

# Memo

TO: 90% Design Review Attendees

FROM: Tonia M. Tabucchi Herrera, PE, Senior Engineer

DATE: April 7, 2022

**SUBJECT: Hemphill Diversion Structure Fish Passage Project – roughen ramp examples**

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***ENGINEERING***

Please find the below links for references for roughen rock ramps currently in service that may be of interest.

<https://fishways.wordpress.com/types-of-fishways/>

[https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1473&context=fishpassage\\_conference](https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1473&context=fishpassage_conference)

<http://www.sanmateorcd.org/alpine-creek-fish-passage-project-complete/>

<https://secure.rco.wa.gov/prism/search/projectsnapshot.aspx?ProjectNumber=07-1551#ProjectSnapshotAttachments>

[https://www.usbr.gov/tsc/techreferences/mands/mands-pdfs/RockRampDesignGuidelines\\_09-2007\\_508.pdf](https://www.usbr.gov/tsc/techreferences/mands/mands-pdfs/RockRampDesignGuidelines_09-2007_508.pdf)

[https://www.fs.fed.us/t-d/pubs/pdf/StreamSimulation/lo\\_res/AppendixF.pdf](https://www.fs.fed.us/t-d/pubs/pdf/StreamSimulation/lo_res/AppendixF.pdf)