BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of: Hecla Limited, Mullan, Idaho, Respondent.	DOCKET NO. CWA-10-2024-0027 **CONSENT AGREEMENT** Proceedings Under Section 309(g) of the Clean Water Act, 33 U.S.C. § 1319(g)

I. STATUTORY AUTHORITY

1.1. This Consent Agreement is entered into under the authority vested in the Administrator of the U.S. Environmental Protection Agency (EPA) by Section 309(g) of the Clean Water Act (CWA), 33 U.S.C. § 1319(g).

1.2. Pursuant to CWA Section 309(g)(1)(A), 33 U.S.C. § 1319(g)(1)(A), EPA is authorized to assess a civil penalty against any person that has violated CWA Section 301, 33 U.S.C. § 1311, and/or any permit condition or limitation in a permit issued under CWA Section 402, 33 U.S.C. § 1342.

1.3. CWA Section 309(g)(2)(B), 33 U.S.C. § 1319(g)(2)(B), authorizes the administrative assessment of Class II civil penalties in an amount not to exceed $10,000 per day for each day during which the violation continues, up to a maximum penalty of $125,000. Pursuant to 40 C.F.R. Part 19, the administrative assessment of Class II civil penalties may not exceed $26,685 per day for each day during which the violation continues, up to a maximum penalty of $333,552. *See also* 88 Fed. Reg. 89309 (December 27, 2023) (2024 Civil Monetary Penalty Inflation Adjustment Rule).

1.4. Pursuant to CWA Section 309(g)(1)(A) and (g)(2)(B), 33 U.S.C. § 1319(g)(1)(A) and (g)(2)(B), and in accordance with Section 22.18 of the "Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties," 40 C.F.R. Part 22, EPA issues,

and Hecla Limited (Respondent) agrees to issuance of, the Final Order attached to this Consent Agreement.

II. PRELIMINARY STATEMENT

2.1. Pursuant to CWA Section 309(g)(1)(A) and (g)(2)(B), 33 U.S.C. § 1319(g)(1)(A) and (g)(2)(B), and in accordance with Section 22.18 of the "Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties," 40 C.F.R. Part 22, EPA issues, and Hecla Limited (Respondent) agrees to issuance of, the Final Order attached to this Consent Agreement.

2.2. In accordance with 40 C.F.R. §§ 22.13(b) and 22.18(b), execution of this Consent Agreement commences this proceeding, which will conclude when the Final Order becomes effective.

2.3. The Administrator has delegated the authority to sign consent agreements between EPA and the party against whom a penalty is proposed to be assessed pursuant to CWA Section 309(g), 33 U.S.C. § 1319(g), to the Regional Administrator of EPA Region 10, who has redelegated this authority to the Director of the Enforcement and Compliance Assurance Division, EPA Region 10 (Complainant).

2.4. Part III of this Consent Agreement contains a concise statement of the factual and legal basis for the alleged violations of the CWA, together with the specific provisions of the CWA and implementing regulations that Respondent is alleged to have violated.

III. ALLEGATIONS

Statutory and Regulatory Framework

3.1. At all times relevant to this action, Respondent owned and/or operated the Lucky Friday Mine (the "Facility") located at 397 Friday Avenue in Mullan, Idaho.

3.2. At all times relevant to this action, Respondent owned and/or operated the Lucky Friday Mine (the "Facility") located at 397 Friday Avenue in Mullan, Idaho.

3.3. As provided in CWA Section 101(a), 33 U.S.C. § 1251(a), the objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

3.4. CWA Section 301(a), 33 U.S.C. § 1311(a), prohibits the discharge of pollutants by any person from any point source into waters of the United States except, *inter alia,* as authorized by a National Pollutant Discharge Elimination System (NPDES) permit issued pursuant to CWA Section 402, 33 U.S.C. § 1342.

3.5. CWA Section 502(12), 33 U.S.C. § 1362(12), defines "discharge of a pollutant" to include "any addition of any pollutant to navigable waters from any point source."

3.6. CWA Section 502(6), 33 U.S.C. § 1362(6), defines a "pollutant" to include*, inter alia*, dredged spoil, rock, sand, chemical wastes, and industrial wastes.

3.7. CWA Section 502(14), 33 U.S.C. § 1362(14), defines "point source" to mean any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel or conduit from which pollutants are or may be discharged.

3.8. CWA Section 502(5), 33 U.S.C. § 1362(5), defines "person" as "an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State or any interstate body."

3.9. CWA Section 502(7), 33 U.S.C. § 1362(7), defines navigable waters as "waters of the United States, including the territorial seas."

3.10. CWA Section 402(a), 33 U.S.C. § 1342(a), provides that the Administrator of EPA may issue permits under the NPDES program for the discharge of any pollutant into the waters of the United States upon such specific terms and conditions as the Administrator may prescribe.

General Allegations

3.11. Respondent is a corporation and is therefore a "person" under CWA Section 502(5), 33 U.S.C. § 1362(5).

3.12. At all times relevant to this action, Respondent owned and/or operated the Lucky Friday Mine (the "Facility") located at 397 Friday Avenue in Mullan, Idaho.

3.13. EPA first issued a NPDES permit for the Facility in 1973. On August 12, 2003, EPA issued NPDES Permit No. ID-000017-5 ("2003 Permit"), which became effective on September 14, 2003, and was modified twice with effective dates of February 1, 2006, and August 1, 2008. The 2003 Permit expired on September 4, 2008, and was administratively extended pursuant to 40 C.F.R. § 122.6.

3.14. On June 21, 2019, EPA reissued NPDES Permit NO. ID0000175 ("2019 Permit"), which became effective on August 1, 2019. On August 5, 2019, contested conditions of the 2019 Permit were stayed. On September 10, 2020, EPA issued a modified 2019 Permit, effective November 1, 2020.

3.15. At all times relevant to this action, Respondent was authorized to discharge wastewater containing pollutants from the Facility pursuant to the 2003 and 2019 Permits.

3.16. On June 10, 2019, an authorized representative of EPA conducted a compliance inspection of the Facility to determine Respondent's compliance with the 2003 Permit and CWA Sections 301 and 402, 33 U.S.C. § 1311 and 1342.

3.17. On April 6, 2021, representatives from the Idaho Department of Environmental Quality conducted a compliance inspection of the Facility to determine Respondent's compliance with the 2019 Permit.

3.18. At all times relevant to this action, the Facility discharged pollutants from three outfalls, Outfalls 001, 002 and 003, which discharge into the South Fork Coeur d'Alene River. Each outfall is a "point source" under CWA Section 502(14), 33 U.S.C. § 1362(14)

3.19. The South Fork Coeur d'Alene River is a relatively permanent tributary of the Coeur d'Alene River, which flows to Lake Coeur d'Alene. Lake Coeur d'Alene is a traditional navigable water. Thus, the South Fork Coeur d'Alene River is a "navigable water" as defined under Section 502(7) of the CWA, 33 U.S.C. § 1362(7).

3.20. Respondent has discharged pollutants from a point source into waters of the United States at the Facility, within the meaning of Section 502(7) of the CWA, 33 U.S.C. § 1362(7).

Violations

3.21. As described below, from January 2018 to February 2024, Respondent violated CWA Section 301, 33 U.S.C. § 1311, and the conditions and/or limitations of the 2003 and 2019 Permits

Count 1 – Lead Exceedances

3.22. Part I.A.1 of the 2003 Permit required that Respondent comply with a lead daily maximum effluent limitation of 50 ug/L discharged from Outfall 002.

3.23. EPA alleges that Respondent violated Part I.A.1 of the 2003 Permit by exceeding the lead daily maximum limit for Outfall 002 on two occasions in February and March 2019. Violations of the 2003 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 2 – Zinc Exceedances

3.24. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc monthly average effluent limitation of 0.271 lb/day discharged from Outfall 002.

3.25. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc monthly average effluent limitation for Outfall 002 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 3 – Zinc Exceedances

3.26. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc monthly average effluent limitation of 57.6 ug/L discharged from Outfall 002.

3.27. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc monthly average effluent limitation for Outfall 002 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 4 – Zinc Exceedances

3.28. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc monthly average effluent limitation of 0.47 lb/day discharged from Outfall 003.

3.29. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc monthly average effluent limitation for Outfall 003 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 5 – Zinc Exceedances

3.30. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc monthly average effluent limitation of 52.9 ug/L discharged from Outfall 003.

3.31. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc monthly average effluent limitation for Outfall 003 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 6 – Zinc Exceedances

3.32. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc daily maximum effluent limitation of 0.686 lb/day discharged from Outfall 002.

3.33. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc daily maximum effluent limitation for Outfall 002 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 7 – Zinc Exceedances

3.34. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc daily maximum effluent limitation of 145.5 ug/L discharged from Outfall 002.

3.35. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc daily maximum effluent limitation for Outfall 002 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 8 – Zinc Exceedances

3.36. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc daily maximum effluent limitation of 1.47 lb/day discharged from Outfall 003.

3.37. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc daily maximum effluent limitation for Outfall 003 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 9 – Zinc Exceedances

3.38. Part I.B.1 of the 2019 Permit requires that Respondent comply with a zinc daily maximum effluent limitation of 164.6 ug/L discharged from Outfall 003.

3.39. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the zinc daily maximum effluent limitation for Outfall 003 in April 2020. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 10 – Lead Exceedances

3.40. Part I.B.1 of the 2019 Permit requires that Respondent comply with a lead monthly average effluent limitation of 12.8 ug/L discharged from Outfall 002.

3.41. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the lead monthly average effluent limitation for Outfall 002 in July and September 2020 and February 2024. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 11 – Lead Exceedances

3.42. Part I.B.1 of the 2019 Permit requires that Respondent comply with a lead monthly average effluent limitation of 0.06 lb/day discharged from Outfall 002.

3.43. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the lead monthly average effluent limitation for Outfall 002 in February 2024. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 12 – Lead Exceedances

3.44. Part I.B.1 of the 2019 Permit requires that Respondent comply with a lead daily maximum effluent limitation of 34.4 ug/L discharged from Outfall 002.

3.45. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the lead daily maximum effluent limitation for Outfall 002 in September and November 2020, June and October 2023, and February 2024. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 13 – Lead Exceedances

3.46. Part I.B.1 of the 2019 Permit requires that Respondent comply with a lead daily maximum effluent limitation of 0.162 lb/day discharged from Outfall 002.

3.47. EPA alleges that Respondent violated Part I.B.1 of the 2019 Permit by exceeding the lead daily maximum effluent limitation for Outfall 002 in February 2024. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 14 – Copper Exceedances

3.48. Part II.A of the 2019 Permit requires that Respondent comply with a copper daily maximum interim effluent limitation of 0.06 lb/day discharged from Outfall 002.

3.49. EPA alleges that Respondent violated Part II.A of the 2019 Permit by exceeding the copper daily maximum interim effluent limitation for Outfall 002 in May 2021. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 15 – Copper Exceedances

3.50. Part II.A of the 2019 Permit requires that Respondent comply with a copper daily maximum interim effluent limitation of 11.7 ug/L discharged from Outfall 002.

3.51. EPA alleges that Respondent violated Part II.A of the 2019 Permit by exceeding the copper daily maximum interim effluent limitation for Outfall 002 in May 2021. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 16 – Copper Exceedances

3.52. Part II.A of the 2019 Permit requires that Respondent comply with a copper daily maximum interim effluent limitation of 8.1 ug/L discharged from Outfall 003.

3.53. EPA alleges that Respondent violated Part II.A of the 2019 Permit by exceeding the copper daily maximum interim effluent limitation for Outfall 003 in August 2023. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 17 – Copper Exceedances

3.54. Part II.A of the 2019 Permit requires that Respondent comply with a copper daily maximum interim effluent limitation of 0.07 lb/day discharged from Outfall 003.

3.55. EPA alleges that Respondent violated Part II.A of the 2019 Permit by exceeding the copper daily maximum interim effluent limitation for Outfall 003 in August 2023. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 18 – Failure to Submit Annual BMP Certification

3.56. Part II.E.2 of the 2003 Permit required Respondent to prepare a certified statement that Respondent's responsible manager and Best Management Practice ("BMP") committee completed an annual review of the BMP Plan and that the BMP Plan fulfills the requirements set forth in the 2003 Permit. The required statement shall be submitted to EPA on or before January 31 of each year.

3.57. EPA alleges that Respondent violated Part II.E.2 of the 2003 Permit by failing to timely submit the annual BMP certification. Violations of the 2003 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 19 – Failure to Monitor E. Coli

3.58. Part I.A.1 of the 2003 Permit required Respondent to conduct monthly monitoring of discharges from Outfalls 002 and 003 for e. coli.

3.59. EPA alleges that Respondent violated Part I.A.1 of the 2003 Permit by failing to monitor discharges from Outfalls 002 and 003 for e. coli in September 2018. Violations of the 2003 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

Count 20 – Failure to Conduct Whole Effluent Toxicity Testing

3.60. Part I.C of the 2019 Permit required Respondent to chronic toxicity tests quarterly during the months of February, May, August and November.

3.61. EPA alleges that Respondent violated Part I.C of the 2019 Permit by failing to conduct a chronic toxicity test in August 2023. Violations of the 2019 Permit are enforceable under CWA Section 309(g), 33 U.S.C. § 1319(g).

IV. SUPPLEMENTAL ENVIRONMENTAL PROJECT

4.1. In response to the alleged violations of CWA Section 301(a), 33 U.S.C. § 1311(a) and in settlement of this matter, although not required by CWA Section 301(a), 33 U.S.C. § 1311(a) or any other federal, state or local law, Respondent agrees to implement a supplemental environmental project (SEP), as described in the Hecla Lucky Friday Mine SEP Proposal (Attachment A).

4.2. In the case of any conflict between the SEP in Attachment A and this Consent Agreement and Final Order (CAFO), the CAFO shall control.

4.3. Respondents shall complete the riparian restoration SEP, consisting of restoring native plant habitat to provide shade benefits intended to reduce instream water temperature and increase inputs of leaf litter and large wood to the stream environment to help maintain diverse and productive stream biota. The riparian restoration work will be done along the South Fork Coeur d'Alene River from Mullan, Idaho upstream past the Hale Fish Hatchery on Respondent's properties. The SEP is more specifically described in Attachment A and incorporated herein by reference.

4.4. Respondent shall complete the entirety of the SEP in two phases as follows:

4.4.1. Phase One: Years -1 and 0 as described in Attachment A, which consists of pre-implementation baseline monitoring, site preparation, planting, and reporting.

4.4.2. Phase Two: Years 1, 2, 3, 4, and 5 as described in Attachment A, which consists of routine maintenance in Years 1 and 2, post-implementation monitoring, reporting, and any necessary adaptive management.

4.5. Respondent shall spend no less than $299,000 on implementing the SEP across both phases. Respondent shall spend no less than $115,000 on Phase One of the SEP and no less than $184,000 on Phase Two of the SEP.

4.6. Respondent shall include documentation of the expenditures made in connection with the SEP as part of each Phase Completion Report. If Respondent's implementation of the SEP Phase, as described in Attachment A, does not expend the full amount set forth in paragraph 4.5, and if EPA determines that the amount remaining reasonably could be applied toward furthering the revegetation project described in Attachment A, such as additional plantings or management of existing plantings, Respondent shall expend the amount remaining to promote revegetation efforts on or adjacent to the SEP sites, as agreed upon by both parties in writing.

4.7. Respondent shall complete both phases of the SEP by March 31, 2031.

4.8. Use of SEP Implementer

4.8.1. SEP Implementer: Respondent has selected Floyd | Snider and Four Peaks Environmental Science and Data Solutions, LLC as contractors/consultants to assist with development and implementation of the SEP.

4.8.2. EPA had no role in the selection of any SEP implementer or specific equipment identified in the SEP, nor shall this CAFO be construed to constitute EPA approval or endorsement of any SEP implementer or specific equipment identified in this CAFO.

4.9. The SEP is consistent with applicable EPA policy and guidelines, specifically EPA's 2015 Update to the 1998 Supplemental Environmental Projects Policy, (March 10, 2015). The SEP advances at least one of the objectives of the CWA, by restoring and maintaining the chemical, physical and biological integrity of the Nation's waters. The SEP is not inconsistent with any provision of CWA Section 301(a), 33 U.S.C. § 1311(a). The SEP relates to the alleged violation(s), and is designed to reduce:

4.9.1. The adverse impact to public health and/or the environment to which the alleged violations contribute, specifically by addressing the causes of elevated water temperature and habitat degradation impacting cold-water aquatic life and salmonid spawning beneficial uses in downstream reaches. In addition, the SEP is intended to reduce overall solar inputs in the upper South Fork watershed, which will help mitigate climate change-related habitat impacts on land and water temperature that will occur in the future.

4.10. Respondent certifies the truth and accuracy of each of the following:

4.10.1. That all cost information provided to the EPA in connection with the EPA's approval of the SEP is complete and accurate and that the Respondent in good faith estimates that the cost to implement the SEP, exclusive of administrative and employee oversight of the implementation costs, is **$299,000** for both phases of the SEP, including $115,000 for Phase One and $184,000 for Phase Two (Hereinafter "Estimated SEP Costs");

4.10.2. That, as of the date of executing this CAFO, Respondent is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;

4.10.3. That the SEP is not a project that Respondent was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this CAFO;

4.10.4. That Respondent has not received and will not have received credit for the SEP in any other enforcement action;

4.10.5. That Respondent will not receive reimbursement for any portion of the SEP from another person or entity;

4.10.6. That for federal income tax purposes, Respondent agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP; and

4.10.7. That Respondent is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as the SEP described in Attachment A.

4.10.8. That Respondent has inquired of the SEP implementer whether it is party to an open federal financial assistance transaction that is funding or could fund the same activity as the SEP and has been informed by the SEP implementer that it is not a party to such a transaction.

4.11. Any public statement, oral or written, in print, film, or other media, made by Respondent or a representative of Respondent making reference to the SEP under this CAFO from the date of its execution of this CAFO shall include the following language: "This project was undertaken in connection with the settlement of an enforcement action taken by the U.S. Environmental Protection Agency for alleged violations of the federal laws."

4.12. SEP Reports.

4.12.1. Phase Two Periodic Reports. Respondent shall submit reports 90 (ninety) days after the end of the year of each monitoring timepoint during Phase Two (i.e., Years 1, 3 and 5), as required by Attachment A, to EPA in accordance with the schedule and requirements recited therein. The Year 5 Periodic Report may be included in the SEP Completion Report. Each Periodic Report shall contain at least the following information with supporting documentation:

4.12.1.1. A detailed description of the SEP as implemented, including photos, field notes, vendor invoices, and other documentation from planting, monitoring, and maintenance events;

4.12.1.2. A description of whether the SEP is achieving the following project performance and success standards outlined in Attachment A:

4.12.1.3. Documentation indicating whether the SEP is likely to achieve the project performance and success standard for total percentage of non-woody species foliar coverage by the end of Year 5 by comparing foliar coverage with the following interim targets:

Year	Total Percentage of Foliar Coverage
1	50%
3	70%
5	90%

If total percentage of foliar cover is less than the value in the table above at the end of any year in which monitoring is conducted, Respondent shall (1) replant or reseed herbaceous species in amounts intended to achieve the 90% foliar cover performance and success standard, and (2) select and implement at least one adaptive management strategy from the list in Paragraph 4.12.2.6.3 below. Respondent must include a detailed description of the amount and type of plants planted or seeds sowed and an explanation of Respondent's choice of adaptive management strategy. Additionally, Respondent shall identify the reason(s) the interim foliar coverage target was not met and how the selected adaptive management strategy was intended to meet the coverage target, and any operating problems encountered and the solutions thereto;

4.12.1.4. A description and documentation of whether the SEP achieved 90% survival of woody species. If that performance and success standard was not met, Respondent shall (1) replant woody species in an amount great enough to reach the 90% target, and (2) select and implement at least one adaptive management strategy from the list in Paragraph 4.12.2.6.3 below. Respondent shall include a detailed description of the amount and type of woody species that were planted to achieve 90% survival and an explanation of how the selected adaptive management strategy or strategies was intended to meet the identified causes of plant mortality. Additionally, Respondent must include an explanation of why the performance metric was not met and any operating

problems encountered and the solutions thereto; and

4.12.1.5. A description and documentation of any maintenance or adaptive management strategies implemented.

4.12.2. Phase Completion Reports. Respondent shall submit reports 90 (ninety) days after the end of the final year of each Phase (i.e., monitoring Years 0 and 5, as defined in Attachment A) to EPA. Each Phase Completion Report shall contain at least the following information with supporting documentation:

4.12.2.1. A detailed description of the SEP phase as implemented, including photos, field notes, vendor invoices, and other documentation from any planting, monitoring, maintenance, and any necessary adaptive management events;

4.12.2.2. A description of any operating problems encountered and the solutions thereto;

4.12.2.3. Itemized costs; and

4.12.2.4. Certification that the SEP phase has been fully implemented pursuant to the provisions of this CAFO.

4.12.2.5. For Phase One, include a description of the pre-implementation monitoring (baseline) outcomes, performed in the summer of Year -1 and Year 0, as outlined in Attachment A, including the assessment of community composition, percent cover of non-woody species, shade, and water temperature measurements for each site, including the control site.

4.12.2.6. For Phase Two, include a description of whether the SEP achieved the project performance and success standards outlined in Attachment A including (1) 90% survival of woody species over the five-year monitoring period, and (2) 90% foliar cover of non-woody/herbaceous species within five years of implementation. If the SEP has not achieved these project performance and success standards, include a detailed description of the management actions Respondent took to address plant mortality and achieve project performance and success standards as follows:

4.12.2.6.1. Woody Species: A detailed description of Respondent's efforts to (1) replant woody species to reach the 90% target in accordance with Attachment A, and (2) a detailed description of at least one adaptive management strategy from the list in Paragraph 4.12.2.6.3 that Respondent took to achieve 90% survival and an explanation of how the selected adaptive management strategy or strategies was intended to achieve the 90% survival target.

4.12.2.6.2. Herbaceous Species: If the SEP does not meet the 90% foliar cover of herbaceous species project performance and success standard, a description of Respondent's efforts to (1) replant or reseed herbaceous species to achieve the 90% foliar cover target in accordance with Attachment A, and (2) a detailed description of at least one adaptive management strategy from the list in Paragraph 4.12.2.6.3. Respondent shall include a detailed description of the amount and type of plants planted or seeds sowed and an explanation of how the selected adaptive management strategy or strategies were intended to achieve the 90% foliar target level.

4.12.2.6.3. Adaptive management strategies which may be used include supplemental irrigation, soil stabilization, weed and invasive species control, soil amendments, pest or disease control, and fencing. Respondent may use a strategy not listed only with prior written approval from EPA. All adaptive management strategies, including control methods used for invasive species, pests, and predators must be done in accordance with all local, state, federal, and Tribal policies.

4.12.3. Respondent agrees that failure to submit any SEP Phase Completion Report or any Periodic Report required by paragraph 4.12 above shall be deemed a violation of this CAFO and Respondent shall become liable for stipulated penalties pursuant to paragraph 4.14 below.

4.12.4. Respondent shall submit all notices and reports required by this CAFO to the following email addresses:

r10enforcement@epa.gov;

Gebhardt.chris@epa.gov; and

moore.johnm@epa.gov.

4.12.5. In itemizing its costs in the SEP Phase Completion Reports, Respondent shall clearly identify and provide acceptable documentation for all Eligible SEP costs. For purposes of this Consent Agreement, "Eligible SEP Costs" includes the planting, maintenance, adaptive management, and monitoring costs specified in Attachment A, Table 5, including any such costs incurred after July 15, 2024 and before the effective date of this Consent Agreement. Where a SEP Phase Completion Report includes costs not eligible for SEP credit, those costs must be clearly identified as such. For purposes of this Paragraph, "acceptable documentation" includes invoices, purchase orders, or other documentation that specifically identifies and itemizes the individual costs of the goods

and/or services for which payment is being made. Canceled drafts do not constitute acceptable documentation unless such drafts specifically identify and itemize the individual costs of the goods and/or services for which payment is being made.

4.13. EPA acceptance of SEP Phase Completion Reports and SEP Periodic Reports.

4.13.1. After receipt of the SEP Phase Completion Reports or SEP Periodic Reports described in Section 4.12 above, EPA will notify the Respondent, in writing, regarding:

4.13.1.1. Any deficiencies in the SEP Phase Completion Reports or SEP Periodic Reports themselves along with a grant of an additional sixty (60) days for Respondent to correct any deficiencies; or

4.13.1.2. Indicate that EPA concludes that the phase or project has been completed satisfactorily; or

4.13.1.3. Determine that the phase or project has not been completed satisfactorily in accordance with Attachment A and seek stipulated penalties in accordance with paragraph 4.14 herein.

4.13.2. If EPA elects to exercise the option in paragraph 4.13.1.1 above (i.e., if the SEP Phase Completion Reports or SEP Periodic Reports are determined to be deficient but EPA has not yet made a final determination about the adequacy of SEP phase completion itself), or if EPA determines that Phase Two was not completed satisfactorily pursuant to paragraph 4.13.1.3, Respondent may object in writing within ten (10) days of receipt of such notification. EPA and Respondent shall have an additional thirty (30) days from the receipt by EPA of the notification of objection to reach agreement on changes necessary to the SEP Phase Completion Report or SEP Periodic Report, or on any outstanding work to complete SEP Phase Two satisfactorily. If agreement cannot be reached on any such issue within this thirty (30) day period, EPA shall provide a written

statement of its decision on adequacy of the completion of the SEP Phase Completion Report, SEP Periodic Report, or SEP Phase Two to Respondent, which decision shall be final and binding upon Respondent. Respondent agrees to comply with any requirements imposed by EPA as a result of any failure to comply with the terms of this CAFO.

4.14. Stipulated Penalties

4.14.1. If Respondent fails to timely submit any SEP Report required by paragraph 4.12, above, in accordance with the timelines set forth in this CAFO and Attachment A, Respondent agrees to the following stipulated penalty for each day after the report was due until Respondent submits the report in its entirety: $200 per day for days 1-30, $300 per day for days 31-60, and $500 per day for every day thereafter.

4.14.2. If, upon review of the SEP Phase One Completion Report, EPA determines that Respondent failed to satisfactorily complete Phase One of the SEP—including failure to prepare or plant each site as required in Attachment A—Respondent agrees to pay the following stipulated penalty for each day the Respondent fails to remedy each deficiency: $500 per day for days 1-30, $750 per day for days 31-60, and $1000 per day for every day thereafter.

4.14.2.1. "Satisfactory completion" of Phase One of the SEP is defined as Respondent spending no less than $115,000 to complete pre-implementation baseline monitoring and planting as required in Attachment A. The determination of whether the SEP has been satisfactorily completed in accordance with Attachment A shall be in the sole discretion of EPA.

4.14.3. If, upon review of a SEP Phase Two Completion Report, EPA determines that Respondent failed to satisfactorily complete the phase in accordance with any requirement in Attachment A—including failure to monitor for percent survival of wood species, percent foliar cover of non-woody/herbaceous species, or riparian shading and

instream water temperature; and/or failure to implement any required adaptive management or maintenance actions—Respondent agrees to pay the following stipulated penalty for each day the Respondent fails to remedy each deficiency: $500 per day for days 1-30, $750 per day for days 31-60, and $1000 per day for every day thereafter.

4.14.4. "Satisfactory completion" of Phase Two of the SEP is defined as Respondent spending no less than $184,000 to complete maintenance, monitoring activities and any necessary adaptive management as required in Attachment A by March 31, 2031. "Satisfactory completion" of Phase Two of the SEP is further defined as Respondent satisfying the project performance and project success standards defined in Attachment A—(1) 90% survival of woody species over the five-year monitoring period, and (2) 90% foliar cover of non-woody/herbaceous species within five years of implementation—or (3) that Respondent implemented adaptive measurement action(s) in accordance with Attachment A and Paragraph 4.12.2.6 intended to achieve the project performance and success standards, but did not achieve either the 90% survival or foliar cover project performance and success standard. The determination of whether the SEP has been satisfactorily completed in accordance with Attachment A shall be in the sole discretion of EPA.

4.14.5. EPA retains the right to waive or reduce a stipulated penalty at its sole discretion.

4.14.6. Respondent shall pay stipulated penalties not more than fifteen (15) days after receipt of written demand by EPA for such penalties. The method of payment shall be in accordance with the provisions of paragraphs 6.5 and 6.6 below. Interest and late charges shall be paid as stated in paragraph 6.7.

V. FORCE MAJEURE

5.1. In the event that there is an actual or anticipated delay attributable to force majeure, the time for performance of the obligation shall be extended by written confirmation of EPA. An extension of the time for performing an obligation directly affected by the force majeure event shall not, of itself, extend the time for performing a subsequent obligation.

5.1.1. For the purposes of this Order, "force majeure" shall mean any event entirely beyond the control of Respondent or any entity controlled by the Respondent, including Respondent's contractors, consultants, and subcontractors that delays or prevents performance of any obligation under this Order notwithstanding Respondent's best efforts to avoid the delay. The best efforts requirement includes using such efforts to anticipate any such event and minimize the delay caused by any such event to the extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Order and financial difficulties encountered by Respondent.

5.1.2. If any event may occur or has occurred that would reasonably be expected to delay or prevent the performance of any obligation under this Order, whether or not caused by a force majeure, Respondent shall notify, by telephone, the EPA contact identified in Section IV, Paragraph 4.12.4 of this Order, within five (5) business days of when Respondent became aware that the event would reasonably be expected to cause a delay or prevent performance. Within seven (7) days thereafter, Respondent shall provide in writing the reasons for the delay, the anticipated duration of the delay, the measures taken or to be taken to prevent or minimize the delay, a timetable by which those measures will be implemented, and whether, in Respondent's opinion, such event may cause or contribute to an endangerment to public health, welfare, or the environment or prevent performance of any obligation under this Order. Respondent shall exercise best

efforts to avoid or minimize any delay and any effects of a delay. Failure to comply with the notice requirements of this paragraph shall preclude Respondent from asserting any claim of force majeure.

5.1.3. Respondent shall have the burden of demonstrating, by a preponderance of the evidence, that the actual or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay was or will be warranted under the circumstances, that the Respondent did exercise or is using best efforts to avoid and mitigate the effects of the delay, and that Respondent complied with the requirements of this section.

VI. TERMS OF SETTLEMENT

6.1. Respondent admits the jurisdictional allegations contained in this Consent Agreement.

6.2. Respondent neither admits nor denies the specific factual allegations contained in this Consent Agreement.

6.3. As required by CWA Section 309(g)(3), 33 U.S.C. § 1319(g)(3), EPA has taken into account "the nature, circumstances, extent and gravity of the violation, or violations, and, with respect to the violator, ability to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require." After considering all of these factors as they apply to this case, EPA has determined that an appropriate penalty to settle this action is $174,300.

6.4. Respondent consents to the assessment of the civil penalty set forth in Paragraph 6.3 and agrees to pay the total civil penalty within 30 days of the effective date of the Final Order.

6.5. Payment under this Consent Agreement and the Final Order may be paid by check (mail or overnight delivery), wire transfer, ACH, or online payment. Payment instructions are

available at: http://www.epa.gov/financial/makepayment. Payments made by a cashier's check or certified check must be payable to the order of "Treasurer, United States of America" and delivered to the following address:

Address format for standard delivery (no delivery confirmation requested):	*Address format for signed receipt confirmation (FedEx, DHL, UPS, USPS certified, registered, etc):*
U.S. Environmental Protection Agency P.O. Box 979078 St. Louis, MO 63197-9000	U.S. Environmental Protection Agency Government Lockbox 979078 1005 Convention Plaza SL-MO-C2-GL St. Louis, MO 63101

Respondent must note on the check the title and docket number of this action.

6.6. Respondent must serve photocopies of the check, or proof of other payment method described in Paragraph 6.5, on the Regional Hearing Clerk and EPA Region 10 Compliance Officer at the following addresses:

Regional Hearing Clerk U.S. Environmental Protection Agency Region 10, Mail Stop 11-C07 1200 Sixth Avenue, Suite 155 Seattle, WA 98101 R10_RHC@epa.gov	Chris Gebhardt U.S. Environmental Protection Agency Region 10, Mail Stop 20-C04 1200 Sixth Avenue, Suite 155 Seattle, WA 98101 gebhardt.chris@epa.gov

6.7. If Respondent fails to pay the penalty assessed by this Consent Agreement in full by its due date, the entire unpaid balance of penalty and accrued interest shall become immediately due and owing. Such failure may also subject Respondent to a civil action to collect the assessed penalty under the CWA, together with interest, fees, costs, and additional penalties described below. In any collection action, the validity, amount, and appropriateness of the penalty shall not be subject to review.

6.7.1. Interest. Pursuant to CWA Section 309(g)(9), 33 U.S.C. § 1319(g)(9), any unpaid portion of the assessed penalty shall bear interest at a rate established by the Secretary of Treasury pursuant to 31 U.S.C. § 3717(a)(1) from the effective date of the

Final Order, provided however, that no interest shall be payable on any portion of the assessed penalty that is paid within 30 days of the effective date of the Final Order.

6.7.2. Attorneys Fees, Collection Costs, Nonpayment Penalty. Pursuant to CWA Section 309(g)(9), 33 U.S.C. § 1319(g)(9), if Respondent fails to pay on a timely basis the penalty set forth in Paragraph 6.3, Respondent shall pay (in addition to any assessed penalty and interest) attorneys fees and costs for collection proceedings and a quarterly nonpayment penalty for each quarter during which such failure to pay persists. Such nonpayment penalty shall be in an amount equal to 20% of the aggregate amount of Respondent's penalties and nonpayment penalties which are unpaid as of the beginning of such quarter.

6.8. The penalty described in Paragraph 6.3, including any additional expenses incurred under Paragraph 6.7, above, represents an administrative civil penalty assessed by EPA and shall not be deductible for purposes of federal taxes.

6.9. Pursuant to 26 U.S.C. § 6050X and 26 C.F.R. § 1.6050X-1, EPA is required to send to the Internal Revenue Service ("IRS") annually, a completed IRS Form 1098-F ("Fines, Penalties, and Other Amounts") with respect to any court order or settlement agreement (including administrative settlements), that require a payor to pay an aggregate amount that EPA reasonably believes will be equal to, or in excess of, $50,000 for the payor's violation of any law or the investigation or inquiry into the payor's potential violation of any law, including amounts paid for "restitution or remediation of property" or to come "into compliance with the law." EPA is further required to furnish a written statement, which provides the same information provided to the IRS, to each payor (i.e., a copy of IRS Form 1098-F). Failure to comply with providing IRS Form W-9 or Tax Identification Number ("TIN"), as described below, may subject Respondent to a penalty, per 26 U.S.C. § 6723, 26 U.S.C. § 6724(d)(3), and 26 C.F.R. §

301.6723-1. In order to provide EPA with sufficient information to enable it to fulfill these obligations, EPA herein requires, and Respondent herein agrees, that:

6.9.1. Respondent shall complete an IRS Form W-9 ("Request for Taxpayer Identification Number and Certification"), which is available at https://www.irs.gov/pub/irs-pdf/fw9.pdf.

6.9.2. Respondent shall therein certify that its completed IRS Form W-9 includes Respondent's correct TIN or that Respondent has applied and is waiting for issuance of a TIN;

6.9.3. Respondent shall email its completed Form W-9 to EPA's Cincinnati Finance Center at henderson.jessica@epa.gov within 30 days after the Final Order ratifying this Consent Agreement is filed, and EPA recommends encrypting IRS Form W-9 email correspondence; and

6.9.4. In the event that Respondent has certified in its completed IRS Form W-9 that it has applied for a TIN and that TIN has not been issued to Respondent within 30 days after the effective date of the Final Order, then Respondent, using the same email address identified in the preceding sub-paragraph, shall further:

6.9.4.1. notify EPA's Cincinnati Finance Center of this fact, via email, within 30 days after the 30 days after the effective date of the Final Order; and

6.9.4.2. provide EPA's Cincinnati Finance Center with Respondent's TIN, via email, within five (5) days of Respondent's issuance and receipt of the TIN.

6.10. The undersigned representative of Respondent certifies that he or she is authorized to enter into the terms and conditions of this Consent Agreement and to bind Respondent to this document.

6.11. The undersigned representative of Respondent also certifies that, as of the date of Respondent's signature of this Consent Agreement, Respondent has corrected the violation(s) alleged in Part III above.

6.12. Except as described in Subparagraph 6.7.2, above, each party shall bear its own fees and costs in bringing or defending this action.

6.13. For the purposes of this proceeding, Respondent expressly waives any affirmative defenses and the right to contest the allegations contained in the Consent Agreement and to appeal the Final Order.

6.14. The provisions of this Consent Agreement and the Final Order shall bind Respondent and its agents, servants, employees, successors, and assigns.

6.15. The above provisions are STIPULATED AND AGREED upon by Respondent and EPA Region 10.

DATED:

FOR RESPONDENT:

Hecla Limited

FOR COMPLAINANT:

EDWARD KOWALSKI
Digitally signed by EDWARD KOWALSKI
Date: 2024.10.10 14:58:25 -07'00'

Edward J. Kowalski
Director
Enforcement and Compliance Assurance Division
EPA Region 10

BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of: Hecla Limited, Mullan, Idaho Respondent.	DOCKET NO. CWA-10-2024-0027 **FINAL ORDER** Proceedings Under Section 309(g) of the Clean Water Act, 33 U.S.C. § 1319(g)

1. The Administrator has delegated the authority to issue this Final Order to the Regional Administrator of the U.S. Environmental Protection Agency (EPA) Region 10, who has in turn delegated this authority to the Regional Judicial Officer in EPA Region 10.

2. The terms of the foregoing Consent Agreement are ratified and incorporated by reference into this Final Order. Respondent is ordered to comply with the terms of settlement.

3. The Consent Agreement and this Final Order constitute a settlement by EPA of all claims for civil penalties pursuant to the Clean Water Act (CWA) for the violations alleged in Part III of the Consent Agreement. In accordance with 40 C.F.R. § 22.31(a), nothing in this Final Order shall affect the right of EPA or the United States to pursue appropriate injunctive or other equitable relief or criminal sanctions for any violations of law. This Final Order does not waive, extinguish, or otherwise affect Respondent's obligations to comply with all applicable provisions of the CWA and regulations promulgated or permits issued thereunder.

4. This Final Order shall become effective upon filing.

IT IS SO ORDERED.

GARTH WRIGHT Digitally signed by GARTH WRIGHT
Date: 2024.10.16 09:11:21 -07'00'

GARTH WRIGHT
Regional Judicial
Officer EPA Region 10

ATTACHMENT A

FLOYD | SNIDER
strategy ▪ science ▪ engineering

Two Union Square
601 Union Street, Suite 600
Seattle, WA 98101
tel: 206.292.2078 fax: 206.682.7867

August 12, 2024

Brad Clark, PE
Hecla Lucky Friday Unit
397 Friday Ave.
Mullan, ID 83846

SUBJECT: RIPARIAN RESTORATION SUPPLEMENTAL ENVIRONMENTAL PROJECT PLAN
Hecla Limited Lucky Friday Mine
Mullan, Idaho

Dear Brad:

This letter provides the justification, approach, existing conditions assessment, implementation plan, and schedule for a Supplemental Environmental Project (SEP) proposed by Hecla Limited (Hecla) as part of a settlement of alleged Clean Water Act violations with the U.S. Environmental Protection Agency (EPA). The SEP is a stream restoration project for revegetation along the South Fork Coeur d'Alene River[1] (South Fork) upstream of Mullan, Idaho, on properties owned by Hecla. The location of the SEP (project area) contains headwater reaches of the South Fork and will help address the causes of elevated water temperature and habitat degradation impacting cold-water aquatic life and salmonid spawning beneficial uses in downstream reaches. In addition, by reducing overall solar inputs in the upper South Fork watershed, the SEP will help mitigate climate change-related habitat impacts on land and water temperature that will occur in the future.

The suitability of the proposed restoration work as an EPA SEP was evaluated using the *USEPA Supplemental Environmental Projects Policy, 2015 Update* (EPA 2015). This evaluation ensures consistency with the definitions and key characteristics of a SEP, the legal nexus and guidelines, and applicability of pollution prevention and environmental restoration and protection categories. The following summarizes evaluation findings:

- The proposed SEP supports EPA's missions of pollution prevention and addressing climate change. The proposed SEP is work by Hecla that is environmentally beneficial, in settlement of an enforcement action, and not legally required, the three key characteristics of an SEP.
- Elevated water temperature and habitat degradation impact beneficial uses. Solar inputs are a primary source of thermal loading to streams. The EPA SEP pollution prevention category applies because benefits occur at the source of temperature impairments to water quality, which is the preferred option under EPA's hierarchy of environmental management. The SEP will result in the restoration of natural riparian

[1] Hydrologic Unit Code (HUC): 17010302

vegetation that will increase shading to the stream over time. As the plant community grows to maturity, natural levels of shading will be attained. This increased shading is expected to have a beneficial effect on temperature in the adjacent river and will ameliorate the effects of climate change by reducing solar warming, which will contribute to a reduction in water temperature compared to what would otherwise be expected without restoration. This restoration is expected to prevent or reduce pollution from excess temperature.

- The EPA environmental and restoration SEP project category applies to enhancing stream habitat on Hecla property upstream of the location of the National Pollutant Discharge Elimination System (NPDES) outfalls where the alleged permit violations occurred. Historical agricultural and forestry land use practices in the South Fork watershed encompassing the SEP project area have altered the stream habitat and vegetation in the riparian zone resulting in lower quality stream habitat. The overall benefit of the project to restore riparian vegetation to reaches located in the headwaters of the South Fork improves the overall condition of the ecosystem.
- Climate change is addressed because predicted changes in precipitation patterns and elevated average air temperature will increase water temperatures in the South Fork. Restoring and maintaining riparian vegetation is an action that can mitigate impacts from warming over the long-term time scale of climate change.
- The nexus of the proposed SEP and the alleged violations of NPDES permit limits is established through improvements in water quality in the South Fork upstream of the outfalls regulated under the NPDES permit. The basis of the alleged violations is that water quality criteria for pollutants were exceeded, which may have impacted beneficial uses established under the Clean Water Act (i.e., protect and maintain cold water biota and salmonid spawning). The same beneficial uses are potentially improved by the proposed SEP and therefore directly relate to the alleged violation.
- EPA will not play any role in managing or controlling funds related to the proposed SEP, nor has EPA been involved in the selection of contractors to prepare the SEP riparian restoration plan (SEP Plan) by Hecla. The SEP will not augment any federal appropriation of federally performed activities.
- The following SEP Plan is consistent with EPA SEP policy, provides a comprehensive project description, means to verify project success, and establishes a schedule with reporting milestones.

The SEP Plan sections below describe the contractor project team performing the work, the restoration plan framework, goals, restoration strategies, results from the riparian zone habitat conditions assessment, identification of restoration sites, and development of the restoration plans. Restoration plans are provided for revegetation of three sites, to establish plant communities to natural and self-sustaining conditions. Specific tasks and the schedule to

implement this SEP Plan are detailed, and periodic and phase completion reporting guidelines are described.

PROJECT TEAM

Hecla has contracted with two consulting firms to develop the proposed SEP Plan: Floyd|Snider and Four Peaks Environmental Science & Data Solutions, LLC (Four Peaks). Dan Hennessy, Floyd|Snider project manager, is a senior environmental scientist who has extensive experience working on the South Fork assisting Hecla with water quality compliance, including management of a 20-year bioassessment monitoring program. Lucius Caldwell, PhD, Four Peaks project technical lead, is a certified fisheries professional (FP-C) who has led habitat assessments, watershed restoration planning, and stream temperature modeling efforts. Four Peaks also directs the work of Methow Natives, a native plant nursery in Twisp, Washington, used to obtain information for the cost estimates and planting guidelines. Additional qualifications of Floyd|Snider and Four Peaks are available on request.

RESTORATION PLAN FRAMEWORK

The SEP project area is defined by Hecla properties along the South Fork from Mullan upstream past the Hale Fish Hatchery (Figure 1). The primary goal of the riparian restoration work detailed in this document is to ameliorate elevated water temperatures with a secondary goal of improving degraded habitat. The work was planned using established restoration strategies and techniques that improve water quality conditions related to elevated temperature[2].

[2] The restoration plan is modeled after a process developed by researchers at the Northwest Fisheries Science Center within the National Oceanic and Atmospheric Administration (NOAA). This process begins with a goal-setting exercise, proceeds through an assessment, and concludes with the identification of restoration opportunities. Within the NOAA framework, restoration may also include strategies and techniques that are implemented instream. For this SEP, riparian revegetation is the only restoration technique that will be implemented.

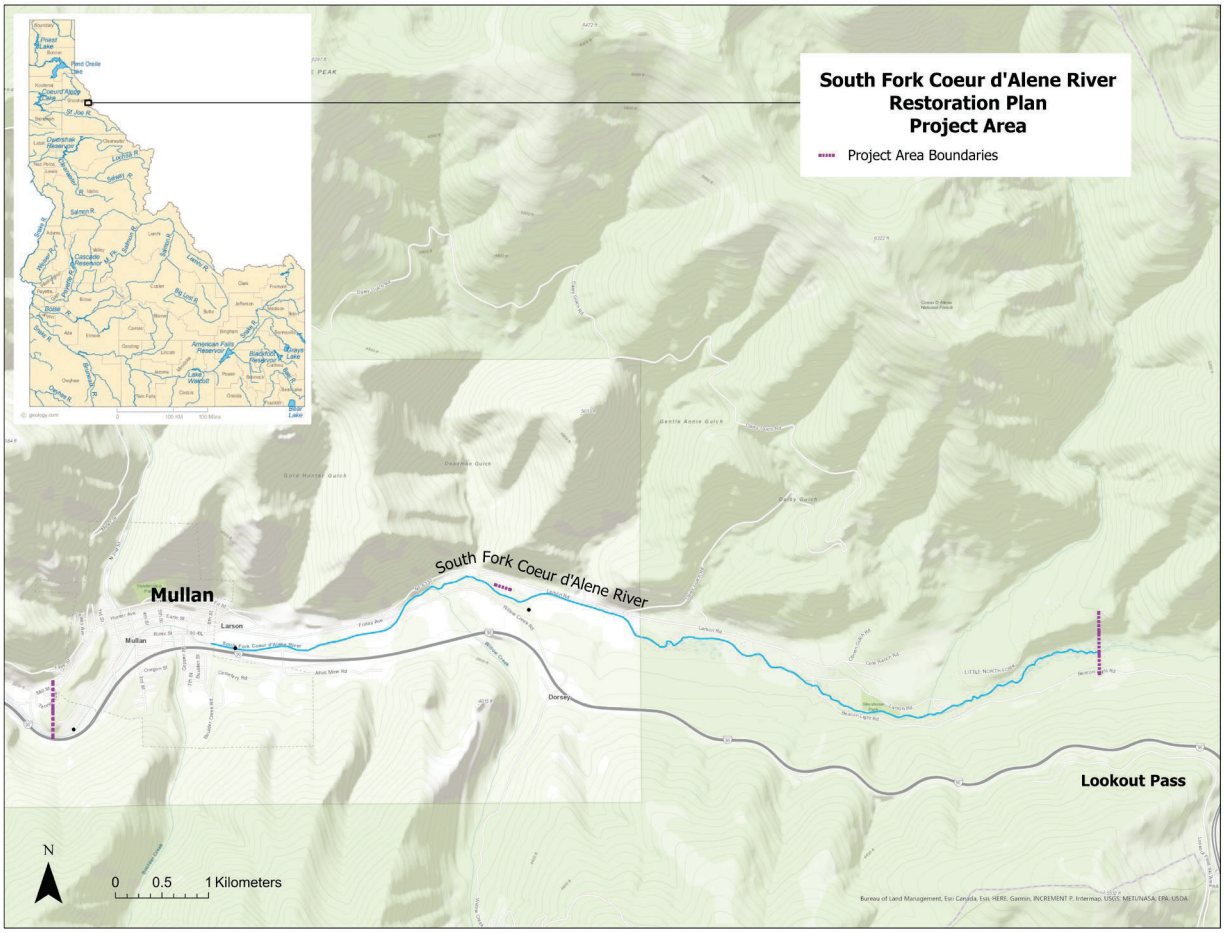


Figure 1. Overview of the SEP project area.

Restoring native plant habitat to natural conditions provides shading benefits that contribute to reducing instream water temperature and increasing inputs of leaf litter and large wood to the stream environment, all of which are linked to healthy biota. The key benchmark of project success is achieving mature native riparian plant communities that shade the stream. Over the long-term, the project will help maintain cooler average water temperatures during summer months. These cooler temperatures will help maintain diverse and productive stream macroinvertebrate communities and self-sustaining fish populations that include young-of-year age classes. The cooler temperatures will also support cold water aquatic life and salmonid spawning beneficial uses.

The organization of this SEP Plan begins with the goals and strategy to implement the work and ensure compliance with EPA policy. Implementation of the strategy included a habitat conditions assessment and site prioritization that provide the maximum long-term shading potential. Site-specific planting and routine maintenance guidelines are based on the habitat assessment and include steps for fieldwork and monitoring tasks. The proposed SEP schedule and reporting

milestones are based on the specific sites selected as the outcome of the strategy implementation, as detailed below.

Longitudinal (along the stream), lateral (floodplain), and vertical (hyporheic) connectivity is critical for the flow and quality of water; movement and type of sediment, organic matter, and nutrients; and the migration and movement of fish and other biota (Roni et al. 2013). Connectivity is a key strategic term described in scientific and resource management literature and is important for applying the habitat conditions assessment to site selection and revegetation approaches in this SEP Plan. The SEP Plan strategic elements applied guiding principles for how restoration can be executed (Table 1). Restoring habitats to reconnect processes (e.g., riparian tree fall) and reestablish lost function (e.g., stream pool development) is needed to reinstate the associated natural processes that create and sustain such habitat and associated shading. Table 1 presents the following site selection strategy elements, including prioritization criteria, and their relationship to EPA SEP Policy:

- Prioritize the restoration sequence based on existing habitat quality on Hecla property.
- Prioritize upstream revegetation to maximize shading benefits.
- Focus on locations that reconnect existing patches of better-quality stream and riparian habitat to maximize shading.
- Use natural processes.
- Apply computer GIS methods to ensure consistency and transparency of processes and decisions made about site prioritization and selection to maximize shading benefits. See Table 2.
- Design flexible and adaptable planting site plans for revegetation work. See Table 3.

To meet SEP goals, sites were selected using the prioritization criteria (Table 4). After revegetation work, these sites will be monitored, and adaptive management will be used to meet goals.

HABITAT CONDITIONS ASSESSMENT

The habitat conditions assessment of the project area was used to identify stream segments of higher and lower riparian function. The principle underlying these assessments was a comparison between model-predicted characteristics of the river and the riparian zone, and observations of the river channel geomorphology and the riparian shading. These observations are based on evaluations of aerial photographs. Comparisons of model-predicted and observed conditions are an established method of identifying stream degradation (Candel et al. 2018, 2020) and have been used as part of watershed-scale restoration planning in the Pacific Northwest (Inter-Fluve and Cramer Fish Sciences 2019).

Areas with lower riparian function represent sites that were screened to clearly identify a set of potential restoration sites within the project area, along with sites that may benefit from protections to maintain existing levels of riparian condition, function, and ultimately stream shading. The assessment is also used to identify specific objectives that support the goals of the SEP to meet EPA policy. For example, by assessing channel width and levels of riparian shading, narrative goals such as "increasing riparian shade" can be evaluated quantitatively to determine the predicted percentage of channel shading that would be expected for a given channel width. In this way, objectives can be specified and measured. See also Table 1 for SEP policy connections to the habitat conditions assessment methods. Table 2 provides a summary of the geomorphic and riparian assessments methods used in the site selection process, GIS analysis steps, and potential uncertainties in the assessment.

Geomorphic Assessment

Assessing geomorphology is an important step in identifying areas that have been degraded through widening or straightening, which causes impacts on stream function, ecological and societal value, and water quality. For example, stream widening results in increased surface area, which provides greater potential for solar heat gain and can lead to increases in stream temperature. Stream widening due to human impacts such as excessive sediment loading can be identified by comparing the width predicted under natural conditions with the observed width under current conditions.

The geomorphic assessment consisted of a determination of measured wetted width of the river at regular intervals throughout the project area. ArcGIS Pro 3.0 was used to measure wetted widths at the time of each photograph. These were then compared with bankfull widths predicted by a regional GIS model. ArcGIS Pro 3.0 was also used to visually evaluate channel shapes, which were then compared with model-predicted channel types. The bankfull widths obtained from the GIS analysis are also used in the riparian shade assessment. Table 2 describes the geomorphic assessment for stream width and instream modification, assessment for channel type (e.g., straight, meandering, pool-riffle), and bankfull width GIS measurements. In addition, GIS was used to visually compare historical U.S. Geological Survey topographic maps from 1917 to 2020 to identify changes in the stream course and adjacent features over time.

Stream width is measured in different ways, to evaluate different attributes. Wetted width represents the actual width of the flowing water at a snapshot in time. Thus, wetted width represents a status or condition, rather than an inherent hydrologic or fluvial attribute. Bankfull width is the wetted width when a stream's banks are literally full. This occurs at bankfull flow ("peak flow"), which tends to occur approximately annually in healthy streams. Bankfull width is relatively stable over time, and is a function of geology (e.g., background rock types and sediment mobility), geography (e.g., slope, drainage area), and hydrology (annual precipitation amount and form).

Consequently, except when the stream is at or above peak flow, bankfull width is larger than wetted width. If wetted width is narrower than bankfull width, this only indicates that flows at the time of the wetted width observation are less than peak. However, if wetted width is wider than the bankfull width predicted under natural conditions, this may indicate degradation. This approach of comparing measurements of wetted widths with predictions of bankfull widths is relatively sensitive to channel widening since observations of wetted widths are being compared to predictions of bankfull widths. However, it is insensitive to channel narrowing, such as may occur from incision and downcutting in sediment-starved streams.

Overall, the geomorphic assessment indicated that there is no significant deviation from predicted channel morphology within the project area. The measured wetted widths of the river were all narrower than the predicted bankfull widths, and visually assessed channel types were equivalent to the predicted channel types. This lack of difference in modeled and observed morphology supports the use of riparian restoration without the need for any instream modifications.

Riparian Shade Assessment

The riparian assessment consisted of a determination of the existing shade levels on the river, the potential natural riparian vegetation, the predicted bankfull width of the river at regular intervals throughout the project area, and the subsequent target shade levels that could be achieved through revegetation.

At regular intervals throughout the project area, ArcGIS Pro 3.0 was used to estimate wetted widths at the time of the aerial photography and model-predicted bankfull widths. Target shade levels are based on a plotted curve of shade and channel width calibrated for different locations, elevations, and plant types. For example, a mature fir tree located in a moist, subalpine forested riparian area in the Coeur d'Alene National Forest would produce 70% effective shade on a 10 m wide river. These targets were used to identify shade-impaired reaches, but they are not comparable to project performance standards, as would be evaluated during project effectiveness monitoring. While these shade targets may be suitable for establishing long-term goals of restoration, large trees that provide shading as described above require substantially longer time periods to mature than the monitoring timeframe proposed in sections that follow. See the Project Performance and Success Standards and Monitoring and Evaluation sections, below, for further discussion.

Areas in need of restoration were determined by evaluating the difference between riparian shade under natural conditions, which is modeled, and existing shade measured remotely, using the method described above (and presented in Table 2). Figure 2 shows the existing shade analysis for the project area.

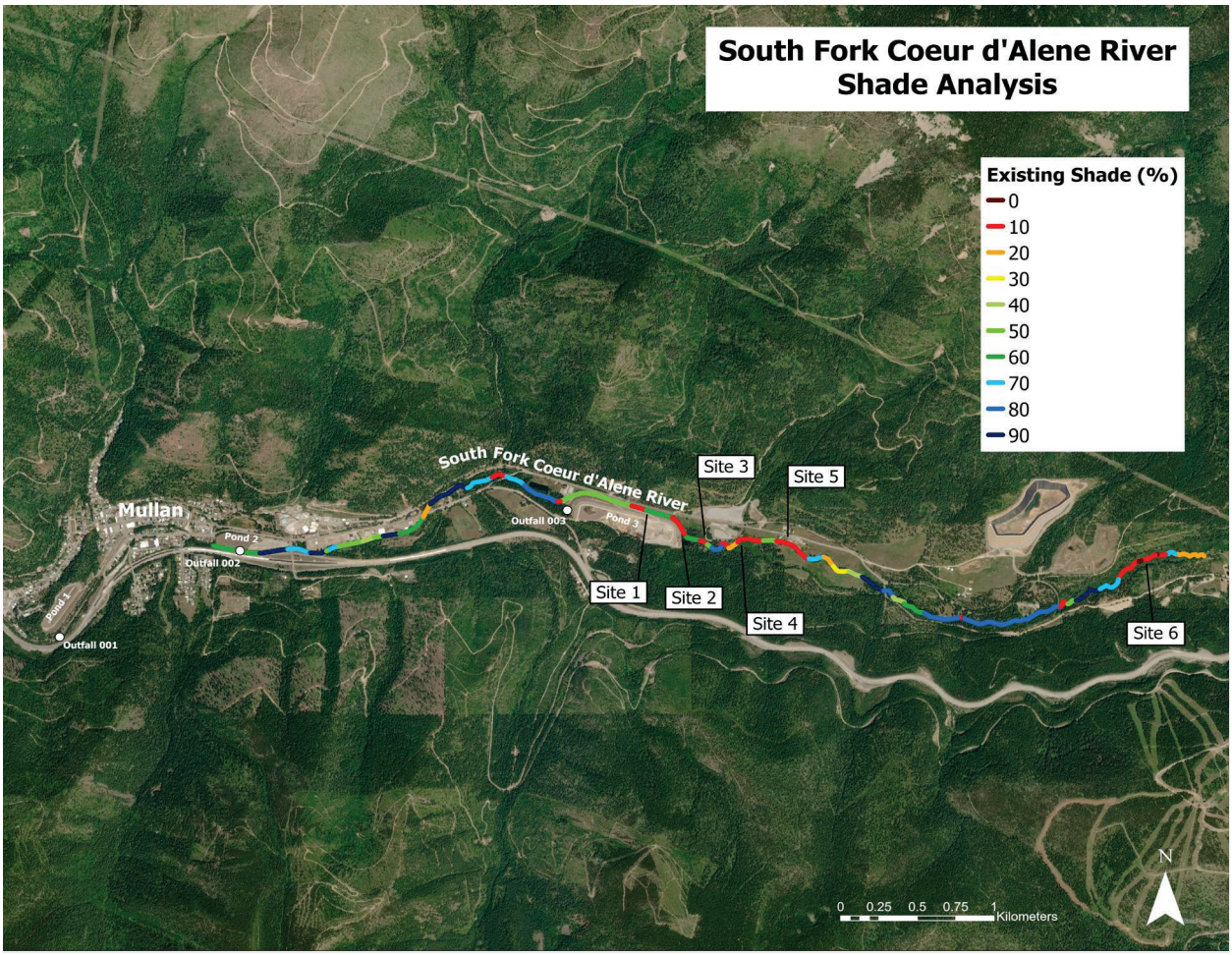


Figure 2. Shade analysis for candidate restoration sites within the project area.

Potential revegetation locations within the project area were identified as reaches on Hecla property that had less than 50% existing shade. Six candidate sites were evaluated in consideration of the stream restoration prioritization criteria and habitat conditions assessment. Based on the site-specific habitat conditions evaluation, sites with low quality habitat were identified first and removed for consideration and the remaining sites were evaluated based on location and connectivity.

As shown on Figure 2, the reach containing Site 1 through Site 5 has less than 50% existing shade for most segments, and multiple segments with less than 20% existing shade. This reach is approximately 1 km in length. A second reach containing Site 6 has less than 20% existing shade and is upstream of areas with greater than 50% existing shade. Three sites were removed based on institutional knowledge of poor habitat conditions:

- Site 1 has degraded habitat from significant plant removal and soil disturbance for road and mine tailings pond development. The stream reach is straightened and

armored on both sides and the proximity of the road and the pond restricts the riparian buffer width to less than 15 m.

- Site 3 has degraded habitat from tree removal for remediation of the Old Mullan Dump and historical livestock grazing. There is significant denudation on the northern side of the site. Continuing human use of the floodplain on adjacent properties around makes this location less likely to achieve the goal of attaining a self-sustaining native plant community.
- Site 6 is a wetland, with minimal mesic or transitional areas for tree recruitment. Historically, there were several structures near the site and fill placement and road building occurred in this reach. Because of the altered geomorphology of the floodplain around this location, the uncertainty of meeting the goal of attaining a self-sustaining native plant community is substantial.

RIPARIAN REVEGETATION PLAN

Three sites were selected for revegetation projects: Site 2, Site 4, and Site 5. For the selected sites, a set of planting guidelines were designed to ensure that the on-the-ground field work is completed in a way that is relevant and appropriate for each individual site, while still being consistently applied across all sites, and well documented to monitor future conditions. Table 3 describes riparian habitat zones discussed in this SEP Plan (Bair et al. 2021; Hoag and Landis 2001). Table 4 describes physical setting and habitat conditions for the three sites selected for riparian restoration and provides the revegetation approach and assessment of the shade benefit.

The SEP Plan riparian planting designs at the selected sites were informed by the strategy elements (Table 1) and provide many ecological and societal benefits. Riparian plants perform a range of functions that support various processes that maintain water quality and stream function, including stabilizing banks, filtering pollutants, providing inputs of detritus and large wood, and providing shade.

The restoration plans for Site 2, Site 4, and Site 5 are provided and each has operational and routine maintenance guidelines to ensure that plants become established and that the plant community represents natural conditions and is self-sustaining over time. Figures 3 to 5 are maps for the three restoration sites and show the existing and target shade, measured channel and predicted bankfull width, site length, and buffer lines for 15 meters (m) and 30 m. The aerial photographs show the riparian habitat and physical features around each site reach. Use Table 4 along with the figures for a comprehensive understanding of the site selection process for the restoration plan.

The three selected restoration locations are Sites 2, 4, and 5. The implementation plan for the riparian restoration, including planting guidelines, monitoring and reporting, costs, and project schedule, is described after the figures.

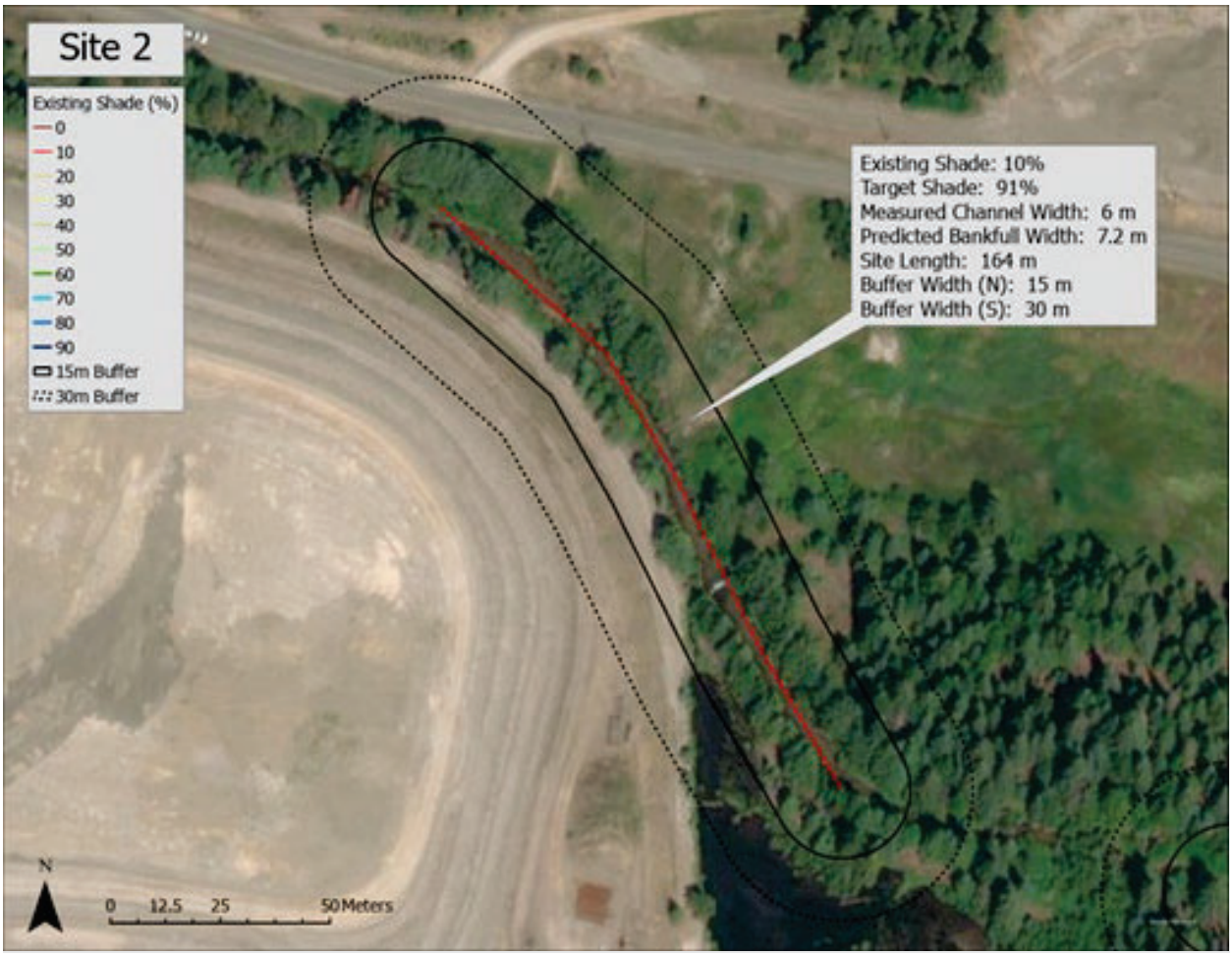


Figure 3. Physical measurements and shade analysis for Site 2.

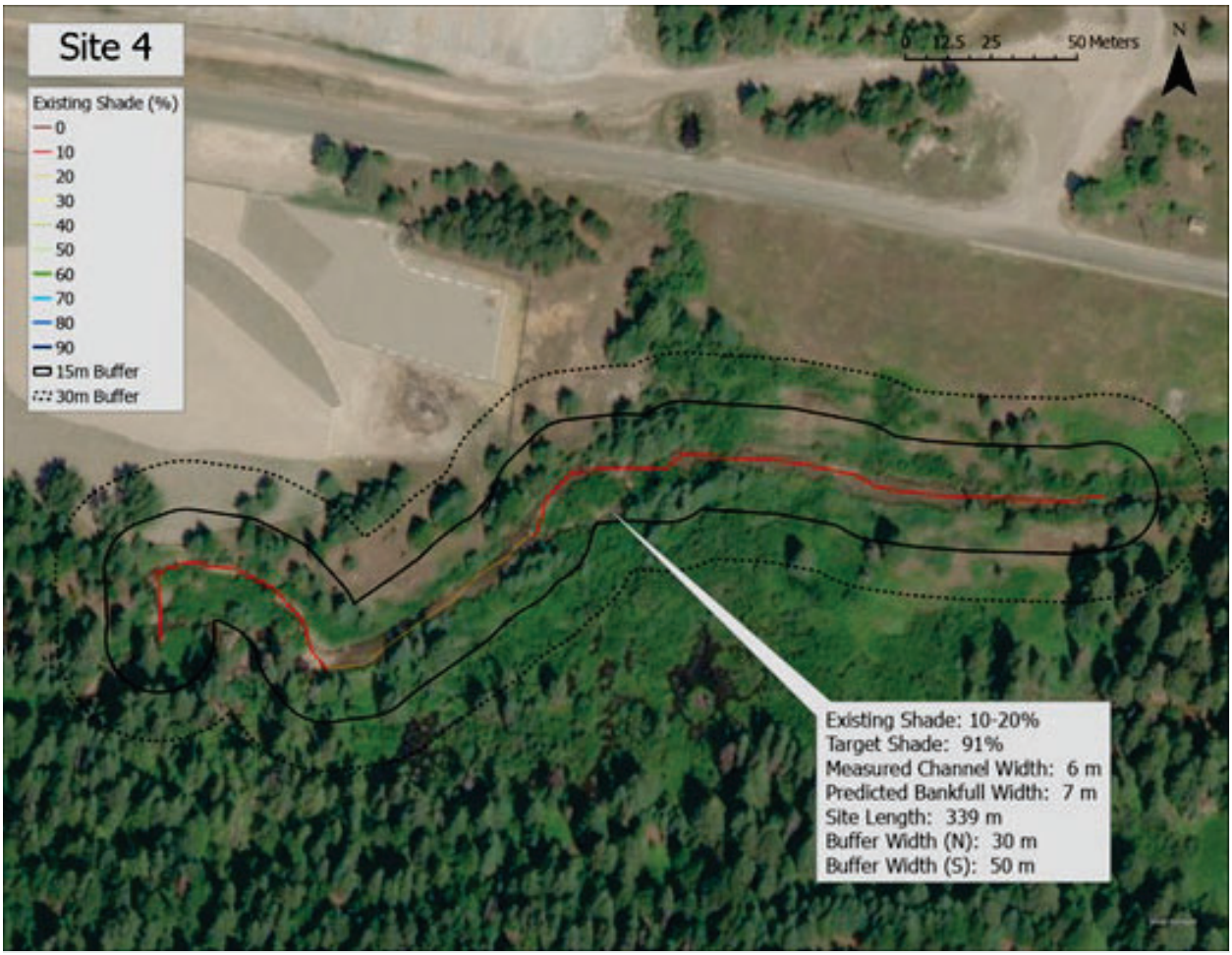


Figure 4. Physical measurements and shade analysis for Site 4.

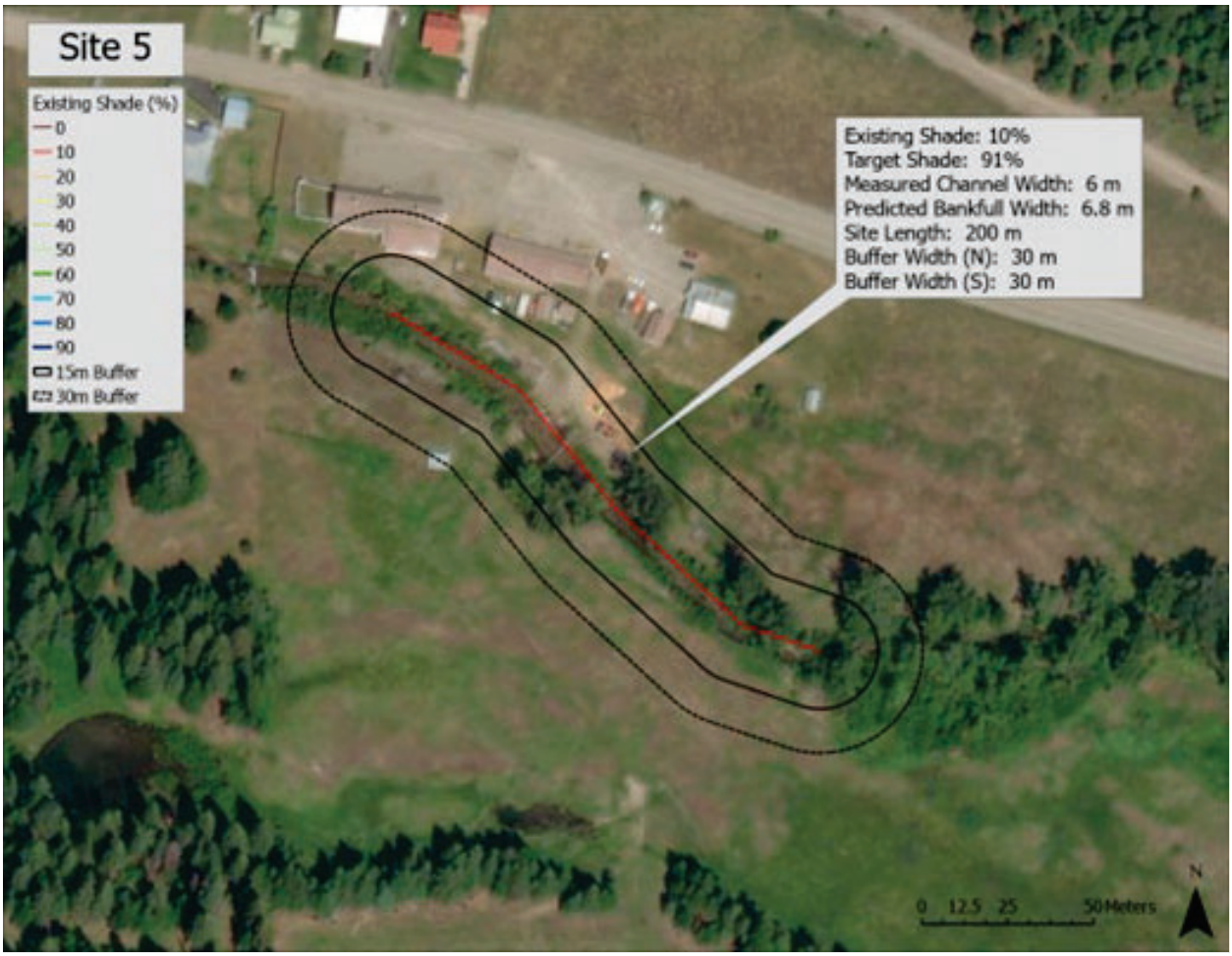


Figure 5. Physical measurements and shade analysis for Site 5.

RIPARIAN REVEGETATION IMPLEMENTATION PLAN AND COST ESTIMATES

The following subsections summarize the proposed plan for site preparation; timing of work; plant composition, density, and sourcing; performance standards; monitoring and evaluation; routine maintenance and adaptive management; and cost estimates.

Site Preparation

A thorough analysis of site-specific conditions will be conducted during the spring and summer of 2024 and 2025, before installation. Groundwater, soil moisture, browse pressure, and weed competition will be monitored. A soil analysis will be conducted to guide any supplemental fertilization/soil amendment practices. Representative habitat composition will be documented to guide development of a species list for planting. Data collected in this analysis will be used to shape a site-specific planting plan for each site.

Timing

Fall and spring are the two main windows for the installation of riparian restoration projects in the region surrounding the project area, with October typically being the most desirable month for planting. Seasonal variations occur on an annual basis and will be considered during planning.

Plant Composition, Density, and Sourcing

The design of the composition of plantings will be made according to site-specific information, including elevation above water surface and stream bankfull height (Bair et al. 2021; Hoag and Landis 2001) as described in Table 3 and for the individual site plans in Table 4.

Locally sourcing genetic native plant material is a key component of the overall strategy guiding this restoration, as it will substantially contribute to project success. Project managers will source site-appropriate materials from local and regional nurseries to the extent practical. Preference will be granted based on the proximity of source material, so that stock is sourced from as close as possible to the project sites. For a project this size (total project extent is more than 4.5 hectares, 11 acres), materials are expected to be sourced from a variety of growing operations. We anticipate using multiple sources from the greater Silver Valley region, extending downstream to include the urban areas around Coeur d'Alene, Idaho, and Spokane, Washington, and possibly as far away as Twisp, Washington (~200 miles west-northwest from Mullan), the location of Methow Natives. In all cases, efforts will be made to ensure that, regardless of nursery location, source material was collected from locations as close as practical to the project sites.

Project Performance and Success Standards

Project success will be measured by comparing actual survival and growth of plants within the above-described restoration sites against the performance standards described below. Additional data to assess overall increases in riparian shading and to monitor water temperature of the stream at the restoration sites will be collected and reported. However, this information is not intended to define project success, and is supplemental to the success standard measurements of target survival and foliar cover.

Project Success Standards

Percent survival of woody species is a primary performance target. Based on discussions with EPA biologist, Charissa Bujak, (personal communication, March 13, 2023), a 90% survival target over the duration of monitoring is proposed for woody species. Performance related to this target will be evaluated based on field measurements and observations.

For non-woody/herbaceous species, which become established more quickly than woody species, the primary performance target will be 90% foliar cover achieved within 5 years of implementation. Likewise, performance related to this target will be evaluated based on field measurements.

Supporting Shade and Water Temperature Measurements

Monitoring data related to shade and water temperature will be acquired for informational purposes. Data will be collected among four groups of observations, representing all combinations of restored and unrestored sites, both before and after implementing restoration. Rationale for this approach is provided below, in the section. The following describes the rationale for collecting shade and temperature data.

Riparian shade targets were developed for each site, based on the GIS-based site evaluation and the Potential Natural Vegetation values (see Habitat Conditions Assessment section). These targets represent a long-term goal for each site. To evaluate how the revegetation efforts will increase stream shading over the 5-year monitoring period, trends in stream shading will be calculated by monitoring shade levels at the time intervals described below.

Water temperature within and immediately below revegetation sites is expected to be reduced compared to what would otherwise occur. Within the context of a globally and regionally changing climate, it is unknown whether restoration actions will result in reductions in temperature compared to current conditions, or even compared to upstream conditions. To appropriately evaluate whether restoration has resulted in lower instream water temperatures than would have occurred without restoration, water temperature will be measured as described below in the Monitoring & Evaluation section, before and after restoration occurs.

Monitoring and Evaluation

Overview

Monitoring the success of this work is an important component of the SEP Plan to ensure the project is satisfactory and completed on time. Restoration site monitoring will be conducted by Four Peaks staff and supplemented with site visits by Hecla staff.

Evaluation of project success will be based on percent survival of woody species and percent cover of herbaceous species compared to the project success standards.

The field monitoring will include collecting the following measurements:

1. Project performance and project success metrics
    A. Percent survival of woody species: 90% target, over the 5-year monitoring period.
    B. Percent foliar cover of non-woody/herbaceous species: 90% target, achieved within 5 years of implementation).
2. Riparian shading and instream water temperature
    A. Monitoring targets have not been developed for these measurements.

B. Instead, the monitoring hypothesis is that revegetation of the restored sites will cause each metric to increase over the monitoring period.

Pre-implementation monitoring (baseline) will be performed in the summer of Year -1 (2024) and Year 0 (2025) and will include assessment of community composition, percent cover of non-woody species, shade, and water temperature measurements for each site. Post-implementation monitoring will be performed during summer at three timepoints: 1, 3, and 5 years post-implementation. Each timepoint will include the aforementioned measurements as well as percent survival measurements for woody species.

The expectation when undertaking a riparian revegetation project is that replanting communities of native trees, shrubs, and grasses will make things better than they would have been otherwise, without restoration. The expected benefits include potentially mitigating the effects of climate change by contributing to *increased* levels of shade, and consequently *decreased* water temperature. To demonstrate improvements in the condition of a restoration site, the implicit and idealized reference case would be that restoration site in an unrestored condition, and the idealized timing of the observation of that unrestored site is that point in the future when the restored site is also monitored. Of course, that implicit and idealized comparison is impossible because the unrestored condition of a site that has been restored is unobservable.

This challenge is not unique within ecological monitoring and has given rise to several sophisticated ecological study designs. Arguably the best of these is the before-after-control-impact/intervention (BACI) framework (Christie et al. 2019; Cupp and Lofgren 2014; Murtaugh 2000, 2002; Roni et al. 2013; Smith 2002). Within a BACI design, changes over time in the parameter(s) of interest (e.g., shade, temperature) are computed based on measurements collected before and after an impact or intervention. These trajectories of change are then compared among groups of sites that have received the impact or intervention (restored sites) and control sites that have not (unrestored sites).

The expectation for shade and temperature is that the proposed restoration will result in a greater increase in shade and associated decrease in water temperature, than changes observed in a nearby control reach within the project area that is geomorphically and ecologically similar to the restored reaches. This control site will be selected from reaches of the river that are close in proximity, have similar levels of existing shade, and are generally similar geomorphically (e.g., similar channel types, width). Monitoring will include at least one set of observations of the metrics described above, collected within the control site before restoration occurs.

In addition, as a baseline to help visualize the improvements in the restoration area year over year, percent foliar cover and community composition (percent native vs. non-native species) will also be measured in the control site, following the methods described below.

Sampling Design

Project Performance and Success Standards

At each monitoring timepoint, percent survival of woody species, percent foliar cover of non-woody/herbaceous species, and percent native vs. non-native species will be assessed using field surveys. The approach and design for these surveys is based on guidelines provided by the U.S. Department of Agriculture Forest Service's National Riparian Core Protocol (NRCP) (Merritt et al. 2017). Briefly, surveys will be conducted along cross-sectional transects following methodologies based on the Line Point Intercept (LPI) and Point-Centered Quarter (PCQ) approaches. The following paragraphs present the rationale for these approaches and a description of associated field methodologies.

Riparian vegetation can be sampled with plot-based approaches using quadrats and belt transects, as well as plotless approaches using line transects and points. The LPI and PCQ approaches we will employ are plotless and involve measuring a random sample of vegetation along line transects. Plotless approaches are more efficient than plot-based techniques, while still statistically robust (Merritt et al. 2017; Mitchell 2015).

Additionally, numerous methodologies have been developed for measuring riparian conditions depending on study objectives. The protocol we have chosen to model our monitoring plan after, the NRCP, provides a simple, flexible framework for collecting data on riparian vegetation composition and condition that can serve as the foundation of a long-term monitoring program. The methods outlined in the NRCP include workflows for establishing vegetation transects and channel cross-sections, sampling vegetation strata and substrate characteristics using the LPI method ("LPI points"), and sampling tree and shrub composition, size structure, and condition using the PCQ method ("PCQ points").

The LPI approach is designed to sample within-site variation and quantify changes in plant species cover, height, or ground cover over time. The LPI uses transects located within a site, the length, number, and spacing of which are flexible, to accommodate site size. Along each transect, the presence of all vascular plants is recorded at regular intervals, referred to as "points," using either a densitometer, a pin flag, or a laser. It is considered one of the most objective ways to sample cover: the observer decides only whether a point intercepts a plant species or the ground; thus, direct visual estimates of proportional cover are not required. Points offer efficient and highly repeatable data collection and can be used to estimate cover values with minimal bias and error relative to cover estimates in plots/quadrats and line-intercept transects (Lutes et al. 2006; Merritt et al. 2017).

Monitoring of each site will be conducted within a "monitoring reach" that comprises the entire length of the restoration site, minus the upstream and downstream 10 m margins, which are more variable and less representative of overall conditions. The NRCP recommends a minimum of five transects, 200 LPI points, and 20 PCQ points per reach. Thus, each monitoring reach will

be assessed along five transects that are spaced approximately equally, while also ensuring adequate representation of geomorphic process domains or other habitat heterogeneity within each reach. For example, in a site spanning both a canyon and meadow, at least one transect would be placed in the meadow section and one in the canyon section. Our estimated active channel width at all sites is roughly 6 m. Therefore, our minimum reach length should be 20 x 6 m (120 m). Site 2 is 164 m in length, so a 120 m monitoring reach fits cleanly within the bounds of this site, while avoiding project edges. The other sites are longer, and each would easily accommodate a monitoring reach delineated by transects spanning at least 120 m. Restoration site sizing is subject to slight variation as pre-implementation preparation and planting commences, but Table 6 gives approximations of the length and spacing of transects in each site, based on our current site estimates.

A universal goal in revegetation efforts is plant survival. Individual tree and shrub density, frequency, and condition may be assessed at points along the transects using the PCQ approach. This is a rapid and accurate plotless approach in which the sampling interval and number of PCQ points sampled will vary from site to site depending on vegetation density. A line is cast perpendicular to the transect, and this line and the transect line define four quadrants. The nearest tree in each of the four quadrants is identified and the distance to that tree from the woody point is measured. To determine overall tree survival, the condition of the closest tree in each quadrant is assessed visually through an evaluation of canopy condition compared to estimated full canopy, a metric referred to as vigor class (Merritt et al. 2017). Vigor class will be recorded for each tree or shrub that is measured in each of the four quadrants using the PCQ approach. Woody plants determined to be “critically stressed” will be considered dead, while all vigor classes associated with greater canopy volume will be considered living.[3] These measured conditions will allow us to estimate percent survival at the site scale, by computing the proportion of sampled plants determined to be living.

Per guidelines provided in the NRCP, a minimum of 20 PCQ points will be assessed per reach, and these points will be located at consistently spaced intervals along the transects, a minimum of 5 m apart (Mitchell 2015), so that the same trees will not be measured repeatedly. The number and spacing of PCQ points will be scaled based on site area.

All transects will be monumented in the field during the first pre-implementation monitoring event to facilitate repeat sampling and ensure comparability among the measurements within each series. Then, during our post-implementation monitoring, measurements will be collected from each of these monumented transects. These measurements will provide empirical data to evaluate whether survival of wooded species achieves the 90% target for woody species survival and whether the trajectory of foliar cover for non-woody native species achieves the 90% target within 5 years.

[3] Stressed or significantly stressed plants may require adaptive management to ensure survival.

Supporting Shade and Water Temperature Measurements

Achievement timelines for the shade targets presented in site plans are on the order of decades to centuries, based on time to maturation for large woody species like firs and pines (USFS 1988; Van Pelt 2007, 2008). Monitoring is not proposed to extend for the time required for these trees to reach maturity, and thus the shade targets presented are not anticipated to be reached within the monitoring period. To facilitate shorter-term evaluations of restoration effectiveness, we will evaluate trends in stream shading over the 5-year monitoring period, based on observations collected at the intervals described above. At each timepoint, stream shading will be measured using a Solar Pathfinder (Shumar and de Varona 2009; OWEB 2001) at the water surface at the mid-point of each transect (i.e., mid-channel) within each site. This information will be used to document the overall percentage shading, and trends in shade will be then computed for both restored and control reaches.

To evaluate whether restoration has resulted in lower instream water temperatures than would have occurred otherwise, water temperature will be measured at five locations within each restored reach and within the control reach described above, before, and after restoration occurs. Temperature loggers will be affixed within pools to prevent dewatering, and attempts will be made to avoid the influence of groundwater intrusions from springs, seeps, and hyporheic upwellings. Trends in water temperature observed over the monitoring period in restored reaches will be compared with those observed in unrestored reaches over time.

Implementation Structuring and Reporting

This SEP will be completed in two phases as follows, further described in the Schedule section below, by March 31, 2031:

- Phase One: Years -1 and 0, which consist of pre-implementation baseline monitoring, site preparation, planting, and reporting.

- Phase Two: Year 1, 2, 3, 4, and 5, which consist of routine maintenance, adaptive management, post-implementation monitoring and reporting.

Periodic Reports

Within 90 days after the end of the year of each monitoring timepoint during Phase Two (i.e., Years 1, 3, and 5), a Periodic Report will be provided to EPA. Each Periodic Report will contain the following information with supporting documentation:

- A detailed description of the SEP as implemented, including photographs, field notes, vendor invoices, and other documentation from planting, monitoring, and routine maintenance events.

- A description of whether the SEP is achieving the following project performance and success standards discussed above.
- Documentation indicating whether the SEP is likely to achieve the project performance and success standard for total percentage of non-woody species foliar coverage by the end of Year 5 by comparing foliar coverage with the following interim targets:
    - Year 1: 50% of foliar coverage
    - Year 2: 70% of foliar coverage
    - Year 3: 90% of foliar coverage

  If total percentage of foliar cover is less than the value in the list above at the end of any year in which monitoring is conducted, (1) herbaceous species will be replanted or reseeded in amounts intended to achieve the 90% foliar cover performance and success standard, and (2) at least one other adaptive management strategy from the Adaptive Management list below will be selected and implemented. A detailed description of the amount and type of plants planted or seeds sowed, as well as an explanation of the additional selected adaptive management strategy, will be included. Additionally, the reason(s) the interim foliar coverage target was not met will be identified, and how the selected adaptive management strategy was intended to meet the coverage target will be described, along with any operating problems encountered and the solutions thereto.
- A description and documentation of whether the SEP achieved 90% survival of woody species. If that performance and success standard was not met, (1) woody species will be replanted in an amount great enough to reach the 90% target, and (2) at least one other adaptive management strategy from the Adaptive Management list below will be selected and implemented. A detailed description of the amount and type of woody species that were planted to achieve 90% survival will be included, as well as an explanation of how the selected additional adaptive management strategy or strategies was intended to meet the identified causes of plant mortality. Additionally, an explanation of why the performance metric was not met, along with any operating problems encountered and the solutions thereto, will be provided.
- A description and documentation of any adaptive management strategies implemented.

Phase Completion Reports

Within 90 days after the end of the final year of each phase (i.e., monitoring Years 0 and 5), a Phase Completion Report will be provided to EPA. Each Phase Completion Report will contain at the following information with supporting documentation:

- A detailed description of the SEP phase as implemented, including photographs, field notes, vendor invoices, and other documentation from any planting, monitoring, routine maintenance events, and any necessary adaptive management actions taken.
- A description of any operating problems encountered and their solutions thereto
- Itemized costs
- Certification that the SEP phase has been fully implemented pursuant to the provisions of the Consent Agreement and Final Order (CAFO)

In addition to the list above, the Phase One Completion Report will include a description of the pre-implementation monitoring (baseline) outcomes, performed in the summer of Year -1 and Year 0, including the assessment of community composition, percent foliar cover of non-woody species, shade, and water temperature measurements for each site, including the control site.

The Phase Two Completion Report will include a description of whether the SEP achieved the project performance and success standards, including (1) 90% survival of woody species over the 5-year monitoring period, and (2) 90% foliar cover of non-woody/herbaceous species within 5 years of implementation. If the SEP has not achieved these project performance and success standards, a detailed description of the management actions taken to address plant mortality and achieve project performance and success standards will be included, as follows:

- Woody Species: If the 90% survival of woody species project performance and success standard is not met, (1) woody species will be replanted to reach the 90% target, and (2) at least one adaptive management strategy from the Adaptive Management list described in the Routine Maintenance and Adaptive Management section will be selected and implemented. A detailed description of the amount and type of woody species to be planted to achieve 90% survival will be included as well as an explanation of how the selected adaptive management strategy or strategies were intended to achieve the 90% survival target.
- Herbaceous Species: If the 90% foliar cover of herbaceous species project performance and success standard is not met, (1) herbaceous species will be replanted or reseeded to achieve the 90% foliar cover target, and (2) at least one adaptive management strategy from the Adaptive Management list described in the Routine Maintenance and Adaptive Management section will be selected and implemented. A detailed description of the amount and type of plants planted or seeds sowed will be included as well as an explanation of how the selected adaptive management strategy or strategies were intended to achieve the 90% canopy target level.
- Adaptive Management: Adaptive management strategies that may be used include supplemental irrigation, soil stabilization, weed and invasive species control, soil amendments, pest or disease control, and fencing. If a strategy not listed below is desired, it will be implemented only with prior written approval from EPA. All adaptive

management strategies, including control methods used for invasive species, pests, and predators, will be done in accordance with all local, state, federal, and tribal policies.

Routine Maintenance and Adaptive Management

Routine maintenance will be performed to ensure establishment and success of the riparian restoration projects. Two seasons of routine maintenance are planned for, and will include browse protection maintenance, supplemental watering, and weed control. The actions and schedules for routine maintenance and adaptive management are outlined in Table 7.

In addition, monitoring efforts described above will provide information to guide adaptive management of the project. Several types of adaptive management are anticipated, but adaptive management necessitates flexibility. Adaptive management actions will only be taken in response to unacceptable or unforeseen outcomes, and the actions will be selected to address the root cause of observed plant failure. The extent and degree to which any of the following adaptive management techniques are implemented will thus depend on whether performance targets outlined above are being met.

- Depending on observed browse pressure and browse species (i.e., livestock, rodents, large ungulates), additional browse protection may be implemented, such as exclosure fencing, individual cages, or collars.
- Depending on plant survival and foliar cover, supplemental watering options may be considered. Availability of temporary irrigation rights will be investigated during initial planning efforts. Sprinklers, drip systems, and pumper trucks will all be considered.
- Depending on plant survival and foliar cover, weed control methods (e.g., mechanical and chemical treatments) may be required to support plant survival targets. The viability of using synthetic weed barrier or wood chip mulch to reduce weed competition may also be assessed.
- Depending on plant survival and foliar cover, replanting to reach target densities may be required.

Cost Estimates

Stream revegetation costs for the three sites including the site area, planting density, installation cost, and routine maintenance costs are provided in Table 5. The basis of these costs is as follows.

The standard planting estimate is $37 per stem, which includes a 1-gallon container of potting soil mixture, wood chip mulch, fertilizer, and labor, including delivery and installation.

Density classes are broken into low, medium, and high, and are based on the distance between each stem (Table 3).

The maintenance costs have been estimated for two seasons of routine maintenance following planting, by assuming $3 per stem in the first year and $2 per stem in the second year.

Overall costs for the three sites are $115,000 for installation, $30,000 for two seasons of routine maintenance, and $154,000 for five years of monitoring and evaluation, for a total of $299,000 for the planting proposed in this SEP Plan.

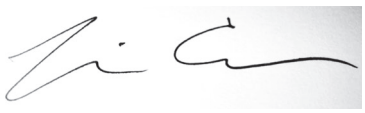
SCHEDULE

The 7-year schedule for the proposed SEP is as follows:

Phase	Calendar Year	Project Year	Activities
Phase One	2024	Y_{-1}	• Refine and finalize planting and monitoring plan. • Collect and propagate planting materials. • Establish monitoring sites. • Conduct formal monitoring effort to collect pre-implementation monitoring data.
	2025	Y_0	• Propagate planting materials. • Conduct formal monitoring effort to collect pre-implementation monitoring data. • Implement restoration. • Develop Phase Completion Report 1.
Phase Two	2026	Y_1	• Conduct formal monitoring effort to collect post-implementation monitoring data. • Develop Periodic Report 1. • Perform routine maintenance. • Perform adaptive management if needed.
	2027	Y_2	• Perform periodic site visits to check on planting status. • Perform routine maintenance. • Perform adaptive management if needed.
	2028	Y_3	• Conduct formal monitoring effort to collect post-implementation monitoring data. • Develop Periodic Report 2. • Perform adaptive management if needed.
	2029	Y_4	• Perform periodic site visits to check on planting status. • Perform adaptive management if needed.
	2030	Y_5	• Conduct formal monitoring effort to collect post-implementation monitoring data. • Perform adaptive management if needed. • Develop Periodic Report 3. • Develop Phase Completion Report 2.

Sincerely,

Dan Hennessy
Environmental Scientist



Lucius Caldwell
Fish Biologist

Attachments

References
Tables Tables 1 to 6. 12 pages.

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TABLES

Table 1
Summary of Strategy Elements and Prioritization Criteria for Stream Restoration and Compliance with EPA SEP Policy

SEP Plan Restoration Strategy Element	Strategy Implementation	Application to SEP Plan	Compliance with EPA (2015) SEP Policy
Prioritize the restoration sequence based on existing habitat quality on Hecla property.	1-Protect existing high-quality habitat. 2-Re-connect habitat areas to increase contiguous habitat size. 3-Restore existing habitat to high-quality habitat. 4-Create new habitat (Cramer 2012; Rentz et al. 2020)	Stepwise process uses existing areas of habitat, maximizes effect of planned restoration efforts, and addresses physical and ecological connections to join contiguous areas of habitat.	Riparian habitat restoration is in alignment with EPA's missions of Pollution Prevention and addressing Climate Change (Section II. C and E; Section VIII.F). Proposed SEP is in same location as affected site (Section IV. A).
Prioritize upstream revegetation to maximize shading benefits.	The relative importance of shading provided by riparian vegetation is greatest in narrow, upstream reaches, where there is potential for the riparian canopy to shade a substantial proportion of channel width.	The most effective methods of addressing elevated water temperatures is reducing solar inputs to reduce warming, rather than relying on actions promoting cooling. The project area is in headwater reaches and is a prime location for selecting sites that will achieve high-levels of shading from riparian restoration.	The strategy element is in alignment with EPA's missions of Pollution Prevention (Section II. C) and the hierarchy of environmental management to prevent pollution at the source.
Focus on locations that reconnect existing patches of better-quality stream and riparian habitat to maximize shading.	The single most important component of a stream's heat budget is solar radiation. The most effective methods of addressing elevated water temperatures in the project area is by increasing riparian shading along greater lengths of the stream to reducing solar inputs.	Ecological science demonstrates that large patches of connected, high-quality habitat are critical for recovery of populations of aquatic and riparian species and communities (Dunham et al. 1997; Roberts et al. 2013; Smith et al. 2011). Enhancing riparian habitat along greater reach lengths will result in greater likelihood and magnitude of shading.	Riparian habitat restoration is in alignment with EPA's missions of Pollution Prevention and addressing Climate Change (Section II. C and E).

SEP Plan Restoration Strategy Element	Strategy Implementation	Application to SEP Plan	Compliance with EPA (2015) SEP Policy
Use natural processes.	Focus on projects that fix processes rather than aesthetics. Implement projects that leverage natural hydraulic forces and operate within the geomorphic constraints at a particular site. Implement sequences of modest projects with care and attentiveness, so that costs are kept manageable.	Offload as much work as feasible to the system itself, so that gravity, flowing water, existing plant and animal communities, topography, lighting, and other basic physical and biological processes and conditions are an asset instead of an obstacle.	The use of natural processes to improve resiliency of natural systems to the future climate change impact of increasing stream water temperature (Section II. E; Section VIII.A.)
Use computer GIS methods to ensure consistency and transparency of processes and decision making. See Table 2.	The science around relationships between stream shading and water temperature is well developed and there are advanced GIS habitat conditions assessment methods developed for resource and water quality management. By using GIS tools as part of scientific site selection decision making, the process is robust and transparent. Measurements were completed using desktop analysis of existing aerial photographs.	Physical and ecological features are used to determine the differences in shade for current conditions and predicted natural vegetation conditions. The differences in conditions for undisturbed, current conditions and, predicted post-restoration conditions were determined using GIS models that correlate geomorphic features and riparian plant communities.	Proposed SEP uses Innovative Technology (Section II. D). The use of state-of-the-art GIS data and models for land and water management provides a case study opportunity for EPA to observe and evaluate new technologies that are applicable to EPA's mission (Section VIII.D.)
Define Project Success Standards	Define quantitative success standards to measure plant survival and growth. Couple performance standards with adaptive management. Include supporting data that will allow evaluation of shading and water temperature trends.	Choose values that are attainable and that maximize reducing solar inputs to reduce warming. Make repeated observations in restored sites and those in unrestored site, before, during, and after implementation	Monitoring for plant survival and foliar cover will be conducted to definitively measure the success of the site revegetation efforts over a 5-year period of time (Section X.A).

SEP Plan Restoration Strategy Element	Strategy Implementation	Application to SEP Plan	Compliance with EPA (2015) SEP Policy
Use flexible and adaptable planting designs for revegetation work.	The revegetation planting designs are based on native plant communities and tailored to site-specific conditions. To achieve the performance standards monitoring will allow adaptive management including replanting to weed control, browse protection, and supplemental watering.	The implementation plan, schedule, and construction cost estimates are based on an approach that allow for planning for plant material sourcing and installation and adaptive management to ensure successful revegetation projects that meet the SEP goals.	This SEP Plan is well defined and includes the "what, where, when" of the project (Section IV. A. 4.).
After revegetation work, monitor and report short- and long-term success. Use adaptive management to meet goals.	Restoration site monitoring will be conducted by local Hecla staff trained by and assisted with site visits by project team members. Data collected in the project area for existing biological and temperature monitoring programs will be used.	The sites in the SEP Plan will be monitored and maintained, and Periodic Reports will be submitted after Year 1, 3 and 5 of the SEP, and Phase Completion Reports will be submitted after Year 0 and 5 of the SEP.	Measurable progress in protecting and restoring and promoting resilience of ecosystems (Section VIII.A.). Documentation of completion (Section X.A).

Table 2
Summary of Methods for Stream Habitat Conditions Assessment

Restoration Plan Assessment Methods	Description	GIS Analysis	Uncertainty
Geomorphic assessment for stream width and instream modification.	To identify areas of channel degradation due to widening, "observations" of wetted width were compared with predictions of bankfull width under natural conditions	Wetted width was measured in ArcGIS Pro 3.0 by using the "Measure" tool on aerial photographs of the project area that were compiled from the World Imagery base map provided through Esri, which features recent 1m USDA National Agriculture Imagery Program (NAIP) imagery. These measured wetted widths then were compared to the predicted bankfull widths compiled within the Columbia River Basin Predicted Channel Patterns for Large Rivers layer (Beechie and Imaki 2014), using ArcGIS Pro. These bankfull widths predicted by Beechie and Imaki have been estimated using a model based on geography (slope, drainage area) and hydrology (mean annual precipitation), and the model was calibrated using 270 field measurements of channel width across the Columbia River Basin.	An alternative estimate of predicted bankfull widths, based on the USGS Streamstats dataset,2 was also explored. The Streamstats process involves delineating a watershed at several points along the stream in question to estimate natural bankfull width from estimates of watershed drainage area. The predicted bankfull width measurements from Beechie and Imaki were compared with predictions following the Streamstats process, and Beechie and Imaki consistently predicted narrower bankfull widths than Streamstats. As narrower predictions of bankfull width would result in greater sensitivity for evaluating channel widening, Beechie and Imaki widths were used in this assessment.

Restoration Plan Assessment Methods	Description	GIS Analysis	Uncertainty
Geomorphic assessment for channel type.	The Beechie and Imaki (2014) dataset provides predictions of channel type (straight, meandering, pool-riffle, etc.) for all rivers and streams within the Columbia River Basin.	These predictions were used to evaluate stream shape (morphology), by comparing predicted channel classifications with a visual assessment of the channel type using the NAIP image.	Substantial differences in observed and predicted channel shape may suggest a need for instream restoration. While this approach can effectively identify areas with gross morphologic degradation, it is relatively insensitive to subtler or more recent perturbations from the natural state.
Bankfull width GIS measurements.	The first step in developing target levels of shade for a stream is determining channel width, because as channel width increases, the proportional amount of shade that the riparian vegetation can provide decreases.	The predicted bankfull widths used in this analysis were derived from Beechie and Imaki (2014) described above. In addition, following suggestions of Shumar and de Varona (2009), the USGS Streamstats method was used to estimate mean bankfull width under natural conditions	The Streamstats process predicted wider bankfull widths, which would result in a lower target for the proportion of stream shading. To err cautiously, the Beechie and Imaki predictions of bankfull width were used for developing stream shading targets.
Riparian target shade levels.	A shade curve shows the relationship between the channel width of a river and the amount of shade produced by a specific potential natural vegetation type. Shade curves that were developed for the Coeur d'Alene National Forest were used in the analysis.	These As described above, Beechie and Imaki predicted bankfull widths were used to develop the target shade levels for segments of the SF-CDA within the Project Area Using the predicted bankfull widths, target shade levels were determined using shade curves developed for Idaho vegetation types (Shumar and de Varona 2009).	The implication of using this dataset is that it may prescribe a slightly greater proportional channel shading than the Streamstats predictions. This direction of bias in the shade target prescriptions would appear to be preferable from a cautionary perspective. Nonetheless, before implementing riparian revegetation or designing monitoring protocols based on meeting target shade levels, a detailed site survey should be conducted to accurately determine bankfull width and set shade targets.

Restoration Plan Assessment Methods	Description	GIS Analysis	Uncertainty
Riparian existing shade levels.	Existing shade was estimated, following the procedural guidelines outlined by the Idaho Department of Environmental Quality (Shumar and de Varona 2009) and using NAIP imagery.	Aerial photographs were examined within ArcGIS Pro 3.0. Shade levels were informed by riparian plant types, perceived density, topographic relief, and other environmental indicators. Interpretations of these values are represented as 10% class intervals starting with shade class 0 and proceeding through shade class 90.	For the current assessment, only desktop analyses of existing shade values have been conducted and determinations are based on best professional judgment. Field verification to confirm conditions are included and establish baseline shade levels will be conducted as an initial step of restoration plan implementation.

Table 3
Summary of Stream Habitat Zones and SEP Plan Revegetation Guidelines

Habitat Zones[1]	Flood Stage and Annual Inundation	Soil Description	Plant Groups and SEP Plan Revegetation Guidelines
Aquatic and Aquatic vegetated.	No flooding. Inundated all year.	This zone represents the water within the channel and is unvegetated.	No instream work will be performed. All work will be performed above the bankfull elevation.
Emergent margin.	Low flow water surface to bankfull elevation (~1.5-year flood stage). Inundated all year or multiple months.	Occurs entirely within the substrate's capillary fringe next to water. The soil is saturated or at field capacity (i.e., damp) the entire year. Applicable to wetland vegetation.	Herbaceous plants are most abundant in this zone. Dense clumps of emergent wetland herbaceous groundcovers like sedges and rushes and small woody shrubs with flexible stems including willows. Herbaceous planted at <1 m spacing, shrubs at 1-1.5 m spacing in areas subject to erosion, 2-3 m where banks are relatively stable.
Mesic.	Bankfull elevation to ~5- year flood stage. Multiple months to many weeks	Substrate is saturated or at field capacity for most of the growing season.	Woody plants are most abundant in this zone. Mix of herbaceous groundcovers like rushes and sedges, woody shrubs, and trees tolerant to inundation, including willows, alders, ashes, and cottonwoods. Herbaceous groundcovers planted at <1 m spacing among shrubs and trees planted at 1-1.5 m spacing in areas subject to erosion, 2-3 m where banks are relatively stable.
Mesic- Xeric transition.	Approximately 5-year flood to 100-year flood stage. Many weeks per year to once per century	Prolonged soil moisture at or above field capacity is infrequent. Occasional short periods of inundation and drought.	Woody plants are most abundant in this zone. Includes mix of grasses, groundcovers, larger shrubs, and fast-growing trees. Other plants include horsetails, sedges, willows, elders and elderberries, worts, firs, and cedars, All spaced approximately 1.5-2 m apart, with trees mulched using gravel or bark.

Habitat Zones[1]	Flood Stage and Annual Inundation	Soil Description	Plant Groups and SEP Plan Revegetation Guidelines
Xeric	Above 100-year flood stage. Never inundated.	Not inundated. Soil moisture is recharged through precipitation alone.	Woody plants are most abundant in this zone. Mix of spaced native pines and other trees that are poorly adapted to prolonged inundation. Trees mulched with bark or gravel, and sparsely interplanted with native grasses, shrubs, and groundcovers.

Notes: Habitat zones and design of planting compositions based on work of Bair et al. 2021; Hoag and Landis 2001

Table 4.
Summary of Restoration Sites, Riparian Habitat Conditions, and Revegetation Approach to Maximize Shadings

Site ID	Description	Riparian Habitat Conditions Assessment	Revegetation Approach and Performance Standards
2	The underlying causes for habitat degradation at this site are plant removal and soil disturbance for road and mine tailings pond development on the west bank, where the buffer is restricted to less than 15 m. The reach is also straightened and has armored banks. Vegetation is present on both banks, but a 30 m buffer width can be achieved on the east bank, where there are also some large trees. At the south end of the reach, the stream bends to the west and a ponded wetland area is present to the south that continues for several hundred meters upstream.	Along the pond, the vegetation is limited. The northeast bank has an early successional mesic-xeric transition zone that extends upstream. Larger trees are surviving well on the riverbank and shrubs and inundation tolerant trees are present in the emergent margin and mesic zone. Smaller shrubs such as snowberry and elderberry and taller shrubs such as willow and alder are native species common in the emergent margin and mesic zones.	Trees such as western red cedar, western pine, and cottonwood will be planted in the mesic zone. Taller shrubs such as willow and alder will be planted in the emergent margin and the mesic zone along with smaller shrubs such as snowberry and elderberry in the emergent margin. Monitoring and adaptive management would be used to achieve 90% survival of woody species. 90% foliar cover (based on ocular estimates) of non-woody herbaceous species like sedges and grasses would be achieved. Where achievable, the minimum buffer width for this site is 30 m, to provide maximum shading. However, a 30m buffer is not anticipated across the entire length of this site.

Site ID	Description	Riparian Habitat Conditions Assessment	Revegetation Approach and Performance Standards
4	There are underlying causes for degradation at this site, including tree removal for remediation of the Old Mullan Dump and historical livestock grazing. There is significant denudation on the northern side of the site. This reach has more natural geomorphology than the downstream sites, as illustrated by the sinuosity. There is herbaceous groundcover surrounding the river on both banks, but there are areas of bare ground within 30 m of the stream and a few large trees. There is an adjacent wetland area to the south. The buffer width is larger in this site than others, as the road to the north is roughly 70 m away.	Existing vegetation is limited along the stream. The north bank has herbaceous groundcover, consisting of what appear to be grasses and large shrubs. A few larger trees are present on the southern riverbank near the downstream end of the site. Shrubs and inundation tolerant trees appear to be present in the emergent margin and mesic zone. Existing vegetation indicates that larger trees may survive well on the riverbank.	Trees such as western red cedar, western pine, and cottonwood will be planted in the mesic zone. Taller shrubs such as willow and alder will be planted in the emergent margin and the mesic zone along with smaller shrubs such as snowberry and elderberry. Monitoring and adaptive management would be used to achieve 90% survival of woody species. 90% foliar cover (based on ocular estimates) of non-woody herbaceous species like sedges and grasses would be achieved. Where achievable, the minimum buffer width for this site is 30 m, to provide maximum shading and increase the potential for inputs of woody material to the stream. However, a 30m buffer is not anticipated across the entire length of this site.

Site ID	Description	Riparian Habitat Conditions Assessment	Revegetation Approach and Performance Standards
5	The underlying causes of degradation include construction of dwellings, trees removed for agricultural purposes, and livestock grazing on this property. There is significant denudation on the northern side of the site due to structures. The southern bank has significant denudation up to 100 m from the river. This reach has relatively natural geomorphology, similar to Site 4, which is located immediately downstream. There are some herbaceous groundcover and several large trees along the banks at this site. The buffer width could also be larger for this site than others on the south bank and the north bank where no structures are present. If livestock continue to graze at this site, livestock fencing should be put in place to reduce future riparian habitat degradation	Herbaceous groundcover consisting of rushes, bulrush, and other grasses common to riparian sites such as tufted hairgrass would be suitable for planting in the areas of the aquatic vegetated zone that show no existing vegetation. Smaller shrubs such as snowberry and elderberry may be appropriate in the emergent margin. Taller shrubs such as willow and alder could be planted in the emergent margin and the mesic zone as well. Existing vegetation indicates that larger trees may survive well on the riverbank.	Trees such as western red cedar, western pine, and cottonwood will be planted in the mesic zone. Taller shrubs such as willow and alder will be planted in the emergent margin and the mesic zone along with smaller shrubs such as snowberry and elderberry in the emergent margin. Monitoring and adaptive management would be used to achieve 90% survival of woody species. 90% foliar cover (based on ocular estimates) of non-woody herbaceous species like sedges and grasses would be achieved. Where achievable, the minimum buffer width for this site is 30 m, to provide maximum shading and increase the potential for inputs of woody material to the stream. However, larger trees could be planted in the xeric zone up to 100 m to the south.

Notes: Monitoring will be performed during the summer for five years after planting is completed, at Y1, Y3, and Y5 post-implementation. Adaptive management may include replanting, weed control, supplemental watering, and browse protection.

Table 5
Summary of Stream Revegetation Site Cost Estimates for Installation and Maintenance

Site ID	Area (m2)	Area (hectares)	Anticipated Planting Density	Approximate Installation Cost (Phase One)	Approximate Maintenance Cost (Phase Two)	Approximate Monitoring Cost (Phase One/Two)	Total Costs
2	7,380	0.74	Medium	$7,000	$2,000		$9,000
4	27,120	2.71	Medium	$70,000	$18,000		$88,000
5	12,000	1.2	High	$38,000			$48,000
All Sites						$154,000	$154,000
Totals	46,500	4.65	--	$115,000	$30,000	$154,000	$299,000

Table 6
Summary of Monitoring Plan Sampling Design

Site ID	Approximate Site Length	Approximate Site Area (m2)	Anticipated East/North Bank Width (m)	Anticipated West/South Bank Width (m)	Approximate Transect length (excluding channel)	No. Transects
2	164	7380	15	30	45	5
4	339	27120	30	50	80	5
5	200	12000	30	30	60	5
Control	60	3600	30	30	60	5

Note: Spacing and length of transects subject to change as pre-implementation preparation and planting commences.

Table 7
Summary of Routine Maintenance and Adaptive Management

	Routine Maintenance	Adaptive Management
Actions	• Browse protection maintenance • Supplemental watering • Weed control	• Browse protection maintenance • Supplemental watering • Weed control • Replanting
Timing	Y1 and Y2	As needed
Trigger	Planned activity	Monitoring indicates performance standards not being met