Sophia Cassam

From: David Williams
Sent: Thursday, September 15, 2022 2:20 PM
To: Sophia Cassam; Lynda Guernsey
Subject: MRLO Mining geologic report - West Valley Holdings
Attachments: West valley Holdings Geologic and economic report.pdf

Good Afternoon Lynda,

Can you please forward this to the Planning Commission? Sophia, can you include this in the official file for West Valley Holdings MRLO request. This was just delivered by Mike Carlson a few minutes ago to our office. This will be needed for the Hearing tomorrow.

Thank you,

Dave

-----Original Message-----
From: scan@sanjuanco.com <scan@sanjuanco.com>
Sent: Thursday, September 15, 2022 1:03 PM
To: David Williams <davidw@sanjuanco.com>
Subject:

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Wayne Haefele, PE

Consulting Civil Engineer

Wayne Haefele & Associates, Inc.

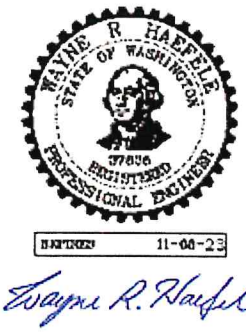
whaefele@haefele-assoc.com *(360) 472-1407* *www.haefele-assoc.com*

Summary Technical Report and Mineral Resource Estimate for Tax Parcel Number 450113005 and 450111003 San Juan Island San Juan County, WA

Prepared for

West Valley Holdings, LLC
2165 West Valley Road
Friday Harbor, WA 98250-9231

Prepared by:
Wayne Haefele, PE
September 15, 2022



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CERTIFICATE OF AUTHOR – Wayne Haefele, PE

1. I am a professional Civil and Mechanical Engineer licensed in the State of Washington and Designated Engineer for Wayne Haefele & Associates, Inc, a Washington Engineering Corporation. I have been living and practicing in San Juan County since 2000. I was Public Works Director of Town of Friday Harbor from September 2012 until May 2022 and am very familiar with San Juan Island's resources, needs and economy.
2. This Certificate applies to the report entitled "Summary Technical Report and Mineral Resource Estimate for Tax Parcel Numbers 450113005 and 450111003 San Juan Island, San Juan County, WA" dated September 15, 2022
3. I have practiced my profession continuously since 1994 for a total of 38 years performing and managing all manner of Public construction projects including both design and management of active construction and am a member in good standing of the National Association of Professional Engineers (NSPE).
4. I am the author of all items in the report entitled "Summary Technical Report and Mineral Resource Estimate for Tax Parcel Numbers 450113005 and 450111003 San Juan Island, San Juan County, WA" dated September 15, 2022
5. I have visited the site that is the subject of this report and investigated the physical and documentary evidence of commercial quantities as defined by SJC 18.35.015.
6. I have not had prior involvement with the property that is the subject of this technical report.
7. I am independent of the issuer in accordance with the SME Guide for Reporting Exploration Information, Mineral Resources and Mineral Reserves (SME Guide).
8. I have read the SME Guide for Reporting Exploration Information, Mineral Resources and Mineral Reserves, and the items of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

SUMMARY

On August 12, 2022 Mike Carlson of Mike Carlson Enterprises contacted Wayne Haefele & Associates, Inc to prepare a mineral resource estimate and supporting technical report to be submitted to San Juan County to compete his application to have Parcel #'s 450111003 and 450113005 reclassified as mineral resource lands.

Wayne Haefele & Associates, Inc is a Washington Civil Engineering Corporation based on Lopez Island in San Juan County, WA.

Mike Carlson Enterprises, a local general engineering contractor and operates the mining and sales activities on the two subject parcels which are owned in fee by West Valley Holdings, LLC (Parcel # 450113005) and Carlson Resources, LLC (Parcel # 45011003) both of which are personal holding companies also owned by the Carlson family.

The purpose of this report is to present my investigations, results and conclusions with respect to the presence of commercial quantities of rock suitable for crushing, screening and use as a construction material; particularly with respect to roadway and structural fill.

Though this report concerns a relatively small-scale local resource and is not required to meet SEC standards for public disclosure it conforms to the outline, content and conventions of the Society for Mining, Metallurgy and Exploration Guide for Reporting Exploration Information, Mineral Resources and Mineral Reserves (The SME Guide).

The investigation took the following approach:

Internet research was performed to identify primary research cataloging the geology of the San Juan Islands in general and San Juan Island in particular. The location of the site was correlated with the information resulting from this research to form an expectation of types of rock to be found at the site. A site visit was then performed to observe that portion under work as a quarry to confirm the nature of the material being processed and to walk the remainder of the site to verify conformance with the physiographic and geologic conclusions of these papers.

Research yielded "Geology of the San Juan Islands" by Roy Davidson McClellan, 1927. This is a thesis paper and was the culmination of Mr. Davidson's personal field work spanning from 1922 to 1925.

The research also yeilded "Pre-Tertiary Geology of the San Juan Islands, Washington and Southeast Vancouver Island, British Columbia" by Brandon, Cowan, Muller and Vance, 1983. This is a field trip guide book for students of geology sponsored by the Geological Association of Canada and the Mineralogical Association of Canada which cites and compiles the results of field work done since 1927.

Both publlications agree that western and northern San Juan Island is composed mainly of Orcas Chert, beginning near False Bay, extending to Mount Dallas and Mount Grant and continuing Northeast along the San Juan Range toward Sportsmans Lake.

RELIANCE ON OTHER EXPERTS

Does not apply.

PROPERTY DESCRIPTION AND LOCATION

The real property consists of two parcels located on San Juan Island upon the western slope of the San Juan Range approximately 5.35 miles westerly of the Town of Friday Harbor and 0.65 miles north of West Valley Road and centered approximately at Latitude 48.5601, Longitude -123.1337.

Parcel # 450113005 and its mineral rights are owned by West Valley Holdings, LLC.

Parcel # 450113005 and its mineral rights are owned by Carlson Resources, LLC

Operatorship is vested in Mike Carlson Enterprises, Inc.

There are no option or royalty agreements with outside parties.

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Accessibility – The subject parcels are located 0.65 miles north of West Valley Road and are accessible by a well-maintained gravel road from the North side of West Valley Road to Parcel # 450113005 and a network of passable logging roads within Parcel #'s 450111003 and 450113005.

Climate – San Juan Island is in the marine climate zone of Western Washington characterized by warm dry summers and cool wet winters. Summer temperatures tend to the high 70's and low 80" s. Wintertime temperatures are normally between 35 and 45. If the wind swings around to the North freezing temperatures do occur and can last a week or more. When this happens, it is normally just after Thanksgiving or just after New Year's.

Local Resources – The properties are located in unincorporated San Juan County. There is no infrastructure located within these parcels. Electrical power is nearby but no other infrastructure runs to the site.

Physiography – The subject parcels are located on the side of a steep escarpment facing West. The terrain is rugged and heavily wooded. Soil cover is thin, varying from 0 to 5 feet in depth. There are numerous faces of exposed bedrock throughout the sites. This is consistent with the description given in "Geology of the San Juan Islands" by Roy Davidson McClellan in his 1927 thesis.

> *Near the middle of the southwest side of San Juan Island the shores are formed by the rugged slopes of Mount Dallas Range. Mount Dallas, the highest point on the range, has an elevation of 1036 feet, being the highest mountain on San Juan Island. The soil covering on the slopes of Mount Dallas Range is very scanty and it is only on the most favored portions, particularly on the northern slopes, that conifers have been able to gain a foothold. Mount Dallas Range trends about N 55° W, or approximately parallel to the southwest shore-line of San Juan Island.*
>
> *About two and one-half miles to the southeast of the summit of Mount Dallas there is another more or less ridge-shaped mountain known as Little Mountain. Its maximum elevation is 475 feet and it is separated from Mount Dallas Range by a broad flat drift-covered valley.*
>
> *To the northeast of Little Mountain and Mount Dallas Range there is a large drift-covered valley of low elevation. This is known as San Juan Valley and it is famous because of its fertility.*
>
> *At a distance of approximately one and one-half miles to the north of the summit of Mount Dallas, there is an abrupt ridge-shaped elevation known as Mount Grant which is 680 feet in altitude. Mount Grant is scantily covered with soil and conifers occur only in scattered patches.*
>
> *Between Mount Grant and Mount Dallas Range there is a low divide which contains Trout Lake, the source of the water supply for the village of Friday Harbor. Trout Lake has a length of about 600 yards and an elevation of about 200 feet.*
>
> *About half a mile to the northwest of Mount Grant there is a small ridge-shaped peak with an elevation of 700 feet. The axis of the ridge trends a few degrees west of north. The northern slopes of this ridge are abrupt, and they extend downward towards a deep valley. The other sides slope abruptly towards a flat rocky upland that connects Mount Grant with an un-named peak 610 feet high, located one and one-half miles to the westward, near the shore of Andrews Bay.*
>
> *Beginning at a point about a mile north of Mount Grant, San Juan Range crosses the center of the island in a northeasterly direction. A low divide which separates it from Mount Grant, connects with San Juan Valley to the southeast, while to the northwest it opens out into the broad lowland extending from Andrews Bay to Mitchell Bay. The western extremity of San Juan Range ends in a steep escarpment by means of a narrow sand spit. Davidson Head is elongated in an east and west direction which is parallel to the strike of the rock formations.*

HISTORY

These properties have a long documentable history of use as a rock resource going back 48 years.

Mike Carlson's father bought 120 acres from Walt Sterling in 1974 through his business, CARMAC Corporation. The eastern 40 acres is where the lower pit (TP # 450113005) is located. CARMAC used that property for a rock source during the time CARMAC owned it until Mike Carlson and Julie Carlson bought it on April 24th 1989. They continued to use the property as it's used now since that time.

CARMAC purchased another 40 acres (the Davis 40) which would contain TP 450113003 within which the "upper pit" is located around 1978-79.

Prior to 1982, CARMAC connected TPN 45011105 and 450111003 by buying a corner (< ½ acre) of the adjacent parcel owned by Don and Phil Boyd. The Boyd Parcel is now owned by Durhack and configured differently than it was when Boyd's owned it.

CARMAC held it for a while but had Mike Carlson log it in 1982. Before it was logged, they mined rock to build the roads on the property and several other parcels totaling around 400 acres on San Juan Island. They used lots of rock. About 1983-84 CARMAC sold 15 acres of the Davis 40 to Paul Whittier who bought it to donate to the Boy Scouts of America. Later CARMAC sold the remaining 25 acres to the Whittier Trust who then sold to Dick Durhack. Durhack continued to remove rock for his own land development needs on San Juan. He also used the property as a dump site which was cleaned up after Carlson Resources, LLC purchased TP450111003 (20 acres) from Durhack in 2017.

GEOLOGICAL SETTING AND MINERALIZATION

The following is a second quote from "Geology of the San Juan Islands" by Roy Davidson McClellan in his 1927 thesis. This is from the San Juan Island section of the treatise discussing the geology of the islands:

> *San Juan Island is located on the axis of a large synclinal fold which embraces practically all of the Paleozoic rocks occurring in the map-area. The fold plunges towards the southeast and as a consequence the outcrops of the rocks belonging to the Orcas group on San Juan Island take the general shape of a horseshoe which forms the northern shores of the island.*
>
> *The contact between the cherts of the Orcas group and the overlying tuffaceous and somewhat cherty graywackes belonging to the Leech River group, may be seen along the northeast shore of San Juan Island, about a mile to the east of Sportsmans Lake. The rocks of the Orcas group occur at the northwest end of the island, to the northwest of San Juan Range. They also include Mount Dallas Range. The most southern outcrop of the Orcas cherts occurs at the southeast side of False Bay.*
>
> *Along the southwest margin of San Juan Island, the cherty rocks trend approximately parallel with the shore-line and dip towards the northeast. Along the northeast margin of the island the cherty rocks dip towards the southwest. The structure at the northwest end of the island has been complicated by minor folding and by faulting.*
>
> *The cherty rocks belonging to the Orcas group on San Juan Island, contain numerous lenses of limestone. The largest of these is located at Roche Harbor. The cherty rocks have been intruded by scattered dikes and sills of igneous rocks which were not sufficiently abundant to destroy the structure of the cherts.*

This is consistent with the conclusions drawn by "Pre-Tertiary Geology of the San Juan Islands, Washington and Southeast Vancouver Island, British Columbia" from which the illustration below is borrowed.

It should also be noted that the subject parcels are 0.75 miles due north of Lawson Quarry, which is located on the North side of Mount Grant and has been the primary source of rock and aggregate to the County for many years. This places the subject parcels directly within the region noted TRJo (Orcas Chert) on this map.

Figure 5 A

Generalized geologic map of the San Juan Islands based on mapping by Vance (1975, 1977, and unpub.); Cowan (unpub.); Brandon (1980 and unpub.); Whetten (1975); Whetten et al. (1978); Johnson (1978); Carroll (1980); Brown et al. (1979); Gusey (1978); and Glassley (unpub.). Major faults are approximately located. Quaternary sediments are not shown. "R" denotes village of Richardson. "A" denotes Asiatic fusulinid localities in the Deadman Bay Volcanics.

Chuckanut Formation. Lower Tertiary, non-marine.

Nanaimo Group. Marine conglomerate, sandstone, shale. Upper Cretaceous.

Spieden Group. Conglomerate and sandstone with intermediate volcanic clasts. U. Jurassic and L. Cretaceous.

Haro Formation. Conglomerate and sandstone with intermediate volcanic clasts and U. Triassic carbonates.

Decatur terrane. Sandstone, mudstone, conglomerate of Lummi formation (U. Jurassic to L. Cretaceous) overlying ultramafic rocks, mafic to intermediate plutonic and volcanic rocks of M. to U. Jurassic Fidalgo Complex.

Lopez Complex. Imbricated slices of Jurassic to mid-Cretaceous sandstone, pebbly mudstone, pillow lava and cherts.

Constitution Formation. Massive volcaniclastic sandstone, and interbedded sequences of mudstone, pillow lava, tuff, and ribbon chert. Jurassic to L. Cretaceous.

Orcas Chert. Deformed chert and basaltic volcanic rocks. Triassic-Lower Jurassic.

Intimately and complexly mixed imbricate zone containing Orcas Chert, Turtleback and Paleozoic limestone. May also include fragments of Deadman Bay Volcanics.

Deadman Bay Volcanics. Pillow lavas, tuffaceous rocks, minor chert, and limestone with Asiatic fusulinids. U. Permian to Triassic.

Turtleback Complex (Devonian and older plutonic rocks) and related Paleozoic volcanic and volcaniclastic rocks with interbedded limestone of Devonian, Pennsylvanian, and early Permian ages.

MINERAL DEPOSIT TYPES:

The location of the subject parcels is on the west side of the San Juan Range about a mile north of Mount Grant. The green marker on the aerial photo above is the location of the property

Comparing the aerial to the figure above it can be seen that the geologists agree that the the vicinity of the property lies within the area identified as Orcas Chert. Further reading of these publications indicates that rock in this locality is primarily Chert with possible overlying strata of Graywacke and Shale.

Chert – "The Oxford English Dictionary defines Chert as a hard dark opaque rock composed of silica with an amorphous or microscopically fine-grained texture. It occurs as nodules (flint) or in massive beds". Per the Mineral Education Coalition chert is used as construction material and road surfacing.

Graywacke – "The Oxford English Dictionary defines Graywacke as a dark coarse-grained sandstone containing more than 15 percent clay. Per https://rocksminerals.flexiblelearning.aukland.ac.nz Graywacke is used as aggregate, fill, etc.in the construction of roads and as armor rock for seawalls etc.

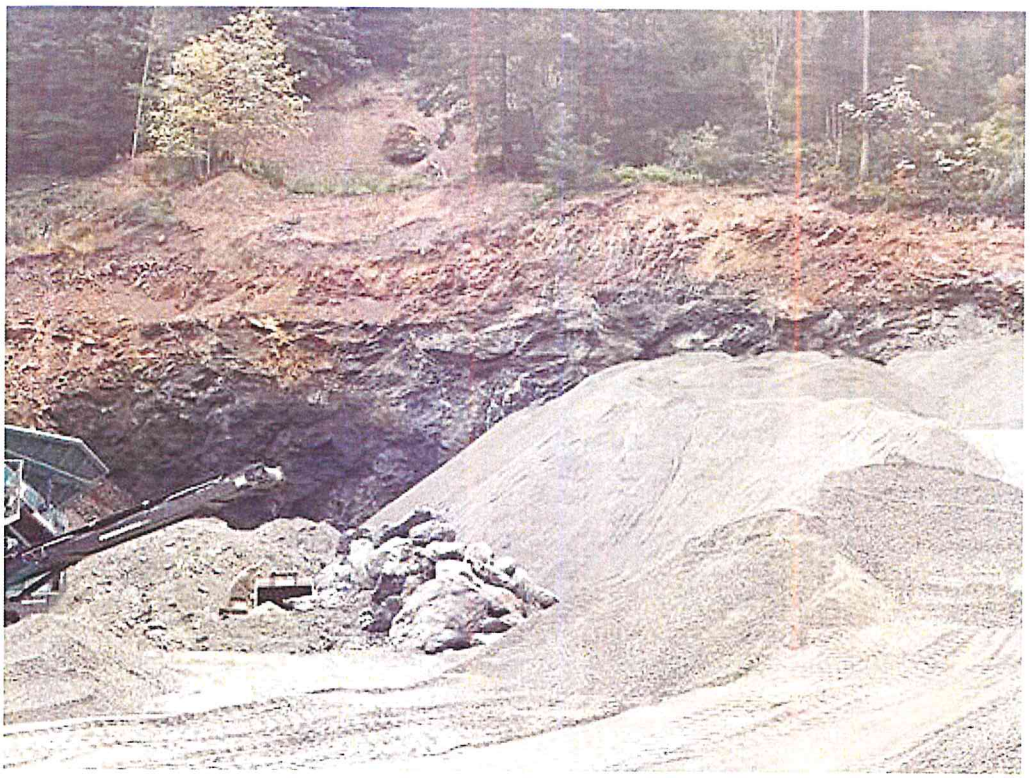
Shale - "The Oxford English Dictionary defines Shale as soft finely stratified sedimentary rock that formed from consolidated mud or clay and can be split easily into fragile slabs. Per https://geologyscience.com shale has many commercial uses. It is a source material in the ceramics industry to make brick, tile and pottery. Shale used to make pottery and building material requires little processing besides crushing and mixing with water. Shale is crushed and heated with limestone to make cement for the construction industry.

EXPLORATION

I visited the site on September 12, 2022.

Two areas are actively in use one area about 0.47 Acres on parcel number 450111003 and another of about 1.84 Acres on 450113005. In both place the overburden of soil is thin, varying from zero to five feet in thickness. Beneath the soil there is a light brown layer of rock that appears to be shale which is about three to five feet thick. Below that is a dark hard rock with veins of quartz. This is visible down to the level of the bench and clearly extends below.

Gravel Pit on Parcel 450113005



Gravel Pit on Parcel 450111003

Processed stockpiles also exist at the gravel pit on 450111003. There was ¾ minus crushed rock, 1-2 inch drain rock and 2-4 inch quarry spall. The material was clearly suitable for use in construction.

1-2 Inch Drain Rock

¾ Inch Minus

The rest of the property was walked. Much exposed bedrock was observed and photographed. A test pit was dug to bedrock in an area where the slope flattens out. The soil overburden was about 5' deep, consistent with my observations at the active work area.

Photos of Typical Exposed Rock Faces

MINERAL PROCESSING AND METALLURGICAL TESTING

Does not apply

MINERAL RESOURCE ESTIMATE

Since we are not dealing with ore of any kind that needs processing to extract a material of interest, the resource under consideration is the rock itself which is very near to the surface over most of the parcels. As shown in the figure below, the thickness of the Orcas Group is estimated in prior research to be about 10,000 feet. This indicates that from a practical standpoint the resource itself is limited only by economic and environmental factors.

SYSTEM OR SERIES	FORMATION AND GROUP	SECTION	THICKNESS	CHARACTER OF ROCKS
Recent	Colwood formation		0'-50'	Post Vashon alluvium.
Pleistocene	Vashon formation		0'-50'	Glacial till and sediments.
	Puyallup formation		0'-150	Interglacial sediments.
	Admiralty formation		0'-50'	Glacial till and sediments.
Lower Eocene	Chuckanut formation		500'±	Cross-bedded arkosic sandstone and conglomerate, with coal.
Upper Cretaceous	Nanaimo series		5000'±	Arkosic sandstone, shale, conglomerate, and coal.
Lower Cretaceous	Spieden formation		2000'±	Conglomerate, sandstone, shale, and limestone.
Upper Triassic	Haro formation		1250'±	Conglomerate, sandstone, shale, and limestone.
Permian	Leech River group		15000'±	Tuffaceous graywacke, argillite, phyllite, schist, grit, breccia, conglomerate, limestone and coal. Chiefly fresh or brackish water deposits.
Pennsylvanian				
Mississippian	Orcas group		10000'±	Thin alternating beds of cherty quartzite and argillite. Occasional limestone lenses.
Devonian				

"Table From "Geology of the San Juan Islands"

MINERAL RESERVE ESTIMATE

Though the resource itself is extensive the practical matters limiting extraction enable an estimate of probable reserves residing on the subject property.

The following estimate of probable reserves is based on the following assumptions which are consistent with the intentions of the current owners:

- On parcel 450111003 the rock will be harvested from the north and east property lines of parcel down to a bench elevation of 280 feet which corresponds to the elevation of the floor of the existing work area.
- On parcel 450113005 the rock will be harvested from all property lines to a bench elevation of 180 feet which corresponds to the elevation of the lowest existing bench.
- The work will be done by conventional surface mining techniques, the rock will be processed on site with a crusher and screener and stockpiled on site.
- All equipment will be portable and self-contained.
- The work area will work northward from the south end of the site with reclamation occurring behind the active work area as it is moved along.
- The soil overburden is not considered in the estimate.
- All rock is considered in the estimate

Estimated Reserve:

- Parcel 450111003 = 1,538,325 TN
- Parcel 450113005 = 2,265,134 TN

MCE's records indicate that its current rate of depletion from the sites varies is between 14,000 and 25,000 Tons per year. Assuming 25,000 Tons per year there are enough reserves to last approximately 150 years.

MINING METHODS

The surface mining methods that have been currently in use will continue. Rock will be blasted off the face under work and fed by loader into a self contained crusher and then graded by a portable screening machine. This will occur within a relatively small work area of three acres or less which will move along the base floor elevation of the operation (the 180' contour for parcel 450113005 and the 280' contour for parcel 450111003) over time. Processed material will be stockpiled on site within the active work area.

RECOVERY METHODS

Does not Apply. No smelting or other type of extraction is required.

PROJECT INFRASTRUCTURE

No outside utilities are needed. Access infrastructure in the form of logging roads already exist. As work progresses the logging roads will be upgraded for heavier traffic using material from the site. There is already a certified scale at the entrance to the properties.

MARKET STUDIES AND CONTRACTS

The Market – The island location of this project and the nature of the product assures that the local market is all that need be considered. I did not have time to perform a comprehensive market study, but I did have time to identify some revealing San Juan County data.

Each year Mike Carlson Enterprises alone performs at least one major public project. Below is a list of such projects performed over the last ten years and the tonnage of rock used:

- Town of Friday Harbor Blair Avenue Improvements – 4687 Tons
- San Juan County Pear Point to Turn Point Connector – 9750 Tons
- Town of Friday Harbor Tucker Avenue Phase 1 – 2765 Tons
- Town of Friday Harbor Tucker Avenue Phase 2 – 1765 Tons
- San Juan County Prune Alley Improvements – 4630 Tons
- San Juan County West Beach Road Culvert – 1615 Tons
- Town of Friday Harbor Web & A Street Improvements – 1425 Tons
- Town of Friday Harbor Water, Sewer & Storm, 2nd. to Nichols – 497 Tons
- Town of Friday Harbor Spring & 2nd Pocket Park – 125 Tons
- Town of Friday Harbor Spring Street Sewer & Storm, 1st to 2nd – 1337 Tons

So, over the last 10 years, between Town and the County public work awarded to Mike Carlson Enterprises alone 28,596 Tons was used. Assuming the ongoing nature of public work this amounts to an average annual usage of 2,860 Tons. This number does not include the County or Town's ongoing need for stockpiled material for maintenance or any rock used on projects awarded to contractors that did not purchase their rock from MCE. (Such as the Mullis Street Improvements and First Avenue Overlay, Spring to Court Street awarded to Konnerup). This number also excludes any rock used on private projects of any kind. It is safe to assume that total County market for rock is well in excess of this figure.

A look at comparative prices for rock products is also revealing. A ubiquitous product used for driveways, parking lots, roadway top course and structural fill is 5/8" minus crushed rock. Here are the current self-haul prices:

- Lawson Quarry, San Juan Island - $30.80 / Ton
- Mike Carlson Enterprises, San Juan Island - $25 / Ton
- Lopez Sand & Gravel - $51 / Ton
- Dolphin Bay, Eastsound - $16 / Ton
- Sea Island Sand & Gravel, Eastsound- $16 / Ton

On Lopez, where there is effectively only one pit, prices are highest. On Orcas and San Juan where there are competing companies, the prices are lower. It is in the County's best interests to foster competition and protect the availability of local resources.

Contracts – There are no long-term sale contracts in force. All sales are wholesale or retail to the general public.

ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Environmental Concerns - We are not aware of any existing environmental studies regarding the subject parcels. The San Juan County Polaris GIS mapping was viewed for any critical areas and indicated there were none.

Being responsible stewards of the land MCE will reclaim the mined portions of the subject parcels in the following manner:

As mining progresses and the active work area moves along, areas that are no longer to be worked will be leveled, benched and regraded with clean fill originating from job sites around the island. As areas so reclaimed approach completion they will be capped with organic soils set aside from incoming fill and re-vegetated with field grasses grown from commercially available pasture mix, either by hydro-seeding or spread beneath straw blankets. As trees begin to grow back (most likely Alder at first) they will be thinned to promote the growth of the hardiest trees and early reforestation.

Permitting – Per the operator, the mine existed before permitting was required and as such is exempt. A federal mine I.D. with MSHA exists along with a DOE storm water permit requiring monitoring and reporting of runoff water for PH and turbidity. There is also a small composting permit which requires a report annually. No DNR mining permit is required as long as the mined area remains less than 3 acres and the land is progressively reclaimed.

Social or Community Impact – There is no social impact expected because the subject properties are isolated and remote. Community impact is expected to be positive because designation as mineral resource lands will assure continued access to a critical resource and promote competition in a very tight market.

CAPITAL AND OPERATING COSTS

Crusher is normally rented one month per year. This year, cost per month was $ 46,394.85 including mobilization, fuel, setup and misc. expenses. MCE actually crushed for 135 hrs. of the month. The rest of the calculation period was for mining of the rock and screening products without crushing.

Screen Plant: MCE paid $240K for that machine and it is used about 200 hrs. per year to screen rock and topsoil. It has a 10-year lifespan with a $75K residual value after 10 years. $165K/10= $16,500/200hrs.= $82.50/hr. plus $47/hr. fuel and maint. costs. Total cost for a 200-hr. season of screening is. $25,900.00 and MCE produces about 20,000 cy of screened product so the cost per yard is $1.29/cy. The Screener requires an excavator to feed it and a wheel loader to stockpile so there are three operators:

- ZX 350 Excavator: $201.29/hr. + $62.56/hr. = $263.85 per hour x 200 hrs. = $52,770. /20,000 c.y. = $2.63/c.y. (this machine is used to dig out the shot rock and to feed the machine feeding the crusher)
- 320E Excavator: $ 128.74/hr. + $62.50/hr. = $191.85 per hour x 200 hrs. = $ 38,248./20,000 c.y. = $1.91/c.y. (sorts and feeds crusher)
- 644K Wheel Loader: $ 97.00/hr. + $62.56/hr. = $ 159.56 per hour x 200 hrs. = $ 31,912./20,000 c.y. = $1.59/c.y. (stockpiling)
- Rock Crusher: $ 343.66 x 135 = $2.32/c.y. (crushes the shot rock)
- Blasting and prep. (prep means stripping overburden trees etc.) for blasting: $ 6/c.y.
- 3 operators @ 62.56/hr for 200 hrs. each so 600 x $62.50= $37,500

ECONOMIC ANALYSIS

Cost of recovery and processing based on above is $10.48/Ton (or $14.15/ CY)

MCE Price per ton (5/8" material) is $25/ Ton

Gross Profit = $14.52 / Ton

ADJACENT PROPERTIES

The land surrounding the subject parcels is heavily wooded. Surrounding land to the East, West and South is zoned Rural Farm Forest – 5. Surrounding land to the North is zoned Agricultural Resource – 10. Many have residences. The nearest residence to an active or prospective work area is located 800 feet to the east. Properties directly adjacent the subject parcels are:

450113002 – Joann Otto, 2331 Lynn St., Bellingham, WA 98225

450113004 – Benjamin Zeiger, 116 Trevethan Hollow Road, Friday Harbor 98250

450113001 – Marie, Hamilton & Sargeson, PO Box 216, Friday Harbor 98250

450142003 – Phil Boyd, 2350 Squak Mountain Loop SW, Issaquah, WA 98027

450112006 – Martin & Carolyn Eberhard-Ttees, PO Box 1370, Friday Harbor, WA 98250

450112007 – Martin & Carolyn Eberhard-Ttees, PO Box 1370, Friday Harbor, WA 98250

450111001 – Stone, Morgan & Balcomb-Bartok Ttees, Boy Scouts of America Troop 90 Trust c/o Eric Stone III Ttee, Friday Harbor, WA 98250

450111004 – Richard Durhack, 784 Raven Ridge Road, Friday Harbor, WA 98250

450114003 – Richard Durhack, 784 Raven Ridge Road, Friday Harbor, WA 98250

450114004 – Richard Durhack, 784 Raven Ridge Road, Friday Harbor, WA 98250

450141003 – Robert Pittman, PO Box 3290, Friday Harbor, WA 98250

450142004 – Donald and Sina Boyd-Ttees, 2350 Squak Mountain Loop SW, Issaquah, WA 98027

450131002 – Jay and Amrita Ibold, 2097 West Valley Road, Friday Harbor, WA 98250

OTHER RELEVANT DATAAND INFORMATION

None

INTERPRETATION AND CONCLUSIONS

The main objective of this report was to use existing documentary, physical and experiential evidence to establish whether or not the geology, economics and expected reserves of the subject parcels meets the requirements of San Juan County Code 18.35.015 for purposes of designation as mineral resource lands.

The available geological narratives and mapping, the results of a personal site investigation and the location of the property with respect to the existing Lawson quarry confirmed that an ample resource exists.

Discussion and observation of the existing operation and intentions for future operations going forward gave the basis for a realistic estimate of reserves as defined by the SME Guide and indicate that, at current rates of extraction the resource will last about 150 years.

Company records of production, sales and operating costs as well as market conditions and rough estimate of demand confirm economic viability.

Wayne Haefele, PE concludes that the project does meet the standard set by SJC 18.35.015 as to geology and economics.

RECOMMENDATIONS

Wayne Haefele & Associates, Inc recommends that the application for designation as mineral resource lands be approved.

REFERENCES

"Geology of the San Juan Islands" by Roy Davidson McClellan, 1927

"Pre-Tertiary Geology of the San Juan Islands, Washington and Southeast Vancouver Island, British Columbia" by Brandon, Cowan, Muller and Vance, 1983