

**Las Virgenes Creek**

Construction Code	Project Codes	Project Description	Assumptions	Study & Design Cost	Construction & Inspection Cost	Total Design & Construction	Projected O & M Costs	Comments	Priority
FH-LV01	LVC07, LVC08	Project is located to the west of Las Virgenes Rd and north of hwy 101. Recontour hwy fill area to widen floodplain to ~150' along 250' of the creek. Remove stand of eucalyptus and other exotic species. Establish riparian woodland habitat.	Project earthwork can be balanced on-site.	\$28,970.00	\$171,497.58	\$200,467.58	\$32,750.00	The area apparently gets heavy transient use.	Low
FH-LV02	LVC13, LVC14, LVC19	At LVC13, treat this area as an enhancement project, preserving all existing native material. Enhancement plantings should be installed at the toe of the slope, and in bare areas on the banks. Minor hand grading may be beneficial in some areas. At LVC14, to increase velocity, we recommend narrowing the effective flow area of the channel through strategic alternating placement of boulders, logs, and/or plantings. Changes in stream grade as recommended in the master plan are not feasible. At LVC19, Clean up trash and debris in the area. Plant <i>Bacharis sarothroides</i> , <i>Juglans</i> and <i>Salix</i> in the gully and immediate surrounding area. It is unlikely this area would be attractive as a mitigation area, so we recommend a limited maintenance and monitoring program of 2 years.		\$21,645.00	\$25,227.30	\$46,872.30	\$30,300.00	The entire existing riparian corridor in this reach is heavily vegetated with native species and many large mature trees. Grading solutions will come at a high temporary cost to habitat.	Moderate to low
FH-LV03	LVC16	Remove the entire line of Pepper Trees along parking lot and replace with native species that can double as attractive landscape plants. Recontour the banks of the fill area and revegetate the area with native riparian forest.	Access will be possible through the adjacent parking lot. Earthwork cannot be balanced on-site.	\$18,060.00	\$106,350.00	\$124,410.00	\$36,500.00		High
FH-LV04	LVC18, LVC20, LVC24	At LVC18, lay back the banks to a maximum grade of 1:1, preferably 2:1. Leave a portion of the bench, and be careful for the sewer lines. Grading in most areas should start just up-slope from the existing large trees. Salvage willows for replanting (other species as feasible). At LVC20, remove and kill all Eucalyptus and other exotic species. Expand riparian forest habitat to the top of banks and as far beyond as possible, roughly 15-20 feet. At LVC24, remove the storage yard and lay back banks to a more stable angle along 250' of creek, and revegetate the entire reach with riparian forest species.	Heavy equipment access exists to all sites without access improvements.	\$43,670.00	\$344,677.68	\$388,347.68	\$69,500.00		High
FH-LV05	LVC23, LVC29	At LVC23, plant riparian forest habitat in the flat area between the toe of upland slopes and the riparian habitat to the east. At LVC29, eradicate the Tamarisk, Fennel and other exotic species and replace it with riparian woodland species.		\$9,910.00	\$16,536.34	\$26,446.34	\$43,250.00	This project has an excellent likelihood of success.	Moderate

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FH-LV06	LVC25	Any efforts to eradicate this species that are not done throughout the entire watershed will be wasted effort, because the species is highly mobile. This project should be addressed as a multi-year watershed-level eradication. A Biological Opinion from the USFWS will be necessary prior to the project, and at least one senior-level biologist will need to participate in the field work. A biological team should walk the entire length of the creek each year, catching and killing crayfish seen in all pools along the way. The project should be in-place for a minimum of 5 years.	Procambaris clarkii is present and represents a threat to valued and/or protected native species.	\$18,000.00	\$33,000.00	\$51,000.00	\$132,000.00	LVC25 is listed in the master plan as eradication of Procambarus clarkii, which is a non-native crayfish that can prey on arroyo toad tadpoles. We did not directly observe the species during our field work, and could not in the time allotted conduct a more thorough investigation to determine its presence and extent. This cost estimate is based on virtually no site-specific factual information and should be used accordingly.	Low
FH-LV07	LVC32, LVC33	At LVC32, large-scale earthwork in this area would be impractical due to access limitations on the west bank, and the relatively low benefit from the project. More economically practical benefit will be realized by reinforcing the toe of the slope through plantings and bioengineering along the 150' project length. At LVC33, Investigate the exact alignment of the sewer infrastructure and the possibilities for relocating it, if necessary. If relocation would be necessary, but not feasible, then this project should not be pursued further. If relocation is not necessary or is feasible, then this project should recontour the banks to create 2:1 or gentler slopes and plant the area with riparian forest species.	There is no current public safety issue at these sites.	\$33,030.00	\$253,579.00	\$286,609.00	\$47,250.00	These project sites are similar in nature to much of this reach of Las Virgenes Creek. All of these projects would benefit from further investigation of its historical morphology.	Low
FH-LV08	LVC35, LVC36	At LVC35, do not recontour the banks; it would impact high quality habitat. Instead, expand riparian forest plantings as far as conditions will allow, roughly .14 acre, and implement a 3-5 year maintenance and monitoring program. At LVC36, recontour the side drainage to accommodate a 10-year storm or greater and design a cobble and boulder bed that will withstand the erosive forces of a 100-year storm. Plant the banks of the channel with facultative wetland species and upland species that will provide stability. Establish a consistent longitudinal grade along its length to avoid a drop at the end.		\$26,310.00	\$54,578.57	\$80,888.57	\$36,250.00	Two relatively small oak trees will be impacted by grading.	Moderate
FH-LV09	LVC41, LVC42	At LVC41, lay back the vertical portion of the slope only and do not disturb the bottom 1/3 of the bank. Protect the bottom 1/3 of the bank from high flow events with dense plantings and bioengineering treatments such as brush mattresses. At LVC42, eradicate Vinca major and replant with native species as necessary. Maintain and monitor the site for 3-5 years to ensure eradication.	Vinca is limited to the specified project area.	\$29,190.00	\$55,505.80	\$84,695.80	\$48,750.00		Moderate