

Roads Prescription-Scale Effectiveness Monitoring Project Implementation Plan, 02/27/2018

Overview

The Road BMP TWIG proposes the following:

1. The TWIG members become the Project Team;
2. Installation of the first 40 sites occurs during the summer of 2018 (FY2018-FY2019);
3. Installation of the second 40 sites occurs during the summer of 2019 (FY2019-FY2020); and
4. A total of 5-6 contracts are written, three for Project Team participation (University of Washington, United States Forest Service, Catchment Aquatic Ecology), one (or two because of geographic distances) for a road contractor to do installation and long-term road maintenance, and one for personnel to assist with installation and do long-term equipment maintenance and data collection.

Project Team

Project Member	Affiliation	Role
Howard Haemmerle	WADNR	Project manager
Heather Gibbs	WADNR	Project manager
Charlie Luce	USFS	Principal investigator
Erkan Istanbuluoglu	University of Washington	Academic advisor to PhD dissertation (modeling effort)
Amanda Manaster	University of Washington	PhD candidate
Tom Black	USFS	Equipment expert
Bob Danehy	Catchment Aquatic Ecology	Field assistant and data analyst
Julie Dieu	Rayonier (CMER Representative)	Field assistant and data analyst

Implementation Tasks

Below, we list the major tasks for each fiscal year of this project. A detailed budget is provided in Attachment 1.

FY2018

- Project team contracts (completed)
- Landowner access agreement for first 40 sites
- Road contractor RFQQ + contract
- Purchase of small tools, 60 steel troughs, tipping bucket retrofitting
- Excavation of first 40 sites; application of marginal rock
- Locate second 40 sites

FY2019

- Landowner access agreements for second 40 sites
- Maintenance contractor RFQQ + contract
- Equipment installation/maintenance at first 40 sites
- Road contractor RFQQ + contract (if second contractor necessary)
- Purchase of 70 steel troughs, 80 18-inch pipes, 90 suspended solids tanks, 10 each extra tipping buckets and sediment tubs
- Excavation of second 40 sites; application of marginal rock
- Year 1 of Ditch Line Hydraulics Parameterization Experiment

FY2020

- Equipment installation/maintenance at second 40 sites
- Monthly maintenance of all 80 sites
- Year 2 of Ditch Line Hydraulics Parameterization Experiment
- Year 1 of Road Micro-Topography Evolution Parameterization Experiment
- Sediment Trap Efficiency Parameterization Experiment

FY2021

- Monthly maintenance of all 80 sites
- Year 3 of Ditch Line Hydraulics Parameterization Experiment
- Year 2 of Road Micro-Topography Evolution Parameterization Experiment
- Year 1 of Short-Time-Scale Interactions Parameterization Experiment

FY2022

- Monthly maintenance of all 80 sites
- Year 4 of Ditch Line Hydraulics Parameterization Experiment
- Year 2 of Short-Time-Scale Interactions Parameterization Experiment
- Change 12 of first 40 sites to quality rock
- Ditch line BMP changes to first 40 sites

FY2023

- Monthly maintenance of all 80 sites
- Year 1 of GRAIP/WARSEM Delivery Analysis and Survey Parameterization Experiment
- Change 12 of second 40 sites to quality rock
- Ditch line BMP changes to second 40 sites
- Interim report from project team

FY2024

- Monthly maintenance of all 80 sites
- Year 2 of GRAIP/WARSEM Delivery Analysis and Survey Parameterization Experiment

FY2025

- Monthly maintenance of second 40 sites
- Removal of first 40 sites

FY2026

- Removal of second 40 sites
- Final report from project team

Attachment 1: Annual Budget Estimates

FY 2018 - until June 30, 2018

- \$116,267 UW
 - \$27,000 (60) steel troughs
 - \$8,000 for tools (4)
 - \$45,000 excavator installation (first 40 sites)
 - \$50,000 rock ditch grading
 - \$11,000 TWIG labor (1 week for Tom and 2 weeks for Bob)
 - \$20,000 tipping buckets retrofit
- = \$277,267 (~\$295,000 rounding)

FY 2019- until June 30, 2019

- \$121,452 UW
 - \$31,500 (70) steel troughs
 - \$55,000 (10 ea.) extra tipping buckets and tubs
 - \$55,000 excavator installation (second 40 sites)
 - \$50,000 rock ditch grading
 - \$41,500 TWIG labor (6 weeks for Tom and 5 weeks for Bob)
 - \$26,000 18" pipes
 - \$6,300 (90) suspended solids tanks
 - \$32,000 contractor hired to set up first 40 tanks (2 people for 4 weeks)
 - \$12,000 emptying of buckets (2 people- scientist, tech for 2 months- 40 sites)
 - \$88,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- first 40 sites)
 - \$10,000 ditch line hydraulics (water tanker, 1 week for Charlie)
 - \$10,000 Principal Investigator participation (data management, oversight)
- = \$538,752 (~\$545,000 rounding)

FY 2020- until June 30, 2020

- \$141,000 UW (micro-topography addition)
- \$15,000 excavator maintenance
- \$34,000 TWIG labor (5 weeks for Tom and 4 weeks for Bob)
- \$32,000 contractor hired to set up second 40 tanks (2 people for 4 weeks)
- \$36,000 emptying of buckets (2 people- scientist, tech for 2 months- all sites)
- \$56,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- first 40 sites)
- \$88,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- second 40 sites)
- \$10,000 ditch line hydraulics (water tanker, 1 week for Charlie)

- \$10,000 sediment trap efficiency (1 week for Charlie and a student)
- \$10,000 Principal Investigator participation (data management, oversight)
= \$432,000 (~\$440,000 rounding)

FY 2021- until June 30, 2021

- \$146,000 UW (micro-topography addition)
- \$15,000 excavator maintenance
- \$28,000 TWIG labor (4 weeks for Tom and 4 weeks for Bob)
- \$48,000 emptying of buckets (2 people- scientist, tech for 2 months- all sites)
- \$112,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- all sites)
- \$10,000 ditch line hydraulics (water tanker, 1 week for Charlie)
- \$10,000 Principal Investigator participation (data management, oversight)
- \$20,000 short time scale (dump truck and 2 weeks for 2 TWIG members labor)
= \$389,000 (~\$395,000 rounding)

FY 2022- until June 30, 2022

- \$136,000 UW
- \$25,000 excavator extensive maintenance (change first 40 sites)
- \$28,000 TWIG labor (4 weeks for Tom and 4 weeks for Bob)
- \$48,000 emptying of buckets (2 people- scientist, tech for 2 months- all sites)
- \$112,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- all sites)
- \$10,000 ditch line hydraulics (water tanker, 1 week for Charlie)
- \$20,000 Principal Investigator participation (data management, oversight, interim report)
- \$42,000 quality rock (1000 yds for 12 sites) and transport- change first 40 sites
- \$20,000 short time scale (dump truck and 2 weeks for 2 TWIG members labor)
= \$441,000 (~\$450,000 rounding)

FY 2023- until June 30, 2023

- \$141,000 UW
- \$25,000 excavator extensive maintenance (change second 40 sites)
- \$28,000 TWIG labor (4 weeks for Tom and 4 weeks for Bob)
- \$48,000 emptying of buckets (2 people- scientist, tech for 2 months- all sites)
- \$112,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- all sites)
- \$10,000 Principal Investigator participation (data management, oversight)
- \$42,000 quality rock (1000 yds for 12 sites) and transport- change second 40 sites
- \$35,000 GRAIP/WARSEM survey

= \$441,000 (~\$450,000 rounding)

FY 2024- until June 30, 2024

- \$146,000 UW
 - \$15,000 excavator maintenance
 - \$28,000 TWIG labor (4 weeks for Tom and 4 weeks for Bob)
 - \$48,000 emptying of buckets (2 people- scientist, tech for 2 months- all sites)
 - \$112,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- all sites)
 - \$10,000 Principal Investigator participation (data management, oversight)
 - \$47,000 GRAIP/WARSEM survey
- = \$406,000 (~\$415,000 rounding)

FY 2025- until June 30, 2025

- \$151,000 UW
 - \$7,500 excavator maintenance
 - \$28,000 TWIG labor (4 weeks for Tom and 4 weeks for Bob)
 - \$24,000 emptying of buckets (2 people- scientist, tech for 2 months- second 40 sites)
 - \$56,000 contractor for monthly maintenance (1 person for 7 months (FTE through Feb. 4 months, then half FTE 3 months)- second 40 sites)
 - \$10,000 Principal Investigator participation (data management, oversight)
 - \$10,000 equipment removal and site restoration (first 40 sites)
 - \$5,000 transportation and storage of equipment (first 40 sites)
- = \$291,500 (~\$300,000 rounding)

FY 2026- until June 30, 2026

- \$156,000 UW
 - \$21,000 TWIG labor (3 weeks for Tom and 3 weeks for Bob)
 - \$20,000 Principal Investigator participation (analyzing data, final report)
 - \$10,000 equipment removal and site restoration (second 40 sites)
 - \$5,000 transportation and storage of equipment (second 40 sites)
- = \$212,000 (~\$220,000 rounding)