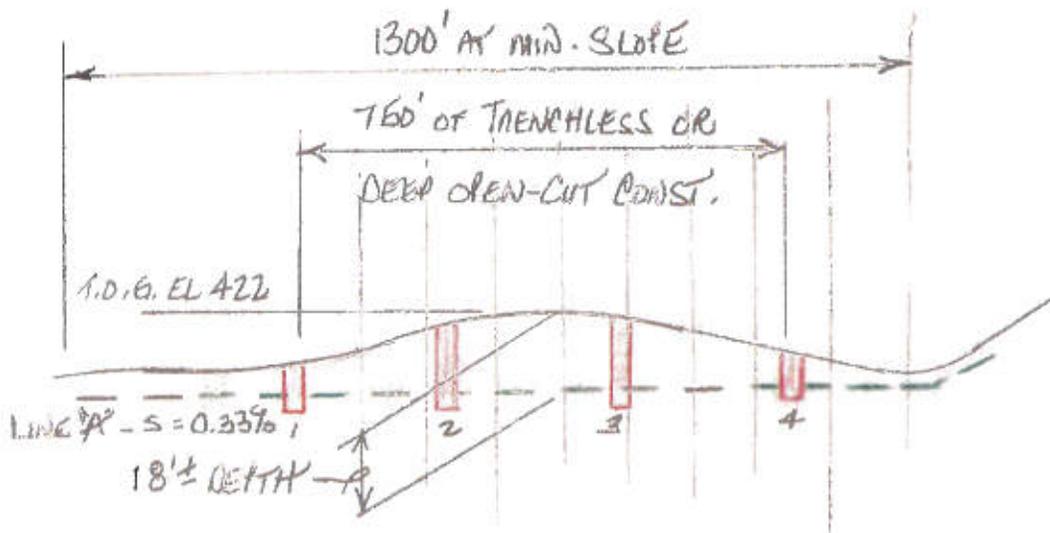
FROM NOLTE & ASSOC. ENGS

JULY, 1989



2 PLAN

1 - TRENCHLESS LAUNCH / RECEIVING PITS



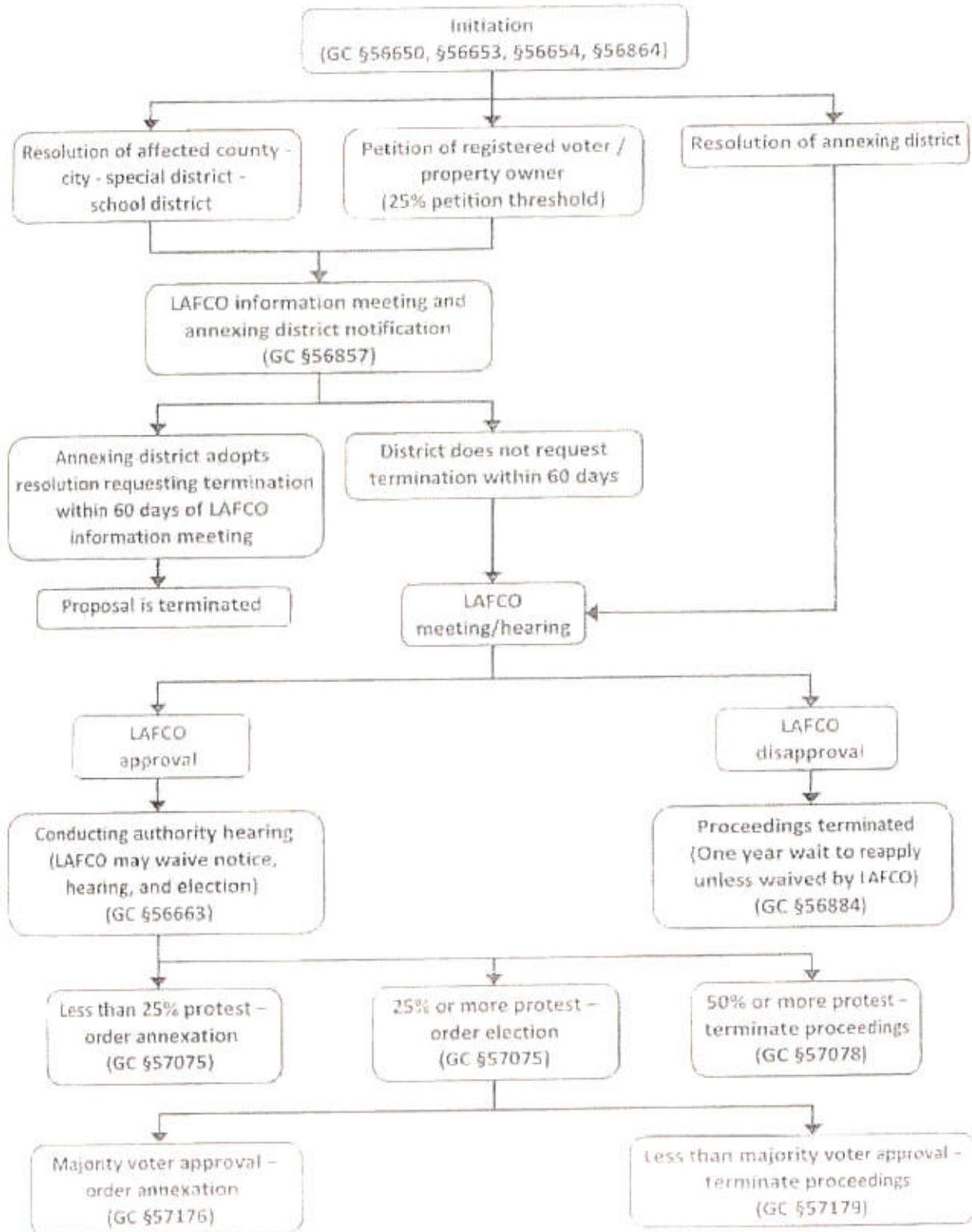
B PROFILE

FIGURE 3.7

FROM VOLTE & ASSOC. ENGRS
JULY, 1989

APPENDIX A
LAFCO Inhabited District Annexation
Flow Chart

Inhabited District Annexation



SECTION SIX - Appendix - 201

Appendix B. LAFCO Inhabited District Annexation Flow Chart.

APPENDIX B
CCCSD Contractual Assessment Districts
(CADs)



SEWER MAINS: Contractual Assessment Districts

5

INTRODUCTION

Central Contra Costa Sanitary District's (CCCSD) sewage collection system serves the communities of Alamo Clyde, Danville, Diablo, Lafayette, Martinez, Moraga, Orinda, Pacheco, Pleasant Hill, San Ramon, and Walnut Creek and intervening, unincorporated areas of Contra Costa County. The majority of homes in these communities are connected to CCCSD's collection system. There are, however, a few homes both inside and outside of the CCCSD boundary which are served by private septic tanks. In certain instances, the cost to extend public sewers into an area serviced by septic tanks can be an extreme financial burden for one owner or even a small group of owners. The concept of a Contractual Assessment District (CAD) was developed to address this burden.

The CAD process provides a means to finance the cost of sewer improvements over time at a fixed interest rate. Each property owner's share of the cost of a sewer extension project can be spread over time instead of a lump sum payment being made by the owner at the time of construction. CADs are applicable to small groups of properties. A minimum of five benefiting properties are required to initiate the formation of a CAD.

This guide summarizes CCCSD's CAD policies revised by the Board of Directors in a February 1, 2001 policy statement. Refer to that policy statement for further details or clarification of any issues addressed in this guide.

PROCEDURES

1. An initial contact with CCCSD is made by one or more property owners who want or need to obtain public sewer service. The contact is usually due to the owners having problems with their septic tanks.
2. CCCSD staff determines the route for a sewer main extension, the number of benefiting properties, and potential uncertainties which may affect the final route. The uncertainties are resolved by either the owners or staff.
3. Staff applies the formation criteria (see below under Formation Definition, Criteria, and Rules).

4	If staff determines the criteria are not met, staff will notify the property owners of the staff decision in writing. Property owners then have 30 days to request an appeal this staff decision to the District Board of Directors. The Secretary of the District will schedule the matter for a hearing before the Board of Directors and provide written notice of the time and place of that hearing to the affected property owners.
5	If the criteria are met, staff asks the owners who made the initial contact to get each owner of property along the proposed sewer alignment to complete and sign a staff-provided Letter of Interest expressing a willingness to consider participating in a CAD. It is desirable to have Letters of Interest written by more than half of the owners whose properties will be served by the sewer extension. The likelihood that a CAD will be formed is increased as more owners send letters stating they will consider participating.
6	Staff prepares a proposal to CCCSD's Board of Directors to form a CAD. CCCSD's participation in CADs will be determined on a case-by-case basis and is at the sole discretion of the Board of Directors. The Board will consider technical, economic, staffing, budgetary, environmental, and other factors in its decision to proceed with any CAD.
7	If the proposal is approved, a recommendation is made to the Board of Directors to adopt a Resolution of Intention which formally initiates the CAD.
8	Completion of an annexation petition is requested of any property owner whose CAD property is not currently within the boundaries of CCCSD.
9	The owners choose an owner who will coordinate CAD activities with CCCSD staff
10	The owners engage a civil engineer to prepare plans for the sewer extension and descriptions of any required easements (a legal agreement allowing access to and use of private property). The engineer may be engaged earlier to assist in determining the route and resolving uncertainties. Initial payments to the civil engineer are made directly by the owners
11	The plans are reviewed by CCCSD for compliance with specifications and regulations. Usually two reviews are required before the plans are acceptable for approval.
12	The owners give the plans to contractors and obtain bids for construction of the sewer. Three bids are preferable

13.	The low bid is furnished to CCCSD staff who confirms that the low bid is in order. Property owners have 18 months from when the District initiates formation of a CAD to submit sewer plans, construction bids, and other information necessary for preparation of an Engineer's Report, otherwise the CAD process will be terminated.
14.	Staff prepares an Engineer's Report that includes an estimate of the cost of the CAD project and a Notice of Improvement. Staff sends, posts, and publishes the Notice of Improvement, which includes public hearing information.
15.	Staff also sends out Notices of Proposed Assessment, including ballots on which owners can indicate their approval of or opposition to the proposed assessment. The ballots are a requirement of Proposition 218.
16.	Staff also sends a CAD agreement to owners. The agreement describes the responsibilities of the parties, the work, and the provisions for payments.
17.	Owners return signed ballots and a signed CAD agreement to CCCSD staff.
18.	CCCSD's Board of Directors holds the public hearing. The CAD is formed provided there is less than a majority protest. A majority protest exists if more than 50 percent of the owners submit ballots in opposition to the proposed assessment.
19.	Easement documents are signed and other necessary permits are obtained from other agencies.
20.	Owners enter into a contract with the contractor who submitted the low bid.
21.	The contractor performs the work under the supervision of the owners as a private construction project. CCCSD will have no contractual relationship with the contractor and will not provide construction management or site supervision, however, CCCSD will inspect the project consistent with prevailing CCCSD inspection process.
22.	The coordinating owner submits payment requests to CCCSD as work is completed. The coordinating owner also submits payment requests to CCCSD to reimburse owners who paid to engage the civil engineer. Payments for the work are made by CCCSD to the coordinating owner or directly to the contractor. If payment is made to the coordinating owner, he/she then pays the contractor. The coordinating owner may establish an escrow account for processing of payments.

23. When construction is completed and inspected, the work is accepted by CCCSD if the work done in accordance with CCCSD's standards. Connections to the new sewer may be made following acceptance

24. Final assessments are determined by CCCSD based on actual costs. Assessments are placed on tax bills and are collected over a ten-year period.

FORMATION DEFINITIONS, CRITERIA, AND RULES

A. A CAD is a legal entity established pursuant to California Streets and Highways Code 5898 for the purpose of financing the construction of sewers in residential areas currently being served by septic tanks

B. Participants are owners of properties tributary to the proposed sewer who voluntarily agree to enter into a CAD contract to pay for the new facilities. Participants need not immediately connect to the sewer following construction, but may postpone connection (and related non-CAD expenses) to a later time.

C. Non-participants are owners of properties tributary to proposed facilities who do not contribute initially to the payment for the construction of sewers.

D. CAD Non-participant Reimbursement Fees are fees collected from Non-participants to reimburse Participants for the Non-participants share of the cost of construction of sewers (see the following section, Reimbursement Fees)

E. A minimum of five properties must be directly tributary to the proposed CAD facilities.

F. A minimum of 60 percent of the properties directly tributary to the proposed CAD facilities must have existing homes served by septic systems.

G. To participate in a CAD, a parcel may not have more than two (2) dwelling on it

H. Participants will be given the option to pay for their portion of the work after the work is completed with a lump sum cash payment or contractually subject their property to an assessment for their portion of the work. Regardless of the option chosen, Participants pay all costs. In other words, Participants pay the Non-participants' shares

I The payback period of the Participant's assessments is ten (10) years. There is no penalty for paying off the assessment sooner. The interest rate for assessments will be one (1) percent above the then current average interest rate on CCCSD's temporary investments with a six percent minimum. The interest rate is fixed when the agreement between the Participants and CCCSD is signed by CCCSD.

J All assessments shall be the same for each Participant unless otherwise agreed upon by all of the Participants. If, in the sole judgment of CCCSD, an existing Participant's property can be subdivided, said property may be assigned more than one assessment after discussion with the Participants.

K The cost of the work associated with sanitary sewer mains, manholes, rodding inlets and private sewer laterals within a street to the property line or within an easement to the easement line, may be financed by the CAD. The cost of the installation of the private pipe on the Participant's property and the connection or other fees paid to CCCSD are specifically excluded from CAD financing.

L The obligation to pay assessments will be recorded as a lien against the property. Principal and interest will be collected on Participant's tax bills for those Participants who have an assessment placed on their property.

M A property owner may take advantage of the ten (10) year assessment for only one (1) property at a time.

REIMBURSEMENT FEES

If all owners whose properties are served by the sewer extension agree to accept assessments, there are no reimbursement fees; however, if some of the owners do not accept assessments (Non-participants), the other owners who do accept assessments (Participants) must pay the shares of the Non-participants.

A simple example is offered to illustrate the Participants paying for the Non-participants' shares.

Participants	6	Total Project Cost: \$120,000
Non-participants	<u>4</u>	Each Participant's Initial Share of the Project Cost
Total Properties	10	$\$120,000 \div 6 = \$20,000$

The period for CAD Non-participant Reimbursement Fees will be 20 years. The obligation of a Non-participant to pay a reimbursement fee upon connection to a CAD sewer will expire after 20 years.

CAD Non-participant Reimbursement Fees will be established by the Board, pursuant to a public hearing after final assessments are established, and will be collected from all parties connecting to the CAD sewer within the 20-year reimbursement period

CAD Non-participant Reimbursement Fees will be calculated by dividing the total CAD cost (including interest) by the current number of Participants (the total of the original Participants, the Non-participants who have subsequently paid reimbursement fees and the current Non-participant Reimbursement Fee payor).

As Non-participants connect their homes to the sewer extension, CCCSD staff will collect a CAD Non-participant Reimbursement Fee from each newly connecting property owner. Each newly received CAD Non-participant Reimbursement Fee will be divided uniformly among the Participants and the Non-participants who have subsequently paid reimbursement fees.

Unless another agreement is made, upon sale of a property owned by a Participant or a Non-participant who has subsequently paid reimbursement fees, the buyer becomes eligible for receipt of the fee collected. Those current owners with outstanding CAD financing debt first will have the debt reduced and, second, be eligible for a cash payment. CCCSD will forward a notification of available funds and a verification form to current owners.

Current owners who have paid off their debt will have a right to a pro rata share. In order to receive payment, owners must contact CCCSD within three years of the mailing of the notification by CCCSD, after which time CCCSD shall retain the fee.

ELIGIBLE COSTS

Costs which may be included in a CAD are

- Construction of the public sewer extension, including necessary paving and other surface restoration.
- Acquisition of easements.
- Construction of a private sewer from the public sewer to the property line.
- Preparation of plans and other work by a civil engineer.
- Soils testing during construction.
- Acquisition of an encroachment permit from a city, the County, or other public agency so that work can be conducted in on public property (e.g., streets).
- CCCSD charges for plan review, inspection, and administration.

The first estimate of these CAD-financed costs can be made after the final route for the sewer extension is determined

Costs which must be paid for directly by each property owner at the time a home sewer connection is made are:

- Construction of a private sewer from the property line to the house (could be \$3,000 to \$10,000 or more, depending on the distance from the public sewer to the house's connection point and whether a pump is necessary)
- Fees to CCCSD for sewer system capacity, inspection, sewer service, and possibly annexation (\$7,000 to \$8,500)
- Abandonment of the septic tank (approximately \$1,500 to \$2,500)

Sewer connection need not occur immediately after completion of the CAD sewer. A CAD participant may begin paying the CAD assessment and connect sometime in the future.