



WASHINGTON STATE DEPARTMENT OF
Natural Resources

COUNTY OR MUNICIPALITY
APPROVAL FOR
SURFACE MINING
(Form SM-6)

NAME OF COMPANY OR INDIVIDUAL APPLICANT(S) Same as name of the exploration permit holder. (Type or print in ink.) <i>Cunningham Crushing, Inc.</i>		TOTAL ACREAGE AND DEPTH OF PERMIT AREA (Include all acreage to be disturbed by mining, setbacks, and buffers, and associated activities during the life of the mine.) (See SM-8A.) Total area disturbed will be <u>38.16</u> acres Maximum vertical depth below pre-mining topographic grade is <u>845'</u> feet Maximum depth of excavated mine floor is <u>375'</u> feet relative to mean sea level																															
MAILING ADDRESS <i>P.O. Box 8 Hamilton, WA 98255</i>		COUNTY <u>Skagit</u> No attachments will be accepted. Legal description of permit area:																															
Telephone <u>360-826-1109</u>		<table border="1"> <thead> <tr> <th>1/4</th> <th>1/4</th> <th>Section</th> <th>Township</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td><i>NE</i></td> <td><i>NW</i></td> <td><i>24</i></td> <td><i>35N</i></td> <td><i>10</i></td> </tr> <tr> <td colspan="5"><i>(Limited) To Acreage P45543</i></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		1/4	1/4	Section	Township	Range	<i>NE</i>	<i>NW</i>	<i>24</i>	<i>35N</i>	<i>10</i>	<i>(Limited) To Acreage P45543</i>																			
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Proposed subsequent use of site upon completion of reclamation		<i>residential / Forestry</i>																															
<p>RECEIVED July 30, 2020 Washington Geological Survey</p>																																	
Signature of company representative or individual applicant(s) <i>John Parker</i>		Name and title of company representative (please print) <i>John Parker President</i>	Date signed <i>2/2/06</i>																														
TO BE COMPLETED BY THE APPROPRIATE COUNTY OR MUNICIPALITY:																																	
Please answer the following questions 'yes' or 'no'. 1. Has the proposed surface mine been approved under local zoning and land-use regulations? <i>pre-existing</i> 2. Is the proposed subsequent use of the land after reclamation consistent with the local land-use plan/designation?			<table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Yes	No	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																								
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When complete, return this form to the appropriate Department of Natural Resources regional office.																																	
Name of planning director or administrative official (please print) <i>GARY R. CHRISTENSEN</i>		Address <i>Skagit County planning + Development services 1800 Continental Place MT. VERNON, WA 98273</i>																															
Signature <i>Gary R. Christensen</i>																																	
Title (please print) <i>DIRECTOR</i>																																	
Telephone <i>360.336.9410</i>	Date <i>2/3/06</i>	FOR DEPARTMENT USE ONLY:	DNR Reclamation Permit No.																														



**APPLICATION FOR
RECLAMATION PERMIT AND PLAN
(Form SM-8A)**

Check appropriate box(es): new permit revision of existing permit transfer of permit expansion

NOTE: Do not attempt to complete this form until you have carefully read "Instructions for Form SM-8A".

1. NAME OF APPLICANT/PERMIT HOLDER(S) Cunningham Crushing, Inc.			
2. MAILING ADDRESS PO Box 8 Hamilton, WA 98255			
3. Telephone 360-826-1109 Email johnecakes@aol.com			
4. NAME OF MINE Cascade Big Bear Mine			
5. Street address and milepost of surface mine 59360 Rockport Cascade Rd, Marblemount, WA 98267			
6. Distance (miles) 4	7. Direction from South	8. Nearest community Marblemount	
9. COUNTY Skagit No attachments will be accepted. Legal Description of permit area:			
1/4	Section	Township	Range
NW	24	35	10
10. Do you or any person, partnership, or corporation associated with you now hold, or have you held, a surface mining operating or reclamation permit? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no If you answered yes to the above, please list: 70-013100, R-82-010, 82-011			
11. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Have you ever had a surface mine operating or reclamation permit revoked? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Have you ever had a reclamation security forfeited? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If you answered yes to either of the above, give permit number(s):			

12. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR: (Include all acreage to be permitted. See Form SM-6.) 38.16 acres	
13. Total disturbed acreage (Include all acreage to be disturbed by mining and reclamation during the life of the mine.) Total area to be disturbed: 18 acres. Area to be disturbed in next 36 months: Less than 5 acres.	
14. Maximum vertical depth (thickness) mined below pre-mining topographic grade will be Approximately 320 feet.	
15. Lowest elevation of excavated mine will be 309 feet relative to mean sea level. Highest elevation of excavated mine will be 630 feet relative to mean sea level.	
16. Type of proposed or existing mine: <input checked="" type="checkbox"/> pit <input type="checkbox"/> quarry	
17. Material(s) to be mined: <input type="checkbox"/> sand and gravel <input checked="" type="checkbox"/> rock or stone <input type="checkbox"/> clay <input type="checkbox"/> metal <input type="checkbox"/> limestone <input type="checkbox"/> silica <input type="checkbox"/> other _____	
18. Deposit type: <input type="checkbox"/> glacial <input type="checkbox"/> river floodplain (alluvial) <input type="checkbox"/> river channel deposits <input checked="" type="checkbox"/> talus <input type="checkbox"/> bedrock <input type="checkbox"/> lode <input type="checkbox"/> other _____	
19. Expected start date of mining: 9/1/2020	20. Estimated number of years: 20
21. Total quantity to be mined over life of mine (estimated): 1.2 Million <input checked="" type="checkbox"/> tons or <input type="checkbox"/> cu yds	22. Estimated annual production: <input type="checkbox"/> tons or <input type="checkbox"/> cu yds
23. Subsequent land use: <input type="checkbox"/> industrial <input type="checkbox"/> commercial <input type="checkbox"/> residential <input type="checkbox"/> agricultural <input checked="" type="checkbox"/> forestry <input type="checkbox"/> wetlands and lakes <input type="checkbox"/> other _____ County or Municipality Approval for Surface Mining (Form SM-6) attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
24. Reclaimed elevation of floor of mine: Approximately 309-405 feet relative to mean sea level Reclaimed elevation is shown on cross sections? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
25. SEPA Checklist required? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	
26. Application fee for a new reclamation permit is herewith attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	

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22. SEGMENTAL RECLAMATION	
Permit area has been divided into segments for mining and a mining schedule has been developed? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Permit area has been divided into segments for reclamation and a reclamation schedule has been developed? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
23. SITE PREPARATION	
23A. Saving Topsoil, Subsoil, and Overburden for Reclamation	
Thickness of topsoil is <u>1.5</u> feet Thickness of subsoil is _____ feet Depth to bedrock is _____ feet Total volume of topsoil is <u>23,200</u> cubic yards Total volume of subsoil is _____ cubic yards Volume of stored topsoil/subsoil is <u>23,200</u> cubic yards and will require <u>1.4</u> acres for storage.	
Storage areas are shown on maps and will be marked on the ground with permanent boundary markers? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Topsoil will be salvaged? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Topsoil and overburden will be moved to reclaim an adjacent depleted segment? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Before materials are moved, vegetation will be cleared and drainage planned for soil storage areas? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Soil storage areas will be stabilized with vegetation to prevent erosion if materials will be stored for more than one season? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
23B. Permit and Disturbed Area Boundaries	
Boundary of the permit area will be marked on the ground with permanent boundary markers? Explain boundary markers:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
23C. Setbacks Screens and Buffers	
Are Screens required and are shown on maps? The reclamation setback for this site will be <u>100 near Rockport-Cascade Road, 30' elsewhere</u> feet wide.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Is a permanent, undisturbed buffer planned for this site? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Setbacks and buffers are shown on maps and have been marked on the ground with permanent boundary markers? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
23D. Buffers to Protect Streams and Flood Plains	
Will the site include a stream or flood plain? If yes, see "Additional Requirements for Mines in Flood Plains" in "Instructions for SM-8A". If no, skip to 23E.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers?	<input type="checkbox"/> yes <input type="checkbox"/> no
A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Copy of Shoreline Permit from local government or the Department of Ecology is attached?	<input type="checkbox"/> yes <input type="checkbox"/> no
Hydraulic Project Approval from the Department of Fish and Wildlife is attached?	<input type="checkbox"/> yes <input type="checkbox"/> no

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23E. Conservation Buffers	
Are there any conservation buffers?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
If no, skip to 23F	
Conservation buffers will be established for the following purpose(s): <i>(Check all that apply)</i> <input type="checkbox"/> unstable slopes <input type="checkbox"/> wildlife habitat <input type="checkbox"/> water quality <input type="checkbox"/> other Describe the nature and configuration of the conservation buffer(s):	
Conservation buffers are shown on maps and have been marked on the ground with permanent boundary markers?	<input type="checkbox"/> yes <input type="checkbox"/> no
23F. Ground Water	
High water table depth is 36 feet <input type="checkbox"/> relative to mean sea level, <input checked="" type="checkbox"/> below original surface, or <input type="checkbox"/> unknown. Low water table depth is 14 feet <input type="checkbox"/> relative to mean sea level, <input checked="" type="checkbox"/> below original surface, or <input type="checkbox"/> unknown. Annual fluctuation of water table is from _____ feet on _____ to _____ feet on _____. Well logs show average static water level at 23 feet bgs.	
Are well logs attached?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
The shallowest aquifer is <input type="checkbox"/> confined <input checked="" type="checkbox"/> unconfined	
The site will be mined: <input type="checkbox"/> wet <input checked="" type="checkbox"/> dry <input type="checkbox"/> both Describe mining method: Talus collected at base of cliff face will be processed and removed from the site.	
The site is in a: <input type="checkbox"/> critical aquifer recharge area <input type="checkbox"/> sole source aquifer <input type="checkbox"/> public water supply watershed <input type="checkbox"/> wellhead protection area <input type="checkbox"/> special protection area <input type="checkbox"/> designated aquifer protection area <i>If checked above, see "Additional Requirements for Mines in Hydrologically Sensitive Areas" in "Instructions for SM-8A".</i>	
Ground water study attached?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
<i>If no, explain: Area groundwater wells have been mapped and examined; no activities are proposed that would affect groundwater.</i>	
23G. Archeology	
Are archeological/cultural resource sites present?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
If yes, describe how you will protect these resources:	
24. MINING PRACTICES TO FACILITATE RECLAMATION	
24A. Soil Replacement	
Topsoil and (or) subsoil will be restored?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If "no", explain:	
Subsoil will be replaced to an approximate depth of _____ feet on the pit floor and a depth of 1.5-3 feet on slopes. Topsoil will be replaced to an approximate depth of 1.5 feet on the pit floor and a depth of 0-1.5 feet on slopes.	
If topsoil is in short supply, it will be strategically placed in depressions and low areas in adequate thickness to conserve moisture and promote revegetation?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If no, explain:	
Topsoil will be moved when conditions are not overly wet or dry?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If no, explain:	
Topsoil will be restored to promote effective revegetation and to stabilize slopes and mine floor?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If "no", explain:	
Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If no, explain:	

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Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Segmental topsoil removal and replacement is shown on maps? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Topsoil will be imported? If yes, describe source. Locally sources at time of need. Topsoil acceptance policy attached to reclamation narrative as Appendix B. Estimated volume is 23,200 cubic yards.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Materials such as till, loess, and (or) silt are available on site that could be used to supplement topsoil for reclamation. If yes, explain: Interburden from talus removal will be salvaged and stored for reclamation.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Silt from settling ponds or a filter press will be used for reclamation?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Settling pond clay slurries will be pumped or hauled to other segments for reclamation? If yes, explain:	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
24B. Removal of Vegetation	
Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? If yes, give details. If no, explain: No transplantable vegetation exists on the site; pit floor vegetation is largely invasive blackberries.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Wood and other organic debris will be: <input type="checkbox"/> recycled <input checked="" type="checkbox"/> removed from site <input type="checkbox"/> chipped <input checked="" type="checkbox"/> burned <input type="checkbox"/> buried <input type="checkbox"/> used to synthesize topsoil or mulch <input type="checkbox"/> other (<i>explain</i>)	
Solid waste disposal, burning, and land use permits are attached?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Some coarse wood (logs, stumps) and other large debris will be salvaged for fish and wildlife habitats? If yes, give details. If no, explain: All wood will be burned or removed, as the time span of the mining phase and the shortage of storage space do not allow this activity.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
24C. Stormwater and Erosion control for Reclamation	
Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage? If yes, give details. If no, explain: Drainage will be collected against a berm near the talus slope for infiltration. Remainder of pit floor will be sloped toward an existing infiltration area.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion? If yes, give details. If no, explain: Topsoil and interburden piles will be stabilized with vegetation, straw, or matting.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Water control systems used during segmental reclamation will:	
Divert clean water around pit?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Trap sediment-laden runoff before it enters a stream?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Be established to prevent erosion of setbacks and neighboring properties?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Be removed or reclaimed?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
If any answers are no, explain: During reclamation, stormwater will be infiltrated in sinuous topography to be developed upon contouring final mine slopes and joining the mining area with the existing pit floor. As in the current condition, no stormwater will leave the site; natural infiltration will be promoted.	

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Stormwater system design will be capable of carrying the peak flow of the 25-year, 24-hour precipitation event? (Data are available at the National Oceanic And Atmospheric Administration (NOAA))	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If yes, are calculations attached? If yes, give details. If no, explain: The calculated peak flow will be retained against a berm near the talus pile and infiltrated.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden? If no, explain: There are no existing drainage channels within the mine boundary.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
25. RECLAMATION TOPOGRAPHY	
25A. Final Slopes	
Final slopes will be created using the cut-and-fill method? Explain procedure to be used: As talus is removed, interburden will be benched to aid in talus removal, then will be contoured to form final 2:1 slopes. Some interburden will be stored and used in final slope contouring to mimic the existing talus profile in a diminished form.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Slopes will be created by mining to the final slope using the cut method? Explain procedure to be used:	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Slopes will vary in steepness? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Slopes will have a sinuous appearance in both profile and plan view? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Large rectilinear (that is, right angle, or straight, planar) areas will be eliminated? If no, explain: The existing rectilinear cliff face is not part of the current mining plan and will remain in situ.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds, and to inhibit erosion? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
25B. Slope Requirements for Pits and Overburden/Waste Rock Dumps (non-saleable products)	
<i>If the mine is a quarry or in hard rock, skip to Quarry section (25C).</i>	
Slopes will vary between 2 and 3 feet horizontal to 1 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
For pits, slopes will not exceed 2 feet horizontal to 1 foot vertical except as necessary to blend with adjacent natural slopes? Give details: Slopes developed in final mining and backfilling will mimic the existing talus profile in a diminished form, will not exceed 2:1, and will blend with the existing mine floor at the boundary of the active mining area.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Review "Additional Requirements for Mines with Steep or Potentially Unstable Slopes" in "Instructions for SM-8A".	
Slope stability analysis required? If yes, attach analysis.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no

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25C. Slope Requirements for Quarries and Hardrock Metal Mines	
<i>If mine is a pit in unconsolidated materials covered by Section 25B, go to Section 25D</i>	
Check the appropriate box(es)	
<input type="checkbox"/> Slopes will not exceed 2 feet horizontal to 1 foot vertical.	
<input type="checkbox"/> Slopes steeper than 1 foot horizontal to 1 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6.	
<input type="checkbox"/> Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life. Photo and maps attached to document presence of cliffs.	
<input type="checkbox"/> Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6.	
<i>Review "Additional Requirements for Mines with Steep or Potentially Unstable Slopes" in "Instructions for SM-8A".</i>	
Slope stability analysis required? If yes, attach analysis.	<input type="checkbox"/> yes <input type="checkbox"/> no
Measures will be taken to limit access to the top and bottom of hazardous slopes? Describe measures, or if no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, scree slopes, and rough cliff faces that appear natural? Blasting plan attached? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no
Reclamation blasting will be used to reduce the entire highwall to a scree or rubble slope less than 2 feet horizontal to 1 foot vertical? Blasting plan is attached? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no
Access to benches will be maintained for reclamation blasting? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Small portions of benches will be left to provide habitat for raptors and other cliff-dwelling birds?	<input type="checkbox"/> yes <input type="checkbox"/> no
25D. Backfilling	
The site will require backfilling? If no, skip to 25E. Maximum depth of backfilling will vary between 1.5 and 50+ feet according to final terrain after removal of talus and available backfill material.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Backfill will be <input type="checkbox"/> onsite materials <input type="checkbox"/> imported materials <input checked="" type="checkbox"/> both Provide a written screening method that ensures importation of acceptable soil for reclamation.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Backfilling plan is attached? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Backfill stockpiles are shown on maps and will be marked on the ground with markers?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
All grading/backfilling will be done with non-noxious, non-combustible, and relatively incompactible solids? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Backfill will require compaction? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Will you be backfilling to create slopes? Is slope stability analysis attached? If no, explain. Backfilling will create low slopes to mimic the existing talus profile in a diminished form.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
25E. Mine Floors	
Flat areas will be formed into gently rolling mounds? If yes, give details. If no, explain: Mine floors will be ripped prior to topsoiling to provide sinuosity of the mine floor. Some areas will remain flat and will be revegetated with upland forest species.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

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Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation? If yes, give details. If no, explain: Drainage swales will be strategically located to prevent sheetwash.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? If yes, give details. If no, explain: Areas to be vegetated will be ripped to foster growth.	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
25F. Lakes, Ponds, and Wetlands	
Is water currently present in the area or will the mining penetrate the water table? <i>If no, go to Section 25G.</i>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Reclaimed areas below the permanent low water table in soil, sand, gravel, and other unconsolidated material will have a slope no steeper than 1.5 feet horizontal to 1 foot vertical? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Some parts of pond and lake banks will be shaped so that a person can escape from the water?	<input type="checkbox"/> yes <input type="checkbox"/> no
Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Wildlife habitat will be developed, incorporating such measures as: <ul style="list-style-type: none"> Sinuous and irregular shorelines? <input type="checkbox"/> yes <input type="checkbox"/> no Varied water depths? <input type="checkbox"/> yes <input type="checkbox"/> no Shallow areas less than 18 inches deep? <input type="checkbox"/> yes <input type="checkbox"/> no Islands and peninsulas? <input type="checkbox"/> yes <input type="checkbox"/> no Give details:	
Ponds or basins will: <ul style="list-style-type: none"> Be located in stable areas? <input type="checkbox"/> yes <input type="checkbox"/> no Have sufficient volume for expected runoff? <input type="checkbox"/> yes <input type="checkbox"/> no Have an emergency overflow spillway? <input type="checkbox"/> yes <input type="checkbox"/> no Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion? <input type="checkbox"/> yes <input type="checkbox"/> no If any answers are no, explain:	
Proper measures will be taken to prevent seepage from water impoundments that could cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Written approval from other agencies with jurisdiction to regulate impoundment of water is attached? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
25G. Final Drainage Configuration	
Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation? Result in essentially natural conditions of volume, velocity, and turbidity? Clean runoff is directed to a safe outlet? If yes, give details. If no, explain: All runoff infiltrates in the existing condition. Reclaimed conditions will mimic existing through introduction of a sinuous landscape that will promote infiltration and prevent runoff.	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Are these shown on maps?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

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26. SITE CLEANUP AND PREPARATION FOR REVEGETATION	
26A. Dealing with Hazardous Materials	
Hazardous materials are present at the mine site? <i>If no, go to Section 26B</i>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
The final ground surface drains away from any hazardous natural materials? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
Plan for handling hazardous mineral wastes indigenous to the site is attached? If no, written approval from all appropriate solid waste regulatory agencies attached?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no
26B. Removal of Debris	
All debris (garbage, 'bone piles', treated wood, old mining equipment, etc.) will be removed from the mine site?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
All sheds, scale houses, and other structures will be removed from the site? If either answer is yes, give details. If no, explain: No structures or scale houses exist on the site. No structures or scale houses are proposed.	
27. REVEGETATION	
The mine site is in: <input type="checkbox"/> eastern Washington <input checked="" type="checkbox"/> western Washington	Revegetation area is: <input type="checkbox"/> wet <input checked="" type="checkbox"/> dry <input type="checkbox"/> both
The average precipitation is Approximately 70 inches per year.	
Revegetation will start during the first proper growing season (fall for grasses and legumes, fall or late winter for trees and shrubs) following restoration of mine segments?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
If yes, give details. If no, explain: Refer to Reclamation Narrative Section 6, Vegetation Plan.	
The site will not be revegetated because: <input type="checkbox"/> It is a rural area with a rainfall exceeding 30 inches annually and erosion will not be a problem (requires approval of DNR). <input type="checkbox"/> Revegetation is inappropriate for the approved subsequent use of this surface mine. Explain:	
27A. Recommended Pioneer Species	
In the Sections below, check the species that will be planted at your mine site: <i>* indicates nitrogen-fixing species</i>	
Western Washington Dry Areas	
<input type="checkbox"/> alfalfa* <input type="checkbox"/> lupine* <input checked="" type="checkbox"/> clover* <input type="checkbox"/> orchard grass	<input checked="" type="checkbox"/> cereal rye <input type="checkbox"/> perennial rye <input type="checkbox"/> colonial bent grass <input type="checkbox"/> ponderosa pine
<input type="checkbox"/> creeping red fescue <input checked="" type="checkbox"/> red alder* <input checked="" type="checkbox"/> Douglas fir <input type="checkbox"/> shore pine	<input checked="" type="checkbox"/> ground cover <input type="checkbox"/> shrubs <input type="checkbox"/> other
Western Washington Wet Areas	
<input type="checkbox"/> birdsfoot trefoil <input type="checkbox"/> sedges <input type="checkbox"/> cedar <input type="checkbox"/> tubers	<input type="checkbox"/> cottonwood <input type="checkbox"/> wetland grasses <input type="checkbox"/> creeping red fescue <input type="checkbox"/> willow
<input type="checkbox"/> red alder* <input type="checkbox"/> other	
Eastern Washington Dry Areas	
<input type="checkbox"/> alder* <input type="checkbox"/> grasses <input type="checkbox"/> alfalfa* <input type="checkbox"/> juniper	<input type="checkbox"/> black locust <input type="checkbox"/> lodgepole pine <input type="checkbox"/> clover <input type="checkbox"/> lupine*
<input type="checkbox"/> deciduous trees <input type="checkbox"/> ponderosa pine <input type="checkbox"/> shrubs <input type="checkbox"/> deep-rooted ground cover	<input type="checkbox"/> diverse evergreens <input type="checkbox"/> other
Eastern Washington Wet Areas	
<input type="checkbox"/> alder* <input type="checkbox"/> cottonwood <input type="checkbox"/> poplar <input type="checkbox"/> sedges	<input type="checkbox"/> serviceberry <input type="checkbox"/> tubers <input type="checkbox"/> willow
<input type="checkbox"/> other	

APPLICATION FOR RECLAMATION PERMIT AND PLAN

Give planting details (stems/acres of trees and shrubs, see Forest Practices manual ; lbs/acre of grass, legume, or forb mixture): Refer to Reclamation Narrative Section 6, Vegetation Plan.		
Describe weed control plan: Treed areas will be mulched to prevent weed colonization. Seeded areas will include sufficient aerial cover to prevent weed colonization. Fertilizer will be applied to individual plants, not broadcast, to minimize the potential for invasive species taking over the site.		
27B. Planting Techniques		
Revegetation at this site will require:		
Ripping and tilling?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Blasting to create permeability?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
Mulching?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Irrigation?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
Fertilization?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Importation of clay- or humus-bearing soils?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Other soil conditioners or amendments?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Give details: Refer to Reclamation Narrative Section 6, Vegetation Plan.		
Trees and shrubs will be planted in topsoil or in subsoil amended with generous amounts of organic matter?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
If yes, give details. If no, explain: Refer to Reclamation Narrative Section 6, Vegetation Plan.		
Mulch will be piled around the base of trees and shrubs?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
High quality stock will be used?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Trees and shrubs will be planted while they are dormant?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Stock will be properly handled, kept cool and moist, and planted as soon as possible?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Seeds will be covered with topsoil or mulch no deeper than one-half inch?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
If any answers are no, explain:		
28. FINAL CHECKLIST		
All required maps are attached? (<i>See "Instructions for SM-8A" for detailed requirements.</i>)	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
All required cross sections are attached? (<i>See "Instructions for SM-8A" for detailed requirements.</i>)	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Geologic map attached (if required)? (<i>See "Instructions for SM-8A" for detailed requirements.</i>)	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
All documents submitted have the date, the name and address of the permit holder, and the application number?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Have you completed the SM-6 and has it been signed by the local jurisdiction?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Have you provided the SEPA checklist?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Have you provided a copy of the SEPA determination (DNS, MDNS, or DS)?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
Have you attached photographs (as needed)?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Are additional supplemental studies included?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
If yes, check the appropriate box(es) below:		
<input type="checkbox"/> Archeological	<input type="checkbox"/> Geohydrologic	<input type="checkbox"/> Backfill
<input type="checkbox"/> Topsoil	<input type="checkbox"/> Flood plain	<input type="checkbox"/> Conservational
<input type="checkbox"/> Other	<input type="checkbox"/> Slope stability	<input type="checkbox"/> Vegetation
Other permits required? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		
If yes, check the appropriate box(es) below:		
<input type="checkbox"/> Shoreline Permit	<input type="checkbox"/> Water Discharge Permit	<input type="checkbox"/> Solid Waste Permit
<input type="checkbox"/> Air Quality Permit	<input checked="" type="checkbox"/> NPDS or General Discharge Permit	<input type="checkbox"/> Hydraulic Project Approval
<input type="checkbox"/> Special or Conditional Use Permit	<input type="checkbox"/> Other	

APPLICATION FOR RECLAMATION PERMIT AND PLAN

IDENTIFICATION OF LANDOWNER(S)

Identify names and addresses of all landowners. Provide written evidence of landowner approval of the extraction of minerals by surface mining methods and of the reclamation plan and/or provide the signature of all landowners below. If landownership has been severed between surface and mineral rights ownership, identify all affected mineral rights owner(s) and provide their approval. *(Attach signed copies of this page if more than one.)*

Print Name(s):
Cunningham Crushing, Inc.

Address(es):
PO Box 8 Hamilton, WA 98255

RECEIVED
August 10, 2020
Washington Geological Survey

APPLICANT ACKNOWLEDGMENT

By signing this application, the applicant acknowledges the following:

- **Application's Information True.** The applicant verifies that all information on this application and reclamation plan is true.
- **Reclamation Plan Contents.** The applicant's reclamation plan consists of this document (SM-8A), SM-6, associated maps, cross sections, reclamation narrative, and other attachments. The department's approval of this application would reflect approval of the applicant's reclamation plan.
- **Applicant/Permit Holder Must Comply.** If the department approves this application, the applicant shall be the permit holder and shall be responsible for compliance with Chapter 78.44 RCW, Chapter 332-18 WAC, the terms and conditions of the permit, and the approved reclamation plan and attachments. *The permit holder shall comply with the permit and may not significantly deviate from the reclamation plan without prior written approval by the department for the proposed change.* Revised permits or modified plans might be necessary following significant deviations.
- **Applicant/Permit Holder Consents to Inspection.** All permitted surface mines are subject to regular inspection. See RCW 78.44.161 and WAC 332-18-050. The applicant verifies that it has authority to consent to department inspections on behalf of itself and the landowner(s). *Applicant authorizes the department to enter and inspect any property covered by this application during any day or time determined necessary by the department to ensure compliance with the Surface Mining Act, Surface Mining Rules, the Reclamation Permit, and the Reclamation Plan.*

APPLICANT

Signature of surface mine permit applicant or applicant's company representative

Name and Title of Company Representative
(Please print)

Date signed

John L. Parker

John L. Parker
President

8/7/20

LANDOWNER(S)

As landowner, I *A. Ann Parker* (name) authorize the applicant to extract minerals from my land using surface mining methods and I approve this reclamation plan.

Signature: *A. Ann Parker* Date signed: *8/7/20*

FOR DEPARTMENTAL USE ONLY

Date accepted

Accepted by:

Title:

Reclamation Permit No.

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Washington Geological Survey

CASCADE BIG BEAR MINE

Skagit County, Washington

APPLICATION FOR RECLAMATION PERMIT Reclamation Narrative

August 2020

Prepared By:

W C G 
Wheeler Consulting Group
P.O. Box 1452
Bellingham, WA 98227

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Appendix A: Spill Control Plan

Appendix B: Clean Soil Acceptance Policy

Cascade Big Bear Mine

1 Introduction

Cunningham Crushing, Inc. is submitting this reclamation plan to the Washington State Department of Natural Resources (DNR) as part of their application for a surface mining permit for the Cascade Big Bear Mine. Cunningham Crushing, Inc. will be the operator and permit holder for the mine. This reclamation plan, including the narrative, DNR forms (SM-8A, SM-6), supplemental studies, and graphics, is intended to satisfy the requirements of Chapter 78.44 Revised Code of Washington (RCW).

2 Site Description

The existing approximately 38-acre Cascade Big Bear Mine is located immediately east of Rockport-Cascade Road and is zoned NRL (Natural Resource Land) by Skagit County, with an accompanying Mineral Resource Overlay (MRO) designation. Parcels to the east, south, and southwest are also zoned NRL. The parcels to the north, as well as on the east and west sides of Rockport-Cascade Road, are zoned RRv (Rural Reserve); most contain residences with the exception of the parcel immediately north, which includes a small shed. Parcels to the northwest are zoned OSRSI (Public Open Space of Regional/Statewide Importance).

The mine site includes a relatively flat valley floor, comprising approximately 35 percent of the mine site, and a steep rock face that comprises approximately 65 percent of the mine site. The mine site rises from the valley floor at approximately 310 feet elevation along the westerly property boundary to approximately 1,200 feet elevation along the crest of the rock outcrop, located approximately 500 feet west of the easterly property boundary.



The site entrance is from Rockport-Cascade Road near the center of the westerly property boundary. A mixed coniferous- deciduous forested mine buffer exists between Rockport-Cascade Road and the active mine area. With the exception of the primary entrance and internal roadway, the mine floor has been colonized by invasive Himalayan blackberry. The majority of the site is steeply sloped with a predominately west-northwest-facing aspect. No structures exist on the site. In addition to the primary interior haul road, a narrow logging equipment road that was constructed during logging activities permitted in 1990 follows the south side of the cliff.

3 Permit history

The Cascade Big Bear Mine has been in operation for several decades, extracting hard rock and gravel resources. The mine site includes an open mine area in which approved mining activities have occurred since the mine's inception in 1976 when DNR issued a mine operating permit (Permit No. 11524).

The mine owner applied for and received a Skagit County conditional use permit for a 40-acre mine and mine-related activities in 1976 and received the requested permit in 1982 (Permit No. 12-76). The mine owner asked to delay issuance of the permit pending development of mining business activity. The conditional use permit was issued with three conditions as follows:

1. The existing trees between the Rockport-Cascade Road and the rock removal area are to be retained until the rock removal is completed.
2. No time limit is placed on the operation, but the Skagit County Engineer is to be notified when extensive hauling of rock is to occur.
3. The reclamation standards of the Department of Natural Resources shall be a condition of this permit.

The mine owner canceled the DNR operating permit in 1984 and continued to operate the mine under a small mine exemption, which limits mining activities to three acres (Unpermitted #70-090217). As mine activities have reached the three-acre maximum for the exemption, a DNR-issued reclamation permit is now required. The Skagit County conditional use permit remains in effect for the mine site; the County approval for surface mining for the purposes of DNR permitting (form SM-6) was updated in February, 2006. The SM-6 issued in 2006 includes a total disturbed area of 38.16 acres.

4 Operations Plan

The Cascade Big Bear Mine operations plan is for removal of the talus that has accumulated at the foot of a nearly vertical rock face that rises approximately 800 feet above the elevation at the toe of the talus. Geographically, the resource (talus) lies at the base of a cliff trending northeast to southwest across the mine. The operations plan employs a top-down mining method to remove talus, which will allow for recovery of various resource sizes while benching

interburden horizontally along the base of the cliff. Temporary vertical cut slopes into the talus and interburden will vary from near vertical to the angle of repose above base bedrock (1.25 horizontal to 1 vertical, or 1.25H:1V) and will be a minimum of 10 feet deep for allow for equipment placement. Permanent cut slopes will not exceed 2H:1V. No work will occur in bedrock below the talus or in the cliff wall. To ensure an incised pit floor, a 6-foot vertical berm consisting of in situ material or overburden would remain along the edge of each benched extraction area. This would not only effectively contain stormwater but also provide visual screening, lighting, and noise abatement to the surrounding properties and should satisfy Mine Safety and Health Administration (MSHA) requirements.

Mining practices will advance in one phase, encompassing 9.6 acres, as shown on Plan Sheet 3 of the mine reclamation plan set. Rock of a size that can be easily accommodated in standard haul trucks will be loaded using standard site equipment and removed from the mine site. Large boulders will be split by hydraulic cracking or small charge blasting to a size that can be accommodated by standard loading equipment and haul trucks. The talus to be removed has been estimated at 1.2 million tons. As larger talus is removed from the top layer, smaller material will be extracted and stockpiled or removed from the mine site based on market demand. Yet smaller material will be screened and/or crushed into variously sized material for sale as finished product. No material washing is proposed; no process water will be necessary or used. All equipment fueling will occur from a vendor-based mobile source. Blasting will also be vendor-based; no blasting materials will be stored on-site.

Though little topsoil exists on the site, topsoil and non-commercial interburden material that require removal will be salvaged and used for reclaiming the site; stockpile areas for these materials are shown on the Cascade Big Bear Mine Reclamation Plan Sheet 3. A materials balance table is provided on Plan Sheet 3 that shows the maximum volume of interburden and topsoil that could be stockpiled on the mine site in preparation for talus removal, as well as the maximum quantity of topsoil that may be required for reclamation. Topsoil available on-site is insufficient for mine reclamation and will require some importation to meet reclamation needs. For reclamation, the mined areas will be graded and covered with topsoil and interburden materials and then revegetated. As noted, the entire permit area is designated Natural Resource Land with a Mineral Resource Overlay (MRO). For subsequent use, this reclamation plan proposes restoration of the mine area to allow for forestry use, which conforms to the Skagit County Comprehensive Plan land use designation of NRL. Native and naturalized forest tree species will be planted as a single reclamation segment proposed for the site. Native grasses and legumes will be planted in portions of the site that do not seed naturally from topsoil.

There are no drainages, wetlands, or riparian areas within or near the mineral extraction limits. No permanent buildings will be constructed on the mine site and therefore, no demolition will be required at the completion of mining.

4.1 MINE RECLAMATION DRAWINGS

A complete set of properly scaled and georeferenced maps and figures attached hereto, defining all mine phases, boundaries, and associated operations.

- **Sheet 1 – Vicinity Map:** site access route, directions to the Cascade Big Bear Mine site, legal description, latitude and longitude, U.S. Geological Survey topography, overall mining permit boundary
- **Sheet 2 – Pre-Mining Topographic Map:** adjacent property ownership, parcel numbers, subject property boundary, permit boundary, and aerial photograph
- **Sheet 3 – Reclamation Sequence Map:** mining phase and reclamation segment boundaries, setbacks, permit boundary, limits of disturbance, material stockpile locations, material balance table
- **Sheet 4 – Existing Contours Map:** property boundary, permit boundary, existing disturbance boundary, limits of disturbance, existing drainage patterns, and existing topography
- **Sheet 5 – Mining Details:** excavation boundary, cut slope locations, cross section profile locations
- **Sheet 6 – Final Reclamation Plan:** permit boundary, existing and reclaimed topography, drainage patterns, cross section profile locations
- **Sheet 7 – Cross Sections A-A' and B-B':** existing topography, reclaimed topography, permit boundary, setbacks, subsequent use.

4.2 ROCK CHARACTERIZATION AND HANDLING

An interpretation of the geologic conditions is based on site observations, soil exposures, and review of available geologic literature for the area. The primary geologic units mapped within the area of the mine are consistent with the valley and rock outcrop portions of the site; these areas correspond with the underlying geologic units of Quaternary alluvium (Qa) and Shuksan greenschist (Jsh_s) (Schuster 2005).

- Quaternary alluvium is the unit that underlies the valley floor. This unit consists of Quaternary unconsolidated or semiconsolidated alluvial clay, silt, sand, gravel, and (or) cobble deposits.
- Shuksan greenschist, the unit that comprises the outcrop portion of the site, is a metamorphosed basaltic lava of late Jurassic age (Easterbrook, 2010) that is mostly mid-oceanic-ridge metabasalt. The metamorphism occurred in a subduction zone at a depth of 15-20 miles (Brown 1986). The green color comes from chlorite, epidote, and actinolite.

The geologic unit of interest for the Cascade Big Bear Mine is the Shuksan greenschist that has collected at the base of the cliff face. Tests conducted by DNR on the Shuksan greenschist unit show no inclusive asbestos (actinolite). Based on bedrock testing and resource consistency, the Cascade Big Bear Mine operators do not anticipate generation of contaminants.

4.3 SETBACKS AND BUFFERS

A permanent mining setback from Rockport-Cascade Road will remain undisturbed and vegetated per Skagit County CUP requirements. The buffer in this area is 100 feet; the remainder of the mining setbacks are 30 feet. The 30-foot buffer along the northerly property boundary will include a noise berm that coincides with the 325-foot site contour; the berm will be 15-feet high immediately east of the 100-foot vegetated buffer and north of the mine access road, tapering to meet existing terrain at 325 feet. The noise berm would be approximately 225 feet in length and would be constructed during early material extraction prior to the initiation of processing (crushing and screening). In no case is the mining boundary coincident with the permit boundary.

Reclamation setbacks are not applicable in this mining operation due to the cut technique of mining. The final slope configuration will be created as part of the mining process.

4.4 ACCESS

The existing site entrance will be utilized, with internal haul road expansion developed per Plan Sheet 3. Access roads are established and actively used for the existing mine, and will be extended to the south as mining progresses. All unnecessary internal roadways will be properly reclaimed.

4.5 WATER AND POWER

No water supply is required on the site; water for dust abatement on haul roads will be imported from an off-site source. No groundwater withdrawal is proposed. No discharge to groundwater will occur, other than natural infiltration of stormwater. Area well logs show an unconfined water table ranging from 14 to 36 feet below ground surface (bgs) at elevations between 292 and 313 feet above mean sea level; the aquifer averages 23 feet bgs.

The only power source will be supplied by portable fuel-powered generators as needed. All equipment will be removed from the mine during periods of temporary or seasonal closure.

4.6 STORMWATER MANAGEMENT

Utilizing a top-down mining method allows for stormwater containment within the limits of disturbance. Active mining and post-mining topographic features are incorporated into the operations plan to adequately contain and infiltrate potential stormwater. The existing mine has historically demonstrated that stormwater infiltrates at a sufficient rate as to not discharge stormwater off site.

DNR reclamation requirements detail that the 25 year, 24-hour storm event be contained on-site, infiltrated, or safely conveyed off-site. The stormwater design for existing conditions will infiltrate the required volume of water on-site between the described 6-foot vertical berm located along the edge of the day-lighted benches and the talus slope. The berm will provide a

containment area and ensure potential runoff will not leave the limits of disturbance. The required bermed containment area was calculated as follows:

- NOAA Atlas, Volume IX, Isopluvial Map (Figure 28) shows 55 tenths of an inch of participation for the project site for the 25 year, 24-hour storm event.
- The area of influence is 9.6 acres.
- $55/10 \text{ in} \times 1/12 \text{ ft/in} \times 9.6 \text{ acre} \times 43,560/1 \text{ acre/ft} = 191,664 \text{ cubic feet} = 4.4 \text{ acre-ft}$

An area of 1.12 acres exists between the proposed containment berm and the talus slope. The proposed containment berm is 6 feet high. Accordingly, there is 6.72 acre-ft of storage available in this area which will provide adequate storage is provided for the 25 year, 24-hour storm event in the existing condition.

Typical erosion control practices will be incorporated into the active mining area as needed. Stockpiled soils to be utilized for reclamation will be stabilized as they are stockpiled. No ponds or engineered stormwater facilities are required to achieve infiltration on site.

Reclamation will include replacement of stockpiled interburden and other non-marketable material in the talus area, mimicking the existing talus in a diminished form. Stormwater infiltration areas will be integrated into this backfill area; as with the existing condition, no stormwater will leave the site in the reclaimed condition.

4.7 SPILL CONTROL PLAN

Fueling of equipment will be in accordance with the Ecology's Sand and Gravel General Permit Site Management Plan. Fueling and equipment servicing will occur within the permit boundary from vendor-based mobile sources that will carry spill kits and include personnel trained in spill response. No fuel or lubricants will be stored on the mine site. The only potential for spills is through a potential broken hydraulic/fuel line on mine equipment. A spill prevention kit will be maintained on or near the mining equipment in order to respond in a timely manner to a potential spill; procedures are described in the mine's Spill Control Plan (Appendix A). Mine site personnel will be trained in spill response.

4.8 OPERATIONS SCHEDULE

As described in the operations plan, materials will be processed using standard rock handling, loading, and hauling equipment. It is anticipated that in typical high market rock processing will occur over six to eight months per year with up to 12 haul trucks per day in a standard 5-day work week. Most rock recovered, regardless of size, will be removed based on market demand. A small portion of interburden will be stored and used in reclamation.

Mine life is based on market demand, but is anticipated at 20+/- years, based on the 1.2 million tons of talus visible at the base of the cliff. Reclamation will occur in a single phase once mining is completed and final cut slopes are created.

4.9 SAFETY AND SECURITY

Site access will be controlled through installation of a security gate at the site entrance. Fencing will be installed along the site boundary flanking Rockport-Cascade Road. Standard mine signage, including “No Trespassing” signs will be installed and maintained. The entrance gate will remain closed during all blasting activities.

5 Reclamation Plan

The reclamation plan will comply with the performance standards per RCW 78.44. The Cascade Big Bear Mine operations plan has been designed to minimize and avoid unnecessary impacts by mining in relatively small segments of 5.4 and 4.4 acres. Mining top-down provides for containment and infiltration of runoff within the mining disturbance boundary and without off-site surface discharge. Reclamation will occur once postmining topography is created. At the completion of mining, the mine floor will be reclaimed by ripping, replacing salvaged topsoil and interburden, and planting or seeding according to the revegetation plan. Reclaimed topography will be consistent with the existing mine floor elevation with the addition of sinuous topography; the final mine floor will include some gently undulating topography. No non-native material or contaminated material of any kind will be used in mine reclamation.

During final reclamation activities, infiltration swales will be constructed on the pit floor, allowing stormwater to infiltrate to groundwater. The pit floor will include final topography that emulates the existing, natural landscape; that is, in-situ and stockpiled interburden will be placed in the talus area, mimicking the talus profile in a diminished form. Interburden will be placed at no greater than 2:1 slopes. Varying high and low points will be created during final grading and shaping of the talus area and the pit floor, serving as natural swales; no surface water is expected to discharge from the site throughout the mining project or after completion of mining activities. There are no toxic, acid forming, or deleterious materials on site or to be deposited on site. No petroleum products, garbage, or other waste will be stored on-site and will be removed upon use or generation.

5.1 TOPSOIL BUDGET

Based on existing mine topographic calculations, insufficient soil is available on site for reclamation (Plan Sheet 3) and some topsoil import will be required. According to the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey for Skagit County, the Barneston very cobbly sandy loam (map unit 8) that occurs on the mine floor includes 18 inches of topsoil (A and B horizons) before reaching cobbly subsoil. As described, 65 percent of the mine site is rock outcropping and includes no topsoil. Per DNR regulations topsoil will be replaced on the reclaimed mine surface at a depth consistent with the existing natural profile prior to mining.

As the topsoil budget shows (Plan Sheet 3), existing site topsoil quantity will cover approximately 70 percent of the topsoil necessary for reclamation. Topsoil will be chosen from immediate, local sources when possible to match existing site soils and will be imported according to the topsoil acceptance plan attached as Appendix B. Refer to Plan Sheet 5 for location of topsoil stockpiles and topsoil distribution areas.

5.2 TOPSOIL HANDLING

Topsoil horizons A and B will be salvaged as one soil unit prior to mining and stockpiled. Topsoil is considered a valuable resource for reclaiming the site and will be salvaged, stockpiled, and redistributed on reclaimed slopes. Due to the cobbly substratum, there is no subsoil below 18 inches to be salvaged.

Topsoil stockpiles and temporary cut slopes will be slightly compacted perpendicular to the slope and mulched with weed free straw or revegetated immediately to prevent erosion and promote stabilization. If straw is used to mulch stockpiles, piles will be track-walked to crimp the straw into the soil surface. This will allow for maximum contact between the soil and straw in addition to minimizing straw loss to wind.

Topsoil will be handled only during conditions that are not overly wet or dry. Because the existing topsoil is conducive to supporting native vegetation and those species planned for reclamation, no topsoil supplements will be required. Topsoil required to be added to the site from outside sources to meet reclamation requirements, if any, will be tested to determine supplementation necessity.

5.3 BACKFILLING

Utilization of surface extraction and cut methods for mining will result in final slope configuration being created as part of the mining process. Stored interburden will be utilized as necessary to backfill the talus area to augment mining-configured slopes and to mimic the existing talus profile in a diminished form at no greater than 2:1 slopes. As the volume of interburden to be encountered and stored during talus removal is largely unknown, additional material for backfill may be imported as necessary according to the clean soil acceptance policy included in Appendix B.

At completion of mining, the perimeter of the mining disturbance area is designed to sinuously join the contours of the existing mine floor.

6 Revegetation Plan

Reclaimed mine segments will be ripped to reduce compaction and promote deep rooting. Slopes will be ripped on contour (parallel with slope) to minimize erosion. Topsoil will be replaced evenly over the graded slopes with scrapers or truck-dozer operations. Dozers and or excavators may be used to configure the final slope and prepare the seedbed. Some micro relief in the reclaimed surface, such as shallow depressions and ridges, will be left from ripping

and topsoil replacement operations. This micro topography will promote species diversity in the understory of the forest and assist in stormwater sediment capture during the initial reclamation.

A mixture of shrubs and varying age class of trees presently border the permit boundary. Native upland forested communities consisting of conifers and hardwoods will be established to provide a diverse and successful revegetation plan for the site. Typically, Douglas fir (*Pseudotsuga menziesii*) and Red alder (*Alnus rubra*) will each be planted on the pit floor at a density of 15 trees per acre. Native herbaceous seed, present in the re-distributed topsoil, will inoculate the reclaimed areas with sufficient ground cover and understory species. In addition, a grass legume mix at 20 pounds per acre will be sown to enhance natural re-seeding. The seed mix will likely include clover, rye, and bentgrass, a combination of native species that would provide effective soil stabilization, soil nutrients, wildlife forage, and long-term reclamation goals for the site. This mix can be substituted with a comparable mix of native species.

Bareroot trees will be obtained from a local nursery and from within the proper seed zone. Fertilization of individual seedlings may be required after the second or third growing season if seedlings fail to thrive. Fertilizer will be applied to individual plants, not broadcast, to minimize the potential for invasive species taking over the site. Revegetation monitoring will continue beyond the closure of mining to ensure tree stocking levels and adequate survival rates are achieved in addition to weed control until bond release.

7 References

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CASCADE BIG BEAR MINE

Skagit County, Washington

Appendix A: Geologic Conditions Summary

Appendix A: Spill Control Plan

1 Introduction

A spill control plan provides preventative measures that will be implemented to avoid a spill and outlines procedures to follow in the event of a spill. Contact information for reporting is provided to quickly engage appropriate personnel and agencies in spill response.

1.1 MATERIALS OF CONCERN

Construction rock of various sizes is produced at the Cascade Big Bear Mine. Mobile equipment for use in production and movement of materials include grapplers, loaders, haul trucks, delivery trucks, vendor fuel truck, water truck, and miscellaneous light vehicles. Mobile equipment is parked during off shifts on the mine floor. Larger equipment used in the mine is usually parked in the mine away from active work areas when not in service.

Equipment is fueled by a vendor-based mobile fueling service. Most fueling that occurs is diesel; gasoline is rarely used in the mine. No fuel is stored on the site.

Other petroleum products are required for equipment maintenance, such as motor oil and hydraulic oil. These materials are delivered to the mine on an as-needed basis and not stored on-site.

1.2 SPILL RESPONSE

1.2.1 Spill Response Kit

Spill cleanup kits are maintained at the site in the cabs of major equipment for immediate use in case of a spill.

The kits are labeled "Emergency Spill Kit" and include at least the following:

- Absorbent material, e.g., clay or peat (packaged in small bags for convenient use)
- Absorbent pads
- Universal sock, boom, or pool
- Plastic disposal bags and ties
- Safety gloves
- Safety goggles
- Emergency response guidebook
- Spill kit instructions.

1.2.2 Spill Response Procedure

1. If a spill occurs, soak up the spill with the absorbent material and absorbent pads;

- when fully absorbed, place in disposal bag and tie.
2. Use the boom, sock, or pool to isolate the spill.
 3. Contaminated absorbent used to soak up spilled materials should be swept into piles, shoveled into plastic disposal bags, and treated as special waste, and transferred to a special waste storage facility.
 4. Do not use emulsifiers for cleanup unless a disposal site for the waste has agreed to receive it.
 5. After the incident, the owner/manager is responsible for the proper handling, storage, and disposal of the material and the wastes. The owner/manager is also responsible for notifying the proper regulatory agencies concerning the spill (See Agency Contact List below).

Employees must become familiar with the cleanup equipment's location and use. The equipment must be used solely to respond to spills and only for emergencies. The equipment must be decontaminated or replaced immediately after each response.

All spills must be cleaned up immediately. If a spill poses a threat to the stormwater system, employees must immediately notify the owner/manager. The owner/manager will assess the spill for the appropriate response: Responses are as follows:

- Small spills (less than 5 gallons) will be managed on site with absorbent that can contain liquid and soak it up.
- Larger spills (greater than 5 gallons) will be managed by placing a dike around the spill to contain it in the area. It must not be allowed to migrate to the stormwater collection area.
- During an emergency, site personnel will work to prevent the spill from spreading to other areas of the site. If appropriate, the owner/manager will temporarily stop facility operations to reduce the potential for further impact.
- The spill report form (see attached sample) will be used to document a spill. The report will be completed by a member of the pollution prevention team and signed by a responsible official. Completed copies of the report must be retained by the Cunningham Crushing, Inc. owners.

1.3 AGENCY CONTACT

In the event of the spill of a hazardous material in a reportable quantity greater than 5 gallons, the following agencies and individuals should be notified:

Designated Spill Control Response Individual:

John Parker
P.O. Box 8
Hamilton, WA 98255
360-708-8108

Environmental Compliance Officer:

John Parker
P.O. Box 8
Hamilton, WA 98255
360-708-8108

Property Owner:

John Parker
P.O. Box 8
Hamilton, WA 98255
360-708-8108

Department of Ecology Northwest Office:

(425) 649-7000

Report all oil spills to the following agencies and individuals:

Property Owner:

John Parker
P.O. Box 8
Hamilton, WA 98255
360-708-8108

Department of Ecology. Northwest Office:

(425) 649-7000

National Response Center:

1-800-424-8802

Washington State:

1-800-258-5990 or 1-800-OILS-911

Call 911 for emergencies.

1.4 SPILL PREVENTION

Spills are prevented by using common sense during fueling and maintenance activities. Routinely maintained equipment is less likely to leak or cause a spill. When fueling or performing light maintenance in the field, use a drip pan. Store the site equipment in a covered area when possible.

Routine employee training in procedures outlined in the SWPPP to prevent spills and in spill response procedures in the event of a spill will not only keep the facility prepared, it will keep the staff educated and contribute to safer working practices.

1.5 BMPS

The following BMPs will be implemented at the site:

Training: An important element of preventing spills is routine employee training. Employees are most effective at preventing the spread of a spill when they know where the spill kit is and how to use it.

Spill Response Materials: Spill response materials shall be kept in a consistent, well marked place. Spill kits shall be prepared or purchased that contains all the materials necessary to clean a spill.

Scheduled Maintenance: Schedule regular vehicle maintenance to reduce spills. Hydraulic oil, transmission oil, and engine oil leaks are a common spill source. The quantity and frequency of spills will be greatly reduced by preventing them at this common source.

1.6 PERIODIC PLAN REVIEW

This plan will be most effective with continual reviews and updates to reflect any changes at the site. This plan is an effective tool to use for employee training. Consider spill control an active, important element of operations at the site.

Spill Report

LOCATION: _____	
	Date: _____ Time: _____
Regulatory agencies notified (date, time, person, agency, and how): _____ _____ _____	
Material spilled: _____	
Quantity spilled: _____	
Source: _____	
Cause: _____	
Extent of injuries (if any): _____ _____	
Adverse environmental impact (if any): _____ _____	
Immediate remedial actions taken at time of spill: _____ _____	
Measures taken or planned to prevent recurrence: _____ _____ _____	
Additional comments: _____ _____ _____ _____	
This report prepared by: _____	
_____ (Signature)	
_____ (Date)	_____ (Job title)

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CASCADE BIG BEAR MINE

Skagit County, Washington

Appendix B: Clean Soil Acceptance Policy

Clean Soil Acceptance Policy

Cascade Big Bear Mine is permitted to accept, “clean soil” for reclamation of this site. In order to avoid confusion about what can be accepted and to try to protect Cascade Big Bear Mine and our customers from expensive cleanup or litigation in the future, we have developed a clean soil pre-screening policy. Clean soil is defined more by what it *does not contain, than by what it does contain*. Clean soil is earthen material that does **not** contain the following:

- The soil cannot contain radioactive waste, extremely hazardous waste, by-products (all which terms are specifically defined and regulated by federal, state and local environment regulations.)
- The soil cannot contain any construction or demolition waste, broken concrete or asphalt, tires or other rubber or plastic materials, garbage, rubbish, wood waste or other organic matter.
- The soil cannot be from any cleanup action whether regulated by environmental laws or not (“problem wastes”).

Soil meeting all these characteristics is, “Clean Soil.”

The following steps must be completed for material acceptance:

- The owner of the material must complete and submit a questionnaire describing the soil, the project and any other relevant information. Soil sampling will be required to confirm the absence of contamination. The soil sample results indicating the material is, “*clean soil*” must be delivered to before the material will be approved.
 - **No deliveries of soil will be allowed until the soil sample results have been received from the lab(s), reviewed and the soil has been approved by the engineer.**
- Sign a Clean Soil Contract.
 - The Clean Soil Contract is provided on the following page. This contract must be completed by the owner of the material deposited in the reclaimed mine:

Clean Soil Questionnaire and Certification Form

1. General Information

Owner of Soil: _____
Name: _____
Address: _____

Contact: _____ Telephone: _____ Fax: _____

Transporter of Soil: _____
Name: _____
Address: _____

Contact: _____ Telephone: _____ Fax: _____

Billing Address (if different than owner):
Name: _____
Address: _____

Contact: _____ Telephone: _____ Fax: _____

2. Information about Site

Attach a map of the immediate vicinity with the site and location of soil to be removed clearly identified. (A Thomas guide map and a hand drawn site diagram will satisfy this request.)

Exact Location of Site (Street/Nearest Cross Street, City): _____

Business Currently Conducted on the Site and to the extent possible all information about former businesses on the site (please consult current owner/operator of the site to complete this question):

Identify all hazardous substances and petroleum products produced, stored or used at the site (please consult current owner/operator of the site to complete this question):

Describe the surrounding area as completely as possible, especially identifying all businesses, industrial activity, chemical or petroleum storage and all general uses of the property.

3. Information about Soil

Fully explain the reason the soil is being excavated (for example, describe the project and why the soil will not be used as part of the project): _____

Estimate the volume of clean soil to be disposed (yard/tons): _____

Has there been any geotechnical work performed on the clean soil or soil in the immediate vicinity? If so, please provide a copy of the report: _____

Have any soil or groundwater samples been taken on the clean soil or soil or groundwater in the immediate vicinity? If so, please provide a copy of the sample results and report (consult current owner/operator of the site to complete this question)

Is there any other solid material in the soil (construction, waste, asphalt, concrete, wood waste, garbage, rubbish, ashes, tires, plastic, rubber)? Describe:

4. Certification

Your company certifies, represents and warrants that the information is complete and accurate to the best of its knowledge.

Signature and Title of Company's Authorized Agent

Date

Return the complete questionnaire and signed certification to:

Address: PO Box 8, Hamilton, WA 98255

Telephone: 360-708-8108

Questionnaire Page 2 of 2

Testing Procedures for the Acceptance of Clean Soil

Sampling requirements are based upon the project site and history that is supplied by the contractor on the Clean Soil Questionnaire. DNR has established standard testing criteria for the three most common types of projects. The two tests that are most used are method NWTPH-Dx which tests for total petroleum hydrocarbons and diesel and total metals (RCRA 8) which tests for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver.

1. Projects that involve roadway material (i.e. the shoulder off the roadway or excavation of the actual roadway) are required to test for NWTPH-Dx and total metals. No material will be accepted that tests positive or contains roadway material (i.e. asphalt or concrete). Testing frequency is as follows:
 - 2 samples for the first 500 cy: NWTPH-Dx and total metals
 - 1 sample for every 500cy from 500cy to 2,000 cubic yards: NWTPH-Dx
 - 1 sample for every 750 cy from 2,000 cy to 5,000: NWTPH-Dx

2. Projects that involve wooded, non-residential areas are only required to test material using method NWTPH-Dx. This type of area is considered virgin soil because there has been no construction or activity in the area surrounding the excavation. No wood waste or other matter will be accepted. Testing frequency is as follows:
 - 3 samples for the first 1,000 cy: NWTPH-Dx
 - 1 sample for every 1,000 cy from 1,000 cy to 5,000 cy: NWTPH-Dx

3. Projects that involve residential areas (i.e. housing, churches and schools) require the same testing as item two listed above, but the testing frequency is slightly more conservative.
 - 2 samples for the first 500 cy: NWTPH-Dx
 - 1 sample for every 500 cy from 500 cy to 2,000 cy: NWTPH-Dx
 - 1 sample for every 1,000 cy from 2,000 cy to 5,000 cy: NWTPH-Dx

If a customer would like to haul more material than his/her contracted amount, Cascade Big Bear Mine will review the lab reports and re-evaluate the testing procedure. If the results are testing negative on a consistent basis and Cascade Big Bear Mine is comfortable with the project site, an amendment to the contract will be issued. The amendment shall layout a new testing guideline, generally more liberal, and will increase the disposal amount requested by the contractor.