SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

VICTOR HOLANDA, AICP
DIRECTOR

August 31, 2009

Steven Paige
1554 Ninth Street
Los Osos, CA 93402

County Of San Luis Obispo
Department Of Public Works
Attn: John Waddell
INTEROFFICE

SUBJECT: APPEAL OF DRC2008-00103 – COUNTY OF SLO - LOWWP
HEARING DATE: August 13, 2009 / PLANNING COMMISSION

We have received your request on the above referenced matter. In accordance with County Real Property Division Ordinance Section 21.04.020, Land Use Ordinance Section 22.70.050, and the County Coastal Zone Land Use Ordinance 23.01.043, the matter has been scheduled for public hearing before the Board of Supervisors. A copy of the appeal is attached.

The public hearing will be held in the Board of Supervisors' Chambers, County Government Center, 1055 Monterey Street, Room D170,San Luis Obispo. The project has a hearing date of **Tuesday, September 29, 2009**. All items are advertised for 9:00 a.m. If you have any questions, you may contact your Project Manager, **Murry Wilson**. A public notice will be sent out and you will receive a copy of the notice.

Please feel free to telephone me at 781- 5718 if you have any questions.

Sincerely,

Nicole Retana

Nicole Retana,
County Planning and Building Department

CC: Murry Wilson, Project Manager
Jim Orton, County Counsel

SLO COUNTY PLANNING/BUILDING DEPT

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COASTAL APPEALABLE FORM

San Luis Obispo County Department of Planning and Building 7/25/08

AUG 27 AM 8:13

Please Note: An appeal should be filed by an aggrieved person or the applicant at each stage in the process if they are still unsatisfied by the last action.

PROJECT INFORMATION Name: LOWWP (LOS OSOS WASTEWAER PROJECT) File Number: DRC2008-00183

Type of permit being appealed:

☐ Plot Plan ☐ Site Plan ☐ Minor Use Permit ☐ Development Plan
☐ Variance ☐ Land Division ☐ Lot Line Adjustment ☒ Other: LOWWP

The decision was made by:

☐ Planning Director (Staff) ☐ Building Official ☐ Planning Department Hearing
☐ Subdivision Review Board ☒ Planning Commission ☐ Other _____
Date the application was acted on: _____

The decision is appealed to:

☐ Board of Construction Appeals ☐ Board of Handicapped Access
☒ Planning Commission ☒ Board of Supervisors

BASIS FOR APPEAL

☒ INCOMPATIBLE WITH THE LCP. The development does not conform to the standards set forth in the Certified Local Coastal Program of the county for the following reasons (attach additional sheets if necessary).
Explain: SEE ATTACHED COMPLAINT AND EXHIBITS

☐ INCOMPATIBLE WITH PUBLIC ACCESS POLICIES. The development does not conform to the public access policies of the California Coastal Act - Section 30210 et seq of the Public Resource Code (attach additional sheets if necessary).
Explain: _____

List any conditions that are being appealed and give reasons why you think it should be modified or removed.

Condition Number's _____ Reason for appeal (attach additional sheets if necessary)

SEE ATTACHED APPEALS

APPELLANT INFORMATION

Print name: STEVEN PAIGE

Address: 1554 NINTH ST. LOS OSOS Phone Number (daytime): 528-4738

I/We are the applicant or an aggrieved person pursuant to the Coastal Zone Land Use Ordinance (CZLUO) and are appealing the project based on either one or both of the grounds specified in this form, as set froth in the CZLUO and State Public Resource Code Section 30603 and have completed this form accurately and declare all statements made here are true.

Signature 8/26/09 Date

OFFICE USE ONLY
Date Received: 8/27/09 By: CM
Amount Paid: $0 Receipt No. (if applicable): N/A

Wednesday, August 26, 2009,

My name is Steven Paige, I am the Petitioner named below.

I am a low income homeowner in the "Prohibition Zone" of Los Osos California. I am dissatisfied with the approval of the Los Osos Wastewater Project I have the right to appeal the Planning Commission decision to the Board of Supervisors up to 14 days after the date of action, in writing, to the Planning Department. Legitimate coastal resource issues related to The CSLO's Local Coastal Program are raised in the appeal, I claim there should be no fee.

I will appeal my claims to the California Coastal Commission pursuant to Coastal Act Section 30603 and the County Coastal Zone Land Use Ordinance 23.01.043 if they are not addressed by the board. I understand that exhaustion of appeals at the county is required prior to appealing the matter to the California Coastal Commission. The appeal to the Board of Supervisors must be made to the Planning Commission Secretary, Department of Planning and Building, and the appeal to the California Coastal Commission must be made directly to the California Coastal Commission Office.

I understand these regulations contain specific time limits to appeal, criteria, and procedures that must be followed to appeal this action. The regulations provide the California Coastal Commission 10 working days following the expiration of the County appeal period to appeal the decision. This means that no construction permits can be issued until both the County appeal period and the additional Coastal Commission appeal period have expired without an appeal being filed.

I am appealing the Planning Commission's findings and I claim that they violate the Coastal Act
I reference the specific language in the Planning Commission findings:

STATEMENT OF OVERRIDING CONSIDERATIONS

The California Environmental Quality Act requires the lead agency to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. The County of San Luis Obispo proposes to approve the Los Osos Wastewater Project although unavoidable adverse impacts to agricultural resources will result, as identified in the Environmental Impact Report. Specifically, the significant and unavoidable project-specific and cumulative impacts are associated with the conversion of approximately 16 acres of agricultural land to non-agricultural uses, rendering the land incapable of agricultural production. Consistent with past County practice, mitigation in the form of agricultural easements over similar or better agricultural land are required, however, adverse impacts are not reduced to a level considered less than significant. Never the less, the County finds that those impacts are outweighed by the benefits of the Los Osos Wastewater Project. Further, alternatives identified in the Environmental Impact Report are not considered feasible to reduce the impacts on agricultural resources below the level of impacts that will result from the Project.

Consequently, the County finds as follows:

b) **The current method of wastewater disposal by individual septic tank systems located in areas of high groundwater are a major contributing factor to this degradation of water quality.**

NO reference to the division of system components. More analysis needed. I protest this finding.

4. **The Project will meet water quality requirements while minimizing life-cycle costs and mitigating affordability impacts on the community to the maximum degree possible**

More analysis is needed. I protest this finding.

Complaints By Petitioner

General Issues:

The petitioner's general complaints about the Planning Commission's findings that impact the Costal Act are related to inadequate Environmental Justice Review, affordability, Historical resources, GHG mitigation, greywater law, affordability and co-equal analysis between STEP/STEG and gravity sewers in the Planning Commission's Oversight of the LOWWP FEIR.

Seniors and other low income homeowner's affected by the present economic environment and $300 dollar a month sewer bills have not been addressed adequately. An update of the FEIR environmental Justice review is necessary. Under existing State law fixed income Seniors will have their homes condemned and sold out from underneath them to pay for the proposed assessment if they can't make monthly payments. A STEP/STEG sewer using existing septic tanks could cut the assessment and user fees in half contrary to County Claims that STEP/STEG will cost the same. Proof of further inconsistencies in the co-equal review can be found in **(Exhibit 2)**

More analysis is needed for the following:

1) Costal Act 23.02.022 Determination of completeness, 23.02.035 Additional information required.

The Planning Commission failed to adequately review Environmental Justice impacts and did not minimize life cycle costs and mitigate affordability by omitting reference to and mitigation for the suspension of *Senior Citizens' Property Tax Deferral Program.*

Omission of this program will have severe social and environmental impacts that the Planning Commission has ignored. Many seniors will not be able to afford the proposed monthly cost of the project yet voted for it because of the County's claim of tax deferral. The County of San Luis Obispo claimed PTP program as a mitigation of costs. The Planning Commission failed to acknowledge that the CSLO Broke the Community Contract with seniors for tax deferral. The CSLO assumed, advertised, and projected to voters the Senior Citizens' Property Tax Deferral Program prior to the 218 vote.

Quoting the State Comtrollers website:

"On February 20, 2009, the Governor signed signed Senate Bill X3 8 (Chapter 4, Statutes of 2009), which immediately suspends the Senior Citizens' Property Tax Deferral Program. This legislation prohibits the filing of claims for property tax postponement and prohibits the Controller from accepting claims filed after February 20, 2009."

"As a result of the program suspension, the Controller will no longer accept claims for property tax postponement pending modification or repeal of this new law. 6)Enacts the Governor's proposal to suspend indefinitely the Senior Citizens' Property Tax Deferral Program. This program is administered by the State Controller and allows the State to pay the local property tax for low-income seniors with reimbursement to the state (including interest) made when the property is sold. Suspension of the program will save the GF $6.5 million in 2008-09 and $32.0 million in 2009-10 and ongoing."

The program is discontinued. Before the 218 vote was cast, County literature stated that the property tax deferral program would help seniors. The CSLO must supply voters with a comparable deferral option or recast the 218 vote. The Planning commission missed this important issue in its entirety.

2) Costal Act 23.02.022 Determination of completeness, 23.02.035 Additional information required.

The Planning commission failed to adequately review Environmental Justice impacts and did not minimize life cycle costs and mitigate affordability by the act of not acknowledging that the County of San Luis Obispo Broke Community Contract for the inclusion of the STEP/STEG Option in the design bid build process.

The Petitioner claims that the assessment engineers report for the LOWWP and community brochures **(Exhibit 1)**,constitute a contract with the Petitioner and other homeowners. It was readable by the petitioner before the vote. That contract included having a STEP sewer option in the design/bid/build process. The STEP sewer option was represented in the contract as being co-equal to gravity sewer in the design/bid/build process.

The Petitioner concludes that the omission of the STEP sewer from the design/bid/build process is a breach of contract. The Petitioner quotes a specific letter written on August 16, 2007, in a communication to the petitioner via an addendum the assessment engineers report labeled TO: Noel King, Director of Public Works, VIA: Paavo Ogren, Deputy Director of Public Works, FROM: Dean Benedix., P.E., Assessment Engineer of Work on the SUBJECT of: San Luis Obispo County Wastewater Assessment District No. 1, Determination of Special Benefits and Project Cost, said letter Dept of Public Works Stationery states without question that:

"In the current project selection strategy, the STEP and gravity alternatives would compete through the construction bidding phase using a competitive bid, design/build, and/or build/own/operate/transfer process. "

The engineers report for the Prop 218 tax vote assessment against the petitioner's property states unequivocally that STEP sewer would be included in the design bid build process. Since the contract

with the petitioner has been broken then the petitioner claims that the running time to challenge the assessment and 218 vote has not been closed. The petitioner claims that through passive negligence, that the County allowed the continuing process of evaluation for the LOWWP to eliminate prematurely STEP collection and on site primary treatment using existing septic tanks from the design build process without regard to the petitioners tax rights and contractual promise in the quote from the engineers report.
The petitioner claims that the proposed process presented in the engineers report and flyers and absorbed in the public psyche in the taxation vote is an implicit contract to perform co-equal analysis between STEP and gravity sewers, including using existing on site septic tanks. That contract has been subverted, mishandled, manipulated, and neglected by omissions, hyperbole and 'heresy' accounts against STEP collection and treatment. The potential low end cost of step collection using existing septic tanks is reviewed in a recent e-mail from Mike Saunder's of Orenco Systems to Al Barrow. I thank Al for sharing this with me. It outlines how subverted the process has become. **(Exhibit 2)**

3) Costal Act section 23.05.040 Drainage, 23.06.100 Water quality, 23.02.035 Additional information required.

The Planning commission failed to adequately review Environmental Justice impacts and mitigate affordability by <u>not</u> challenging the assumption that drainage runoff, and groundwater seepage into the gravity piping system is the petitioner's wastewater expense. It can be avoided at a lesser cost and environmental impact.

The County of San Luis Obispo has misrepresented what is sewer water in its cost analysis of the LOWWP. This was not overlooked by the petitioner during the challenge period but it was assumed by the petitioner that STEP sewers would be part of the design/bid/build process as stated. In the certified opinion of the appellate Court in HOWARD JARVIS TAXPAYERS ASSOCIATION et. al. v CITY OF SALINAS et.al ., Defendants and s. (Monterey County v. Super. Ct. No. M45873). The Court concluded that storm drainage is separate from sewer wastes and sided with this petitioner in his claim that drainage (and ergo I and I in the gravity sewer system that is equivalent to drainage) is subject to a separate vote or assumed to be subject to general tax assessments not ones specific to the owner's property. The Appellate Court ruled in HJ vs. SALINAS:

"For similar reasons we cannot subscribe to the City's suggestion that the storm drainage fee is "for . . . water services." Government Code section 53750, enacted to explain some of the terms used in articles XIIIC and XIIID, defines "[w]ater" as "any system of public improvements intended to provide for the production, storage, supply, treatment, or distribution of water." The average voter would envision "water service" as the supply of water for personal, household, and commercial use, not a system or program that monitors storm water for pollutants, carries it away, and discharges it into the nearby creeks, river, and ocean. We conclude that article XIIID required the City to subject the proposed storm drainage fee to a vote by the property owners or the voting residents of the affected area.
The trial court therefore erred in ruling that Ordinance Nos. 2350 and 2351 and Resolution No. 17019 were valid exercises of authority by the City Council."

The petitioner claims it is illogical to take 300,000 gallons a day of perfectly clean rainwater out of the Los Osos basin, that is part of a natural process of groundwater recharging and interject it into the gravity sewer lines, mix the clean water with polluted water, transfer it to the treatment plant, treat it, and re-dispense in into the water basin and claim that the actions are a special benefit to the petitioners property. The CSLO has by assuming that I&I is wastewater, has created a tax claim against the petitioner property that is thoroughly avoidable.

The petitioner then has good reason to assume that the BOS would concur that infiltration of stormwater into the gravity conveyance system should be subject to a separate 218 vote because it is storm drainage and not sewage and has no relevance to the waste discharge prohibitions in the prohibition zone against the petitioners property. It is a general benefit if it has any benefit at all. Assuming the appellate courts findings in HJ vs. CITY OF SALINAS, the petitioner contends that the CSLO cannot take unpolluted rainwater and groundwater seeping into the gravity piping system and charge sewer fees for its treatment. Petitioner claims that in the gravity collection system the treating and disposing of off site drainage, rainwater and groundwater have no relationship to the owner's property. The impact is avoidable in its entirety at no further expense to the property owner using STEP collection.

Hence fees and services, and infrastructure costs caused by CSLO's 'I & I' component of the gravity sewer lines, treatment and disposal need to be eliminated from the petitioner's assessment evaluation. It was assumed by the petitioner at the time of the engineer's report that STEP sewer system would be judged to be the superior method of avoiding the tax impacts of I&I. This assumption is founded in fact contained in the "Ripley Report Dec. 18, 2006 Final Report" commissioned by the Los Osos Community Service District and portions of it are submitted herewith as **(Exhibit 3, See end of document reference and hard copy of pertinent facts.)**. But the STEP sewer system was recently removed from the RFP- design/bid/build process with no public discussion on the subject of the tax ramifications of I&I impacts. These facts ripen the petitioner's claim to challenge its' inclusion in contemporary declaratory relief and injunctive action as it is the only way to assure that Article XIII D provision to limit taxation can be satisfied.

The petitioner claims that the cost of stormwater transmission and treatment within the total LOWWP must be removed from the Petitioner's special benefit. The Petitioner claims that the the County of San Luis Obispo must remove the related portion of special benefit assessment against the petitioners property representing the cost of infiltration of water into the Los Osos Wastewater Project gravity conveyance (piping) system, and the added cost of treating mixed sewage, stormwater and groundwater from the petitioner's "special benefit" sewage treatment costs. The Petitioner claims that runoff and groundwater infiltration into the wastewater piping system is not a sewage conveyance cost that the petitioner should bear but instead is a "Stormwater Transmission" expense.

The added cost for accidental or involuntary stormwater transmission and infiltration is not subject to Regional Water Quality Control Boards requirements aginst the homeowner and projected penalties related to the Petitioner's home waste discharge in the Prohibition Zone of Los Osos. The petitioner is correct in assuming that there is of no "special benefit" to the owner's property for involuntary or accidental off site stormwater and groundwater transmission and treatment related to gravity pipe leakage. The petitioner assumes that the Court would concur with the petitioner that Stormwater and groundwater infiltration into the gravity piping system is entirely avoidable at an equal or lesser cost using accepted engineering technology of a Septic Tank Effluent Pump sewer treatment system as

shown in the engineering study by Ripley **(Exhibit 3).** The petitioner assumes the Court would mandate that the cost of stormwater transmission and treatment within the total LOWWP be removed from the Petitioner's special benefit. This claim is based on constitutional law found in Section 4, Article XIII D.

"SEC. 4. Procedures and Requirements for All Assessments.
No assessment shall be imposed on any parcel which exceeds the reasonable cost of the proportional special benefit conferred on that parcel. Only special benefits are assessable, and an agency shall separate the general benefits from the special benefits conferred on a parcel."

4) Costal act 23.02.035 Additional information required.
The Planning commission failed to adequately review Environmental Justice impacts, affordability and taxation irregularities by not reviewing the use of the existing septic tank component on each property to be used in conjunction with a low cost STEP/STEG sewer system.

A septic system consists of two components, a septic tank, and a leach field. The septic tank is a sealed system with no waste discharge into the environment. The Petitioner has afforded the environment of the Los Osos groundwater basin primary treatment in the sealed portion of the total septic system commonly referred to as the 'septic tank'. The septic tank component has no discharge into the water basin and the Petitioner claims that the CSLO's claims of endemic community wide leakage are "heresy". Septic tank testing standards are common. The local Regional Water Quality Control Board recognizes the most common standards for construction of concrete septic tanks **(Exhibit 4).** Many septic tanks in Los Osos installed after 1975 were built to the standards in exhibit 4. The Petitioner submits to the BOS that the CSLO's own estimate of reduced pollutants from waste treated in septic tanks by biological action in **(Exhibit 5).**

Petitioner claims that the pollutants found in a gravity sewer release from the Petitioner's property are well above the pollutants found in the release from the outlet side of the Petitioner's existing septic tank. Hence the Petitioner receives no credit in the special benefit from waste treatment related to the difference between the two different constituent discharges described in the LOWWP FEIR **(Exhibit 5,).** The CSLO by co-mingling the pollution consequences of the two separate parts of the Petitioner's waste handling system has denied the petitioner the right to claim partial treatment in the evaluation of what constitutes a special benefit for the petitioner's property and has omitted the tax ramifications in the engineers report.

The petitioner claims that requiring the homeowner to exchange a perfectly functioning septic tank for one that performs the same function and charge the petitioner for the new one is 'inverse condemnation' of the petitioner's property and subject to adjudication. Basically the petitioner's Fifth Amendment rights are being violated. The petitioner's septic tank is being taken without compensation either by physical reward or adjustment of the assessment. The existing septic tank is the property of the homeowner and is not discharging into the groundwater basin. This property right issue clouds the co-equal analysis and the Planning Commission has made no effort to remove the onus of Fifth Amendment challenges which could further delay the project.

The Petitioner contends that if the CSLO included accurate low end cost for STEP/STEG collection in the engineers report and included using existing tested septic tanks, the tax burden to the Petitioner's property would be approximately one half the present proposed assessments. Using the "Ripley Report and subtracting the savings of using the petitioner's existing septic tank the estimated special benefit would be $12,500 dollars not the proposed $24,000 dollars of the CSLO's preferred project. This fact illustrates the 'existing standing benefit' that the Petitioner's primary treatment of waste represents. The Ripley report illustrates how the savings are spread throughout the design of the total waster water project especially for energy consumption **(Exhibit 6).**

The petitioner's tax burden should be limited to secondary and final treatment only as redundant primary treatment of solids is not a special benefit. The petitioner claims that the Petitioner's existing septic tank biological system is already reducing pollutants in waste water by an amount shown in **(Exhibit 5).** The the petitioner concludes that the septic tank is distinct from the leach field and represents no further hazard to the environment than a gravity collection piping system does. The Petitioner claims that the cost of primary treatment is of no benefit to the petitioner and hence the cost of such should be removed from the petitioner's special benefit. The Petitioner would connect to the effluvent STEP piping at the effluvium outlet of the petitioners existing septic tank to the conveyance system of the County sewer project thereby eliminating groundwater contamination via the leach field on the owner's property and meeting the RWQCB's requirements to cease leachfield discharges in the prohibition zone regardless of the method chosen by the CSLO for the LOWWP.

Petitioner references the following codes related to using existing septic tanks. Existing tanks can be easily tested under ASTM C1227 procedures. It is impossible for me to believe that Public works is unaware of existing legitimate tank testing procedures already approved by the RWQCB Central Valley Region **(Exhibit 7)** .

Both ASTM C1227 and IAPMO PS-1 standards allow the performance of a vacuum test for watertightness evaluation as well as proof of structural design. For instance, the CSA B66 standard offers a vacuum test as an option for strength evaluation – both physical loading with sand bags and vacuum testing are allowed. Both tests are performed for approximately one hour and then the tank is checked for deformation and leakage. The strength testing is then followed by a watertightness test. Again, we see that all three industry standards recognize the vacuum test as a perfectly viable performance evaluation method. It is certainly considered to be a "real world" test by these standards bodies.

Petitioner claims that the Planning Commission ignored the following standards in its evaluation:

Oregon
Watertight testing of the tank into the riser is required during installation. It is also recommended the tank manufacturer watertight test each tank before shipping.
Rule Reference:
340-073-0025(3):
Watertightness. After installation, all tanks must be watertight. The installer must test each tank for watertightness by filling the tank to a point at least 2 inches above the point of riser connection to the top of the tank. During the test there may be no more than a one gallon leakage over a 24 hour period.

The tank manufacturer must deliver watertight tanks and should test each tank for watertightness before the tank is shipped from the manufacturing plant.

Arizona State Comments:
This provision requires that a field watertightness test be conducted for all septic tank installations. If water is available at the site, which will be the case in the large majority of installations, added materials and labor costs, will be an estimated $15 to $68. For the sites where water must be delivered, the estimated cost, including site labor for initial tank fill and refill after a 24-hour presoak, is $214. The field water tightness test has significant benefit in ensuring that the septic tank does not leak due to factory defects or damage during installation. In addition, the weight of water in the septic tank during testing ensures that the tank is properly bedded, reducing the chance of major malfunction of the tank upon use by the homeowner.
Rule Reference:
R18-9-A314.5.d:
The septic tank is tested for watertightness after installation by the water test described in subsections (5)(d)(i) and (5)(d)(ii) and repaired or replaced, if necessary.
i. The septic tank is filled with clean water, as specified in R18-9-A310(A), to the invert of the outlet and the water left standing in the tank for 24 hours and:
(1) After 24 hours, the tank is refilled to the invert, if necessary;
(2) The initial water level and time is recorded; and
(3) After one hour, water level and time is recorded.
ii. The tank passes the water test if the water level does not drop over the one-hour period. Any visible leak of flowing water is considered a failure. A damp or wet spot that is not flowing is not considered a failure.

Montana
Watertight, Vacuum or Pressure (fiberglass only) testing of all tanks used for commercial facilities, multiple-user systems or public systems must be tested in place for watertightness. The rules stop short of requiring this for single family residential systems.
Rule Reference:
7.3
1. All tanks must be watertight. Tanks used for commercial facilities, multiple-user systems or public systems must be tested in place for watertightness. Watertightness testing for a concrete tank may be conducted using a water test or vacuum test. Watertightness testing for a fiberglass tank may be conducted using a water test, a vacuum test, or a pressure test.
Falsehoods about STEP sewer design and piping systems. 6
1. 7.3.1 Water testing must be conducted by sealing the outlets, filling the septic tank to its operational level, and allowing the tank to stand for at least 8 hours. If there is a measurable loss (2 inches or more), refill the tank and let stand for another 8 hours. If there is again a measurable loss, the tank must be rejected.
2. 7.3.2 Vacuum testing must be conducted by sealing all inlets, outlets, and accesses, then introducing a vacuum of 4 inches of mercury. If the vacuum drops in the first 5 minutes, it must be brought back to 4 inches of mercury. If the septic tank fails to hold the vacuum at 4 inches of mercury for 5 minutes, the tank must be rejected.
3. *7.3.3 For pressure testing a fiberglass tank, all inlets, outlets, and access ports must be sealed and adequately secured. The tank must be charged with 5 psig (3 psig for a 12-foot*

diameter tank). Allow tank pressure to stabilize. Disconnect the air supply. If there is any noticeable pressure drop in 1 hour, the tank must be rejected or repaired. Repeat the test after repair. Release air carefully through an appropriate valve mechanism.

Rhode Island

All septic tanks and their risers are required to be certified watertight by the manufacturer or by on-site testing in accordance with the below rule (which is very similar to ASTMC-1227).

Rule Reference:

26.11

Performance Testing- All septic tanks and their risers must be certified watertight by the manufacturer or by on-site testing. On-site testing for septic tank leakage shall be conducted for tanks assembled at the installation site. The Director may require onsite testing on a case-by-case basis. The testing shall be conducted using either:

26.11.1 Vacuum Test- Seal the empty tank and risers and apply a vacuum to two (2) inches (50 mm) of mercury. The tank is approved if ninety percent (90%) of the vacuum is held for two (2) minutes; or

26.11.2 Water-Pressure Test- Seal the tank and risers, fill with water to the top of the risers, and let stand for twenty-four (24) hours. Refill the tank. The tank is approved if the water level is held for one (1) hour.

Vermont

Requires "leakage testing" in the field for all holding tanks and any tank utilized with a sand filter.

Rule Reference:

1-915(a)2(F) Sand Filters

After installation all components, including septic tanks, pump chambers, recirculation tanks and filter containers, shall be tested by filling to a point at least two inches, but not more than three inches, above the point of riser connection to the top of the tank, chamber, or container. During the test there shall not be a measurable leakage over a twenty-four (24) hour period.

1-919(c)(3) Holding Tanks

the tank, any piping connected to the tank, and all access structures connected to the tank shall be watertight. The tank shall be leakage tested prior to being placed in service;

Falsehoods about STEP sewer design and piping systems. 7

Utah

Watertight testing in the field is required in accordance with ASTM C-1227 ***OR*** as stated in the below Utah rule. ASTM C-1227 "leakage testing" requires the tank be either vacuum or water tested. The vacuum testing is performed by applying a vacuum to 4 inches of mercury and the tank passes if 90% of the vacuum is held for 2 minutes. Water testing is performed by filling the tank with water (no specified level) and letting it stand for 24 hours then refilling the tank and it is approved if the water level is held for one hour.

Rule Reference:

R317-4-3.3.5

Final On-Site Inspection.

A. After an onsite wastewater system has been installed and before it is backfilled or used, the entire system shall be inspected by the appropriate regulatory authority to determine compliance with

these rules.
B. Each septic tank shall be tested for water tightness. Testing may be performed in accordance with the requirements and procedure outlined in the American Society for Testing Materials' Standard ASTM C-1227, or concrete tanks shall be filled 24 hours before the inspection to allow stabilization of the water level. During the inspection there shall be no change in the water level for 30 minutes. Nor shall moving water, into or out of the tank, be visible. The regulatory authority may allow two piece tanks, with the joint below the water level, to be backfilled up to three inches below the joint to provide adequate support to the seam of the tank. Testing shall be supervised by the regulatory authority. Tanks exhibiting obvious defects or leaks shall not be approved unless such deficiencies are repaired to the satisfaction of the regulatory authority.

New Jersey

The *Aerobic Treatment System Guidance* document requires that all tanks be tested for watertightness through one of the following methods as established in the guidance document, see below.

Guidance Document Reference:

H.7
7. Watertightness of any septic, processing and dispersal system dosing tanks specified in the design must be watertight tested at the installation site after being installed using hydrostatic or vacuum tests. Testing of the tanks shall include all upper portions of the tank, including riser joints. Testing must be done in accordance with the following:
a. Water tightness testing procedures and criteria for concrete tanks shall follow the methods described in ASTM C-1227 standards or National Precast Concrete Association appropriate testing criteria and procedures
b. Tanks made of materials other then concrete shall be tested, after installation, in accordance with the methods described in ASTM C-1227 standards, if applicable, or other hydrostatic or vacuum testing methods approved by the tank manufacturer.
c. Water used for this testing shall be either from a potable water source or Reclaimed Water for Beneficial Reuse authorized by a NJPDES permit.
d. The use of an onsite potable well for purposes of supplying water for this testing is not recommended. If an onsite potable well is to be used, pumping of the well must be done in a Falsehoods about STEP sewer design and piping systems. 8
manner which will withdraw water at a rate less than 50% of the safe yield of that well and will not damage the pump or any other component of the well.

Finally, what if STEP/ STEG septic tanks were allowed to leak as much as a 'standard' gravity sewer? During the rainy season the LOWWP gravity system is 'designed' to leak 310,000 gallons per day into the system (EIR I&I evaluation, 310,000 gpd / 5000 homes) 62 gallons/day is the amount each residential tank would be allowed to leak to have the same environmental impact as the gravity conveyance system .

The Petitioner claims by comparison that if a standard septic tank was tested and the water level dropped 3 inches in one day in the tank, it would have the same leakage rate and environmental impact as the purposed gravity sewer system due to I & I.

This is shown by the following simple math.
62 gallons/day/household / 7.481 = 8.2 Cubic Ft.
Average tank inner wetted surface 4.25 x 7.5 = 32 Sq. Ft.

8.2 Cubic feet/ 32 sq ft = 0.25 foot drop in water level
or three inches drop in the tank water level.

To replace 5000 septic tanks has an environmental cost. That cost is called the 'embedded energy cost'. Each new tank takes energy to make, transport, and install. All those processes produce greenhouse gasses. One ton of concrete requires 3,700,000 btu's of energy to make. If you multiply that impact by 5.0 x 103 times 3.7 X 106 you get a greenhouse gas energy consumption penalty of 18.5 Billion BTU's energy to replace the existing septic tanks. Using existing tanks should be a valid GHG mitigation and be subject to analysis. Many existing tanks have a 60 year projected life span. The fact is, utilizing tested on site septic tanks and standardized pump vaults would have even more benefits. Among them are:

- Reduces on site step collection costs by 80% for homeowner's that qualify.
- Mitigates on site archeological impacts by 80%.
- Mitigates on site landscape and small lot impacts by 80% (no torn up yards)
- An estimated 75% of existing septic tanks appear in good condition and are concrete monolithic vaults with sealed lids.
- ***Reduces construction time***
- Lowers on site embedded energy costs by 80% with equal CO2 reduction.
- Mitigates and Eliminates surface spillage of untreated septic wastes containing solids and solid medical wastes into the estuary entirely.
- Reduces solids processing and hauling by 80 %, reduces embedded energy costs and reduces air pollution from solids handling by 80%.
- Widens scope of value engineering criteria to reduce the entire cost of project.
- Saves approx $5000 dollars in expenses to homeowners.
- Mitigates unknown dewatering environmental impacts for deep trenching associated with tank replacement.

5) 23.02.035 Additional information required.

The Planning commission failed to adequately review Environmental Justice impacts and did not minimize life cycle costs and mitigate affordability by not challenging the assumption that County of San Luis Obispo LOWWP EIR and FEIR made that the County of San Luis Obispo that Gives No Benefit Credit, Environmental credit, or AB 32 analysis for Greywater Installation.

On site greywater discharge for landscaping also reduces the homeowner's special benefit but is nowhere reflected in the Planning Commission analysis. This induces more water consumption. There is a conflict between the RWQCB's xero discharge order and State Greywater law that the CSLO has ignored at the expense of the enviorment and to the tax detrement of seniors and low income homeowners in the prohibition zone. Onsite greater usage benefits the water basin and lessons the cost of the wastewater project. From Article XIIID:

"(3) The amount of a fee or charge imposed upon any parcel orperson as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel."

If the homeowner reduces usage of the LOWWP sewer by 30% because of on site greywater usage then the homeowner is receiving no benefit for that 30% of capacity.

6) 23.02.035 Additional information required.

The Planning commission failed to adequately review Environmental Justice impacts and mitigate affordability by not challenging the assumption that County of San Luis Obispo LOWWP EIR and FEIR made that assessment billing would occur before the petitioner receives a benefit.

Charges prior to receiving a benefit are not allowed. Yet the CSLO continues to plan for and exclaim that it will be charging homeowner's before a benefit is received. Article XIII D states:

" (4) No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4."

7) Costal Act 23.05.140 Archeological resources discovery.

The Planning Commission failed to adequately review Environmental Justice impacts and did not minimize life cycle costs, mitigate affordability, and mitigate historical impacts by not challenging the assumption that County of San Luis Obispo LOWWP EIR and FEIR made that Step and Gravity piping systems have the same archeological impacts:

30. [Mitigation 5.6-B4] If avoidance of recorded archaeological sites within any portion of the approved project design is not possible through project redesign, a phased program of site testing shall be undertaken to establish boundaries and evaluate the resources' potential eligibility to the California Register of Historical Resources under CEQA and the National Register of Historic Places under NEPA. If a site is determined ineligible, no further work is required. If a site is determined eligible, data recovery excavations shall be required to mitigate adverse effects incurred from project development.

In respect to the Chumash Council and Native Americans, I claim the Planning Commission was remiss in not concluding that the LOWWP proposed gravity sewer will unnecessarily desecrate the resting place of many generations of California Indians that have lived on the Bay here before us. The Planning Commission failed to address mitigation possible through using a STEP/STEG Sewer and instead assumes many CSLO's false scientific premises, omissions and heresy about STEP collection and treatment related to archeological considerations.

STEP horizontal boring excavates 3% the soil of gravity trenching.
For gravity trenching 14,784,000 cu ft of soil is subject to archeological investigation and impacts.

For STEP, only 369,000 cu ft are subject to investigation based on 70 miles of piping (including laterals).

Horizontal boring is a valid archeological mitigation that cannot be matched by trenching. Its economic benefits have not been evaluated reasonably by the Planning Commission. Gravity trenching could incur extreme costs that would be added to the gravity sewer collection to meet state law with respect to archeological findings in the excavated earth. This cost would be passed on to the homeowner and could raise the price of the collection system for gravity by as much as 1/3. The in ground cultural resources of Los Osos are vast. A review of the Cultural Resource Appendix of the EIR makes that fact obvious. The LOWWP Engineers have misrepresented this added cost by not estimating it at all. The EIR claims that State law requires that:

"Mechanical backhoe trenching shall be conducted within the sensitive areas where any construction impacts will occur and shall be monitored by a qualified geoarchaeologist. Any identified intact deposits will be evaluated, and any deposits determined to be eligible to the California Register and/or National Register shall require project redesign to avoid impacts, or data recovery to mitigate unavoidable impacts."

To counteract the obvious archeological benefits of STEP collection illustrated above, the County EIR made a series of vague hearsay claims about on site impacts without using septic tank recycling as an obvious mitigation and assuming that the tank when first installed did not have any archeological impact. Septic tank recycling avoids 80% of the described impacts. The LOWWP EIR for step collection erroneously concludes:

"Excavation for the new STEP/STEG tank as a replacement for the existing septic tanks at each property could result in an unknown amount of impact to human remains. Avoidance of burials in these situations would be difficult to attain due to limited space and the need for significant excavation to accommodate the STEP tanks.

The petitioner incorporates by reference all documents presently held electronically at the LOCSD and CSLO Public Works Dept as printing documents that are already in the possession of the LOWWP project coordinators and the BOS represents an undue financial burden on the Petitioner and represents a waste of resources and energy. Their location is at:

http://www.slocounty.ca.gov/Assets/PW/LOWWP/document+library/Past+Project+Documents+4-15-09.pdf

And by reference the LOCSD's Ripley Report dated December 18, 2006 at:

http://losososcsd.org/pdf/ripley_final_report_12.18.06.pdf

Thank you for your time and consideration,

Steven Paige

End Complaint

1

PART OF ENGINEERS REPORT

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS

Noel King, Director

County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

SEE PAGE 4. TOP OF PG

August 16, 2007

TO: Noel King, Director of Public Works

VIA: Paavo Ogren, Deputy Director of Public Works

FROM: Dean Benedix, P.E., Assessment Engineer of Work

SUBJECT: San Luis Obispo County Wastewater Assessment District No. 1, Determination of Special Benefits and Project Cost

BACKGROUND

On February 6, 2007, the Board of Supervisors approved a contract for Assessment Engineering services with the Wallace Group for the Los Osos wastewater project. The contract contemplates the completion of an Assessment Engineer's Report through the combined efforts of the County and the Wallace Group. Craig Campbell, P.E. of the Wallace Group and Dean Benedix, P.E., Utilities Manager for the County Public Works Department were selected to serve jointly as the Engineer of Work for the assessment proceedings. The Scope of Work to be completed by the County included the following items as described in Table 1 of the contract:

1. Determine the proportional special benefits for overall project components as described in Article 13D, Section 4a of the California State Constitution.

2. Provide a summary of the proposed project and estimated total cost as required by Section 10204 of the 1913 Act.

3. Provide a notice and ballot to each parcel in the assessment district as described in Article 13D.

This memorandum summarizes the information required in the first two scope items, and provides the basis for the preparation of an Assessment Engineer's Report that delineates the special benefit amount for each parcel within the assessment district.

ANALYSIS AND CONCLUSIONS

In accordance with Assembly Bill 2701 (Blakeslee), the County commissioned the preparation of an engineering analysis that identifies a range of viable project options for the Los Osos wastewater project. The report was prepared by Carollo Engineers and is entitled, "Viable Project Alternatives Fine Screening Analysis" dated August, 2007 (Fine Screening Report). The Fine Screening Report provides a substantial body of evidence that can be used to estimate the overall special benefits that would accrue to properties within the assessment district. The selection of specific project elements such as the treatment plant site and collection technology will occur in future phases of the project, following the County's due diligence period and a community survey. However, costs can be assigned to each project element that would allow for a reasonable range of alternatives while providing a complete and functional wastewater collection, treatment, and disposal system. The following guidelines were used to identify the proportional special benefits for each project element:

Special Benefit Guidelines

1. The Fine Screening Report identified a range of water supply benefits that could be achieved with the wastewater project. Given that properties inside and outside of the assessment district benefit from water supply enhancements, incremental project costs that relate to providing a water supply benefit beyond the current condition (Level 1 identified in the Fine Screening Report) are deemed general benefits.

2. The cost assigned to each component should be sufficient to fund a range of viable alternatives, but would not necessarily fund the most costly alternatives. This guideline would apply even if the most costly alternative can be determined to confer a special benefit consistent with its higher cost. As a result, the proposed assessed special benefit is expected to be less than the maximum special benefit which could be assessed given the body of evidence. If more costly alternatives are ultimately selected, other/additional sources of revenue would be required to supplement the proceeds of the assessment district.

3. The cost of the inclusion of additional treatment processes beyond secondary treatment, such as tertiary filtration, if determined necessary to achieve a level of water supply benefit beyond the current condition, would be a general benefit. The cost of providing advanced sludge recycling through composting or other means would also not be included as a special benefit.

4. Given that overall project costs for engineering, administration, and legal expenses would include some efforts relating to general benefits, the low range of these project costs will be utilized as the proposed special benefit.

5. The mid-point of the estimated cost of the treatment plant site will be utilized as the proposed special benefit.

6. Given the uncertainties associated with permit and mitigation costs and the need for a reasonable contingency, the high end of the permitting/mitigation cost range will be used as the proposed special benefit.

7. In the event project components are implemented that result in total costs less than the allocated special benefit for the project, the County shall then reduce the assessment levied to reflect the actual special benefits of the total project costs incurred for project construction and implementation.

General Benefits

Costs of general benefits are not included in the estimate of Special Benefits included herein for project component costs. General benefits are capital improvements, general services, operations and/or maintenance, other amenities and/or programs which benefit the public at large or are a general benefit to all properties within a designated area. Examples of such general benefits are:

1. Repayment of the $6.5 million dollar State Revolving Fund (SRF) loan used by the LOCSD to initiate construction on the former wastewater project. While the County does not know whether the California SRF program will be utilized to help fund the project, nor whether the Governor's signing message with his approval of Assemble Bill 2701 will be binding, any such costs shall not be paid utilizing the proposed assessments.

2. Biosolids treatment and disposal measures beyond that required for the baseline wastewater treatment project.

3. Inclusion of additional treatment processes beyond secondary treatment, such as tertiary filtration.

4. Preparation, processing and/or implementation of a Habitat Conservation Plan.

5. Mitigation of seawater intrusion beyond the impacts of the wastewater treatment project.

6. Preparation of a regional water resources plan.

Costs for implementation of any general benefit improvement, service, program or amenity is anticipated to be funded through grants and/or with other legally permissible supplemental funding sources.

Collection System Special Benefit

Pursuant to Guideline No. 2 above, the special benefit of the collection system was selected such that a range of collection system alternatives could be funded. In the current project selection strategy, the STEP and gravity alternatives would compete through the construction bidding phase using a competitive bid, design/build, and/or build/own/operate/transfer process. If gravity system bids are received near the high end of the cost range, it is unlikely that gravity will be competitive with STEP. For this reason, the allocated special benefits will be based on the low end of the gravity system cost range, which would also cover the cost of a STEP system.

Consistent with previous assessment proceedings in Los Osos, the collection system can be separated into three components, defined as follows:

Lateral component: Laterals are defined as individual service lines that extend from the main in the street to the property line. In a STEP system, the lateral component would include the publicly financed and owned collection system components that are located on each private property within appropriate public easements that will need to be established for ownership and maintenance by the County, including the STEP tank, pump, control panel, and appurtenant facilities.

Trunk component: This component includes larger gravity mains, force mains, pump stations, and standby power facilities that serve regional areas. During the previous assessment proceedings, the trunk component was determined to include 19.1% of the planned pipelines. This percentage will also be used for the current assessment. Conveyance facilities required to pump wastewater to a treatment plant site if located east of Los Osos Creek would be included in this component.

Collector component: Collectors are defined as the localized sewer mains and pocket pump stations that convey water to trunks and regional pump stations. Some areas of the community, notably Bayridge Estates and Vista de Oro, have existing lateral and collector infrastructure as part of their existing community septic systems.

Table A.1 on the following page summarizes the proposed special benefits for each component of the collection system. The costs were derived from the low range of the gravity collection system, as summarized in the Fine Screening Report.

Treatment, Disposal, Permit, and Administrative Project Costs

In addition to the three collection system components described above, two additional project components are required to complete a functional wastewater system as follows:

Treatment/Disposal Component: This component includes the cost of the wastewater treatment facility, the effluent disposal system, and the wastewater treatment facility site.

Common Component: Project costs that are attributable to the entire project including engineering, administration, legal, permitting, and mitigation are included in this component.

The special benefits attributable to the wastewater treatment facility were determined based on a range of technologies that would form a functional Level 1 system. A number of different combinations of treatment technology and sludge processing would be fundable at a cost less than or equal to the proposed special benefit. Table A.2 on the following page summarizes sample technologies that could be funded at a cost at or near the proposed special benefit. As indicated in Table A.2, a total special benefit of $27,639,000 is recommended for this element of the project.

The special benefit associated with the effluent disposal system was determined by using the high range of the Level 1 cost estimate, or $15,600,000 in 2007 dollars. It should be noted that a Level 2 project could also be completed for essentially the same cost. The total special benefit for effluent disposal, including inflation of 24.5%, is therefore estimated at $19,422,000.

Table A.3 summarizes the proposed special benefit for the treatment/disposal and common assessment components, and the total wastewater project:

Table A.1 - Collection System Special Benefit and Component Allocation				Cost Allocation by Collection System Component	
Item Description	Low Range Construction Cost Estimate	Total Cost with Inflation 24.50%	Lateral Component	Collector Component 80.90%	Trunk Component 19.10%
Mob/Demob/GC's (split)	$3,700,000	$4,606,500		$3,726,659	$879,842
Gravity sewers / force mains (split)	$27,800,000	$34,611,000		$28,000,299	$6,610,701
Manholes (split)	$4,300,000	$5,353,500		$4,330,982	$1,022,519
Shoring and dewatering (split)	$4,800,000	$5,976,000		$4,834,584	$1,141,416
Duplex pump station (trunk)	$2,600,000	$3,237,000			$3,237,000
Triplex pump station (trunk)	$1,200,000	$1,494,000			$1,494,000
Pocket pump station (collector)	$2,400,000	$2,988,000		$2,988,000	
Standby power station (trunk)	$2,500,000	$3,112,500			$3,112,500
Misc facility requirements (split)	$3,200,000	$3,984,000		$3,223,056	$760,944
Laterals in right of way (lateral)	$8,800,000	$10,956,000	$10,956,000		
Road restoration (split)	$5,200,000	$6,474,000		$5,237,466	$1,236,534
Land and easement acquisition	No additional cost	N/A			
Overhead and profit	No additional cost	N/A			
Conveyance to out-of-town WWTF (trunk)	$2,900,000	$3,610,500			$3,610,500
Totals	**$69,400,000**	**$86,403,000**	**$10,956,000**	**$52,341,045**	**$23,105,955**

Notes: 1. Percentage split between trunk and collector from gravity main analysis performed by the LOCSD in the 2001 assessment district - applied to split items only.
2. Estimate of inflation from Fine Screening Report, Appendix C

Table A.2 - Treatment System Special Benefit and Sample Projects					
System Description	Secondary Treatment Plant	Nitrification/Denitrification	Sludge Processing	Total Construction Cost Estimate in 2007 dollars	Total Cost with Inflation 24.50%
Oxidation ditch with sub-class B sludge processing and gravity collection system influent	$19,100,000	Additional facilities not required	$3,100,000	$22,200,000	$27,639,000
Pond system with full nitrification and denitrification facilities	$14,200,000	$7,400,000	Additional facilities not required	$21,600,000	$26,892,000
Biolac system with full dentrification facilities and sub-class B sludge processing from a STEP collection system	$13,700,000	$3,600,000	$2,000,000	$19,300,000	$24,028,500
Recommended Special Benefit for Wastewater Treatment System					$27,639,000

Notes: 1. Sub class B estimates include the cost for belt filter press dewatering

2. Estimate of inflation from Fine Screening Report, Appendix C

Table A.3: Special Benefits Summary for Treatment/Disposal and Common Components		
Item Description	Proposed Special Benefits	Comments
Wastewater Treatment Facility (Secondary for Level 1 Disposal)	$27,639,000	Funds a range of secondary technology alternatives, not including tertiary treatment (see Table A.2)
Effluent Disposal System (Level 1)	$19,422,000	Water supply benefits beyond current conditions are general benefits
Treatment facility site	$2,490,000	Middle of cost range consistent with proposed guidelines
Total for Treatment/Disposal Component	**$49,551,000**	
Project costs including engineering, administration, and legal	$16,000,000	Low end of cost range consistent with proposed guidelines
Permitting and mitigation	$2,490,000	High end of cost range consistent with proposed guidelines
Total for Common Component	**$18,490,000**	
Total for Collection System Components from Table A.1	**$86,403,000**	
Total Project Special Benefits	**$154,444,000**	

PEOPLES BROSHURE

CONTRACT WITH ME. COUNTY IS IN BREACH OF CONTRACT.

Project Selection Strategies

(Summary of policies officially adopted by the County Board of Supervisors on August 14, 2007)

Design-Build

~~First priority: Seek special legislation to provide greatest flexibility~~

Second priority: Apply Gov't Code Section 5956 for design-build of STEP option and use traditional design-bid-build for gravity option

~~Prepare design-build selection model based on life-cycle cost analysis and results of~~ community survey

STEP Collection System

- Oppose requirements for separate electrical meters on individual properties
- Establish STEP tanks and pump equipment as public facilities—ie. maintained by the project

Co-Equal Environmental Analysis

- Begin preparation for environmental review work as soon as possible (before Prop 218 results)
- Near-concurrent release of draft Environmental Impact Report (EIR) and community advisory survey in 2008
- County Planning Commission review of EIR and Coastal Development Permit (CDP) after bids are received for design-build of collection system
  - Develop CDP consistent with previous CDP for project
  - Limit CDP modifications to specific project changes
- Evaluate risks to Morro Bay State Marine Reserve from wastewater treatment at alternative sites identified in EIR
- Evaluate greenhouse gases based on Assembly Bill 32 regulations

Consider Regional Options in EIR

- Regional treatment with Morro Bay and Cayucos
- Regional septage handling facilities
- Regional water supplies

Decentralized Wastewater System

- Develop technical memorandum reviewing proposal presented by Lombardo Associates, Inc.
- Obtain input from regulatory and permitting agencies
- Develop scope of additional studies for consideration in EIR

Demand-Based Sewer Rates

- Similar to City of San Luis Obispo demand-based sewer rate structure
- Provide incentives for permitted gray-water systems
- Seek special legislation to provide option for income based rate discounts

Financing Strategies

- Support State Water Board development of 30 year loans and 0% interest loans for disadvantaged communities and projects which exceed affordability standards
- Consider tax increment financing
- Consider redevelopment agency financing
- Consider Community Development Block Grant financing for on-lot costs incurred by disadvantaged individuals
- Support staff coordination of USDA grant applications for disadvantaged individuals
- Prioritize Prop. 50 (Integrated Regional Water Management) grant funds for disadvantaged individuals

Water Resources

- Coordinate with community water purveyors to identify
  - "Water Supply Enhancements"—wastewater project benefits to existing community water supply needs
  - "Additional Water Projects"—water projects to meet build-out and development needs
- Consider implementation and cost sharing contracts with community water purveyors to meet identified water needs

2

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Fw: Los Osos WWTP Cost Range Tuesday, August 25, 2009

From: "al barrow" <a.barrow@charter.net>

To: "steve paige" <shpaige@sbcglobal.net>

----- Original Message -----
From: Bill Cagle
To: 'al barrow'
Cc: 'Mike Saunders'
Sent: Tuesday, August 25, 2009 4:13 PM
Subject: Los Osos WWTP Cost Range

Sorry, this version should have the tables included.

Al,
Below is Mike's response to your question regarding cost. Can you please have you attorney explain how this statement might be used? This will help us be better prep should we be called to question. Thanks

I have worked with Orenco Systems, Inc for 4 1/2 year. Prior to that, I was the Cou Engineer for Charlotte County Utilities for nine years. During my time at Charlotte C experienced a failed conventional sewer approach (40,000 connections), executed t extension of STEP wastewater collection to 5,000 properties. The use of STEP sys Charlotte County provided significant capital cost savings when compared to the pro gravity system.

Charlotte County Utilities was and is the oldest and largest STEP systems in the wo operated in conjunction with a conventional gravity sewer system that serves more t 20,000 homes. Based on my experience and observations, I offer the following disc relative to the perceived cost of a STEP system in Los Osos.

introduction it is stated that the report provided "information on what the community expect through the County implemented solution, in terms of costs, benefits and ove approach". Presumably, this report was intended to be one of the primary documen the residents of Los Osos will utilize in deciding their vote with regards to the Count Proposition 218.

When the public voted on the County's Proposition 218, it was our understanding tha were approving a not-to-exceed expenditure and not a project. Additionally, it is our observation that the residents of Los Osos had an expectation that the most econor approach would become the constructed project.

Prior to the release of the Fine Screening, Orenco Systems had already expressed regarding the omission of input that we provided. This omission of key data, while n necessarily important to the vote, was critically important towards defining the most effective STEP project that was ultimately analyzed in the Fine Screening Study. De Orenco's vast experience with STEP projects, the consultant and the County unilate defined the scope of a STEP project and ultimately, the project that they defined.

Subsequent to the release of the Fine Screening Study, in a public presentation, the statement from the County Consultants that inferred that capital costs for STEP anc sewer would be comparable, while the coordination of STEP installation will be mor

In our opinion, the fine screening did not provide a comparison of STEP and gravity that adequately supported the statements made on public record.

The following table is included in the Appendix "C" of the Fine Screening Analysis. T explains the various Categories of Estimates with regards to the level of project def expected accuracy.

Table 1.1 Category of Cost Estimates[1]
Los Osos Wastewater Project Development
San Luis Obispo County

	Primary Characteristic	Secondary Characteristic			
ESTIMATE CLASS	LEVEL OF PROJECT DEFINITION Expressed as % of complete definition	END USAGE	METHODOLGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges (a)	PREPERATION EFFORT Typical degree of effort relative to least cost index of 1 (b)
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% - +100%	1
Class 4[2]	1% to 15%	Concept Screening or Feasibility	Capacity Factored, Equipment Factored, Parametric Models or Analogy	L: - 15% to -30% H: +20% - +50%	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Semi-Detailed Unit Costs with Assembly Level Line Items	L: - 10% to -20% H: +10% - +30%	3 to 10
Class 2	30% to 70%	Control or Bid/ Tender	Detailed Unit Cost with Forced Detailed Take-Off	L: - 5% to -15% H: +5% - +20%	4 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	L: - 3% to -10% H: +3% - +15%	5 to 100

Notes:
1. Table 1.1 comes from the AACE International Recommended Practices and Standards, No. 18R-97.
2. Most of the estimates in the Fine Screening Report are at this level.
   a. The state of process technology and availability of applicable reference cost data affect the range markedly. The +/- value represents typical percentage variation of actual costs from the cost estimate after application of contingency (typically at a 50% level of confidence) for a give scope.
   b. If the range index value of "1" represents 0.005% of project costs, then an index value of 100 represents 0.5%. Estimate preparation effort is highly dependent upon the size of the project and the quality of estimating data and tools.

It is critical that the public understand the significance of this table. The STEP estim Carollo are stated to be Class 4 while the gravity sewer estimates are stated to be The estimates for STEP are stated to be 1% to 15% of the total level of project def

required. Furthermore the accuracy of the estimate can be off by as much as 30% (low side and 50% on the high side.

Based on the level of estimate provided, did a Class 1 estimate support the statem by the consultant with regard to cost comparison? Furthermore, how could we conc state that STEP costs were actually comparable to gravity sewer? The public prese contained no explanation regarding the potential variance in cost estimates.

The following table, also from Appendix "C" in the Fine Screening Study, further pen STEP estimate for not being as accurate as the gravity sewer estimate.

Table 1.4 Basis for Estimating Project Costs
Los Osos Wastewater Project Development
San Luis Obispo County

Item	Estimated Cost[1]
Obtain Base Construction Cost from Bid Tabs, previous Engineers Estimates, analogous facility costs, parametric models and/or Carollo's unit price catalog. Adjust this cost to April 2007 cost for San Luis Obispo, California. Cost includes: • Adjustment to "mid range" of bids for each item • Mobilization/Demobilization • Electrical • Site Work/Yard Piping • Sales Tax on materials only (8%) • Contractor overhead and profit (15%)	"A"
Add 30% of Subtotal Cost to Class 4 estimates and 10% to Class 1 estimates as Construction Cost Contingency.	+ 10% to 30% of "A"
Subtotal Estimated Construction Cost	"B"
Add 8% sales tax on materials and 15% for contractor overhead and profit	+ 15% to 22% of "B"
Subtotal Estimated Construction Cost	"C"
Escalate to June 2011 - 5% per year	+ 24.5% of "C"
Subtotal Escalated Estimated Construction Cost	"D"
Project Cost - will provide line items [2]	+ "E"
Total Estimated Project Cost	"F"

Notes:
1. Based on June 2011 costs for San Luis Obispo, California (Estimated ENRCCI projection for the 20-Cities Average is 7979 for February 2007 and location factor adjustment is 1.054.).
2. Includes design engineering contingencies, construction management, administrative, and legal costs.

Typically, contingency is added to projects in case unforeseen costs become applic during construction. In the context of this analysis, Carollo has added 30% contingei STEP because there has been less detail in the estimate. Comparatively, only 10% contingency is added to gravity as a reward for a more detailed estimate. Accordin $11,000,000 (low estimate) to $15,000,000 (high estimate) is being added to STEF being added to gravity. In practicality, due to the complexity of construction, there is more inherent risk in gravity sewer construction than STEP construction. Change or unforeseen site condition are common in virtually all gravity sewer projects of this na despite the level of detail put forth during design. Regardless of the level of estimat highly questionable to assert that contingency should be higher for STEP. When a ra cost is presented, one has to understand that a large amount of subjective costs ha allocated to the cost of STEP, thereby inflating the possible range of cost.

Furthermore, the following table (Table 3.18), again from the fine screening analysis that 15% overhead and 8% taxes are added to STEP while they are omitted from g Since the gravity sewer estimate is more accurate, they have stated that the gravity estimate includes these costs while presumably, they can not effectively say the sa

their STEP estimate. This additional cost is added before contingency is added, so impact of the overhead and taxes is compounded by the additional contingency.

Table 3.18 Range of Probable Costs for STEP/STEG Collection System
Los Osos Wastewater Project Development
San Luis Obispo County

Item[2]	Range of Probable Costs Low ($M)[1]	Range of Probable Costs High ($M)[1]	Notes on Development of Range
Mobilization/Demobilization /General Conditions	2.6	3.2	Based on 5% of Construction Cost Subtotal.
COMMON FACILITIES			
Force Mains and Laterals in Right-of-Way	11.7	15.2	Low estimate based on Los Osos Wastewater Mas Plan Update (Ripley 2005) and installation costs fr Tidwell. High estimate includes 30% contingency d conceptual design level.
Odor Control	0.1	0.3	Low and High estimates based on 100 and 500 air valves respectively at $500 each.
Road Restoration	1.3	2.6	Low and High estimates based on 25% and 50% o gravity system requirements, respectively, due to e reduction in pavement disturbance.
Land and Easement Acquisition	Assumed No Additional Cost[3]	Assumed No Additional Cost[3]	
ON LOT FACILITIES			
Project Facilities	23.5	25.8	Based on on-lot options and cost development info presented above. High estimate includes 10% cont similar to gravity system.
Homeowner Facilities	6.1	6.7	Based on on-lot options and cost development info presented above. High estimate includes 10% cont similar to gravity system.
Electrical Connection	9.1	14.3	Low and High estimates based on $1,900 and $3,0 connection as presented in Table 3.15 for 4769 Pro Zone lots.
Subtotal	$54.4	$68.1	
Overhead and Profit (15%)	$8.1	$10.2	
Subtotal	$62.3	$78.3	
Sales Tax (6%)[4]	$2.5	$3.1	
TOTAL CONSTRUCTION COST WITH BASE ELECTRICAL CONNECTION	$65.0	$81.4	
Separate Electrical Service Premium	$14.5	$24.1	
TOTAL CONSTRUCTION WITH SEPARATE ELECTRICAL SERVICE PREMIUM	$79.5	$105.5	

Notes:
(1) All costs in April 2007 dollars, based on an ENR of 7879.
(2) Prohibition Zone lots only - 4769 connections.
(3) Land and easement acquisition assumed to be sunk cost as part of the previous Tri-W project.
(4) Sales Tax included on materials only.

Also in table 3.18, the low range cost shows the separate electrical premium. The e premium is contingent upon a hypothetical requirement from the State Water Board would require a public electrical supply rather than a simple service through the exis homes electrical panel. In execution, virtually all existing STEP systems installed in t Country utilize power service from the home. While this could be included in the high cost, we believe that the low end cost should be reflective of the methodology that i normally used to power a STEP pump package. The $14,500,000 in additional cost was added before contingeny, so this arbitrary cost addition was compounded by th additional contingency that was added.

What did all of this mean to the voter? We believe there are two very important poir note. They are as follows:

1) If we use Table 1.1 to restate the potential cost range of the project, th numbers are very startling. The actual range for STEP, without compromisi integrity of this Study could actually be $45.5 million to $121.5 million while range of gravity could be $73.8 million to $103.5 million. Accordingly, if thes technologies were bid head to head, STEP could come in at $45.5 million w gravity could come in at $103.5 million and this report wouldn't be wrong. S fact, by this report, could be half the cost of gravity. This potential variance was never explained to the voter.

2) If the same level of estimate had occurred, one would presume that cor overhead and taxes would be treated comparably for both technologies. Or provided bid tabs to the County, with overhead and profit included that supp cost that is lower than the stated low cost without overhead and sales tax. the low estimate actually utilized the probable low cost of electrical supply t end cost would be significantly different. Without Sales Tax, Overhead, Ele Premium and with 10% contingency, our calculations show that the low esti would be in the range of $44 million while the high estimate would be in the

$75 million.

We do not believe that this Fine Screening Analysis adequately provided proper "inf on what the community can expect through the County implemented solution, in tern costs, benefits and overall approach". The report did not compare STEP costs and costs to the degree necessary to establish true comparative costs nor does it evalu on a level playing field with gravity sewer. We do not believe that an analysis that ut different levels of estimating is adequate to support any determination that capital c STEP and gravity sewer are comparable. Furthermore, it is extremely misleading tc apportion subjective costs such as sales tax, overhead, electrical premium costs an contingency in a manner that is not equitable between comparative technologies.

The consultant expended large resources in modeling treatment processes and in e the cost of gravity sewer. We have to question why that the same level of resource applied to the STEP cost estimates so that a Class 1 estimate of STEP is available comparison to the gravity sewer costs.

Our opinions were validated by an independent review that was done by the Nationa Research Institute (NWRI). Their findings included the following:

- "Alternatives should be presented with sufficient detail in terms of description and estimated costs so that rational comparisons can be ma
- "Cost estimates should be stated clearly and compared on an equiv basis with the same degree of variability and specificity. Refined and u cost estimates are needed for each alternative so that decision makers a stakeholders can make informed judgments."

It does not appear that either of these NWRI recommendations was adequately addressed.

Beyond the estimates, we can take a more practical approach to discussing the provision of a STEP system in Los Osos. Orenco Systems, in the early stages c development, recommended to the Los Osos Community Services District (LO that a Design Build approach be utilized for the procurement of a wastewater s Los Osos. We told them that a Design Build approach, if properly executed, co deliver the ingenuity and expertise necessary to provide a low cost sewer optio Osos. At another meeting, we actually introduced the community to our potent Design Build team members that were ready to respond if a Design Build Requ Proposal was issued.

When the Design Build approach was finally recommended by County Staff, w believed that the process would move forward as promised. Unfortunately, du execution of the process, our team was removed. We were not removed becau teams competency or qualifications (we may have been the most highly qualifi involved), but by the recommendation of County Staff, we were removed bec recommended STEP wastewater collection as a viable method for reducing cap In fact, during our presentation to County Staff, we stated the cost will be less will guarantee a not-to-exceed cost. Unfortunately, we were denied the opportu submit a proposal and therefore, we were denied the opportunity to make the u not-to-exceed cost public.

At this time, the obvious question remains. Could STEP have delivered a low-
in the $40 million dollar range? The Design Build team intended to work in pa
with the County, starting with the County defined STEP project, and then offe
value engineering alternative that were intended to reduce the project cost. Va
engineering alternatives included the following:

- The use of all or some of the existing septic tanks.
- The use of STEG (Septic Tank Effluent Gravity) systems when hy
conditional allowed.
- The use of alternative STEP pump packages that are available fro
Orenco.
- The use of decentralized treatment at sites that have a need for irri
water.
- The use of shared interceptor tanks (2 and possibly 4 homes per ta
- The use of community tanks in areas of high density.
- The use of remote system monitoring.
- The possibility of including an O&M service at a fixed cost.
- The possibility of utilizing an extended period for connecting cust
that prioritized the "hot-spots" first.

These options were never explored by the consultant and were never conveyed to t
as alternatives for possible adjustments in capital cost.

Had the design build process moved forward and had the County partnered with ou
Build team to achieve the best value for the residents of Los Osos, a final cost in th
million dollar range was not only possible, but probable.

Respectfully,

Mike Saunders
Orenco Systems, Inc.

Mike Saunders
Orenco Systems, Inc.
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Respectfully,

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3

LOS OSOS WASTEWATER MANAGEMENT PLAN UPDATE

for the

Los Osos Community Services District

San Luis Obispo County, California

Wastewater Collection, Treatment, Storage, and Water Recycling: Beneficial Reuse of Water and Nutrients

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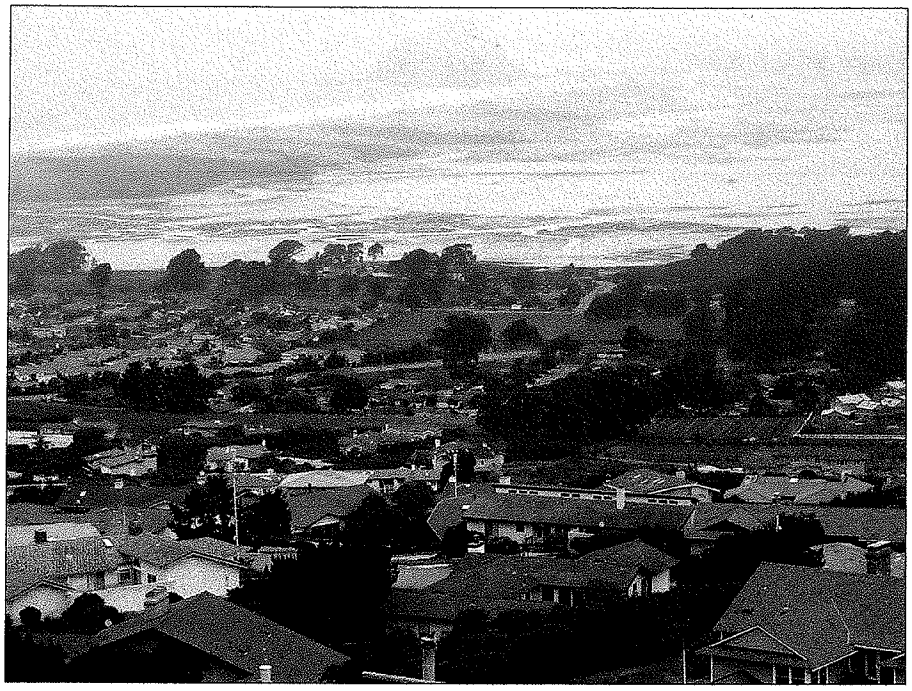


RIPLEY PACIFIC COMPANY

WATER REUSE INFRASTRUCTURE

SEE EXCERPTS

LOS OSOS WASTEWATER MANAGEMENT PLAN UPDATE

San Luis Obispo County, CA

Wastewater Collection, Treatment, Storage, and Water Recycling:

Beneficial Reuse of Water and Nutrients

Prepared for:

Los Osos Community Services District

P.O. Box 6064

Los Osos, CA 93412

Prepared by:

Ripley Pacific Company

5820 Stoneridge Mall Road, Suite 100

Pleasanton, CA 94566

Final Report: December 18, 2006

SHOWS USE OF EXISTING SEPTIC TANK.

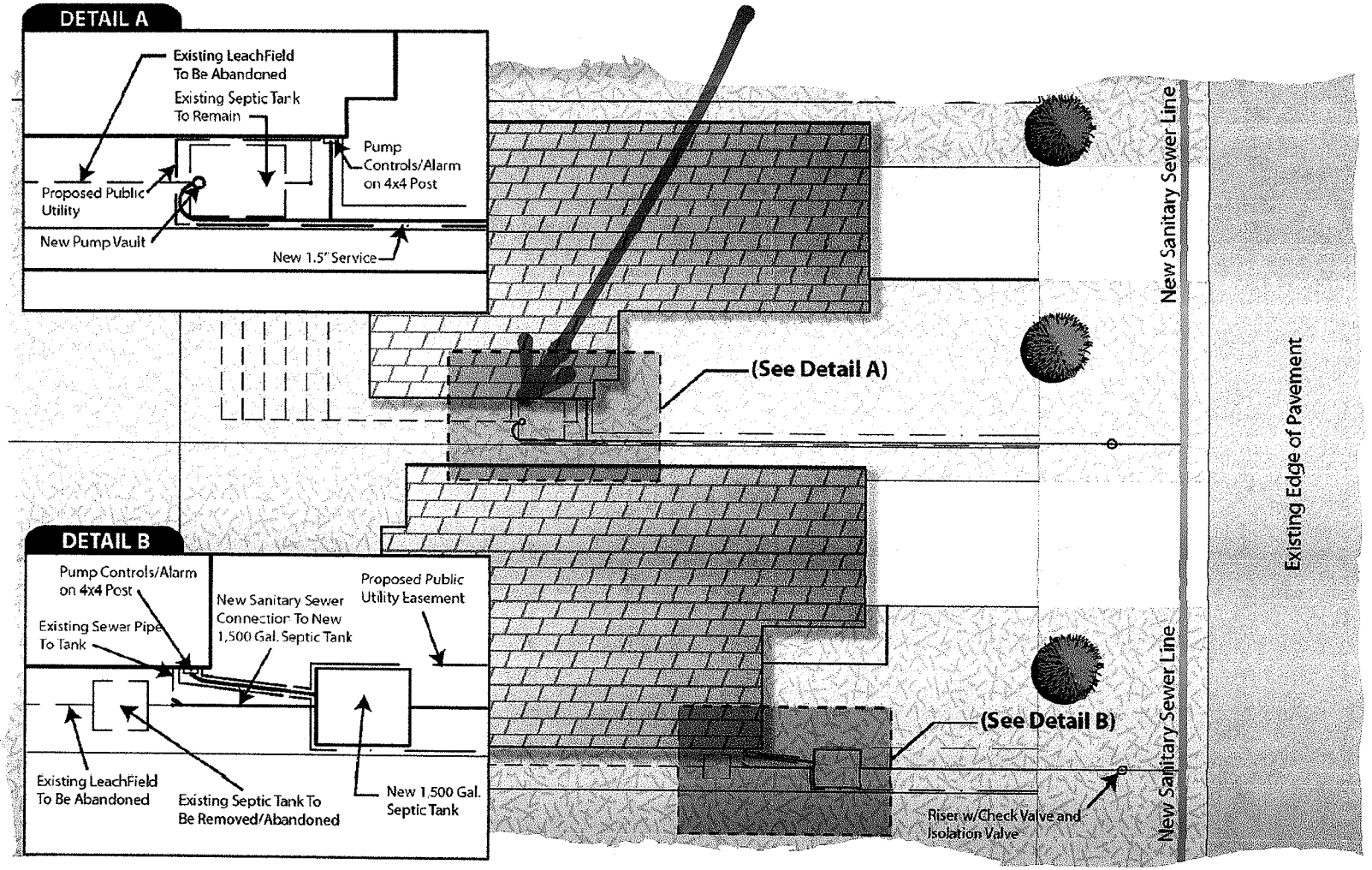


Figure 8.4 Typical Septic Tank Locations – Retrofit & New

Figure 8.3 below represents a typical service connection to the collection system.

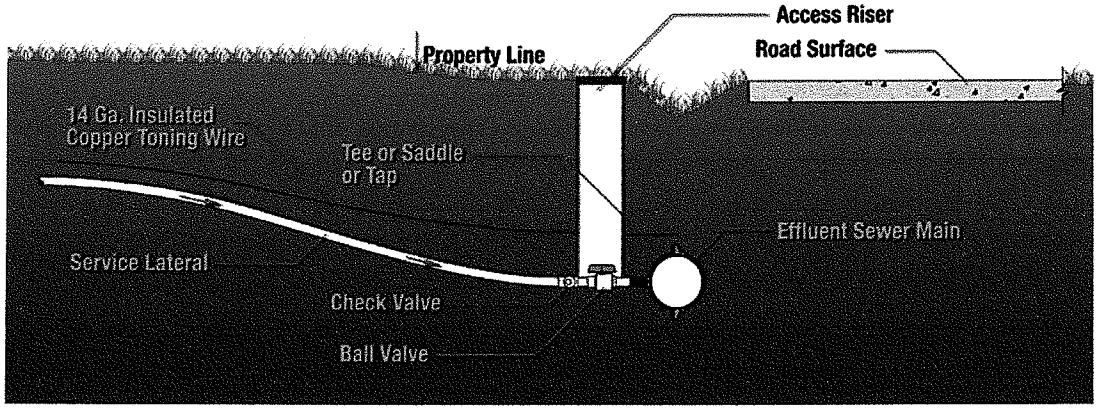


Figure 8.3 Typical Service Connection to Effluent Sewer Main

The configurations of existing septic tank/leach field locations vary throughout the town. As depicted in Figure 8.4 below, it has been conservatively assumed that two solutions will resolve most residential configurations:

1. Salvage existing septic tank; install pump vault/controls and service line to collection main (Detail A).
2. Remove/abandon existing septic tank; connect house service to new tank; install a new tank, pump vault/controls and service line to collection main (Detail B).

NEVER CONSIDERED IN COUNTY EIR,

1. Power intensive – should a system such as this be incorporated into a District-wide system, power requirements for both the circulating pump and the effluent pump would be borne by the homeowner.

8.4. STEP Wastewater Collection System

While effluent sewer systems of varying size and complexity exist in nearly every state of the United States, the track record of the systems is largely based upon management of the systems, as previously noted in the EPA summary.

A significant benefit to the effluent sewer system is the wastewater treatment that occurs within the septic tank. Table 8.3 below summarizes the treatment realized from the septic tank prior to entering a wastewater treatment facility.

PREXISTING TREATMENT

Table 8.3 Treatment of Wastewater within Intercepter (Septic) Tank

Parameter	Units	Influent	STEP Effluent	Percent Reduction
BOD_5	Mg/l	450	140	69%
Suspended Solids	Mg/l	500	30	94%
Total Nitrogen	Mg/l	70	70	0%
Total Phosphorus	Mg/l	17	16	6%
Oil and Grease	Mg/l	164	29	88%

Source: Crites and Tchobanogous, 1998

The main components for the Effluent Sewer System include:

1. On-Lot Equipment (including interceptor tank, pump, sensors, controls)
2. Collection System Components
3. Wastewater Treatment Facility

The discussion below focuses on how the existing on-lot and collection system components could be incorporated into a solution for Los Osos. Discussion on the

Below represents a summary of the comparison between capital costs for MWH Gravity Collection system and the Effluent Sewer Collection system.

Table 4-4.1 Summary of Comparative Costs

Item	Description	FEB 2005 BID AMT	Soft Costs (a)	Subtotal Design & Construction	2004 MWH ANDRE (b) Low	2004 MWH ANDRE (b) High	Total Design & Construction Costs Low	Total Design & Construction Costs High	Additional On-Lot Costs Low	Additional On-Lot Costs High
1	Collection System (e)	$69,876,310	$2,980,000	$72,856,310	$3,214,969	$3,777,750	$76,071,279	$76,634,060	$14,935,950	$15,027,900
2	Treatment Facility (e)	$48,346,780	$1,000,000	$49,346,780	($2,908,781)	($897,000)	$46,437,999	$48,449,780	n/a	n/a
3	Aesthetic Mitigation	$5,830,000	$190,000	$6,020,000	n/a	n/a	$6,020,000	$6,020,000	n/a	n/a
4	Effluent Disposal (Leachfields)	$6,701,000	$750,000	$7,451,000	n/a	n/a	$7,451,000	$7,451,000	n/a	n/a
5	Land Costs								n/a	n/a
6	Harvest System (Groundwater Mitigation)	$2,552,000	$20,000	$2,572,000	n/a	n/a	$2,572,000	$2,572,000	n/a	n/a
	Total	$133,306,090	$4,940,000	$138,246,090	$306,188	$2,880,750	$138,858,465	$144,007,590	$14,935,950	$15,027,900

(a) Based upon *Los Osos Wastewater Project Table 7-5 Update - Estimated Construction Cost* @ 8% of original Estimated Construction Cost

(b) Based upon *Exhibit 3C - MWH Memo comparing costs of Tri-W with Andre*
(c) Based upon collection area of the Prohibition Zone
(d) Based upon total collection area

(e) Based upon *Los Osos Wastewater Project Bid Schedule (LOCSD BIDS 022405.PDF)* - replaces values from (a) for FEB 2005 BID AMOUNT

COLLECTION SYSTEM COSTS - COMPARE

Table 4-4.1 Summary of Comparative Costs (continued)

Item	Description	Grand Total MWH Gravity System Low	Grand Total MWH Gravity System High	MWH Gravity System Cost/Lot Low	MWH Gravity System Cost/Lot High	Effluent Sewer System Low (c)	Effluent Sewer System High (d)	Effluent Sewer System Cost/Lot Low	Effluent Sewer System Cost/Lot High
1	Collection System	$91,007,229	$91,661,960	$18,988	$19,124	$58,145,324	$68,277,071	$12,131	$14,245
2	Treatment Facility	$46,437,999	$48,449,780	$9,689	$10,108	tbd	tbd	tbd	tbd
3	Aesthetic Mitigation	$6,020,000	$6,020,000	$1,256	$1,256	tbd	tbd	tbd	tbd
4	Effluent Disposal (Leachfields)	$7,451,000	$7,451,000	$1,555	$1,555	tbd	tbd	tbd	tbd
5	Land Costs					tbd	tbd	tbd	tbd
6	Harvest System (Groundwater Mitigation)	$2,572,000	$2,572,000	$537	$537	tbd	tbd	tbd	tbd
	Total	$153,488,228	$156,154,740	$32,023	$32,580	tbd	tbd	tbd	tbd

MWH Gravity Collection = 4,793 Lots

Effluent Sewer Collection System = 5,151 Lots (low)

5,929 Lots (high)

Table 14.2 Cost Estimates for the Wastewater Management Plan Update with STEP/STEG Collection, Trickling Filter Treatment, Storage, Filtration, Disinfection, and Distribution of Recycled Water to Agricultural Customers

Basic Assumptions	**Scenario 1**	**Scenario 2**
Number of lots:	5,151	5,929
Flow of Wastewater, mgd:	1.30	1.50
Base Capital Costs	**$ millions**	**$ millions**
On-lot Costs	42.00	48.50
STEP Collection - ROW	16.00	19.70
WRF at Site D	19.50	22.50
Aesthetic Mitigation	0.50	0.50
Effluent Storage	4.25	4.90
Effluent Distribution	2.00	2.30
Groundwater Monitoring Wells	0.25	0.25
Subtotal Base Capital Cost	84.50	98.65
Land Costs		
Site D - 38 ac.	1.00	1.00
Reservoir Site #2	0.50	0.60
Subtotal Land Cost	1.50	1.60
Total Base Capital and Land Costs	**86.00**	**100.25**
Base Capital and Land Cost per Lot	**$16,696**	**$16,908**
Life Cycle Costs	**$ millions**	**$ millions**
Base Capital	84.50	98.65
Land	1.50	1.60
Total Capital Costs	**86.00**	**100.25**
Salvage Value - Land	0.42	0.45
Present Worth Capital Cost	**85.58**	**99.80**
O&M - Collection	0.45	0.52
O&M - WRF	1.00	1.10
O&M - Effluent Distribution	0.15	0.15
O&M - Groundwater Montioring	0.05	0.05
Subtotal O&M	**1.65**	**1.82**
Annualized Capital Costs, 6.625%, 20 yrs.	7.85	9.15
Total Annualized Costs	**9.50**	**10.97**
Total Annualized Costs per Lot - $/year	**$1,844**	**$1,851**
Total Annualized Costs per Lot - $/month	**$154**	**$154**

Table 14.1 Cost Estimates for the Previously Designed Gravity Collection, MBR Treatment at Tri-W, and Disposal at Broderson

Basic Assumptions	Values Used
Number of Lots	4,793
Flow of Wastewater, mgd	1.30
Base Capital Cost Elements	**Cost, $ millions**
On-lot Costs	15.00
Gravity Collection - ROW	72.80
MBR @ Tri-W	49.30
Aesthetic Mitigation	inc. in treatment
Effluent Disposal	inc. in collection
Groundwater Mitigation	inc. in collection
Engineering and Admin. - 25%	34.28
Subtotal Base Capital Costs	171.38
Land Costs	
Broderson	4.70
Tri-W	3.00
Subtotal Land Cost	7.70
Total Base Capital and Land Costs	**179.08**
Base Capital and Land Cost per lot:	**$37,362**
Life Cycle Costs	**$ millions**
Base Capital	171.38
Land	7.70
Total Capital Costs	**179.08**
Salvage Value - Land	2.15
Present Worth Capital Cost	**176.93**
Operation and Maintenance Costs	
O&M - Collection	0.45
O&M - WRF	2.10
O&M - Effluent Disposal and Harvest Wells	0.06
Subtotal O&M	**2.61**
Annualized Capital Costs, 6.625%, 20 yrs.	16.22
Total Annualized Costs	**18.84**
Total Annualized Costs per Lot - $/year	**$3,930**
Total Annualized Costs per Lot - $/month	**$328**

4

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2007-0108

ALLOWING AN EXEMPTION FOR AN ENGINEERED RESIDENTIAL WASTEWATER DISPOSAL SYSTEM UNDER WASTE DISCHARGE REQUIREMENTS ORDER NO. 85-039 FOR 967 SIERRA BROOKS DRIVE (LOT NO. 81) SIERRA BROOKS SUBDIVISION UNIT 2A, LOYALTON SIERRA COUNTY

WHEREAS, the Central Valley Regional Water Quality Control Board (hereafter "Regional Water Board") proposes to grant an exemption for an engineered residential wastewater treatment and disposal system for Lot No. 81 at 967 Sierra Brooks Drive, Loyalton (APN 016-200-050) in the Sierra Brooks Subdivision under the terms and conditions of Waste Discharge Requirements (WDRs) Order No. 85-039; and

WHEREAS, Discharge Prohibition A.1. of WDRs Order No. 85-039 states, in part: "An exemption may be approved by the Regional Board if a report is prepared by a civil engineer registered in the State of California, supporting the engineering conclusion that a septic tank/leaching system on the parcel(s) in question will provide adequate treatment and disposal....The report must be approved by the Sierra County Health Department and the Regional Board before an exemption may be issued"; and

WHEREAS, the primary concern with residential wastewater disposal on this lot (and many other lots in the subdivision) is inadequate groundwater separation and high housing density. Evidence of seasonal high groundwater at 20 inches below ground surface (bgs) was reported for this lot. Order No. 85-039 requires a minimum of 60 inches of soil separation between the bottom of leachline trenches and water, rock, or the first impervious layer; and

WHEREAS, the proposed engineered on-site wastewater treatment and disposal system will consist of a septic tank, recirculating textile filter, pump tank, and pressure-dosed mound system for a three-bedroom residence. Wastewater will be pre-treated in a 1,500-gallon septic tank equipped with a recirculating textile filter. Pretreated septic tank effluent will be pumped to an engineered mound leaching system for disposal. The mound will be constructed of silty sand, and there will be a minimum of 40 inches of this engineered fill below the bottom of the distribution trenches. The three distribution trenches will be three feet wide by 54 feet long. The distribution pipes will have a minimum depth of 10 inches of gravel bedding, 2 inches of gravel cover, and 12 inches of capping fill. Pressure distribution of effluent to the trenches will provide even distribution across the disposal area. The design is based on an average percolation rate of 27.8 minutes per inch and a peak flow of 450 gallons per day; and

WHEREAS, Regional Water Board staff has reviewed the engineered residential wastewater treatment and disposal system design report submitted by Coombs Engineering Inc., dated 23 March 2007;

WHEREAS, the Sierra County Health Department has reviewed and approved the engineered system design report, including the conditions recommended by Regional Water Board staff; and

WHEREAS, Regional Water Board staff has reviewed the design report and concurs that the engineered system design, with conditions, will provide adequate treatment and disposal of domestic wastewater for the proposed residence; and

WHEREAS, the engineered system design and conditions recommended by Regional Water Board staff should ensure the long-term protection of water quality; and

WHEREAS, the action to grant this exemption under WDRs Order No. 85-039 for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance with Title 14, California Code of Regulations (CCR), Section 15301; and

WHEREAS, the Regional Water Board considered all testimony and evidence at a public hearing held on 2 August 2007 in Sacramento, California.

THEREFORE BE IT RESOLVED that the California Regional Water Quality Control Board, Central Valley Region, finds as follows for the residence at 967 Sierra Brooks Drive:

1. The engineered system shall be installed as described in the engineered system design report submitted on 23 March 2007, and in accordance with the following conditions:

    a. The septic tank and pump tank shall be manufactured in accordance with the American Society of Testing and Materials (ASTM) C1227 Standard Specification For Precast Concrete Septic Tanks;

    b. Tank lids and all tank penetration points shall be sealed to prevent groundwater inflow;

    c. A minimum set back distance of 10 feet shall be maintained between all property lines and the base of the mound system; and

    d. The bottom of each distribution trench shall be level.

2. The engineered system shall be operated and maintained in a manner consistent with the following conditions:

    a. Erosion of the mound fill shall be prevented and controlled to the maximum practical extent;

    b. Vegetation grown on the mound must be selected and maintained to prevent invasive root systems growing within the disposal trenches; and

    c. The engineered wastewater treatment system shall be operated and maintained in accordance with the manufacturer's recommendations.

3. The following additional conditions shall apply:

    a. The residence shall contain no more than three bedrooms;

    b. All plumbing fixtures associated with the dwelling shall be low-flow fixtures;

    c. During construction of the proposed residence and wastewater disposal system, a stub-out shall be provided for future connection to a community collection system;

    d. A 100% replacement mound area shall be reserved until a community wastewater collection, treatment and disposal system is available;

    e. The residence shall be connected to a community wastewater collection, treatment and disposal system if the alternative system fails and a community system is operational; and

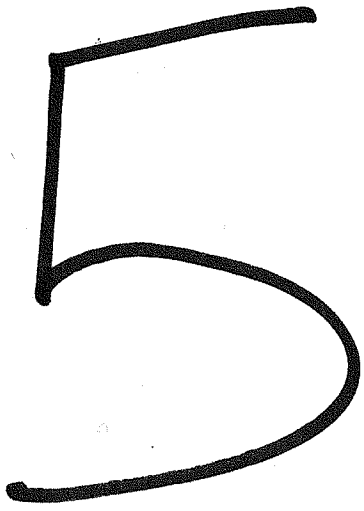
    f. Conditions of this Resolution and those required by Sierra County Health Department shall be recorded as a Deed Restriction to notify future owners that this property uses an engineered on-site residential wastewater treatment and disposal system, and that maintenance as recommended by the manufacturer shall be performed by a licensed contractor.

4. An exemption under Waste Discharge Requirements Order No. 85-039 is granted for the engineered residential wastewater disposal system, with the above conditions, for Lot No. 81 at 967 Sierra Brooks Drive, Loyalton (APN 016-200-050) in the Sierra Brooks Subdivision.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 2 August 2007.

PAMELA C. CREEDON, Executive Officer

BPK:08/02/2007



San Luis Obispo County
Los Osos Wastewater Project Development

TECHNICAL MEMORANDUM

FLOWS AND LOADS

FINAL
November 2008

2700 YGNACIO VALLEY ROAD • SUITE 300 • WALNUT CREEK, CALIFORNIA 94598 • (925) 932-1710 • FAX (925) 930-0208

The treatment component comprises approximately 12 percent of the cost of the entire wastewater project. This sensitivity analysis shows that changing the dry weather or wet weather flow assumptions change the cost of the treatment facility by up to six percent, which corresponds to less than one percent of the total project cost. This difference is lower than was anticipated for the various flow estimates, and is much less than the contingency of the cost estimates, and is therefore insignificant.

8.0 LOAD ESTIMATES

The Rough Screening Report listed influent concentration for the future wastewater treatment facility. These values are considered valid and will be used for treatment facilities sizing for a gravity collection system.

If a STEP collection system is selected, the concentrations of BOD and suspended solids in the treatment plant influent are expected to be lower, due to solids removal and degradation in the septic tanks. Nitrogen concentrations are expected to be unchanged. Estimates for the percentage removal of BOD and suspended solids in septic tanks were obtained from a review of septic tank performance studies (Bounds, 1997). In seven studies, septic tanks reduced BOD by an average of 58 percent and suspended solids by an average of 78 percent. In 14 septic tanks fitted with filtering devices, it was estimated in the review that approximately 64 percent of BOD and 90 percent of suspended solids were removed. Concentrations of total nitrogen were expected to be unaffected by septic tanks. Using these removal efficiencies and the influent quality listed in Table 10 the septic tank effluent quality was calculated and presented in Table 11.

Table 10 Projected Characteristics of Wastewater, Gravity Collection System[1]
Los Osos Wastewater Project Development
San Luis Obispo County

Parameter	Units	Average Day	Peak Day
BOD	mg/L	340	350
Suspended Solids	mg/L	390	400
Total Nitrogen	mg/L	56	58

Note:
(1) The Wastewater Facilities Project Final Project Report, 2003.

Smaller loads of solids and BOD can reduce the size and cost of the wastewater treatment facility when reducing the concentration of these two constituents is the primary concern. However, nitrogen removal can be inhibited by low BOD because it depends on the presence of a carbon source for the microorganisms that perform this task. In order to ensure nitrogen removal, as will likely be required for the new Regional Water Quality

Table 11 Projected Characteristics of Wastewater, STEP[1] Los Osos Wastewater Project Development San Luis Obispo County			
Parameter	**Units**	**Unfiltered Septic Tank Effluent**	**Filtered Septic Tank Effluent**
BOD	mg/L	140	120
Suspended Solids	mg/L	80	40
Total Nitrogen	mg/L	56	56

Note:
(1) Removal efficiencies from Bounds, T.R., 1997.

Control Board (RWQCB) waste discharge requirement (depending on the final selected reuse/disposal alternative), plant operators may have to add a supplemental carbon source such as methanol to the biological treatment processes, which would increase the cost of treatment.

9.0 SUMMARY

The estimates of flows remains unchanged from the Fine Screening Report and the estimates for loading remain unchanged from the Rough Screening Report. An ADDWF of 1.1 mgd was assumed, including 0.1 mgd of conservation, to be implemented before buildout in 2020. Different collection alternatives will be associated with different levels of inflow/infiltration. Therefore, the facility will be designed to treat an ADWWF of 1.4 mgd if a gravity sewer is selected, or an ADWWF of 1.2 mgd if a STEP or low-pressure sewer is selected. The PHWWF was estimated to be 2.5 for gravity, 1.7 for STEP and 1.9 for low pressure.

A sensitivity analysis was performed to examine how the treatment facility capital and O&M costs would change if dry weather flows varied from 1.0 mgd to 1.4 mgd, and if the PHWWF factor changed to 2.5 from the Fine Screening Report estimate of 2.75. None of the costs for the three treatment technologies that have passed fine screening changed by more than approximately 6 percent which translates to less than 1 percent of total project cost. Because of the small fraction of the treatment component as part of the total project cost, these upper and lower boundary assumptions would not have a significant impact on the total project cost.

10.0 REFERENCES

Alferink, F, et al. "Old PVC Gravity Sewer Pipes: Long Term Performance" presented at the Plastics Pipe IX Conference, Edinburgh Scotland, September 1995.

6

TECHNICAL MEMORANDUM #: 8

Author: Dana Ripley

Reviewer: Bahaman Sheikh, Mike Huck

Date: July 24, 2006

TM Title: Energy Intensity of Collection and Treatment Alternatives

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Introduction and Energy Awareness

In September 2005 Governor Arnold Schwarzenegger proclaimed the month of October "Energy Awareness Month" (See Attachment TM 8-1.) In that proclamation the Governor stated that *"an affordable, reliable and adequate energy supply is the lifeblood to California's economy"*. He also commended the efforts of the California Energy Commission for setting the most stringent standards for building and appliance efficiency in the country that have since become standards for the federal government and other states. He encouraged the use of sustainable and renewable energy resources and positioning the state as an international leader in this area. He set a goal of generating twenty percent of our state's power from these renewable sources by 2010 and closed the proclamation by stating *"Energy Awareness Month is a fitting time to focus on responsible energy use and to work towards building a secure energy future for our state"*. In the spirit of the Governors' 2005 energy proclamation the Ripley Pacific team in this technical memo examines and compares energy requirements for the previous wastewater design concept relative to alternative more conventional treatment and collection alternatives.

Energy Demands - Gravity Collection/MBR Treatment

Attachment TM 8-2 presents an analysis of power demands of the gravity collection system, 1.3 million gallon per day (mgd) membrane bioreactor (MBR) tertiary treatment system, and effluent transmission to the subsurface disposal sites included in the existing design for Los Osos. The source of information for this analysis was technical memos and design documents prepared by MWH in 2002 and 2004. Influent is assumed to be full-strength sanitary wastewater (biochemical oxygen de-

mand/suspended solids = 340/390 mg/l) and the effluent quality is assumed to be consistent with California Health and Safety Code (Title 22) for unrestricted irrigation uses. The MBR treatment includes integral nitrification and denitrification unit processes necessary to achieve a total nitrogen effluent limit of 7 milligrams per liter (mg/l). Not included in this analysis is the power required for the dewatering well network designed to intercept the down-gradient subsurface mound anticipated from the Broderson leach fields. Table TM 8-1 summarizes the power demands in units of kilowatt-hours per day (kWh/dy) and kilowatt-hours per acre-foot (kWh/af) assuming a 1.3 mgd treatment plant operating at full capacity.

Table TM 8-1 – Gravity Collection/MBR Treatment Summary

Energy Intensity by Category	kWh/dy	kWh/af
Collection	1,028	258
Headworks	564	141
Secondary Treatment	7,047	1,767
Filtration	5,315	1,333
Disinfection	1,296	325
Odor Control	886	222
Solids Dewatering	483	121
Effluent Pumping	1,235	310
Ancillary Loads	50	13
Totals	**17,904**	**4,490**

Energy Demands – STEP Collection/Trickling Filter

Attachment TM 8-3 presents a power demand analysis of a septic tank effluent pump (STEP) collection system, a hypothetical 1.3 mgd multi-stage trickling filter system, tertiary filtration and disinfection, and effluent transmission to agricultural exchange sites. Influent is assumed to be low-strength sanitary wastewater (BOD/SS = 130/40 mg/l) and the effluent quality is assumed to be consistent with California Health and Safety Code (Title 22) for unrestricted irrigation uses. The treatment process assumes no extra energy required for nitrification and denitrification due to the fact that all effluent will be applied at agronomic rates consistent with the nutrient uptake of crops. Table TM 8-2 summarizes the power demands for this collection and treatment alternative in units of kWh/dy and kWh/af.

Table TM 8-2 - STEP Collection/Trickling Filter Treatment Summary

Energy Intensity by Category	kWh/dy	kWh/af
Collection	705	177
Headworks	5	1
Secondary Treatment	2,391	599
Filtration	295	74
Disinfection	1,296	325
Odor Control	370	93
Solids Dewatering	81	20
Effluent Pumping	483	121
Ancillary Loads	50	13
Totals	**5,676**	**1,423**

Energy Demand Comparison

Table TM 8-3 presents a comparison of the power demands of the gravity collection/MBR design with the STEP collection/trickling filter design concept. As indicated, it is estimated that the overall power consumption will be reduced by 68% with STEP collection and trickling filter secondary treatment relative to the gravity collection/MBR design concept.

Table TM 8-3 Comparison of Gravity/MBR to STEP/Trickling Filter Energy Intensity

Unit Process	Gravity/MBR (kWh/af)	STEP/TF (kWh/af)	Reduction (Percent)
Collection	258	177	31%
Headworks	141	1	99%
Secondary Treatment	1,767	599	66%
Filtration	1,333	74	94%
Disinfection	325	325	0%
Odor Control	222	93	58%
Solids Dewatering	121	20	83%
Effluent Pumping	310	121	61%
Ancillary Loads	13	13	0%
Totals	**4,490**	**1,423**	**68%**

Attachment TM 8-4 presents reference values from various published sources relating power intensity (in terms of kWh/af) to various secondary treatment processes. For the MBR process, Günder estimates a power intensity of about 2,470 kWh/af assuming a mixed liquor suspended solids (MLSS) concentration of 25 grams per liter (g/L). This compares to the Tri-W MBR design requiring an estimated 1,770 kWh/af for aeration, nitrification, and denitrification. Added to this figure is an esti-

mated 1,330 kWh/af for submerged micro-filtration with is integral to the MBR secondary treatment process. The total estimate for secondary treatment and filtration for the MBR design is about 3,100 kWh/af. This energy intensity figure is about 25% higher than the Günder estimate for an MBR operating at 25 g/L MLSS.

Attachment TM 8-4 indicates a range of values for trickling filter secondary treatment from 225 kWh/af to 580 kWh/af. This compares with a value of about 600 kWh/af presented in Table TM 8-2 for trickling filter secondary treatment. This value appears to be within 5% of the high range value reported by NRDC for a 1-mgd trickling filter secondary treatment facility. It should be noted that while the alternative trickling filter facility has low-strength influent that theoretically would have a lower energy intensity, the process redundancy mandates of California Title 22 for irrigation of recycled water require more energy than would otherwise be necessary. Overall, the power intensity numbers presented with the alternative trickling filter secondary treatment process appear consistent with published values for a smaller 1.3 mgd facility appropriate for Los Osos.

Table TM8-4 summarizes power intensities presented in the prior LOCSD Wastewater Facilities Project Report (MWH 2001) for four secondary treatment process options considered at that time. These power intensities are higher than the reference values (Attachment TM 8-4) with differences likely attributable to Title 22 redundancy requirements, UV disinfection, and on-site sludge processing. It should also be noted that the figures presented below do not include power requirements for either gravity lift stations or STEP effluent pumping.

Table TM 8-4 Energy Intensity of Treatment Options Considered in 2001

Secondary Process Alternative	(kWh/af)
Advanced Wastewater Ponds	1,170
Sequencing Batch Reactor	1,370
Extended Aeration	1,370
Hybrid Extended Aeration	1,370

Source: MWH 2001, Chapter 4

It is apparent that all process energy intensities presented in the 2001 report are within a limited range, and generally consistent with the energy intensity of the trickling filter option (considered as a baseline in this analysis) which was not considered at that time. Further, it is evident that the gravity collection/MBR energy intensity is approximately three times the energy intensity of any of the secondary treatment options considered by MWH in 2001, and is likewise about three times the energy intensity of the baseline trickling filter plant considered in this present analysis.

Annual Power Cost Comparison

Attachment TM 8-5 presents the Pacific Gas and Electric Company time of use (TOU) rate schedule A-10. The preliminary power budgets presented herein were reviewed by a PG&E account representative, and an estimated average annual rate of $0.14705 per kWh is considered appropriate for estimating the Los Osos wastewater facility power costs for the remainder of 2006. An escalator of 3% per year is recommended for estimating power budgets beyond 2006. Based on the 2006 rate, the total power cost for collection, treatment, and distribution of the gravity/MBR design is approximately $960,000 per year assuming an effluent production volume of 1,455 acre-feet per year. The alternative STEP/trickling filter design option would have an annual power budget of approximately $310,000 per year. Of this amount, approximately $55,000 would be paid directly by ratepayers on their existing power bills for STEP pumping. This STEP pumping cost translates to about $1 per month per residential account. The annual power requirements and power costs are graphically compared on Figure TM 8.1

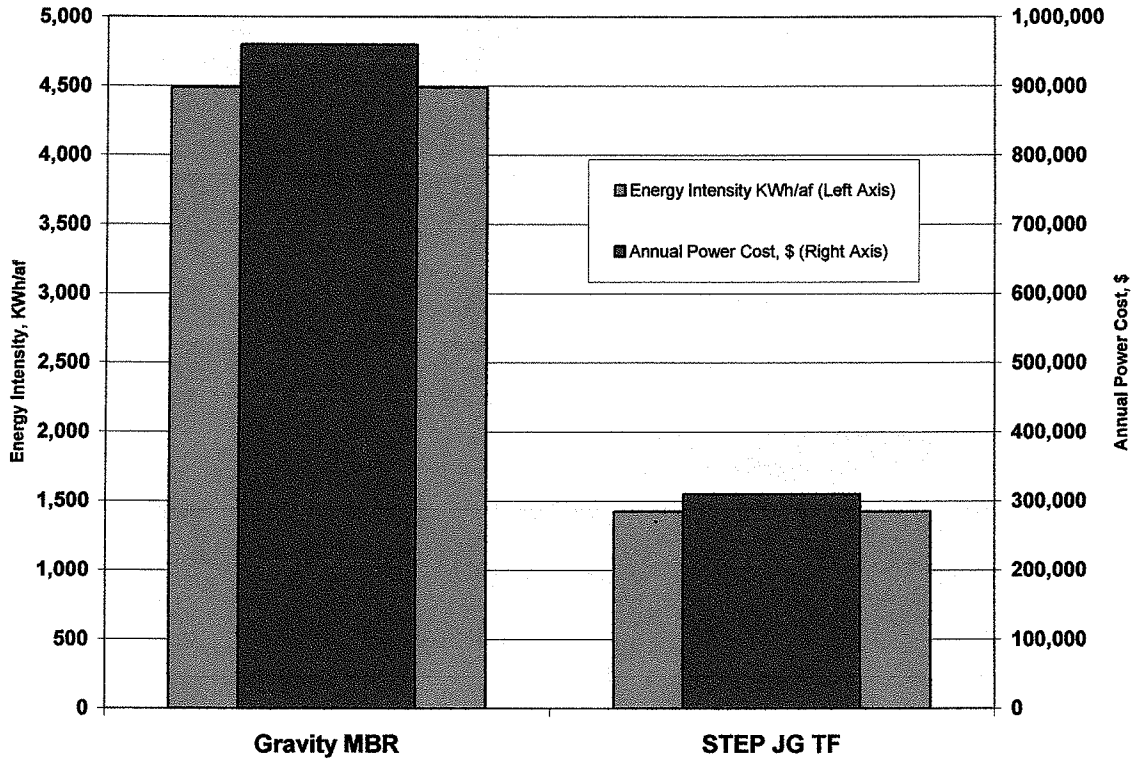


Figure TM-8.1 Energy Intensity and Cost for Two Collection/Treatment Regimes.

Summary & Conclusion

Significant differences exist between energy intensities of the MBR treatment option relative to the more conventional secondary treatment options available. Long term cost savings and environmental sustainability can only result by selecting a technology that is most appropriate for application in Los Osos and that is fundamentally energy efficient. Additionally, unnecessary excess energy usage, and resulting ongoing excessive energy costs, would become a encumbrance to ratepayers for the life of the operating facility. To borrow from the Governor's key points in his 2005 Energy Awareness Proclamation *"an affordable, reliable and adequate energy supply is the lifeblood to California's economy"* is akin to an affordable, reliable and adequate sewerage collection and treatment system for Los Osos. As stated by the Governor, now is *"a fitting time to focus on responsible energy use and to work towards building a secure energy future for our state."* The same is true for the community of Los Osos.

List of Attachments

Attach. TM 8-1	Energy Awareness Proclamation by Governor Scharzenegger
Attach. TM 8-2	Gravity Collection/MBR Energy Intensity Estimate
Attach. TM 8-3	STEP Collection/Trickling Filter Energy Intensity Estimate
Attach. TM 8-4	Energy Intensity Reference Values
Attach. TM 8-5	PG&E TOU Rate Schedule A-10

Office of the Governor

ARNOLD SCHWARZENEGGER
THE PEOPLE'S GOVERNOR

PROCLAMATION

09/30/2005

Governor Schwarzenegger Proclaims October "Energy Awareness Month"

PROCLAMATION by the Governor of the State of California

An affordable, reliable and adequate energy supply is the lifeblood of California's economy. Since 1975, the California Energy Commission has set the benchmark for balanced energy, economics and environmental policies.

The Commission developed the most stringent building and appliance efficiency standards in the nation, saving Californians more than $35 billion in costs over the last 30 years. These standards have become the guidelines used by the federal government and other states.

Through its forward-thinking programs, the California Energy Commission has encouraged renewable energy resources and positioned our state as an international leader of electricity produced from solar, wind, small hydroelectric, geothermal and biomass. These sources successfully generate more than 10 percent of our electricity, and we are on a path to attaining 20 percent of our power from these sources by 2010.

For 30 years, the California Energy Commission has supported innovative technologies through a successful public interest research and development program that brings environmentally safe, affordable and reliable energy services and products to the marketplace.

This year, Californians have witnessed how elevated market prices, fuel disruptions or natural disasters can affect their jobs, their household budget and their lifestyle. Energy Awareness Month is a fitting time to focus on responsible energy use and to work towards building a secure energy future for our state.

NOW, THEREFORE, I, ARNOLD SCHWARZENEGGER, Governor of the State of California, do hereby proclaim October 2005 as "Energy Awareness Month."

IN WITNESS WHEREOF I have here unto set my hand and caused the Great Seal of the State of California to be affixed this the thirtieth day of September 2005.

/s/ Arnold Schwarzenegger

Governor of California

Los Osos Gravity/Tri-W MBR Energy Intensity Analysis

(Rated Hp for each motor below from MWH 2/16/04, Sheet AD-E-200)

	Rated Pump Motor (Hp)	Rated Pump Motor (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
Pocket Grinder Pump Stations									
Pocket Pump 4A #1	1	0.7	0.7		x		4	2.7	
Pocket Pump 4A #2	1	0.7	0.7		x		2	1.3	
Pocket Pump 4A #3	1	0.7	0.7			x	0	0.0	
Pocket Pump 7A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 7A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 8A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 8A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 9A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 9A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 10A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 10A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 11A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 11A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 12A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 12A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 13A #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 13A #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 9B #1	1	0.7	0.7		x		4	2.7	
Pocket Pump 9B #2	1	0.7	0.7		x		2	1.3	
Pocket Pump 9B #3	1	0.7	0.7			x	0	0.0	
Pocket Pump 9C #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 9C #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 13B #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 13B #2	1	0.7	0.7			x	0	0.0	
Pocket Pump 15B #1	1	0.7	0.7		x		2	1.3	
Pocket Pump 15B #2	1	0.7	0.7			x	0	0.0	
									21

(Duty pump loads below from MWH 12/16/02, p.7)

	Duty Pump Load (Hp)	Duty Pump Load (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
Submersible Pump Stations									
Lupine #1	28	20.9	20.9		x		10	208.8	
Lupine #2	28	20.9	20.9		x		5	104.4	
Lupine #3	28	20.9	20.9			x	0	0.0	
West Paso #1	27	20.1	20.1		x		10	201.3	
West Paso #2	27	20.1	20.1		x		5	100.7	
West Paso #3	27	20.1	20.1			x	0	0.0	
Baywood #1	23	17.2	17.2		x		10	171.5	
Baywood #2	23	17.2	17.2		x		5	85.8	
Baywood #3	23	17.2	17.2			x	0	0.0	
Scenic #1	7	5.2	5.2		x		5	26.1	
Scenic #2	7	5.2	5.2			x	0	0.0	
East Paso #1	23	17.2	17.2		x		5	85.8	
East Paso #2	23	17.2	17.2			x	0	0.0	
Sunny Oaks #1	6	4.5	4.5		x		5	22.4	
Sunny Oaks #2	6	4.5	4.5			x	0	0.0	
									1,007

(Rated Hp for each motor below from MWH 2/16/04, Sheet G-07)

	Rated Pump Motor (Hp)	Rated Pump Motor (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
Influent Pump Station									
Submersible #1	20	14.9	13.4		x		10	134.2	
Submersible #2	20	14.9	13.4		x		5	67.1	
Submersible #3	20	14.9	13.4			x	0	0.0	
									201
Plant Drain Pump Station									
Submersible #1	10	7.5	6.7		x		2	13.4	
Submersible #2	10	7.5	6.7		x		2	13.4	
Submersible #3	10	7.5	6.7			x	0	0.0	
									27
Influent Screens									
Screen Motor #1	3	2.2	2.0		x		20	40.3	
Screen Motor #2	3	2.2	2.0			x	0	0.0	
Sluice Water Pump #1	2	1.5	1.3		x		20	26.8	
Sluice Water Pump #2	2	1.5	1.3			x	0	0.0	
									67
Grit Removal									
Grit Pump #1	20	14.9	13.4		x		20	268.5	
Grit Pump #2	20	14.9	13.4			x	0	0.0	
									268
Pre-Anoxic Basins									
Mixer #1	2.5	1.9	1.7	x			24	40.3	
Mixer #2	2.5	1.9	1.7	x			24	40.3	
Mixer #3	2.5	1.9	1.7	x			24	40.3	
Mixer #4	2.5	1.9	1.7	x			24	40.3	
Mixer #5	2.5	1.9	1.7	x			24	40.3	
Mixer #6	2.5	1.9	1.7	x			24	40.3	
ML Recycle Pump #1	10	7.5	6.7	x			24	161.1	
ML Recycle Pump #2	10	7.5	6.7	x			24	161.1	
ML Recycle Pump #3	10	7.5	6.7	x			24	161.1	
									725
Aeration Basins									
Aeration PD Air Blower #1	100	74.6	67.1	x			24	1,610.7	
Aeration PD Air Blower #2	100	74.6	67.1	x			24	1,610.7	
Aeration PD Air Blower #3	100	74.6	67.1	x			24	1,610.7	
Aeration PD Air Blower #4	100	74.6	67.1			x	0	0.0	
									4,832
Post-Anoxic Basin									
Pump Mixer #1	5	3.7	3.4	x			24	80.5	
Pump Mixer #2	5	3.7	3.4	x			24	80.5	
Pump Mixer #3	5	3.7	3.4	x			24	80.5	
									242
Mixed Liquor Transfer Pumps									
ML Transfer Pump #1	25	18.6	16.8	x			24	402.7	
ML Transfer Pump #2	25	18.6	16.8	x			24	402.7	
ML Transfer Pump #3	25	18.6	16.8	x			24	402.7	
ML Transfer Pump #4	25	18.6	16.8			x	0	0.0	
									1,208
Waste Activated Sludge Pumps									
WAS Pump #1	5	3.7	3.4		x		6	20.1	
WAS Pump #2	5	3.7	3.4		x		6	20.1	
WAS Pump #3	5	3.7	3.4			x	0	0.0	
									40

(Rated Hp for each motor below from MWH 2/16/04, Sheet G-07)

	Rated Pump Motor (Hp)	Rated Pump Motor (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
Membrane Bioreactor Basins									
Permeate Pump #1	7.5	5.6	5.0	x			24	120.8	
Permeate Pump #2	7.5	5.6	5.0	x			24	120.8	
Permeate Pump #3	7.5	5.6	5.0	x			24	120.8	
Permeate Pump #4	7.5	5.6	5.0	x			24	120.8	
Permeate Pump #5	7.5	5.6	5.0			x	0	0.0	
MBR PD Air Blower #1	75	55.9	50.3	x			24	1,208.0	
MBR PD Air Blower #2	75	55.9	50.3	x			24	1,208.0	
MBR PD Air Blower #3	75	55.9	50.3	x			24	1,208.0	
MBR PD Air Blower #4	75	55.9	50.3	x			24	1,208.0	
MBR PD Air Blower #5	75	55.9	50.3			x	0	0.0	
									5,315
Disinfection - Low Pressure High Output UV									
UV Lamps - use 1.0 kWh/kgal			54	x			24	1,296.0	
									1,296
Effluent Pump Station									
Broderson Pump #1	60	44.7	40.3		x		12	483.2	
Broderson Pump #2	60	44.7	40.3		x		12	483.2	
Broderson Pump #3	60	44.7	40.3			x	0	0.0	
Service Area Pump #1	20	14.9	13.4		x		8	107.4	
Service Area Pump #2	20	14.9	13.4		x		8	107.4	
Service Area Pump #3	20	14.9	13.4			x	0	0.0	
Utility Water Pump #1	10	7.5	6.7		x		4	26.8	
Utility Water Pump #2	10	7.5	6.7		x		4	26.8	
Utility Water Pump #3	10	7.5	6.7			x	0	0.0	
									1,235
Solids Dewatering									
Centrifuge #1	120	89.5	80.5		x		6	483.2	
Centrifuge #2	120	89.5	80.5			x	0	0.0	
									483
Odor Control									
Residuals Bldg Blower #1	15	11.2	10.1	x			24	241.6	
Residuals Bldg Blower #2	15	11.2	10.1			x	0	0.0	
Treatment Bldg Blower #1	40	29.8	26.8	x			24	644.3	
Treatment Bldg Blower #2	40	29.8	26.8			x	0	0.0	
									886
Facitliy Lighting, Instrumentation, HVAC, and Other Ancillary Loads									
Lump Sum Estimate				x				50.0	
									50

Summary: Energy Intensity for Collection and Treatment

Total kWh Load per day @ 1.3 mgd	**17,904**

Summary: Energy Intensity by Category	**kWh/dy**	**kWh/af**
Collection	**1,028**	**258**
Headworks	**564**	**141**
Secondary Treatment	**7,047**	**1,767**
Filtration	**5,315**	**1,333**
Disinfection	**1,296**	**325**
Odor Control	**886**	**222**
Solids Dewatering	**483**	**121**
Effluent Pumping	**1,235**	**310**
Ancillary Loads	**50**	**13**
Totals	**17,904**	**4,490**

Los Osos STEP/Trickling Filter Energy Intensity Analysis

	Rated Pump Motor (Hp)	Rated Pump Motor (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
STEP Effluent Pumps									
1,700 Low Elevation STEP	0.5	0.4	0.3		x		900	302.0	
1,700 Mid Elevation STEP	0.5	0.4	0.3		x		700	234.9	
1,700 High Elevation STEP	0.5	0.4	0.3		x		500	167.8	
									705
Septage Receiving Station									
Grinder Motor	2	1.5	1.3		x		2	2.7	
Auger Motor	2	1.5	1.3		x		2	2.7	
									5
Flow Equalization Basin(s)									
Propeller Mixer #1	3	2.2	2.0	x			24	48.3	
Propeller Mixer #2	3	2.2	2.0			x	0	0.0	
Propeller Mixer #3	3	2.2	2.0	x			24	48.3	
Propeller Mixer #4	3	2.2	2.0			x	0	0.0	
PD Aeration Blower #1	10	7.5	6.7		x		24	161.1	
PD Aeration Blower #2	10	7.5	6.7			x	0	0.0	
PD Aeration Blower #3	10	7.5	6.7		x		24	161.1	
PD Aeration Blower #4	10	7.5	6.7			x	0	0.0	
Submersible Pump #1	7.5	5.6	5.0	x			24	120.8	
Submersible Pump #2	7.5	5.6	5.0			x	0	0.0	
Submersible Pump #3	7.5	5.6	5.0	x			24	120.8	
Submersible Pump #4	7.5	5.6	5.0			x	0	0.0	
									660
TF Recirculation Pumps									
Recirculation Pump #1	20	14.9	13.4	x			24	322.1	
Recirculation Pump #2	20	14.9	13.4	x			24	322.1	
Recirculation Pump #3	20	14.9	13.4	x			24	322.1	
Recirculation Pump #4	20	14.9	13.4	x			24	322.1	
									1,289
Secondary Clarifier Mechanical									
Sludge Scraper Drive #1	3	2.2	2.0		x		6	12.1	
Sludge Scraper Drive #2	3	2.2	2.0			x	0	0.0	
									12
Sludge Transfer Pumps									
WAS Pump #1	5	3.7	3.4		x		2	6.7	
WAS Pump #2	5	3.7	3.4		x		2	6.7	
WAS Pump #3	5	3.7	3.4		x		2	6.7	
WAS Pump #4	5	3.7	3.4		x		2	6.7	
									27
Aerobic Sludge Storage									
PD Aeration Blower #1	25	18.6	16.8	x			24	402.7	
PD Aeration Blower #2	25	18.6	16.8			x	0	0.0	
									403

	Rated Pump Motor (Hp)	Rated Pump Motor (kW)	Average Duty Load (kW)	Duty: Continuous	Duty: Intermittent	Duty: Standby	Average Hours per day	Average kWh per day	Subtotal kWh per day
Microfiltration Feed Pumps									
Submersible Pump #1	10	7.5	6.7		x		22	147.6	
Submersible Pump #2	10	7.5	6.7		x		22	147.6	
Submersible Pump #3	10	7.5	6.7			x	0	0.0	
									295
Disinfection - Low Pressure High Output UV									
UV Lamps - use 1.0 kWh/kgal			54	x			24	1,296.0	
									1,296
Effluent Pump Station									
Ag Delivery Pump #1	40	29.8	26.8		x		12	322.1	
Ag Delivery Pump #2	10	7.5	6.7		x		20	134.2	
Ag Delivery Pump #3	40	29.8	26.8			x	0	0.0	
Utility Water Pump #1	10	7.5	6.7		x		4	26.8	
Utility Water Pump #2	10	7.5	6.7			x	0	0.0	
									483
Solids Dewatering/Composting									
Monobelt Mini-Press	6	4.5	4.0		x		5	20.1	
Solar Sludge Dryer	5	3.7	3.4		x		18	60.4	
									81
Odor Control									
Process Blower #1	10	7.5	6.7	x			24	161.1	
Process Blower #2	10	7.5	6.7	x			24	161.1	
Process Blower #3	10	7.5	6.7			x	0	0.0	
Treatment Bldg Exhaust #1	3	2.2	2.0	x			24	48.3	
Treatment Bldg Exhaust #2	3	2.2	2.0			x	0	0.0	
									370
Facitliy Lighting, Instrumentation, HVAC, and Other Ancillary Loads									
Lump Sum Estimate				x				50.0	
									50

Summary: Energy Intensity for Collection and Treatment

Total kWh Load per day @ 1.3 mgd	**5,676**

Summary: Energy Intensity by Category	**kWh/dy**	**kWh/af**
Collection	**705**	**177**
Headworks	**5**	**1**
Secondary Treatment	**2,391**	**599**
Filtration	**295**	**74**
Disinfection	**1,296**	**325**
Odor Control	**370**	**93**
Solids Dewatering	**81**	**20**
Effluent Pumping	**483**	**121**
Ancillary Loads	**50**	**13**
Totals	**5,676**	**1,423**

Energy Intensity Reference Values for Various Secondary Treatment Unit Processes

Treatment Description	All Values converted to kWh/acre-foot				
	Burton 1996 National Average	Reardon 2001 Benchmark Average	NRDC 2004 1-mgd facility	NRDC 2004 100-mgd facility	Günder 2001 MCASP
Lagoons	--	245	--	--	--
Trickling Filter	311	380	580	225	--
Activated Sludge	431	660	750	340	615
Extended Aeration/Oxidation Ditch	--	945	--	--	--
Advanced Treatment without Nitrification	502	--	865	400	--
Advanced Treatment with Nitrification	623	--	980	520	--
MBR activated sludge @ 15 g/L MLSS	--	--	--	--	1,235
MBR activated sludge @ 25 g/L MLSS	--	--	--	--	2,470

List of Sources

1. Burton, Franklin L., 1996, *Water and Wastewater Industries: Characteristics and Energy Management Opportunities.* (Burton Engineering) Los Altos, CA, Report CR-106941, Electric Power Research Institute Report, p. 2-45.
2. Reardon, D.J., *Strategies for Managing Spiraling Energy Costs,* in California Water Environment Association Summer 2001 Bulletin, p.25.
3. Natural Resources Defense Council and Pacific Institute, *Energy Down the Drain, the Hidden Costs of California's Water Supply,* 2004, Table 6.
4. Günder, Berthold, Ph.D., *The Membrane-Coupled Acrivated Sludge Process in Municipal Wastewater Treatment,* 2001, p. 173.

Pacific Gas & Electric Company

Rates Effective: April 1, 200[illegible] resent

Bundled Commercial Rate Schedule A-10 Time-of-Use

Rate Schedule	Customer Charge	Optional Meter Data Access Charge	Season	Demand Charge (per kW)	Time-of-Use Period	Energy Charges (per kWh)	"Average" Total Rate[1] (per kWh)
A-10 TOU Secondary (Non-FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.	$2.80253 per meter per day	$0.98563 per meter per day	Summer	$10.93	Peak	$0.14666	$0.14705
					Part-Peak	$0.13551	
					Off-Peak	$0.11263	
			Winter	$5.78	Part-Peak	$0.10640	
					Off-Peak	$0.08978	
A-10 TOU Primary (Non-FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.			Summer	$10.35	Peak	$0.14658	$0.14103
					Part-Peak	$0.13653	
					Off-Peak	$0.11315	
			Winter	$5.29	Part-Peak	$0.10553	
					Off-Peak	$0.08996	
A-10 TOU Transmission (Non-FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.			Summer	$7.45	Peak	$0.14033	$0.12969
					Part-Peak	$0.12980	
					Off-Peak	$0.10538	
			Winter	$3.51	Part-Peak	$0.10236	
					Off-Peak	$0.08596	
A-10 TOU Secondary (FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.	$2.80253 per meter per day	$0.98563 per meter per day	Summer	$10.93	Peak	$0.15155	$0.14705
					Part-Peak	$0.14040	
					Off-Peak	$0.11752	
			Winter	$5.78	Part-Peak	$0.11129	
					Off-Peak	$0.09467	
A-10 TOU Primary (FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.			Summer	$10.35	Peak	$0.15147	$0.14103
					Part-Peak	$0.14142	
					Off-Peak	$0.11804	
			Winter	$5.29	Part-Peak	$0.11042	
					Off-Peak	$0.09485	
A-10 TOU Transmission (FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10 TOU. Part of customer's bill varies according to the customer's maximum monthly electric demand.			Summer	$7.45	Peak	$0.14522	$0.12969
					Part-Peak	$0.13469	
					Off-Peak	$0.11027	
			Winter	$3.51	Part-Peak	$0.10725	
					Off-Peak	$0.09085	

				Secondary	Primary	Transmission		Secondary	Primary	Transmission	
A-10 (Non-FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10. Part of a customer's bill varies according to the customer's maximum monthly electric demand.	$2.80253 per meter per day	$0.98563 per meter per day	Summer	$10.93	$10.35	$7.45		$0.12776	$0.12824	$0.12115	$0.14700
			Winter	$5.78	$5.29	$3.51		$0.09805	$0.09771	$0.09412	
A-10 (FTA Rates) Customers with high electric use and medium to high load factors generally benefit under Schedule A-10. Part of a customer's bill varies according to the customer's maximum monthly electric demand.			Summer	$10.93	$10.35	$7.45		$0.13265	$0.13313	$0.12604	
			Winter	$5.78	$5.29	$3.51		$0.10294	$0.10260	$0.09901	

[1]Based on estimated forecast. Average rates provided only for general reference, and individual customer's average rate will depend on its applicable kW, kWh, and TOU date

Note: **Summer** Season: May-October **Winter** Season: November-April

This table provided for comparative purposes only. See current tariffs for full information regarding rates, application, eligibility and additional options.

Dana Ripley

From: Nishi, Greg [GHN2@pge.com]
Sent: Monday, July 24, 2006 9:37 AM
To: Dana Ripley
Subject: RE: LO Power rates

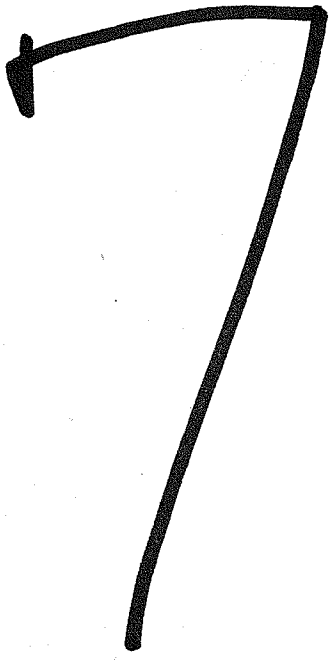
Dana, Yes A-10 given your information. Yes $.14705/Kwh is good ballpark #. I do not know of any official policy as to rate projections. I personally would input 3% per year just to be safe.

Greg

From: Dana Ripley [mailto:Ripac@comcast.net]
Sent: Monday, July 24, 2006 8:55 AM
To: Nishi, Greg
Subject: LO Power rates

Greg, question – if the LO ww plant uses say 5,000 kWh per day (say peak load of 250 kW), would the A-10 rate schedule apply? The E-20 table indicates >1,000 kW, so may not apply to this facility. For budgeting, we are using $0.14705/kWh. Does this sound reasonable? Any estimate of rate increases over the 2 to 5 year horizon? Your guidance on these power issues appreciated. Dana

Dana K. Ripley, P.E.
Ripley Pacific Company
5820 Stoneridge Mall Road, Suite 100
Pleasanton, CA USA 94588-3275
925-847-2086 Fax 925-398-8498
Ripac@comcast.net



SEE PG 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2007-0108

ALLOWING AN EXEMPTION FOR AN ENGINEERED RESIDENTIAL WASTEWATER DISPOSAL SYSTEM UNDER WASTE DISCHARGE REQUIREMENTS ORDER NO. 85-039 FOR 967 SIERRA BROOKS DRIVE (LOT NO. 81) SIERRA BROOKS SUBDIVISION UNIT 2A, LOYALTON SIERRA COUNTY

WHEREAS, the Central Valley Regional Water Quality Control Board (hereafter "Regional Water Board") proposes to grant an exemption for an engineered residential wastewater treatment and disposal system for Lot No. 81 at 967 Sierra Brooks Drive, Loyalton (APN 016-200-050) in the Sierra Brooks Subdivision under the terms and conditions of Waste Discharge Requirements (WDRs) Order No. 85-039; and

WHEREAS, Discharge Prohibition A.1. of WDRs Order No. 85-039 states, in part: "An exemption may be approved by the Regional Board if a report is prepared by a civil engineer registered in the State of California, supporting the engineering conclusion that a septic tank/leaching system on the parcel(s) in question will provide adequate treatment and disposal....The report must be approved by the Sierra County Health Department and the Regional Board before an exemption may be issued"; and

WHEREAS, the primary concern with residential wastewater disposal on this lot (and many other lots in the subdivision) is inadequate groundwater separation and high housing density. Evidence of seasonal high groundwater at 20 inches below ground surface (bgs) was reported for this lot. Order No. 85-039 requires a minimum of 60 inches of soil separation between the bottom of leachline trenches and water, rock, or the first impervious layer; and

WHEREAS, the proposed engineered on-site wastewater treatment and disposal system will consist of a septic tank, recirculating textile filter, pump tank, and pressure-dosed mound system for a three-bedroom residence. Wastewater will be pre-treated in a 1,500-gallon septic tank equipped with a recirculating textile filter. Pretreated septic tank effluent will be pumped to an engineered mound leaching system for disposal. The mound will be constructed of silty sand, and there will be a minimum of 40 inches of this engineered fill below the bottom of the distribution trenches. The three distribution trenches will be three feet wide by 54 feet long. The distribution pipes will have a minimum depth of 10 inches of gravel bedding, 2 inches of gravel cover, and 12 inches of capping fill. Pressure distribution of effluent to the trenches will provide even distribution across the disposal area. The design is based on an average percolation rate of 27.8 minutes per inch and a peak flow of 450 gallons per day; and

WHEREAS, Regional Water Board staff has reviewed the engineered residential wastewater treatment and disposal system design report submitted by Coombs Engineering Inc., dated 23 March 2007;

WHEREAS, the Sierra County Health Department has reviewed and approved the engineered system design report, including the conditions recommended by Regional Water Board staff; and

WHEREAS, Regional Water Board staff has reviewed the design report and concurs that the engineered system design, with conditions, will provide adequate treatment and disposal of domestic wastewater for the proposed residence; and

WHEREAS, the engineered system design and conditions recommended by Regional Water Board staff should ensure the long-term protection of water quality; and

WHEREAS, the action to grant this exemption under WDRs Order No. 85-039 for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance with Title 14, California Code of Regulations (CCR), Section 15301; and

WHEREAS, the Regional Water Board considered all testimony and evidence at a public hearing held on 2 August 2007 in Sacramento, California.

THEREFORE BE IT RESOLVED that the California Regional Water Quality Control Board, Central Valley Region, finds as follows for the residence at 967 Sierra Brooks Drive:

1. The engineered system shall be installed as described in the engineered system design report submitted on 23 March 2007, and in accordance with the following conditions:

    a. The septic tank and pump tank shall be manufactured in accordance with the American Society of Testing and Materials (ASTM) C1227 Standard Specification For Precast Concrete Septic Tanks;

    b. Tank lids and all tank penetration points shall be sealed to prevent groundwater inflow;

    c. A minimum set back distance of 10 feet shall be maintained between all property lines and the base of the mound system; and

    d. The bottom of each distribution trench shall be level.

2. The engineered system shall be operated and maintained in a manner consistent with the following conditions:

    a. Erosion of the mound fill shall be prevented and controlled to the maximum practical extent;

    b. Vegetation grown on the mound must be selected and maintained to prevent invasive root systems growing within the disposal trenches; and

    c. The engineered wastewater treatment system shall be operated and maintained in accordance with the manufacturer's recommendations.

3. The following additional conditions shall apply:

    a. The residence shall contain no more than three bedrooms;

    b. All plumbing fixtures associated with the dwelling shall be low-flow fixtures;

    c. During construction of the proposed residence and wastewater disposal system, a stub-out shall be provided for future connection to a community collection system;

    d. A 100% replacement mound area shall be reserved until a community wastewater collection, treatment and disposal system is available;

    e. The residence shall be connected to a community wastewater collection, treatment and disposal system if the alternative system fails and a community system is operational; and

    f. Conditions of this Resolution and those required by Sierra County Health Department shall be recorded as a Deed Restriction to notify future owners that this property uses an engineered on-site residential wastewater treatment and disposal system, and that maintenance as recommended by the manufacturer shall be performed by a licensed contractor.

4. An exemption under Waste Discharge Requirements Order No. 85-039 is granted for the engineered residential wastewater disposal system, with the above conditions, for Lot No. 81 at 967 Sierra Brooks Drive, Loyalton (APN 016-200-050) in the Sierra Brooks Subdivision.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 2 August 2007.

PAMELA C. CREEDON, Executive Officer

BPK:08/02/2007