Technical Memorandum Name: **Flow and Loads, March 2008**
Commenter: **Surfrider**
Comments Date: **March 19, 2008**
Responses Date: **July 7, 2008**

The following comments were submitted in response to the above listed Technical Memorandum (TM). The TM was developed as part of the EIR process for the project, in order to help facilitate and broaden the discussion of project issues important to the community. The responses should be considered preliminary because the EIR process is not complete, and the information necessary to fully respond has not yet been developed. The project team is grateful to those citizens who took the time to review the TM and provide comments at this early stage in the process. The project team will endeavor to fully address the comments and concerns through the on-going project development process.

	Comment	Response
1	The mission of the San Luis Bay (SLB) Chapter of the Surfrider Foundation is to preserve, enhance, and protect the biological health of our coastal environment and its contributing watersheds. The complex water supply and treatment challenges of the Central Coast require creative solutions, and specifically, the Los Osos Wastewater Treatment Project is an opportunity to implement best available sustainable water management and sewage treatment techniques. SLB Surfrider understands that the LOWWP Technical Advisory Committee has requested questions and feedback on Technical Memorandums as they are being reviewed. As per the Technical Memorandum reviewing Flows and Loads we believe further analysis is warranted for *sealed*, flexible (HDPE) pipe solutions for the collection system be it traditional gravity or STEP/STEG. Our reasons for this recommendation are as follows:	Regarding the performance of various types of collection system pipes, the project team continues to investigate the performance of HDPE systems and PVC systems. To date, research has shown that both systems perform well in wastewater collection applications. A key finding is that although bell and spigot systems have a very long track record, their shortcomings are mostly due to the type of pipe used, not to the type of joint. That is, bell and spigot joints have been used with clay and composite concrete pipe for decades, with failures due to the pipe material, not to the joint of joint sealing mechanism. Ongoing investigation into these systems continues, with questions about seismic performance, costs, and resistance to site conditions being considered.
2	Los Osos' sandy soil makes traditional gravity bell and spigot (non-sealed) joints vulnerable to loosening over time and thus places the groundwater at risk of contamination by raw sewage (exfiltration) leaking into the ground filtering down to the aquifer. We are aware that 45 miles of pipe will be laid for a collection system with joints at all intersections as well as to each residential and business property. Unlike STEP, which is pressurized and therefore easier to monitor for leaks, traditional gravity pipes with bell and spigot joints can put groundwater at risk of	To date there is no clear evidence that Los Osos soils contribute to subsurface movement or loosening of pipe joints over time. Regarding leaks and leak detection, it should be noted that all STEP system concepts for Los Osos include elements of STEG collection, that is, part of the system uses STEG collection and is not pressurized. Leak detection in gravity systems involves monitoring flows and visually inspecting pipes via cameras to identify exfiltration as well as infiltration. Pressurized systems are primarily subject to exfiltration, because of the small

	contamination without knowing. At a time when State water resources are becoming more and more limited, it is wise to preserve the purity of the Los Osos aquifer, therefore ensuring that it will be a self-sustaining community in its water usage.	diameter pipes and the potential for substantial leakage through small openings. Cameras are generally not used to inspect pressurized systems. Only large leaks, or pipe breaks, are expected to be evident at the ground surface. Leak detection (where leakage is not evident on the ground surface) typically utilizes microphones. The EIR will examine the degree to which the potential for leakage places groundwater supplies at risk.
3	Los Osos is in earthquake country and this also puts unsealed pipes at risk of opening over time. Considering Los Osos resides on the stillest part of the Morro Bay Estuary, the newly designated State Marine Reserve (SMR), where contamination from raw sewage leaks would be most detrimental to the health of the bay and our local wildlife, it seems reasonable to design the collection system in a proactive manner. Los Osos citizens deserve a system that protects their environment and resources, and prevents fines/spills that could have been prevented by sealed pipe technologies.	The term "unsealed pipes" is not accurate. All systems under consideration for Los Osos use methods that seal all pipe joints to pressures greater than what would be experienced by the system. It should also be noted that all underground piping systems have flexibility as part of the design in order to move with the ground during seismic events. Many elements must be considered in the design of the system, and while water quality is critical, affordability is also an important issue.
4	Los Osos is unique in its proximity to seawater and this too warrants the necessity of greater consideration of sealed pipe solutions to ensure that seawater does not seep into opened joints (infiltration) and into the wastewater treatment process.	Sea water intrusion is not expected to occur in the **upper** aquifer as a result of ceasing septic tank discharges and constructing a community sewer. There is sufficient hydraulic pressure to maintain a fresh water balance in the upper aquifer. Sea water intrusion is occurring in the **lower** aquifer.
5	Over time loosened joints would also allow rainwater and groundwater to leak into the pipes, thereby reducing the natural recharge to the aquifer, and, increasing the load on the sewer system.	As noted above, there is no clear evidence that Los Osos soils contribute to subsurface movement or loosening of pipe joints over time. Additionally, the project is expected to have provisions for returning treated effluent to the basin, so there would be no net loss of groundwater due to infiltration.
6	Furthermore, we believe analysis of I/I at manholes and pump stations must be considered, allowing for proactive solutions rather than costly fines from contaminating the SMR and Los Osos' groundwater. The analysis of I/I and exfiltration must also address the system's longevity. Can bell and spigot joints remain intact in sandy soil/earthquake country for 10 years? 20 years? 50 years? If not, bell and spigot joints should be ruled out and only sealed systems considered. As per our *Key Environmental Issues Statement* (KEIS), SLB Surfrider continues to recognize STEP (central treatment or decentralized) as the more viable treatment technology. Additionally, we encourage your consideration of implementing	Consideration of I/I would include all elements of any wastewater collection system, whether it be gravity, step, or a combination of gravity and pressure sewer collection. All systems have the potential for I/I, although potentially at different locations in the system. A key component of the EIR will be to consider the environmental effects of I/I, in order to determine how this issue ranks in importance when compared to other impacts that various system approaches might present. With respect to various water saving and flow reducing technologies, it will be important to develop a wastewater system that maximizes the opportunities for the community to build upon the foundation provided by the project, and to avoid projects that foreclose opportunities for innovation.

	appropriate technologies such as rainwater cisterns, composting toilets, and greywater systems to conserve water and reduce the overall load on the wastewater treatment system.	