



# WESTRIDGE

## Joe Rich Quarry Information Package

An operational site plan by Westridge  
Property owned by Joe Rich Properties Ltd.

Lot 1, Highway 33 East,  
Kelowna, BC  
V1P 1H8





## OVERVIEW

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“Aggregate (sand, gravel, and quarried rock) forms the very foundation of our transportation network and built environment. We need and use the resource to continue to build sustainable communities.” – EBA Report, 2013

Westridge, started in 2005, has become a reputable and reliable name in the Okanagan aggregate industry. They built their reputation on hard work, quality products and exceptional service.

Westridge currently operates various gravel pits and rock quarries within the Okanagan, and which is soon to include the Joe Rich Quarry.

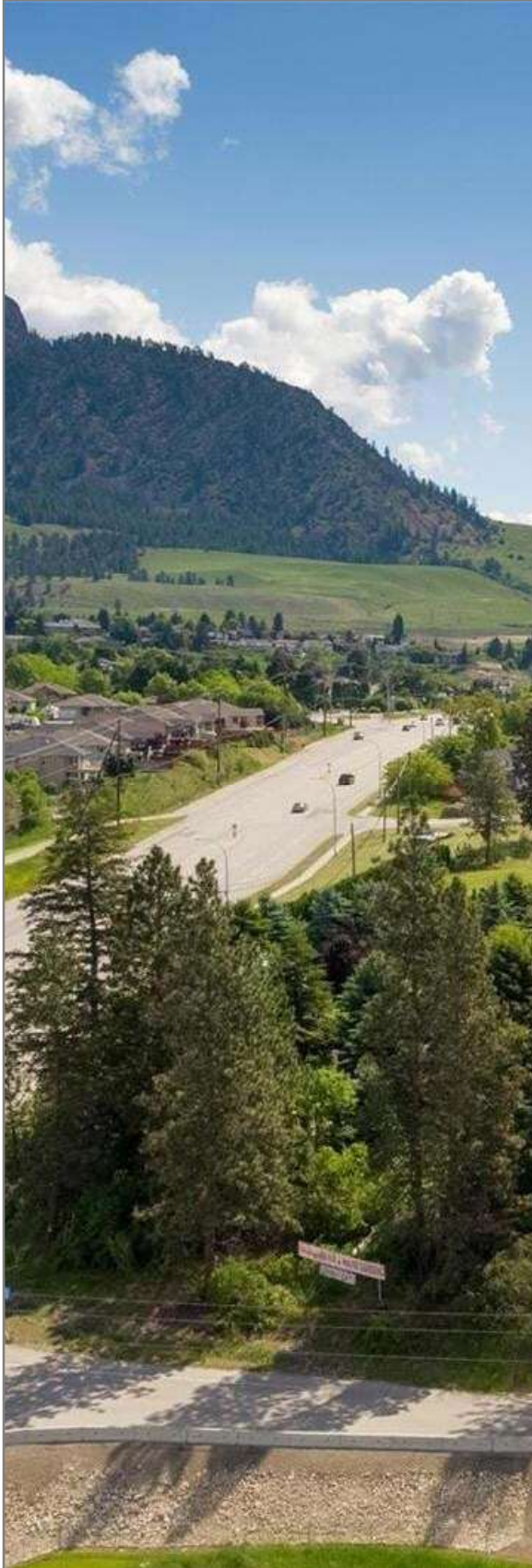
The proposal of the Joe Rich Quarry stems from the growing demand for quality, crushed aggregates, and to support economic growth within the City of Kelowna and the surrounding Regional District of Central Okanagan (RDCO)

### **Benefits of the Joe Rich Quarry**

1. Reduced distance to market
2. Reduced traffic congestion
3. Reduced wear and tear on roads
4. Reduced greenhouse gases / fuel consumption
5. Optimal location outside of major city limits
6. Quarry is not located within an environmentally sensitive area
7. End use of land will be improved

### **Potential Impacts and Mitigation Measures**

1. Noise Mitigation: Sound buffers, vegetation, neighborhood notifications, etc.
2. Dust Mitigation: Watering program, tarping of trucks, speed control, etc.
3. Traffic and Infrastructure Mitigation: Hours of operation, speed control, etc.
4. Visual Impact Mitigation: Out of site, natural vegetation, visual barrier berms, etc.
5. Environment Mitigation: Testing, remediation, frequent monitoring and consulting, etc.
6. Community Relations: Open communication, frequent updates, support, etc.



## BACKGROUND

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“The development and maintenance of our communities as we know them are dependent upon aggregate, and its extraction, processing, and transportation. Approximately two thirds of aggregate produced is used simply to maintain our current infrastructure. We need its products, such as concrete and asphalt, to build communities-” - EBA Engineering Report Okanagan

For the past 20 years, the Kelowna market has expanded substantially. New businesses, houses, roads, schools, and communities have emerged, creating the thriving economy in which we currently live. And if the past is any indication of what tomorrow may bring, there is plenty of growth yet to happen, and plenty maintaining to do.

Because aggregate forms the foundation of our infrastructure, the importance of finding adequate sand, gravel, and crushed rock sources is incredibly vital to the success and sustainability of our communities. As the EBA report shows, the RDCO has a relative abundance of natural rock resources, but not all locations are optimal. Potential aggregate zones can be sterilized because of proximity to urban/sensitive areas, incorrect zoning, and poor-quality resources.

In December of 2020, Westridge purchased the Joe Rich Quarry, located at Lot 1, Highway 33 East, Kelowna. The Quarry is on undeveloped land, adjacent to a major highway, easily accessible, near to market, in a rural area, out of sight, and holds quality rock resource; an optimal location.

The objective of the Joe Rich Quarry is to provide the Central Okanagan communities with quality aggregate, at a lower economical, social, and environmental cost than the current market has to offer.

Further details regarding the site development plan, maps, access, and regulations can be found within the Notice of Work application.

This report will provide a brief history of Westridge, a market analysis, and will addresses potential concerns with the Joe Rich Quarry, all with the aim to develop a smoother process of permitting and operations for the delivery of aggregate.



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## WHO WE ARE

Within the foundation of every home, every building, and under every new road, there is the careful placement of rock. These rocks are taken from a dedicated parcel of land, they are then crushed and screened to a certain size, then loaded, transported, and placed in the ground at their final location. The buildings in which we work, live, and play, would not still be standing if not for the solid rock foundation on which they were made.

Westridge provides the quality aggregate and rock products that are used to build our communities today.

With its inception in 2005, Westridge has become one of the most reputable and reliable names in the Okanagan aggregate industry. Starting from a small, 5-man, crushing operation out of Armstrong, Westridge built its reputation on hard work, fairness, and always providing the best in product and service.

Over the years, Westridge expanded operations to include multiple pits and quarries (listed below), supplying hundreds of thousands of tonnes of aggregate to local Okanagan businesses, homes, and municipalities. For example, Westridge has been vital in supplying aggregate for the Oyama – Winfield highway expansion, Rock Creek highway improvements, Larkin Crossing development, John Hindle roadway, Pelme wash Parkway, and many others.

Westridge currently employs over 80 employees, and countless local sub-contractors. Westridge prides itself on treating their teams with fairness, providing opportunities, and ensuring employees and contractors get home safe after every shift. Westridge believes that building into the local economy, starts with the people, not the product.

Today, Westridge expertise extends across a wide range services, including: aggregate sales and processing, transportation, land development, reclamation, and environmental protection. Westridge is known for their ability to supply rock to anyone who calls, to get the job done, treat their customers and employees well, and provide top quality products and services to the businesses that build our communities.



# OUR QUARRIES

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## NORTH EXIT QUARRY - OYAMA

In the spring of 2017, Westridge acquired the North Exit Quarry in Oyama. Within the first months of operation, Westridge made progress in improving and updating the quarry. Westridge brought the Quarry into compliance with Ministry of Mines and local Lake Country regulations, remediated the concerns of the community, improved noise, dust, and visual controls, engaged environmental engineers, and improved the operations. Westridge knew, that taking these steps, were imperative to the success of the quarry and the community.

Today it is supplying the North Kelowna and Vernon markets with aggregates. Site improvements have enabled the quarry to operate efficiently throughout the last years. A new scale and scale shack were installed, access was improved, and an operations plan was developed. Westridge has reduced noise, dust, and visual impacts through strategic contouring and berm creation within the quarry.



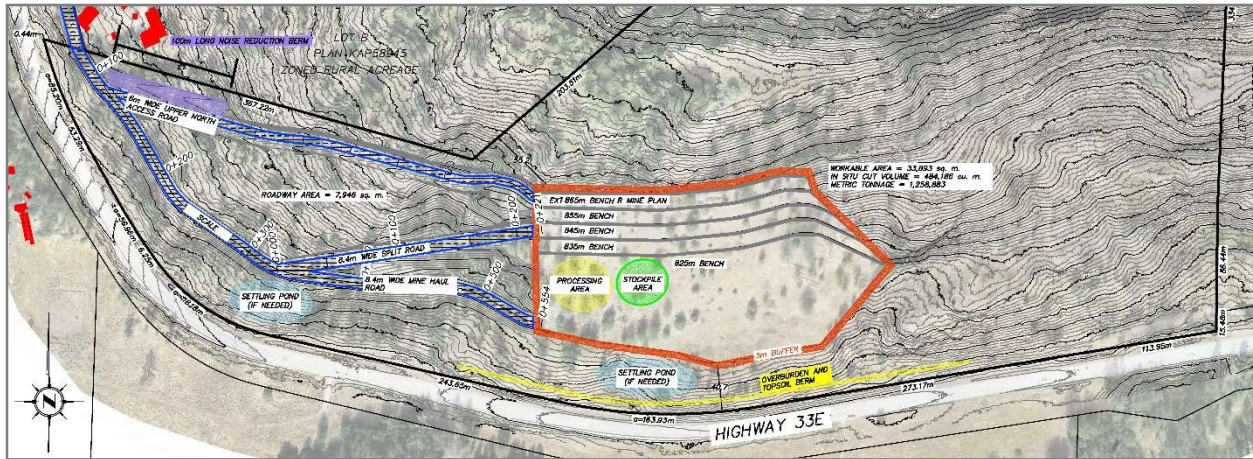
# OUR QUARRIES

## LARKIN QUARRY - VERNON

In the spring of 2011, Westridge acquired the Larkin Quarry out of Vernon, BC. Since then, Westridge has developed the property substantially. With an addition of a paved road to the highway, and the impact of dust was remedied. A strategic operations plan was rolled out, to reduce noise, dust, and environmental impacts. An improved highway access was developed, to improve safety. Landscaping was conducted to improve the visual aspect of the property. Aggregate and topsoil piles were placed along benches to reduce dust, wind, and noise impacts.

Today, the Larkin Quarry operates flawlessly, with no neighbourhood complaints or municipality concerns. According to provincial safety representatives, Larkin Quarry is within the top managed quarries within British Columbia.





## JOE RICH QUARRY

“Sand and gravel are finite, non-renewable resources that are essential in the construction of roads, railways, schools, etc., as well as for more specialized industrial uses such as sewage filtration, agriculture, erosion prevention, etc. In British Columbia there are about 2,600 active aggregate pit operations producing approximately 50 million tonnes of sand and gravel per year. This output is valued at over \$170 million annually and directly employs 4,000 to 5,000 people. However, many communities and municipalities are currently, or will shortly, experience aggregate shortages as local reserves are depleted or sterilized. Effective management of the aggregate resource represents a considerable challenge to both planners and the industry.” (BC Ministry of Energy and Mines)

### MARKET NEED

As the Okanagan expands, so does the need for aggregates. As reported in a global study by R. Clegg, second only to water, concrete is the most consumed material, with three tonnes per year used for every person in the world. Twice as much concrete is used in construction as all other building materials combined. As concrete and aggregate continue to be the foundation of our infrastructure, and demand rises, the supply becomes the cornerstone for growth.

As per the EBA Report, the population in the Central Okanagan is expected to grow at a rate of 1.52% to 2036, according to BC Stats Data. That growth rate would translate into 45,485 new residents. Kelowna’s population in the year 2030 is expected to be 161,701. Table 4 illustrates projected consumption over 20, 50 and 100 years for individual demand areas, and the RDCO as a whole, at an average consumption rate of 12 tonnes per capita, and an average growth rate of 1.5%.

**Table 4: Consumption by Area over 100 Years at 1.5% Growth Rate and 12 Tonnes per Capita**

Area	0-20 Years	21-50 Years	51-100 Years	0-100 Years Total
Kelowna	34,658,200	75,779,000	232,496,900	342,934,100
West Kelowna	9,126,600	19,955,000	61,223,900	90,305,500
Lake Country	3,459,000	7,562,900	23,203,700	34,225,600
Peachland	1,536,300	3,359,000	10,305,700	15,201,000
Electoral Areas	1,696,400	3,709,100	11,379,900	16,785,400
First Nations	2,654,500	5,804,000	17,807,100	26,265,600
<b>RDCO {Total}</b>	<b>53,131,000</b>	<b>116,169,000</b>	<b>356,417,200</b>	<b>525,717,200</b>

In today's market, the demand for aggregate will carry far into the future. For example, in August 2020, Kelowna Council proposed a roughly 20 per cent increase in the average annual transportation budget over the next twenty years. Improvements to walking/biking paths, transit, and other commuting options will increase funding for roadways by roughly half, from an average of \$12 million to \$18 million annually. Improvements like this, along with the countless other initiatives and expansion plans, need quality aggregate.

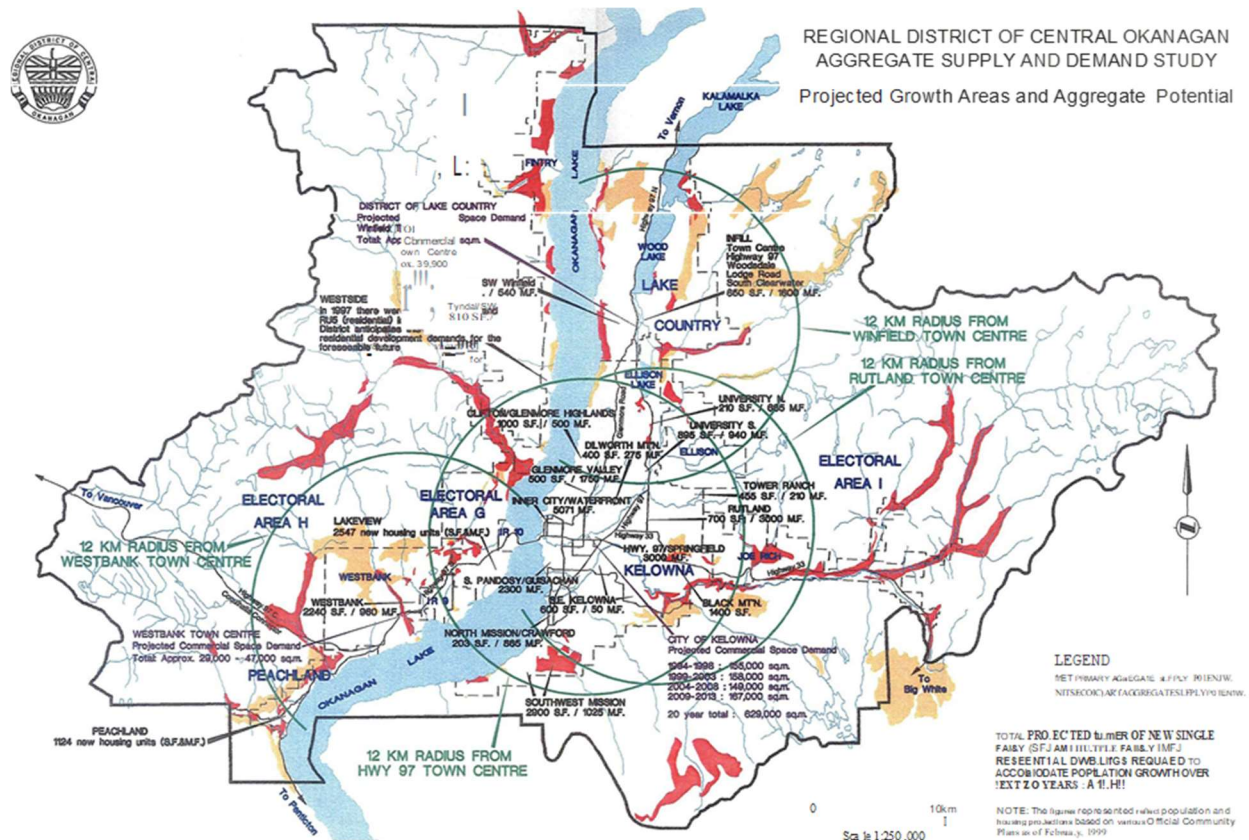
Where does the current and future market obtain its aggregate from? It looks to the lowest economical, social, and environmental cost option.

The major driving factors in reducing costs are found in optimal quarry location and impact mitigation abilities.

## BENEFITS

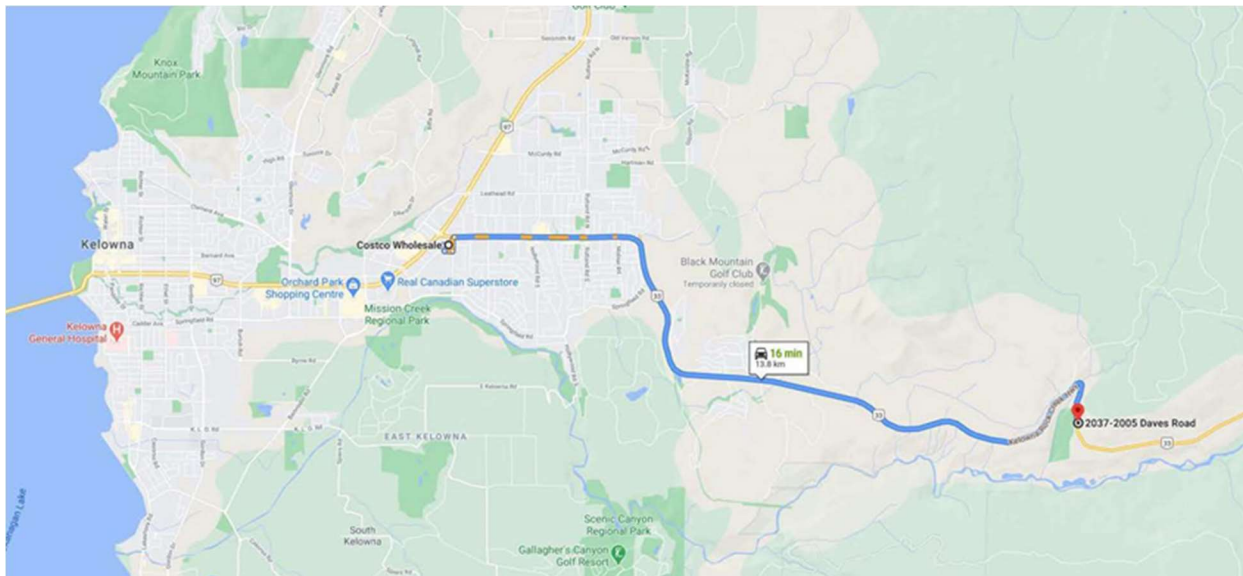
A majority of all benefits of the Joe Rich Quarry, stem from its location:

1. Distance to market is reduced, providing a lower aggregate cost for businesses and municipalities
2. Proximity to market reduces traffic congestion on major roadways
3. Highway hauling reduces wear and tear on non-arterial roads
4. Downhill haul, and short distance to market, reduces greenhouse gases / fuel consumption
5. Outside of major city limits will reduce complaints from communities
6. Quarry is not located within an environmentally sensitive area
7. End use of land will be improved





The Joe Rich Quarry is a short 16-minute drive to Costco Kelowna (13.8km), and is located outside city limits. The main haul route, illustrated below, follows Highway 33, and junctions onto Highway 97A. Coming from the Quarry, the highway follows a gradual declining grade into Kelowna.



With Joe Rich Quarry's proximity to the market, gravel truck traffic and related congestion will be significantly reduced. Currently, the market is obtaining aggregates from operations outside of city limits and across the Kelowna-Westbank bridge. This causes longer than necessary haul times and suppliers must in turn, increase the number of trucks on the road to meet the demand. For example, Larkin Quarry in Vernon is currently hauling aggregates into the Kelowna market from 59.6km away, with 2-hour return haul time. In the time that 1 load of aggregate would be delivered to Kelowna from Larkin Quarry, 2 Loads could delivered Joe Rich Quarry.

In the EBA Report, it was noted that in 2000, "the average haul distance within the RDCO was 12 km. In 2012, the average haul distance had increased to 17 km, representing a 41 percent increase in average haul distance. Over time, tonnes and kilometers, this has an impact on overall cost to projects. It reflects ultimately on the costs of new developments and through taxes, as the various levels of government consumes 60 percent of the aggregate produced in BC and funds the increased infrastructure."

With a main haul route on that of Highway 33 and Highway 97, wear and tear on non-arterial secondary roads is significantly reduced. Within the EBA Report, it is measured that allocating gravel trucking activities to highways, increases the longevity of non-arterial road networks. Keeping trucks off of these non-arterial roads is important in mitigating traffic issues and noise concerns also. Thus, the costs for the local economy to update and maintain the road network would be reduced.

A downhill haul route reduces wear and tear on equipment and the environment. It also reduces fuel consumption by heavy gravel trucks. A downhill grade, with a loaded truck, is better on the environment, compared to an uphill, loaded climb (as with the surrounding quarries in Vernon and Oyama).

Finally, the site itself is not within a restricted zone. Often, potential aggregate sources are sterilized because land is locked, restricted in zoning, and too close to urban areas. Joe Rich Quarry is not constrained by these factors, and is not in an environmentally sensitive area. End land use will improve following completion of quarry operations and reclamation, as current topography is steep, rocky, and unsuitable for agricultural activities and urban residential homes.

## IMPACT MITIGATION

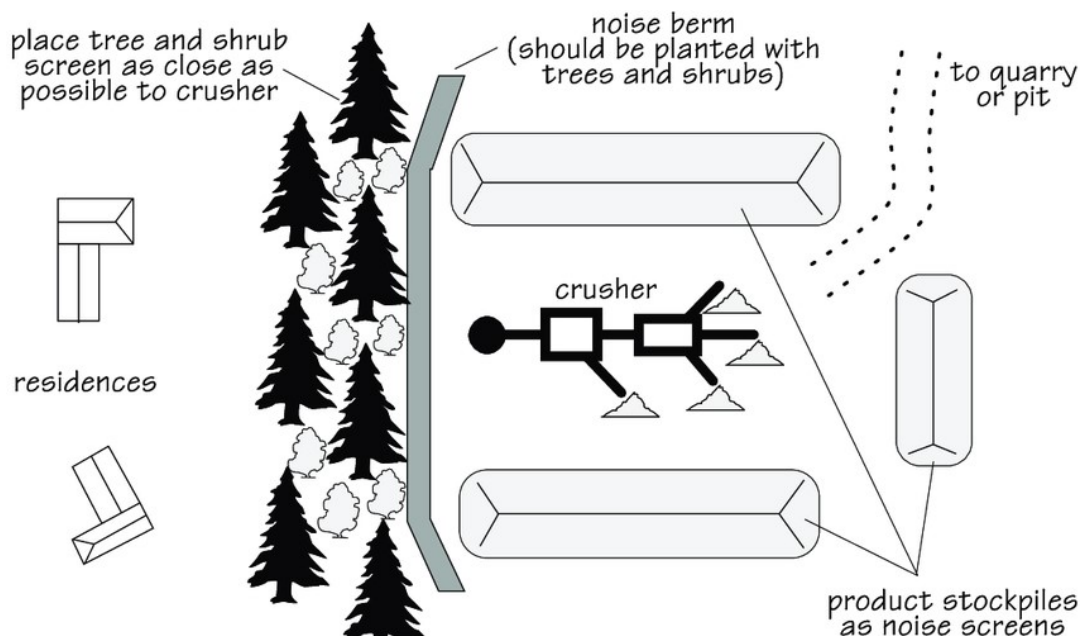
As aggregate forms the foundation of our transportation and infrastructure, we need to find ways to use the resource sustainably. Westridge believes that with a proactive planning approach, addressing community concerns, and striving to mitigate impacts, a smooth process for permitting and operating can be obtained. Common concerns with gravel and quarry operations:

1. Noise
2. Dust
3. Traffic and Infrastructure
4. Visual
5. Environment
6. Community Relations

### 1. Noise

One of the major concerns with a quarry operation is noise pollution. Noise can come from sources such as trucks, generators, loaders, screens, and other large equipment. Noise levels depend on factors such as the distance from the source, direction, and any deflection, absorption, or reflection of sound that may be present. If left unaddressed, noise pollution can cause significant noise concerns for the surrounding areas.

For Westridge, noise impacts are significantly reduced with careful operational planning, layout strategies, and monitoring. As in the below model, berms, trees, shrubs, and mining operation activities are selected to reduce sound. Vegetation, overburden and topsoil will only be stripped from the property to the extent necessary to accommodate the 5-year mine plan. Remaining vegetation will help suppress noise from the operation. Development is commencing in the lower, southern center of the property, serving to maximize distance from neighbors to the west, north and east of the property, and therefore diminish noise. As mining progresses into the hillside and the pit deepens, the pit walls will serve to deflect and diminish noise from operations. A seeded, 100m long noise reduction berm is planned to mitigate noise impacts on neighbors located to the north of the property at the west end. Seeded topsoil and overburden berms are planned for portions of the property along Highway 33, and stockpiles at the crushing site will be used to contain noise. Mufflers and low-noise back-up alarms are placed on all equipment. Likewise, surrounding neighbours will be provided 24-hour notification of any quarry blasting that may occur.





Typical noise berm/stockpile at North Exit Quarry - Oyama

## 2. Dust

Dust generated by a quarry and aggregate operation will vary depending on site conditions, weather, activity and site material. Dust becomes present when it becomes airborne, most commonly through traffic, loading, and handling. Westridge carefully mitigates dust by planning both site layout and operational procedures.

Vegetation, overburden and topsoil will be stripped from the property only to the extent necessary to accommodate the 5-year mine plan. The remaining vegetated areas will help suppress dust from the operation. Placement of berms, stockpiles and tree buffers act to create wind shadows. The location of existing trees and shrubs create wind breaks for the property, and this helps reduce dust. Likewise, dust suppressants to be applied to roads and water sprays to be used diligently on dust generating points of the operation. Trucks and traffic will be required to tarp their loads before leaving the property, and comply with highway and quarry speed limits.



Dust suppression via water truck

### 3. Traffic and Infrastructure

An aggregate operation can often generate an increased truck traffic for hauling. With the impacts on the infrastructure, there also come the impacts on traffic congestion, sound, dust, and associated noise. Traffic and infrastructure impacts will vary depending on types of trucks, distance for hauling, route planning, and time of the day.

For the Joe Rich Quarry, location plays a big role in mitigating traffic and infrastructure impacts. According to the EBR Report, it is recommended to plan for aggregate extraction as close to main roadways as possible, to reduce impacts. With a closer supply to main roadways, and to the market, it will reduce greenhouse gases, noise, neighbourhood, and infrastructure impacts. Likewise, the report stats that when hauling is designated to highways and thicker pavement structures, infrastructure costs are reduced.

As discussed in the above benefits section, with a closer proximity to the Kelowna market, haul traffic will be reduced. Currently, the Kelowna market is acquiring crushed aggregates from Westbank, Vernon, and Oyama. These distances are substantially further from the market than Joe Rich Quarry, meaning more trucks will be on the highways, sitting in traffic. With Joe Rich Quarry, less haul trucks will be required to deliver the same quantity of aggregate into town.

Nonetheless, Joe Rich Quarry will increase truck traffic on Highway 33. Westridge will take steps to reduce the impact of traffic by attending to any complaints, avoiding the overloading of haul trucks, covering loads, complying with local working hour regulations, and enforcing highway and quarry speed limits. Also, Westridge will work closely with Ministry of Transportation and RDCO to develop adequate route plans and any maintenance programs.



### 4. Visual

Visual impacts from aggregate operations depend on a variety of factors. Impacts are dependant upon site lines, proximity to urban areas, vegetation and physiology, equipment, and any alteration of landforms. Thus, every aggregate operation requires a specific approach to visual impact minimization by carefully managing site layout and operational procedures.

For the Joe Rich Quarry, visual impact mitigation is straight forward. Because the site is away from an urban development, the visual intrusiveness of the quarry is reduced. Next, the 5-year mine plan is commencing in the lower, southern, center of the property, serving to maximize distance from neighbors to the west, north and east of the property, and therefore diminish any visual impact. A visual barrier berm will be placed along the highway and the north property line. Haul roads and pit design will work in combination with the topography of the original land. Operations will occur away from any property lines, roads, or residences. Natural vegetation on the property will be maintained and utilized to buffer the site lines and noise from residences or traffic.

The ability for Westridge to mitigate visual impacts is proven at their Larkin and Oyama Quarry locations. Westridge provides a discrete and professional operation at these sites by maintaining the natural vegetation on site, keeping roads clean, landscaping key site lines, and having clean equipment, buildings, and shops. See below photos.



## 5. Environmental

“All aggregate production must be carried out in an environmentally sensitive manner. This can be accomplished through careful planning and Best Management Plan (BMP) use on the property, and through coordinating on property activities with the environmental activities of the immediate neighbouring area.”- Aggregate Operators Best Management Practice Handbook

Aggregate operations have the potential to impact the environment in many different ways. For instance, impacts such as dust, habitat loss from site development, water body contamination, runoff and changes to groundwater, and acid rock drainage. For all mines and extraction companies, federal, provincial and local legislation and guidelines are in place to safeguard against these impacts to the environment.

For Westridge, being a good steward of our environment is of utmost importance. From the first rock dropped into production, to the last piece that falls off the belt, Westridge takes great responsibility to sustainably develop the environments on which their business depends. Westridge’s Environmental Management System ensures the conduct of business happens with the utmost respect for the land they are working, as well as the surrounding area, to ensure it is managed using best practices. It is the goal to minimize the impact of the work on the environment and the public, while continually seeking ways to improve our environmental performance and systems.

At the Joe Rich Quarry, Westridge will maintain the health of the environment and improve the value of the land. Westridge has conducted an overview level environmental assessment by a Qualified Environmental Professional. This overview provides insight into any potential environmental impacts, allowing Westridge to prepare and make the necessary plans to accommodate the environmental needs. Likewise, testing has been conducted for potential acid rock generating material onsite, with a rating of null. Settling ponds are identified as a contingency plan in the event that the dry quarry site does generate enough surface run off to require settling ponds to intercept any turbid water. Ponds will be excavated with a dyke on the downhill side and lined with a semi-permeable material.

Westridge will continue to assess the environmental impact of operations and pursue ways to improve environmental performance, safety, and efficiency, across their company.



## 6. Community Relations

Westridge understands that potential impacts of an aggregate operation can seem numerous. The mentality of, “not in my backyard,” may arise quickly within the community. The thoughts of noise, dust, environment, visual impacts, and traffic concerns can appear insurmountable. However, with proper mitigation measures, active dialogue, open communication, and proactive planning within the community, solutions can be found.

For Westridge, obtaining the support of the local community is paramount for success. For Westridge, a good relationship starts with open communication and cooperation. Westridge will seek out active conversations with local residences, to listen to their thoughts, and find ways to improve. Updates will be provided to the community, advising on progress, major changes, or requesting community input. Westridge will work to support the local community, to actively contribute, to hold community meetings, open days for the general public, and seek ways to provide materials and resources to benefit the community.

In the end, it is the goal of Westridge to work hard in reducing the impact on people, communities, and the environment.