

²⁶
TAC Meeting – June 18, 2007
Announcements from the Chair

At tonight's meeting we will be discussing the pros and cons of the two wastewater collection system alternates as presented to us by the County Project Team in the Viable Project Alternatives Fine Screening Analysis.

I fully realize that this component of the wastewater project stirs strong feelings in the community with passionate backers for each of the alternatives. I ask, however, that during this meeting you at least temporarily put aside those feelings and listen carefully to our discussion. Please refrain from shouting out comments or otherwise disturbing the TAC or those around you while we discuss the pro's and con's amongst our committee. You will have an opportunity to express yourself during the public input period.

We will again take public comments and questions after the three committees have presented their draft of the pros and cons and before the TAC begins its discussion.

I expect many of you to want to exercise your right to speak and I will try to accommodate as many as possible within the allocated time. I would ask you to try to be brief and to the point. If your views have already been expressed by a previous speaker simply acknowledging that would be appreciated.

Only comments and questions pertaining to the alternate Collection Systems will be allowed at that time. If you have any other comment or question relating to the TAC and its role there is a second public input period on the agenda. Questions to the Project Team will be answered as time permits at the end of the meeting. Please be sure and fill out Public Input slips and hand them in to a member of the project staff.

It is our hope that those people at home who are watching and listening in on our deliberations of the pros and cons will gain a better understanding of the alternate collection systems and of the potential solutions to the Los Osos wastewater situation.

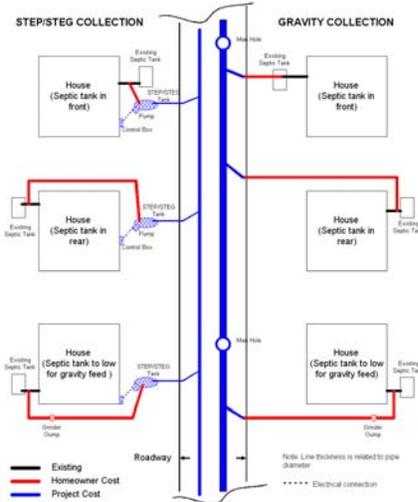
You may follow the progress of our pro/con analysis by visiting our website (<http://www.slocounty.ca.gov/PW/LOWWP>), select the TAC page and then the link to the working draft Pro/Con Analysis on Project Alternatives. This report has been updated to include information from last week's meeting. We encourage you to send us any of your questions or comments on this report. Our e-mail address is LOWWP@co.slo.ca.us. I wish to acknowledge those of you who have submitted to our website. Your comments have been distributed to the committees for their consideration.

Our next TAC meeting will be held Monday July 9, and the topic will be solids treatment and disposal. That meeting will also start at 7PM.

*Presented by
Chairman Gar Finkel
6/26/07*



COLLECTION SYSTEM ALTERNATIVES



LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



COLLECTION SYSTEM ALTERNATIVES

STEP/STEG

ENGINEERING & WATER RESOURCES

CRITERIA	PROS	CONS
Life cycle costs Const. costs O & M costs	Lower construction costs	Higher operations and maintenance costs
Construction impacts	Smaller amounts of road restoration- 2ft wide vs several ft. Shorter periods of road disturbance/ traffic control- could be ½ the time as compared to a gravity system in some areas Shallower trenches-6' or less vs. a gravity system with an average trench depth of 8' and depths reaching 28' in some locations Possibility of limited directional boring being used	
Property impact for both private and public properties		Requires easements on private property Requires access on private property Higher on-site capital costs-approximately 3 times that of a gravity system Higher level of private property disturbance (digging area) Requires periodic (5 yr. max.) pumping of on-site septic tanks
Reliability of system	Very small chance for inflow and infiltration- mainly through septic tank risers and lids.	Many small pumps and support systems with possibility of failure

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



Environmental impact of system	Fewer impacts associated with small diameter pipe installation	<p>Minor odor issues in conjunction with air release valves. However, this can be mitigated by installing carbon filtration treatment at the air release valves.</p> <p>Boring and trenching occurs in the cultural resource zone</p> <p>Higher level of private property disturbance (digging)</p> <p>Existing septic tanks will have to be abandoned or retrofitted for storm water disposal</p>
	Results in significant reduction of bio-solids volume	
Infiltration and inflow potential	Very small chance for inflow and infiltration. When it does occur mainly at septic tank risers lids	
Energy		<p>Many small sources (pumps and support electronics) of electrical use but comparable to gravity in total use</p>

DRAFT

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



Gravity

ENGINEERING & WATER RESOURCES

CRITERIA	PROS	CONS
Life cycle costs		
Construction costs		Higher construction costs
O	Lower O&M costs	
O&M costs		
Construction Impacts		Greater amounts of road restoration Longer periods of road disturbance/ traffic control- up to twice the time in some areas as compared to a STEP/STEG system Deeper trenches, with an average trench depth of 8 feet and trench depths reaching up to 28 ft in some areas.
Property impact for both private and public properties	No easements on private property	
	No access required on private property	
	Lower on-site capital costs- approximately 1/3 that of a step system	
	Lower level of private property disturbance (digging)	
	No periodic pumping of septic tanks	
Reliability of system	Fewer pumps and support systems with possibility of failure	Greater chance for inflow and infiltration

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

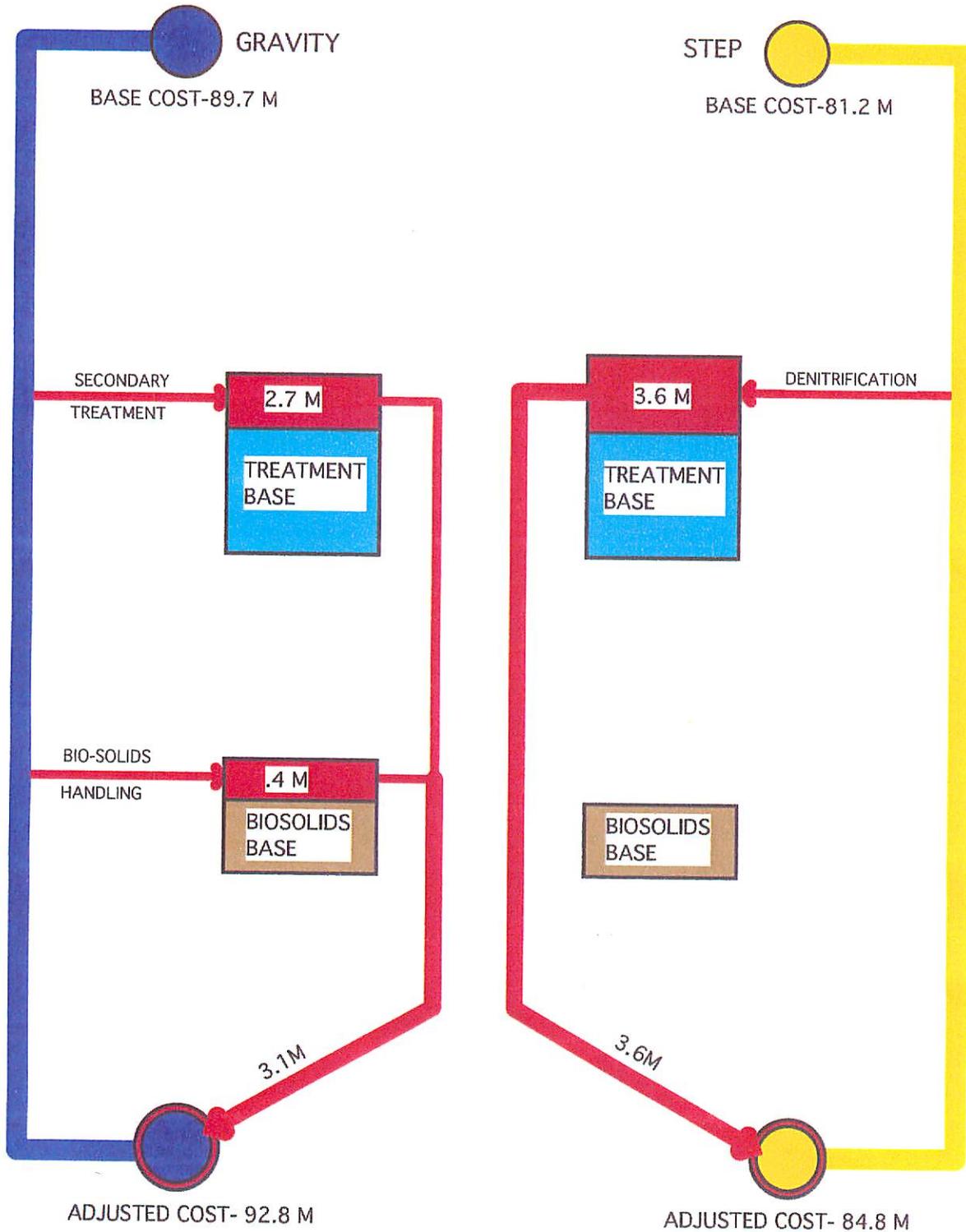
San Luis Obispo County Department of Public Works



Environmental impact of system	Lower level of private property disturbance (digging)	Greater impacts associated with large diameter pipe installation Minor odor issues in conjunction with manholes and pump stations, but can be mitigated through installation of carbon filtration treatment. Trenching occurs in the cultural resource zone. Wider areas of disturbance. Wider and deeper trenches will require shoring and dewatering in some areas. Water will have to be treated and disposed of. Significantly greater amount of bio-solids Existing septic tanks will have to be abandoned or retrofitted for storm water disposal
Infiltration and inflow potential		Greater possibility for inflow and infiltration.- primarily through manhole installations.
Energy		Fewer, but larger sources (pumps and support electronics) of electrical use but comparable to step in total use

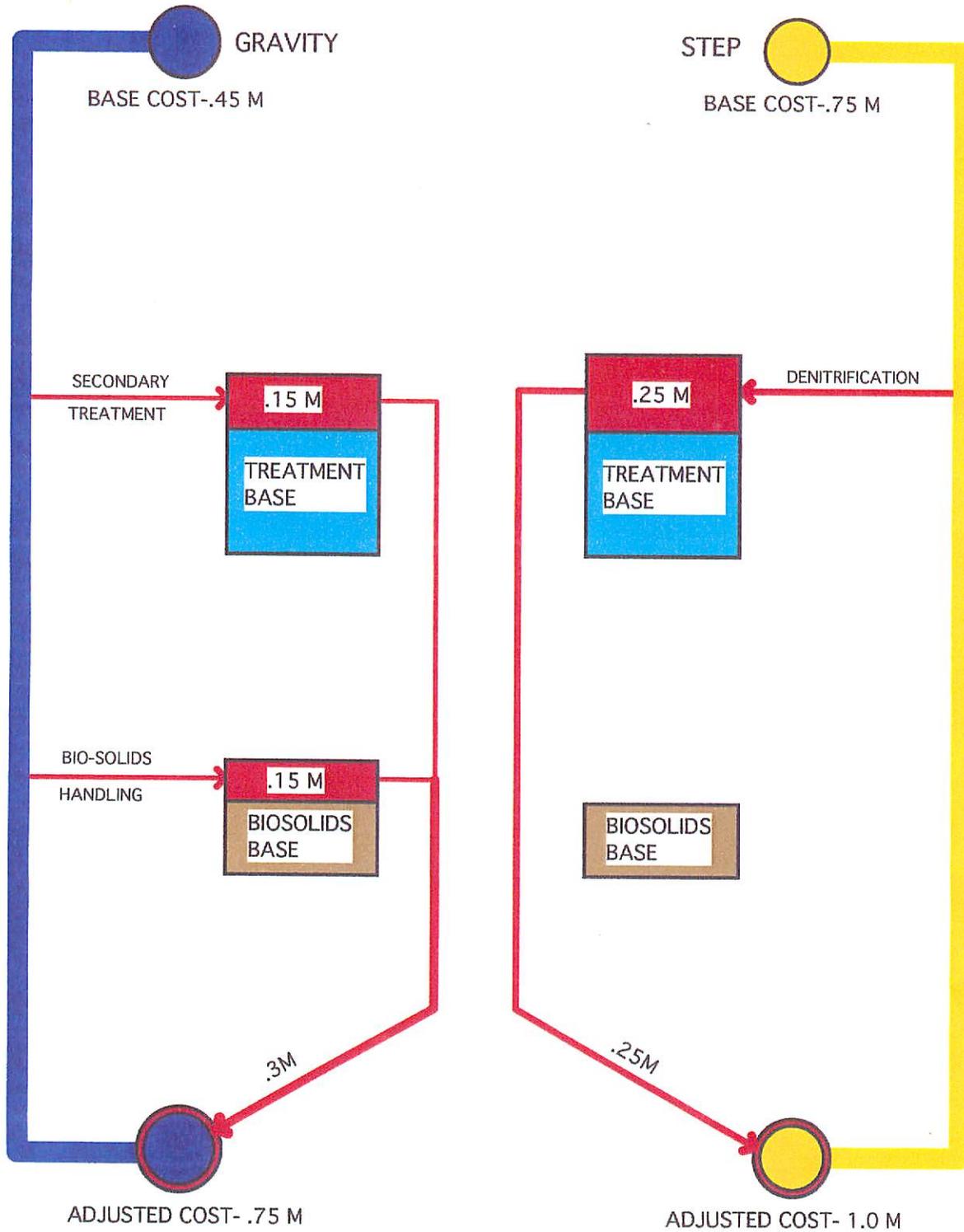
DRAFT

COLLECTION SYSTEM CONSTRUCTION COSTS



Presented by
Engineering Working Group
6/26/07

COLLECTION SYSTEM OPERATION & MAINTENANCE COSTS



Presented by
Engineering Working Group
6/26/07

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



COLLECTION SYSTEM ALTERNATIVES ENVIRONMENT

CRITERIA	STEP/STEG	GRAVITY
Construction disturbance	Excavation for new tank replacement est. @ 150 square feet Tank decommission est. @ 100 square feet Higher disturbance to residents Street impacts <	Excavation for installation Tank decommission est. @ 100 square feet Street impact approximately 2 weeks for main installation
Impact on biological resources	Dewatering less significant	Dewatering: the need to protect water quality with the disposal of collected water
Community impact	Permanent impacts Easements Visual – visible manhole and controls in front of each home 1000 tanks pumped per year starting ? after construction and hook ups completed. Neighborhood truck traffic Neighborhood odor & noise More grinder pumps Resident responsibility significant Venting at high points of system– increased odor control	Permanent impacts Visible pump stations throughout the community =20 Grinder pumps @ certain locations Truck traffic to plant
System failure risk	Homeowner responsibility significant Question in regards to requirement of back up power supplies for each tank Effluent more concentrated throughout system	Effluent throughout system
Impact on archaeological resources	155 Square feet additional excavation Assuming boring, less volume of disturbance	Increased volume of disturbance due to depth of pipe placement

**LOS OSOS WASTEWATER PROJECT
TECHNICAL ADVISORY COMMITTEE**

San Luis Obispo County Department of Public Works



COLLECTION SYSTEM ALTERNATIVES

ENVIRONMENT

<p>Energy Kwh/year</p>	<p>500,000- energy required to convey 1.2 mgd to an out-of –town treatment facility</p>	<p>500,000- energy required to convey 1.4 mgd to an out-of – town treatment facility</p>
-----------------------------------	---	--

The environmental committee felt that the PRO/CON format was inconclusive due to the lack of information. Since doing nothing is not an option, we have laid out a comparison table. We have submitted approximately 20 questions to the team for additional information.

DRAFT

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



PROS AND CONS OF COLLECTION SYSTEM TAC Financial Working Group

Draft 6/21/07

CRITERIA	Collection System	PROS	CONS
Capital Costs <ul style="list-style-type: none"> ▪ Land acquisition ▪ Construction costs ▪ Road impacts ▪ Cost for individual hook-up ▪ Cost of future expansion, upgrades 	GRAVITY	- Potential modest savings with combined gravity/ vacuum/ low pressure system.	- Higher construction cost range \$69.4M to \$77.7M. - Construction costs do not include additional road restoration for out-of-town treatment sites - Higher homeowner costs (approx. \$6M higher than STEP) - Unknown additional costs for land and easement to convey pipe to out-of-town site
	STEP/STEG	- Lower STEP construction cost range of \$59.4M to \$75.3M (vs. Gravity \$69.4M to \$77.7M) due primarily to open trenching; elimination of manholes, pump stations, standby power; and minimal shallow access points. (Assumes that separate electrical connections are not required.) - On-lot costs include new septic tanks and all work on private property up to house inlet. (Additional homeowner costs are detailed in following table.)	- Costs for new electrical connection for pump, etc. range from \$1,900 to \$3,000 per connection; could be much high for separate electrical connection.
Operations, Maintenance & Repair <ul style="list-style-type: none"> ▪ Maintenance, repair, & replacement costs 	GRAVITY	- Lower annual O&M at \$450,000/ year	
	STEP/STEG		- Higher O&M at \$750,000/ year
Financial Risk Factors <ul style="list-style-type: none"> ▪ Financial risk relating to system failures and natural disasters 	GRAVITY		- Additional cost of bell & spigot maintenance program to address risk of future leakage
	STEP/STEG		
Funding Factors <ul style="list-style-type: none"> ▪ Eligibility for best financing ▪ Grant attractiveness ▪ Potential for revenue generation 	GRAVITY		
	STEP/STEG		- SRF loan may require separate electrical connection, adding significant cost to system (\$13.4M to \$25.3M) STEP/STEG

LOS OSOS WASTEWATER PROJECT TECHNICAL ADVISORY COMMITTEE

San Luis Obispo County Department of Public Works



PROS AND CONS OF COLLECTION SYSTEM TAC Financial Working Group

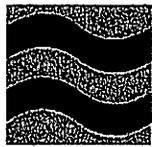
Draft 6/21/07

Construction Costs	Gravity		STEP/ STEG	
	Low	High	Low	High
Mobilization	\$3.7M	\$4.2M	\$2.4M	\$3.1M
Common facilities	\$57.6M	\$64.2M	\$11.8M	\$15.5M
On-lot facilities	-0-	-0-	\$33.3M	\$40.9M
Road restoration (1)	\$5.2M	\$5.2M	\$1.3M	\$2.6M
Conveyance to out-of-town site	\$2.9M	\$4.1M	Included	Included
Overhead, profit & taxes	Included	Included	\$10.6M	\$13.2M
Total Construction Costs	\$69.4M	\$77.7M	\$59.4M	\$75.3M
Premium electrical costs (2)	-0-	-0-	\$13.4M	\$25.3M
Total Costs with electrical premium (not incl. homeowner costs)	\$69.4M	\$77.7M	\$72.8M	\$100.6M
Homeowner on-lot costs (3)	\$10.9M	\$12.0M	\$5.4M	\$5.9M
Total Construction and Homeowner Costs (not including electrical premium) (3)	\$80.3M	\$89.7M	\$64.8M	\$81.2M

(1) Road restoration for additional conveyance of gravity pipeline out of town not included.

(2) Separate electrical required if project is financed with SRF loan

(3) Homeowners' on-lot costs are not part of gravity collection project costs, but presented for comparison purposes only.



AQUALAW
WATER AND WASTEWATER SOLUTIONS

ELIZABETH M. DIETZMANN
ELIZABETH@AQUALAW.COM

PH: 804.716.9021
FX: 804.716.9022

May 29, 2007

Mr. Bill Cagle
Orenco Systems Incorporated
814 Airway Avenue
Sutherlin, Oregon 97479

Re: STEP Collection easement articles

Dear Bill:

Thanks for your inquiry regarding my two-part series on STEP collection easements published in *Small Flows Quarterly*. The articles probably could've taken up the entire magazine, but because of space limitations, I can't always include every detail that sparks my passion. So, I'm happy to provide additional explanation and clarification for the articles.

The main point of the two articles was to make stakeholders aware that public funding agencies do not need to require mandatory connections for clustered systems (please see all my other articles in *SFQ* extolling the advantages of clustered systems) and that if they insist upon doing so, the main enforcement tool, condemnation, won't work for on-lot collection components. In addition, traditional easements can be used for clustered systems, provided they contain some basic language covering the inherent nature of STEP systems.

In the first article, I gave examples of the strengths and weaknesses of different types of easements that can be utilized for a STEP collection system. Please see the enclosed sample easement for an example of what a good STEP easement should look like. In lieu of obtaining individual easements, governmental entities and utility cooperatives often include the requirement for an easement in the overall "service tariff," or the codification of the rules and regulations under which customers agree to receive service. I can send you an example if you would like one.

You stated that some people are taking my articles out of context to oppose STEP. I will be more than willing to explain my position to anyone who has misinterpreted my articles! For the record, let me make this perfectly clear: STEP collection is one of the most undervalued, underutilized technologies the wastewater

Submitted
by Chuck
Cesena 6/26/07

engineering community has at its disposal. First, STEP is the only collection system that provides primary treatment prior to the treatment plant. Second, the fact that it is watertight saves the costs of conveyance and treatment and virtually eliminates the I and I problems associated with traditional gravity sewer. I have looked at an excellent summary of STEP collection, done by Dana Ripley, P.E., for the City of Los Osos, California, which details these benefits and more. You can find the study on their website at <http://www.losososcsd.org/www/index.html>.

Some people have the mistaken perception that STEP is not popular because the utility owns infrastructure on-lot. I believe it is irresponsible for any utility *not* to own and operate the on-lot infrastructure. In communities served by gravity sewers, even though the on-lot laterals are not traditionally owned by the utility, the utility still owns the problems of leakage and infiltration associated with laterals. When a utility doesn't own this portion of the infrastructure, they can't do a lot to fix it. This places a burden on the collection and treatment systems.

You've heard the adage, "Those who cannot remember the past are condemned to repeat it?" Well, the repetition of mistakes in the construction and management of traditional gravity sewers has greatly contributed to our nation's infrastructure shortfall. And if memory serves me, Orenco has consistently, and for the right reasons, recommended that utilities own and operate the on-lot STEP components. Although this is an unpopular position, you are fighting the good fight and I applaud you for that.

I hope this helps to clarify the intent behind these articles. Please don't hesitate to contact me should you need any additional help.

Sincerely,



Elizabeth M. Dietzmann