Reuse Assessment Report for the Callahan Mine Superfund Site

April 2009

EPA Region 1
EPA Superfund Redevelopment Initiative

prepared by
E² Inc.

Forward

EPA's primary responsibility at Superfund sites is to ensure the protection of human health and the environment. Consideration of a site's potential future use is an important part of this responsibility under the National Contingency Plan (NCP). EPA created the Superfund Redevelopment Initiative (SRI) in 1999 to help communities and stakeholders in their efforts to return environmentally impaired sites to protective and productive use. Conducting a reuse assessment that engages site owners and other stakeholders in evaluating future use options for a site can inform EPA's remedy selection process, help facilitate site stewardship, and support the long-term effectiveness of a site's remedy.

This Reuse Assessment summarizes information on the current and reasonably anticipated future land uses of the Callahan Mine Superfund Site and outlines key reuse and site stewardship considerations.

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Cover Photograph: View of the Callahan Mine Site and the Goose Pond estuary from the top of Waste Rock Pile 1.

I. INTRODUCTION

The Callahan Mine Superfund Site (Callahan Mine Site or Site) is located in the Town of Brooksville, Maine (pop. 911). In 2002, the U.S. Environmental Protection Agency (EPA) placed the Callahan Mine Site on the Superfund National Priorities List and is now in the process of planning the Site's cleanup.

Site Location

The Callahan Mine Site, also known as the Callahan Mining Corp. Site, includes approximately 150 acres of former mining operations and waste piles, the former mine pit located in Goose Pond, and other areas that may contain hazardous substances, pollutants, or contaminants released from the waste piles. The 150-acre parcel, the primary focus of this reuse assessment, is located south of Goose Falls Road, near the Village of Harborside in Brooksville, Maine. Goose Pond and the Holbrook Island Sanctuary are located east of the parcel, and a number of private residences and seasonal homes are located to the west and north of the parcel along Cape Rosier Road and Goose Falls Road. Figure 1 shows the Site's location within the Town of Brooksville.

Today, the Goose Pond shoreline and surrounding forest land serve as a scenic resource for wildlife viewing and boating.

Site History

The Callahan Mine Site was mined for copper, zinc and lead ore from the 1880s until 1972. Subsurface mining operations took place at the Site from 1881-1887. During this time, 7,000 tons of copper, zinc, and lead ore were mined from four shafts. After approximately 80 years of sporadic ore exploration, open pit mining activities began on the Site in 1968. Dams were constructed at Goose Falls and the southern end of Goose Pond, and Goose Pond was dewatered to create an excavation pit. Over 800,000 tons of ore baring rock were mined from the Site, leaving behind an excavation pit measuring 600-feet wide and 320-feet deep, three waste rock piles containing five million tons of waste rock, and an 11-acre tailings pile. When mining operations ceased in 1972, both dams were removed, allowing tidal and surface water to fill in the excavation pit and lower elevation areas of the Site.

From 1974 until 1979, a commercial aquaculture business raised mussels, oysters and coho salmon in the flooded former pit mine. The Site has remained vacant since the aquaculture business closed in 1979.[1]

[1]Maine Department of Transportation. Remedial Investigation Report for the Callahan Mine Site, April 2009.

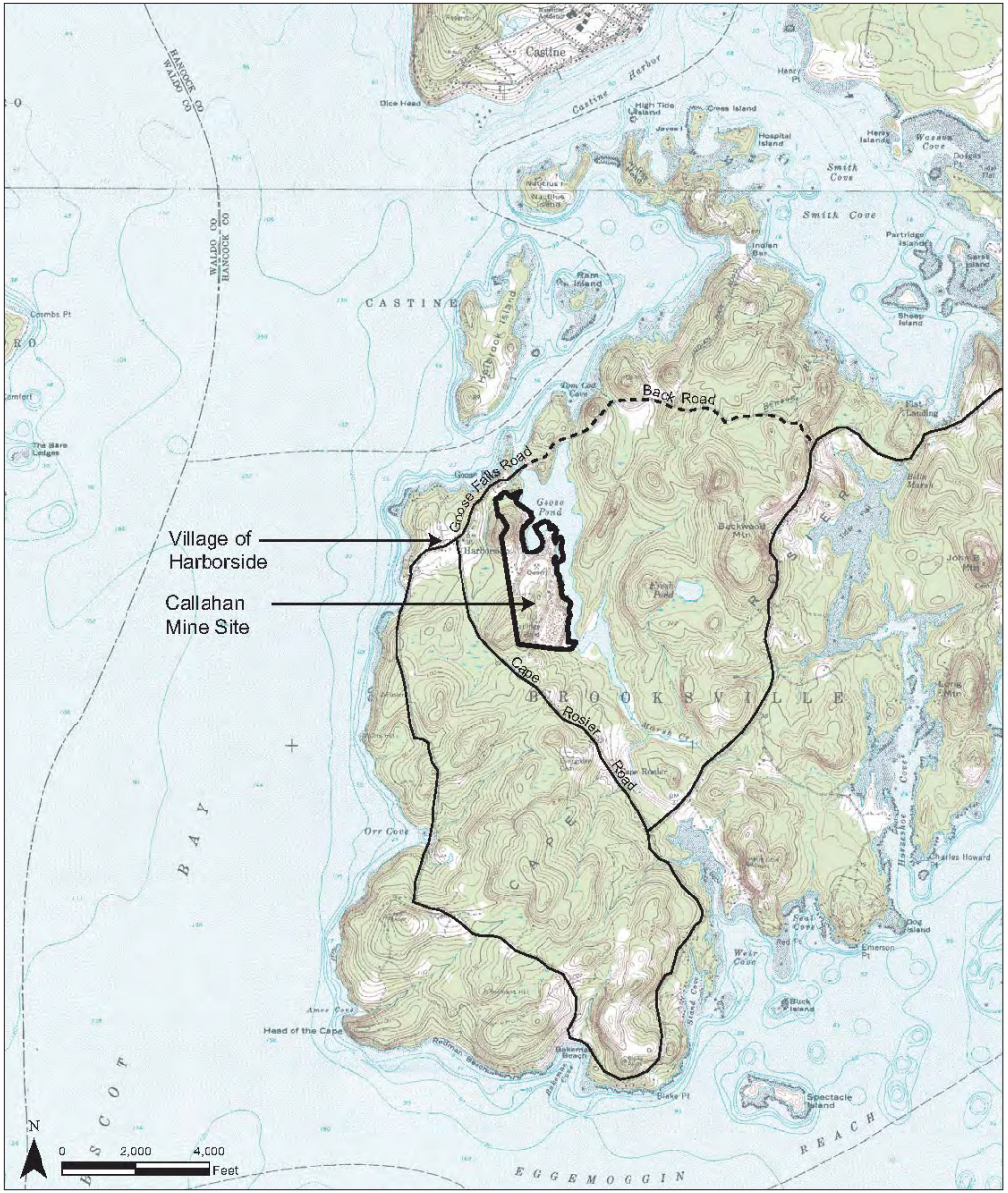

Figure 1: Site Location Map

Callahan Mine Site Overview

Location:
Brooksville, Maine
04617

ID Number:
MED980524128

Site Area:
Approximately 150 acres of land
Other Site areas include the former mine pit, contaminated wetlands, and contaminated portions of Goose Pond and Goose Cove.

Number of Parcels Evaluated for Reuse:
One

Current Use:
Vacant, passive recreation with public access

Ownership:
Smith Cove Preservation Trust is the owner of the 150-acre parcel. The State of Maine is the owner of Goose Pond and Goose Cove.

Cleanup Status:
EPA is currently overseeing the development of the Site's Remedial Investigation / Feasibility Study (RI/FS). The RI/FS and a Record of Decision for Operable Unit 1 (OU 1) are expected in 2009.

II. Current Site Conditions

The following section of the Reuse Assessment highlights current Site conditions, including property ownership, local regulations, access, Site operational areas, and known contamination.

Ownership

A portion of the Site is currently owned by the Smith Cove Preservation Trust (Trust), a non-profit organization whose mission is to preserve natural scenic resources along the Coast of Maine. Figure 2 shows property ownership in the vicinity of the Site.

The Goose Pond estuary is owned by the State of Maine. The abutting Holbrook Island Sanctuary is also owned by the State of Maine. Large, privately-owned residential properties are located west and south of the Site. Several smaller privately-owned residential properties are located north of the Site, near the intersection of Goose Falls Road and Old Mine Road.

Zoning & Future Land Use Designations

The Callahan Mine Site is subject to local land use regulations administered by the Town of Brooksville. Zoning and future land use designations relevant to the Callahan Mine Site are outlined in the Brooksville 2007 Comprehensive Plan and summarized below.

Existing Land Use Regulations

Under current town zoning regulations, the majority of the Callahan Mine Site is considered part of a Rural Area. Rural Areas do not have established zoning regulations and are not subject to a formal development review and approval process. Residential uses are permitted in Rural Areas, including property within the Callahan Mine Site. Brooksville's subdivision ordinance establishes a minimum lot size requirement of two acres for subdivisions in rural areas.

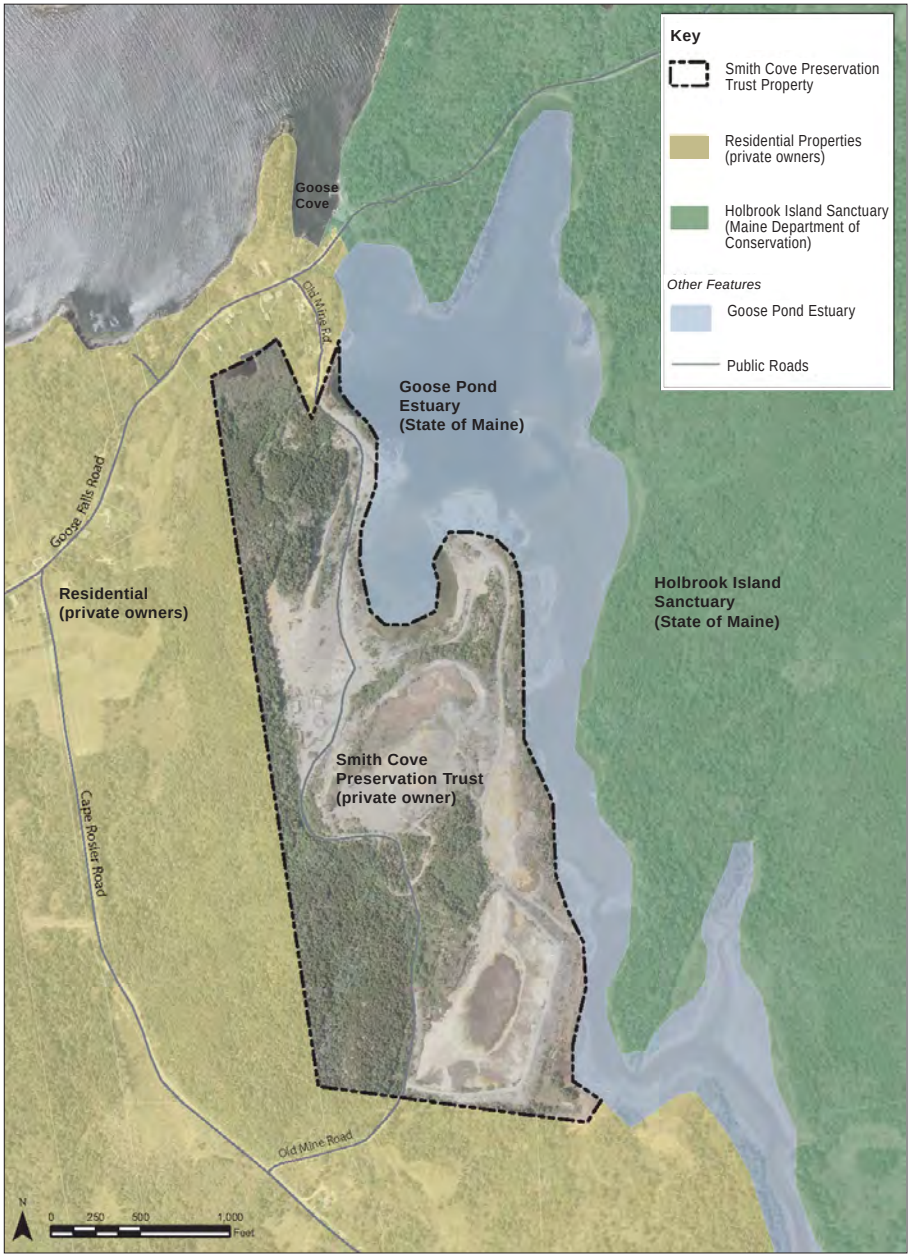

Figure 2: Property Ownership Map

Resource Protection District:

Brooksville established a Shoreland Zoning Ordinance, which designates a 250-foot wide strip of land along shoreline as a Resource Protection District; any planned future development activities in this portion of the Site would be subject to a permitting review. The approval process would likely result in specific restrictions on building size, setback, and vegetation clearance. Maine's Shoreland Zoning law requires that vegetative buffers be maintained within 75 feet of a water body located in a Resource Protection District.[2]

Proposed Future Land Use Designations

Brooksville's 2007 Comprehensive Plan outlines a future development plan for the Town, which could serve as the basis for the development of future land use ordinances. Two of the proposed future land use designations will likely be important to consider at the Site. Figure 3 highlights future land use designations in the Site's vicinity.

Callahan Mine Overlay:

The future development plan identifies the Callahan Mine Site, and a 500-foot buffer surrounding the Site, as a possible threat to ground water. The Plan recommends that the Town's appointed Land Use Committee research and propose considerations for requiring extra protection of ground water resources within the Callahan Mine Site Overlay in subdivision regulations or other town ordinances. The plan does not document any potential future use limitations or future land use recommendations for the Callahan Mine Site Overlay.

Harborside Village Growth Area:

The future development plan designates a growth area in Harborside that includes land within a 1,000-foot radius of the intersection of Cape Rosier and Goose Falls Roads. Growth Areas are designated to encourage planned future development where public infrastructure currently exists.

[2] Maine Department of Environmental Protection, Bureau of Land and Water Quality. "Issue Profile: Clearing Vegetation in the Shoreland Zone" (September 2003)

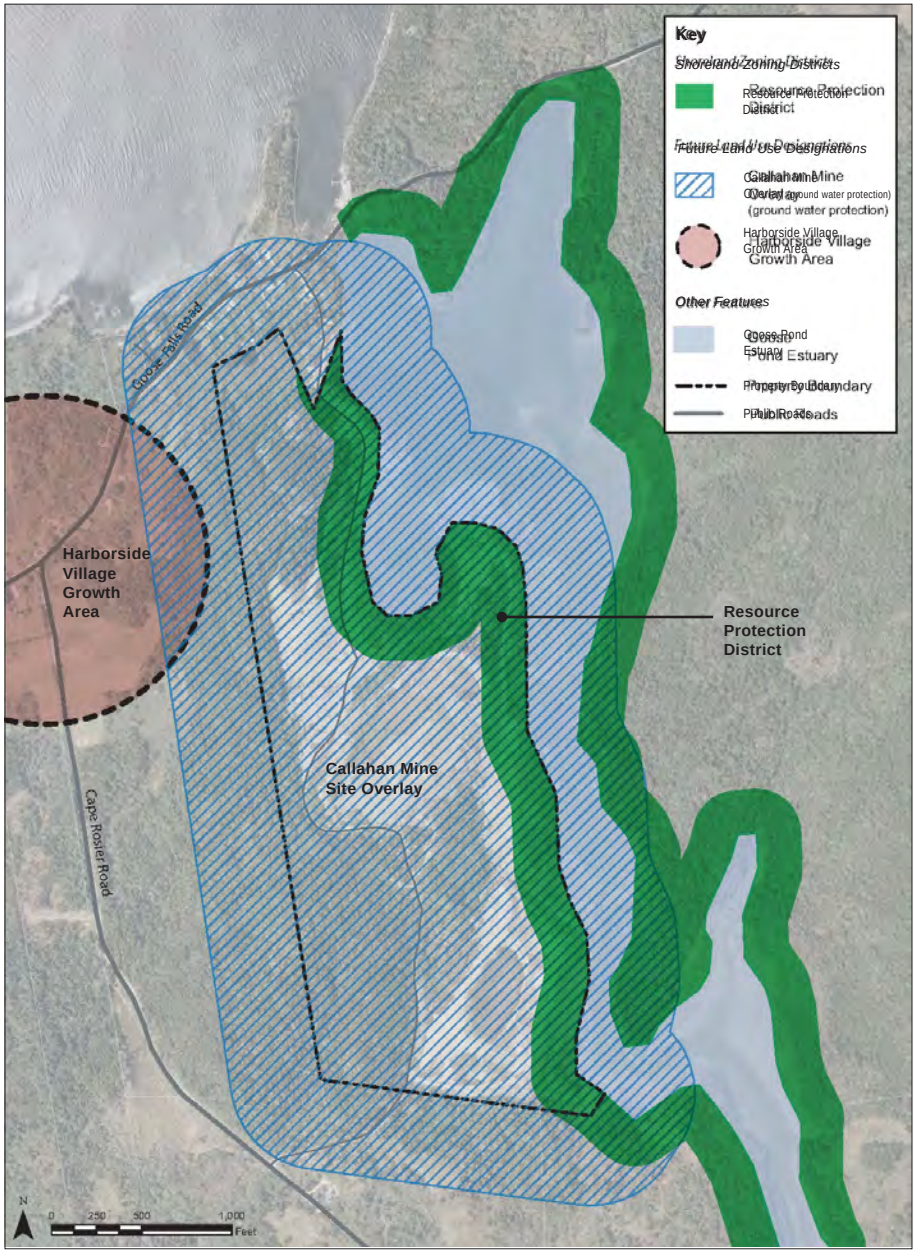

Figure 3: Local Land Use Regulations Map

Access & Viewsheds

The Site is currently accessible to vehicles and pedestrians via Old Mine Road and a network of gravel roads that provide access throughout the interior of the Site. There are several points throughout the Callahan Mine Site that provide panoramic views of Goose Pond, surrounding forestlands, and the varied landscape of the Site. These include: the top of Waste Rock Pile 1; locations along the eastern edge of the Site and along the Tailings Pile access road; Dyer Point; and Dyer Cove Perimeter. These points, identified as viewsheds in Figure 4, are currently accessible via internal Site access roads.

View from Waste Rock Pile 1 (highest elevation on the Site) looking north toward Goose Pond.

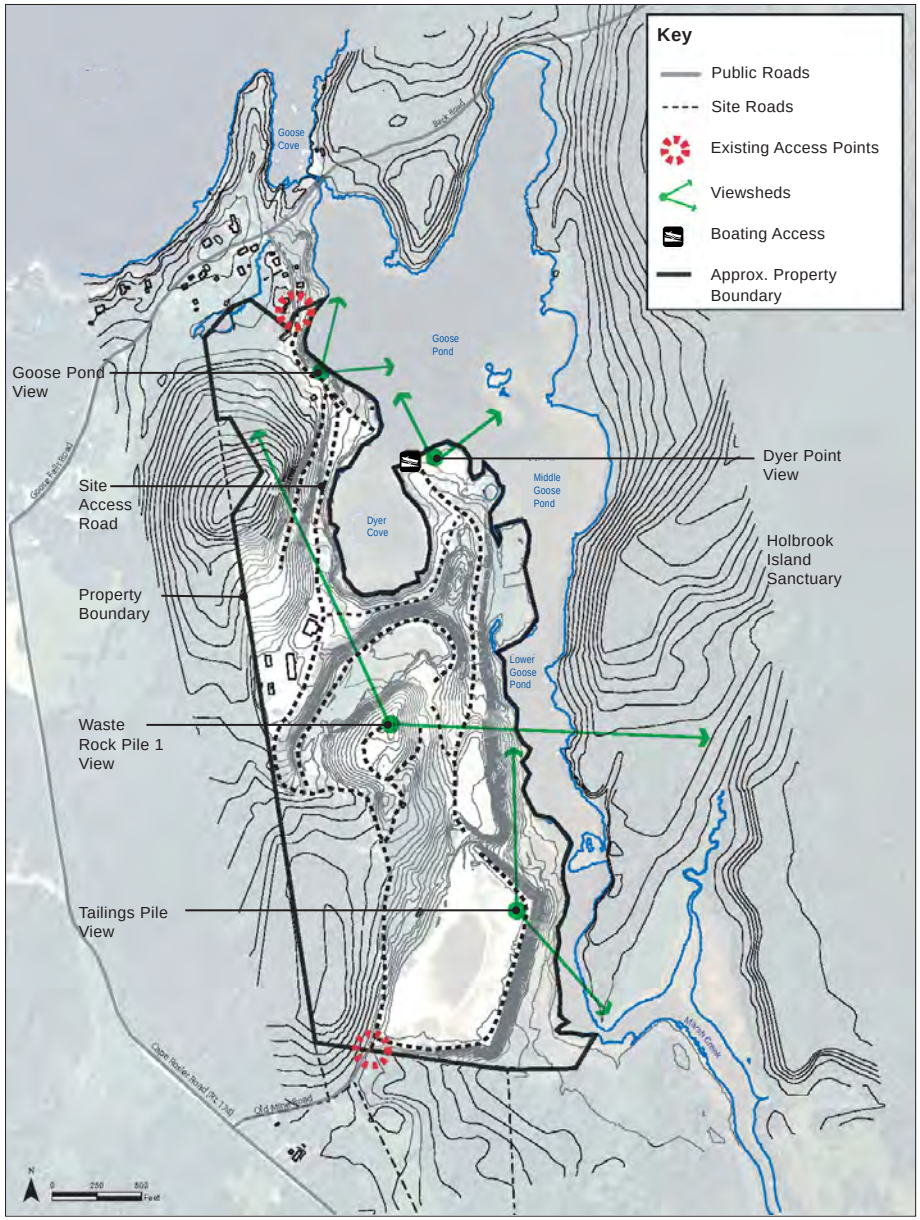

Figure 4: Access & Viewsheds Map

Land Cover

The Site is currently covered with exposed remnants of the mining operations (ore, waste rock, tailings, building foundations) along with a combination of vegetation types, including spruce-fir forest, sparse wooded vegetation, and salt marsh. Figure 5 highlights the existing land cover at the Site.

Forested Areas are located primarily in western and southern portions of the Site. Areas of sparsely wooded vegetation are scattered throughout eastern and central portions of the Site. Salt marsh vegetation is present along the eastern edge of the Site adjacent to Goose Pond. Waste rock, ore, tailings, and the foundation remnants of mining operations are found throughout the Site's former operational areas, including the Ore Pad, Dyer Point, Former Mine Operations Area, Waste Rock piles, and the Tailings Pond.

View of Ore Pad area and surrounding vegetation

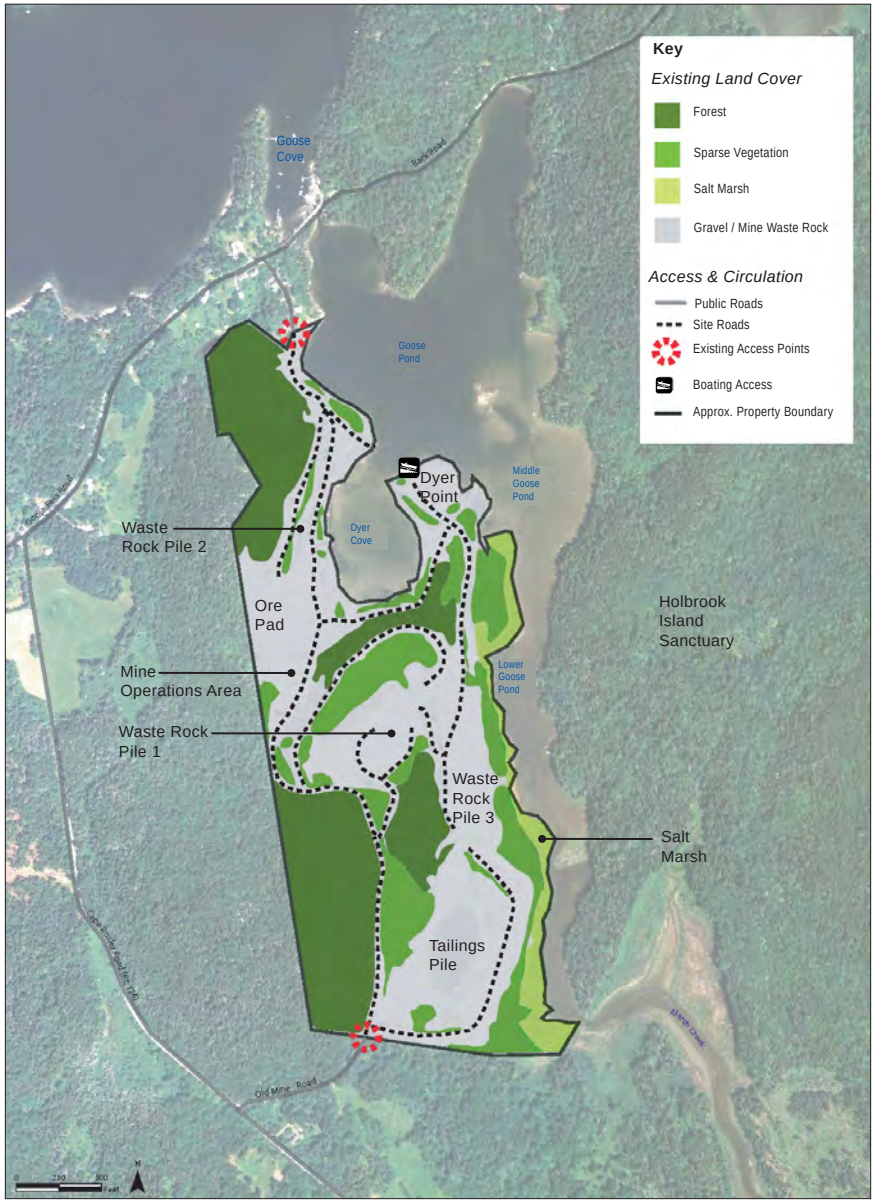

Figure 5: Existing Land Cover Map

Site Contamination

The OU 1 RI was completed in April 2009. The key findings are listed below. Figure 6 shows the areas that were the focus of the RI.

OU 1 Remedial Investigation Summary

The OU 1 RI Report, along with the Human Health and Ecological Risk Assessments, document the presence of contamination at the Callahan Mine Site at concentrations that may present a threat to human health and the environment. The key findings of the OU 1 RI are:

- Elevated levels of contaminants were found in soil, sediments, surface water, groundwater, and biota (clams, fish, salt grass);
- PCBs are present in soil in one small area of the Site at levels that are unsafe for even occasional human contact;
- Lead and arsenic concentrations in soil would be unsafe for long-term human contact;
- Groundwater beneath a portion of the Site is unsuitable for human consumption;
- The extent of soil contamination is limited to the areas of former mining activity and a few areas along the Site access road;
- Sediments in certain areas of Goose Pond and Goose Cove contain very high levels of copper, lead, and zinc;
- Sediments that contain mine waste, along with high levels of copper, lead, and zinc, were found to be acutely toxic to benthic organisms;
- Lead is accumulating in biota at the Site, including fish, crabs, clams, and salt grass;
- Surface water contains copper and zinc above levels that could adversely impact aquatic organisms; and
- The extent of the sediment contamination is limited to Goose Pond and Goose Cove.

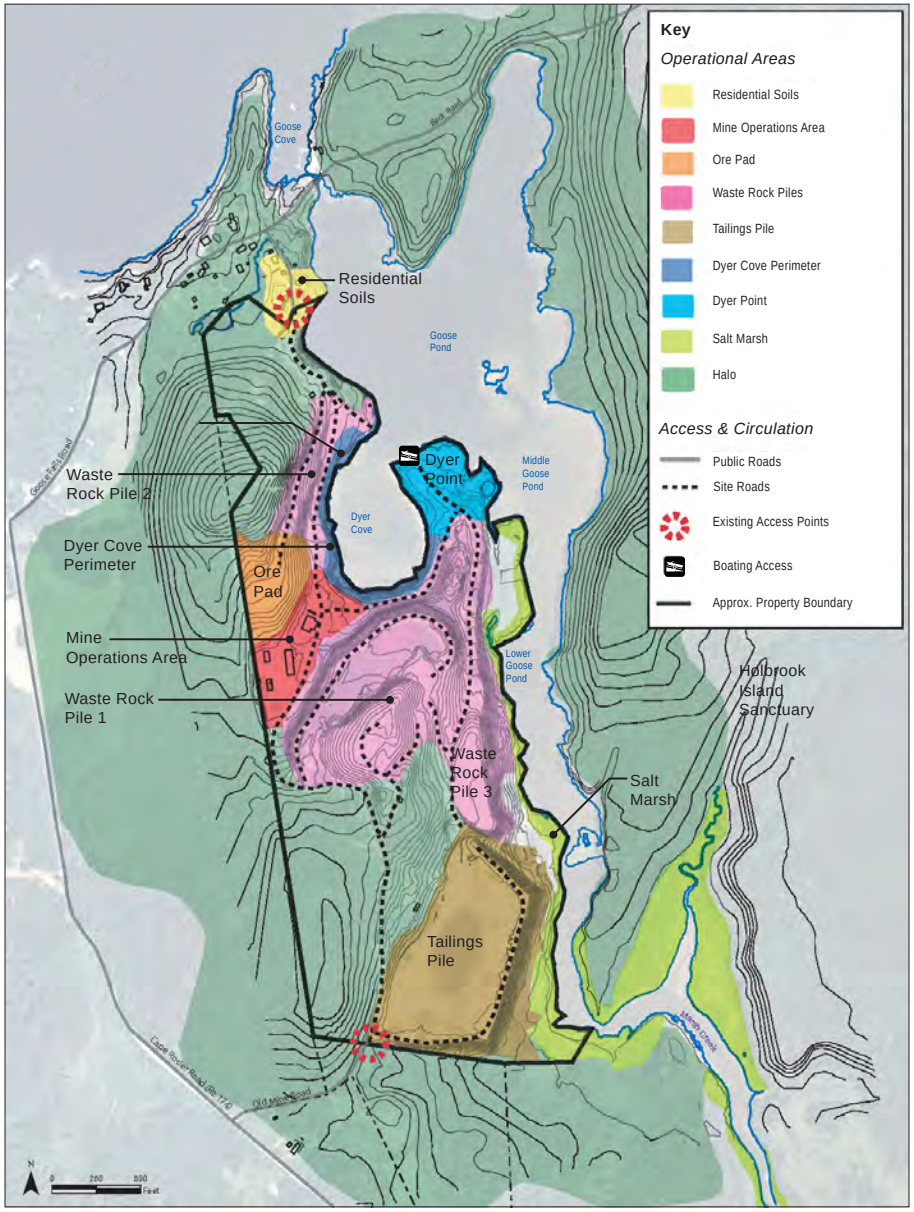

Figure 6: Remedial Investigation Site Map

III. Site Reuse Considerations

This section describes reuse goals outlined by Smith Cove Preservation Trust and the community, as well as potential remedial constraints that may affect the Site's reuse. This section also summarizes reasonably anticipated future land uses for the 150-acre parcel and discusses specific reuse and remedial considerations for future access and land cover.

Site Owner Goals

Smith Cove Preservation Trust would like to see the Site restored to a forested landscape, similar to pre-mining conditions. The Trust recognizes that future use of the property may be restricted by the EPA as a result of any actions that may ensue regarding the Site.[3] The Trust is organized to promote a long-term goal of restoration rather than redevelopment, and the organization's by-laws prohibit for-profit development of its Site property.

Community Stakeholder Goals

From 2006 until August 2008, EPA Region 1 gathered input regarding the future use of the Callahan Site from key stakeholders, including the current land owners, Brooksville residents, local elected officials, state agencies, and regional organizations. EPA gathered public feedback through interviews and community meetings in 2006 and 2007. In May and July 2008, specific discussions of stakeholder future land use goals for the Site identified the community reuse considerations summarized below.

Community stakeholders expressed the following preferences for the future use of the Site:

- The Site should be preserved the way it is now with existing topography and re-vegetation where feasible;
- The Site should be preserved by permanent conservation easements;
- The Site should remain available for public use (hiking, wildlife viewing, and picnicking); and
- Waste Rock Pile 1 view should be valued as picnic area or viewing platform.

While not broadly supported by community stakeholders, several community members suggested the following future land use preferences for the Site:

- Consider removing the Goose Falls dam to restore original tidal flow; and
- Consider renewable energy generation at the Site (small-scale hydroelectric generation).

Community stakeholders would not likely support the following future land uses at the Site:

- Sports fields or formal recreation facilities; and
- Increased vehicle activity and visitation.

Reasonably Anticipated Future Land Use

Based on Site owner goals, local regulations and community input, the reasonably anticipated future land use for the Site is likely to be habitat conservation with potential public recreational access. The following sections outline more specific reuse and remedial considerations.

[3] Smith Cove Preservation Trust Public Statement - July 16, 2008 (Appendix A)

Remedial Considerations

The findings of the Site's OU 1 Remedial Investigation, including the human health risk assessment and ecological risk assessment, indicate that certain areas of the Site are likely to require some level of cleanup. EPA often implements a cleanup action in phases or "Operable Units". This allows for a focus on the portions of the Site where more immediate risk reduction is necessary and can provide more time to better understand other areas of the Site. For the Callahan Mine Site, EPA is creating two Operable Units. The first operable unit (OU 1) will target the following areas:

- Soil and waste contaminated with PCBs;
- Soil and waste that represent the most significant threat to surface water, sediments, and groundwater. These areas are the former ore pad; portions of the mine operations area; the Waste Rock Area #3, and the Tailings Pile;
- Areas of sediment that were shown to be acutely toxic and represent a food chain threat. This is primarily the area of sediments and the salt marsh that resides adjacent to Waste Rock Area #3 and the Tailings Pile; and
- Soil and waste contaminated with lead and arsenic in areas with current residential use.

The remaining areas of the Site will be further evaluated as part of a second operable unit (OU 2) Remedial Investigation and will be subject to a Feasibility Study in the future if it is determined that a response action is necessary for these areas. The recently finalized RI Report, Human Health Risk Assessment, and Ecological Risk Assessment apply to OU 1 only.

The remedial approach would likely include a combination of cleanup technologies, engineering controls, and institutional controls. Potential Site disturbance during the cleanup could include: removal of contaminated soils and/or sediments; construction of cap or cover systems over contaminated mine waste or soil; consolidation and stabilization of mine waste rock and tailings material; and grading slopes to achieve a stable configuration. Figure 7 outlines areas where access, topography and vegetation may be significantly altered during remedial activities.

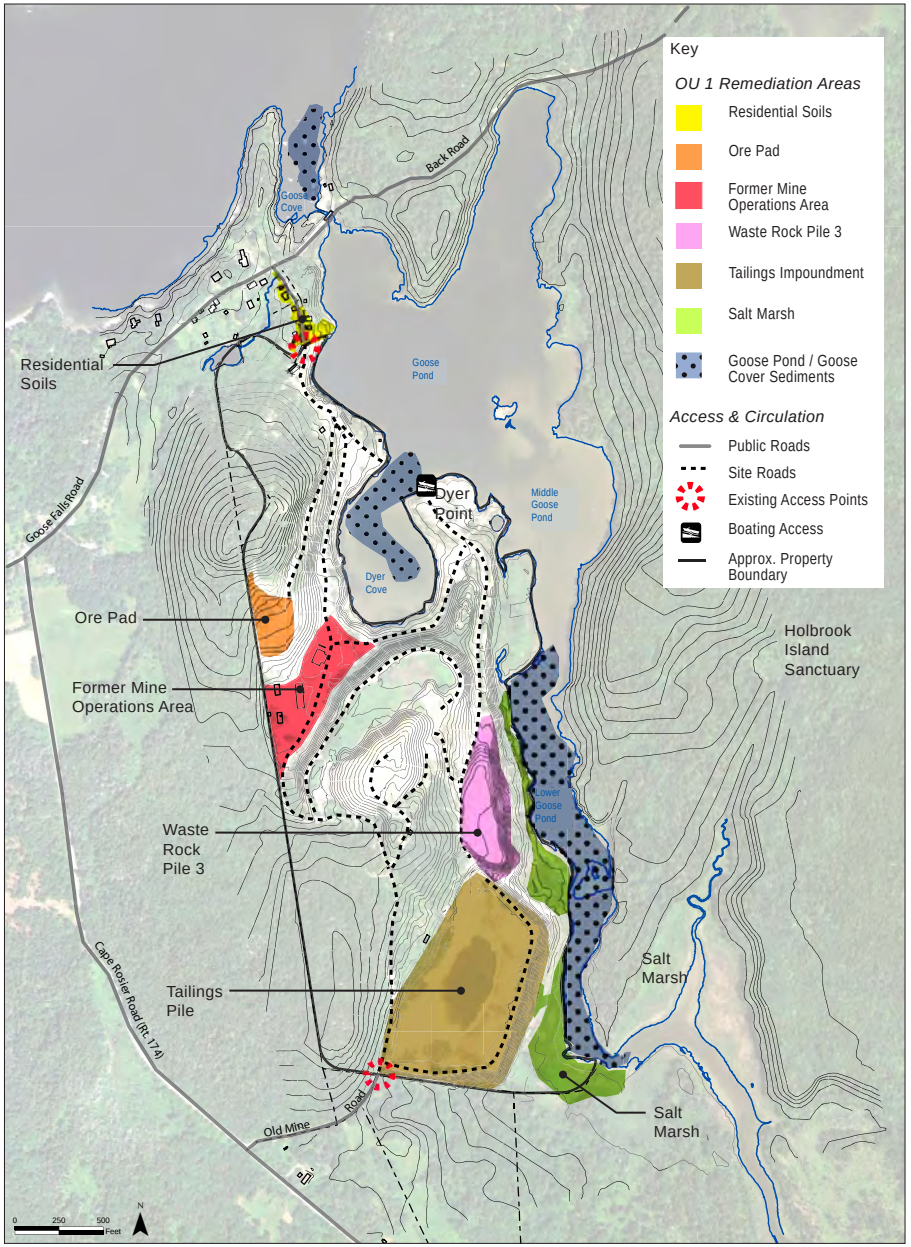

Figure 7: OU 1 Remediation Areas Map

Future Site Access Considerations

Community stakeholders indicated an interest in securing long-term public access to the Site for passive recreational activities such as walking, hiking, canoeing, kayaking, and wildlife viewing. The terrestrial portion of the Site remains under the ownership of Smith Cove Preservation Trust, and the property owner has the right to determine whether that portion of the Site remains accessible to the public. Although Smith Cove Preservation Trust has indicated that they may consider continuing to allow public access to the Site, the Trust plans to postpone final decisions until EPA has selected and approved a remedy and any associated access restrictions.

Once the remedy is complete, future access will likely be determined through a series of discussions between EPA, the Site owner, and interested community members. The Future Access Considerations map shown in Figure 8 outlines a potential concept that can be used to facilitate future discussions regarding access.

Vehicular Access

The concept suggests that vehicular routes could be restricted to the main North-South road connecting the two access points, in addition to providing access to a boat launch on Dyer Point.

Pedestrian Access

Other existing Site roads that lead to desirable view points at the top of Waste Rock Pile 1, the Ore Pad, and the northern portion of Dyer Cove could be designated as pedestrian-only trails.

Restricted Access

Other roads may be abandoned in the future to limit maintenance and oversight responsibilities. Additional factors in determining future access may include: necessary maintenance routes, remedy protection, public health and safety, and the Site owner's conservation goals. The remedial design phase may be an ideal time to align potential remedial actions with desired future access goals.

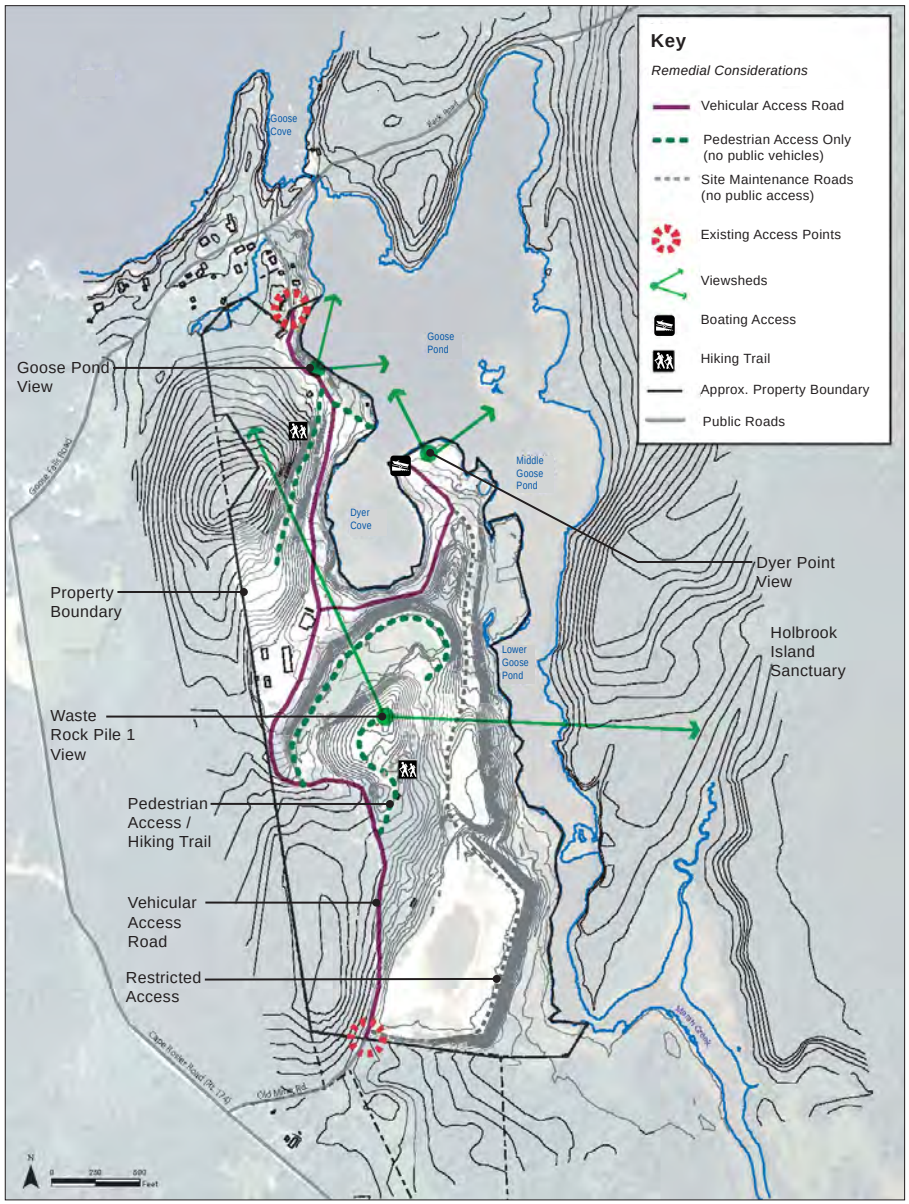

Figure 8: Future Access Considerations Map

Land Cover and Vegetation Considerations

Both the Smith Cove Preservation Trust and community stakeholders expressed interest in preserving the Site's existing topographic features and vegetation, and ultimately reforesting sections of the Site. However, remedial activities at the Site could potentially require significant modification of topography and land cover. Remedial activities will likely require excavation of contaminated soil and, in some cases, removal of existing vegetation throughout Operational Areas at the Site. Figure 9 shows existing vegetation with an overlay of areas that may be affected during remedial activities.

During the remedial design phase of the Site's cleanup, EPA will determine the Site's final grading and identify the type of land cover that is best suited to maintain the Site's remedy and to provide long-term protection of human health and the environment. Topography, remedial technological constraints, and limitations of the existing local road network will all likely affect the Site's final grading and type of land cover. Soil cover to support re-vegetation would have to be imported from off-site. Alternatively, a non-soil rock cover could be considered using inert rock available on-site. Due to community concerns regarding excessive trucking on local two-lane roads, areas intended for re-vegetation may have to be targeted selectively during remedial design and construction.

View of the Tailings Pile looking south

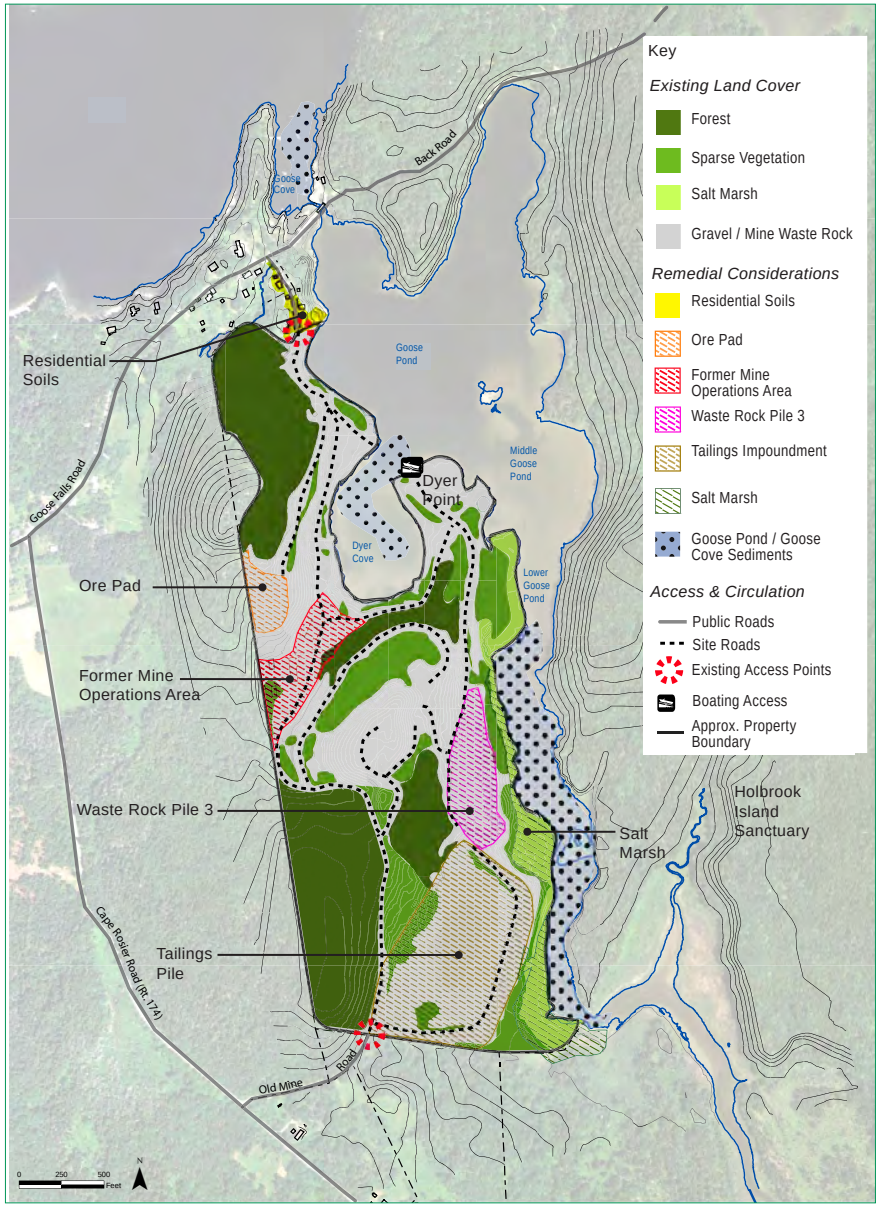

Figure 9: Remedial Considerations Map

Future Use & Stewardship Considerations

Anticipated Future Land Use

The findings of the reuse assessment indicate that the land owner and community stakeholders share a similar goal for the future use of the Callahan Mine Site — the conservation of the natural and scenic resources. Smith Cove Preservation Trust indicated that its goal is to foster restoration of the forest habitat. Their efforts will comply with any limitations or restrictions required in the Site's final remedy. Community stakeholders would like to see the Site remain in conservation permanently. The community has also expressed interest in public access for light recreational uses such as hiking, picnicking, wildlife viewing, and boating. Although future discussions are needed to determine under what circumstances public access might be granted, a reasonably anticipated future land use at this time would include habitat restoration and passive recreational public access.

View of Marsh Creek south of the Tailings Pile

Institutional Controls Considerations

While the selected Site remedy may support passive recreational use, other uses may be required to be restricted through the use of Institutional Controls (ICs), such as zoning, deed notices, or covenants. For example, the current zoning allows residential development at the Callahan Mine Site. Brooksville has established the Callahan Mine Overlay designation, which could, in the future, serve as a mechanism to limit future uses and activities at the Site.

Proprietary use restrictions, such as an easement or covenant, are other potential IC mechanisms that could be important to consider at the Callahan Mine Site. Easements or covenants can help ensure that activity and use limitations remain in place through changes in ownership. Maine's Uniform Environmental Covenant is an example of a proprietary IC. Maine adopted a Uniform Environmental Covenants Act in 2005. The statute, administered by the Department of Environmental Protection, Bureau of Remediation and Waste Management, enables the state to accept activity and use limitations, in the form of an environmental covenant, on property affected by an environmental response project. An environmental covenant may prohibit or restrict uses of real property that are authorized by local zoning or other local land use regulations. Environmental covenants have been used at other sites in Maine to help maintain the protectiveness of site remedies (see State of Maine Revised Statues, Title 38, Chapter 31,§3001-3013).

Appendices

Appendix A: Smith Cove Preservation Trust Public Statement (July 16, 2008)

Appendix B: Meeting Participant Future Use Feedback Form (July 16, 2008)

SMITH COVE PRESERVATION TRUST

PUBLIC STATEMENT

July 16, 2008

Jim Benenson, one of the directors of the Smith Cove Preservation Trust, (the "Trust") appeared at the public meeting conducted by representatives of the United States Environmental Protection Agency ("EPA") Region 1 and representatives of the State of Maine, on Wednesday, July 16, 2008. The Trust is a non-profit corporation organized for the general purpose of the conservation of natural resources, especially the scenic beauty, of the coast of Maine. With this goal in mind and with the intention of attempting to restore the Callahan Mine Site ("Site") to some semblance of its former beauty, the Trust purchased the property on which the mine was situated. Its plans were interrupted when the EPA and the State of Maine commenced an environmental investigation and assessment of the property under the statutory authority of the Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund. This investigation and assessment is still in progress, and the Trust understands that the future use of the property may be restricted by the EPA as a result of any action that may ensue regarding the Site. The Trust also understands that any such action will be carried out under the supervision of EPA at the conclusion of the assessment and after a dialogue among the public and the regulatory agencies in which the Trust intends to participate.

Jim Benenson, as a representative of the Smith Cove Preservation Trust, came here tonight to confirm that it is the desire of the Trust to maintain the property for the general purpose of enhancing and preserving its natural scenic quality. The bylaws of the Trust do not permit it to develop the property for profit, and the Trust intends to abide by its bylaws. The Trust also intends to cooperate fully with EPA and the State of Maine in connection with their consideration of the future use of the property, and hopes, to the extent economically and practically feasible, to maintain the Callahan Mine site consistent with whichever preferred use scenario is settled upon by EPA.

Jim Benenson, as a representative of the Trust, emphasized that it is in everyone's best interest to work together with EPA in connection with the finalization of the investigation and the determination of the future use of the property. Any comments or suggestions concerning the future use of the Site are welcome and will be shared with the ultimate decision-makers at EPA. Comments can be provided directly to counsel for the Trust, Sally Mills of Hale & Hamlin, of Ellsworth, Maine at sally@halehamlin.com or EPA Remedial Project Manager, Ed Hathaway at hathaway.ed@epa.gov.

APPENDIX B: Meeting Participant Future Use Preferences Feedback Form

The table below summarizes individual feedback on the draft future land use preferences for the Callahan Mine Superfund Site that were shared at the July 16, 2008 public meeting in Brooksville, Maine. Responses from six meeting attendees were received. The numbers referenced in the columns below refer to the number of respondents with the corresponding preference.

Previously Identified Future Use Concepts for the Callahan Mine Superfund Site	**Agree**	**Do not agree**	**No opinion**	**Comments**
Preserve Site the way it is now with existing vegetation and topography	4	1	1	• More vegetation
Permanent conservation easements	6			• One respondent agreed, on the condition that appropriate agreements could be reached among land owner, EPA, and State
Site should remain available for public use (hiking, wildlife viewing, picnicking)	6			• One respondent agreed, on the condition that appropriate agreements could be reached among land owner, EPA, and State and that public safety could be afforded
Waste Rock Pile 1 view valued as picnic area or viewing platform	6			• Improved, safe access subject to agreements with land owner EPA, and State
Consider removing the Goose Falls dam to restore original tidal flow.	4	2		• Regain original tidal flow volume restoring the tidal estuary's water levels • Removal of Goose Cove's mine sediments
Consider renewable energy generation at the Site (small-scale hydro electric generation and wind turbines)	3	2		• Pursue only if practical and unobtrusive • Consider Magneto-hydrodynamic (MHD) turbines • No wind turbines
Recreation fields were not identified as a community need	2	3	1	• Brooksville has adequate recreation fields
Increased vehicle activity and visitation are not desired at the Site	5	1		• Generation of surface road dust is undesirable

For more information, please contact:

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