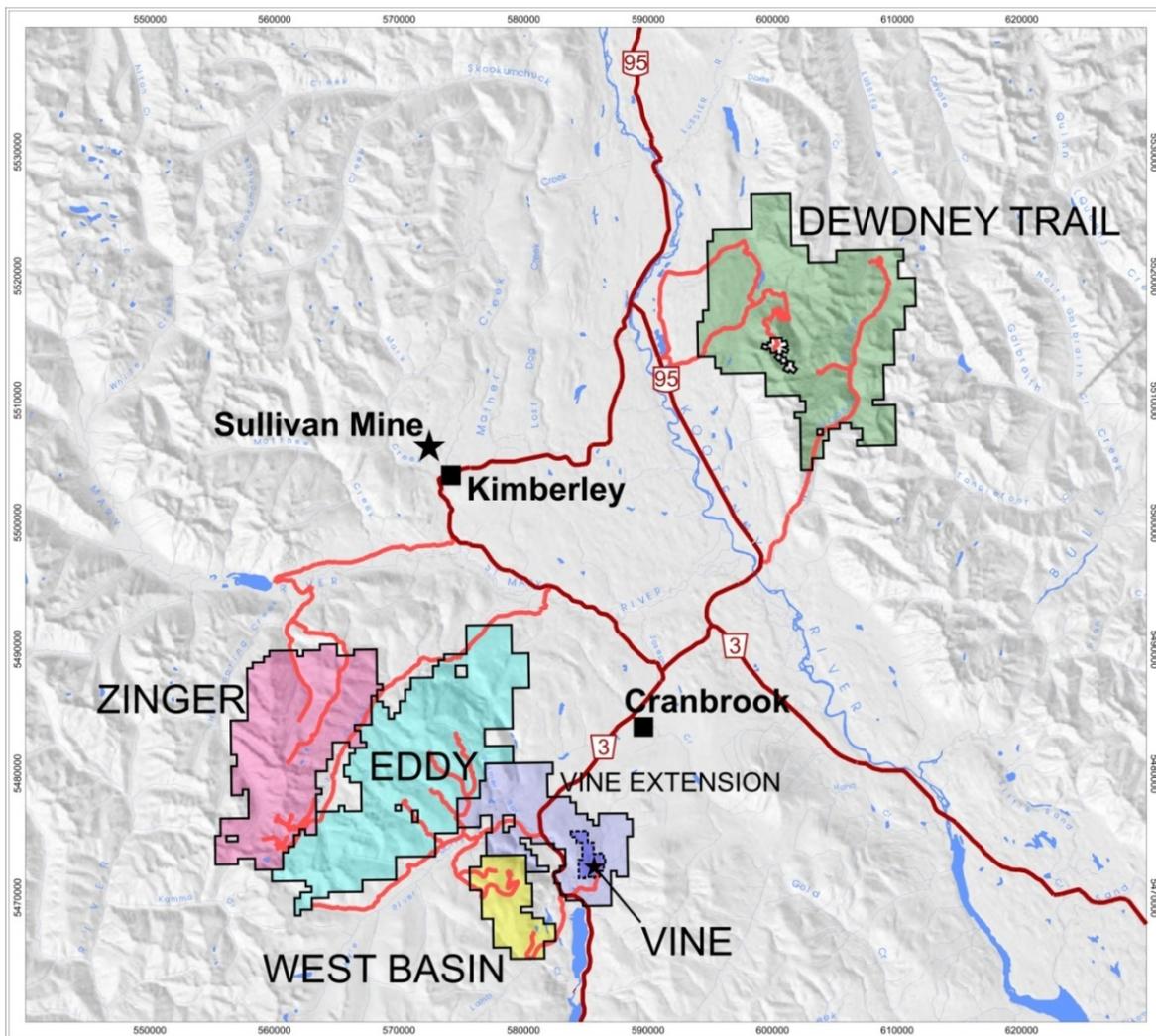


# The Vine-Vine Extension and West Basin Properties: massive sulphide targets in southern British Columbia

## PJX Resources Inc.

(by Dr. Trygve Hoy, P.Eng.)

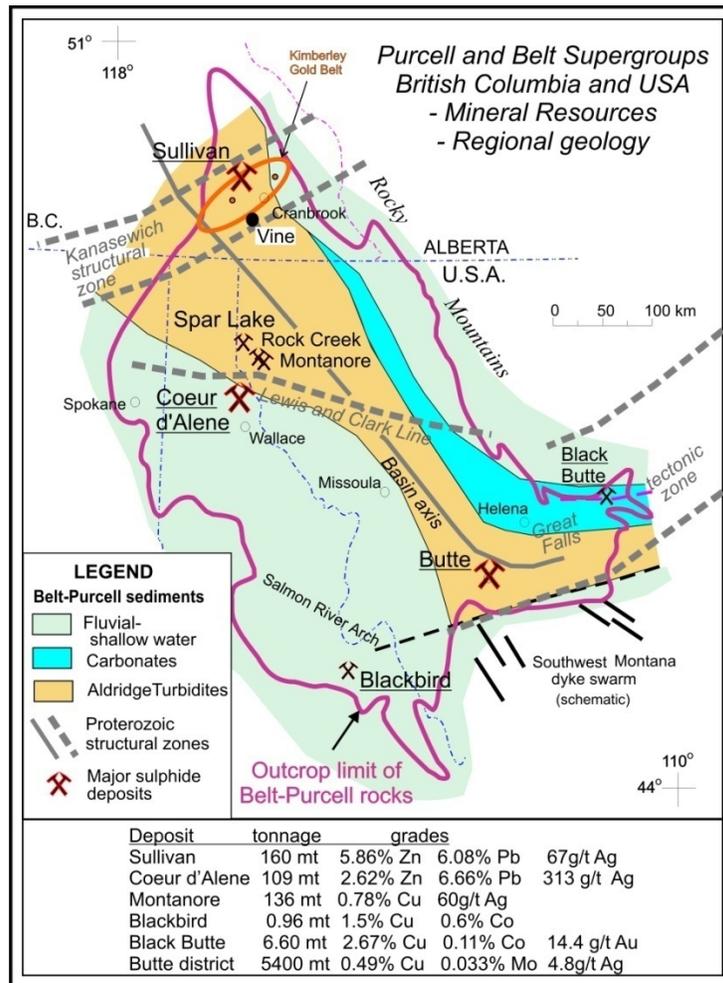
The Vine-Vine Extension (Vine) property and West Basin property, owned by PJX Resources Inc., are located in the Purcell Mountains of southeastern British Columbia, approximately 40 km south of the historical Sullivan mine that produced more than \$40 billion worth of base and precious metals (at 2013 metal prices) from a world-class sedex (sedimentary-exhalite) massive sulphide deposit. Mineral occurrences on the properties include several vein deposits, including the Fors sedex deposit and the Vine vein with a published resource estimate. However, the primary objective of the exploration program by PJX Resources is a massive sulphide target, suggested by a positive gravity anomaly within Proterozoic-age Aldridge Formation rocks that correlate with those that host the Sullivan deposit.



*Location of PJX Resources mineral claims, Purcell and Rocky Mountains, southeastern B.C.*

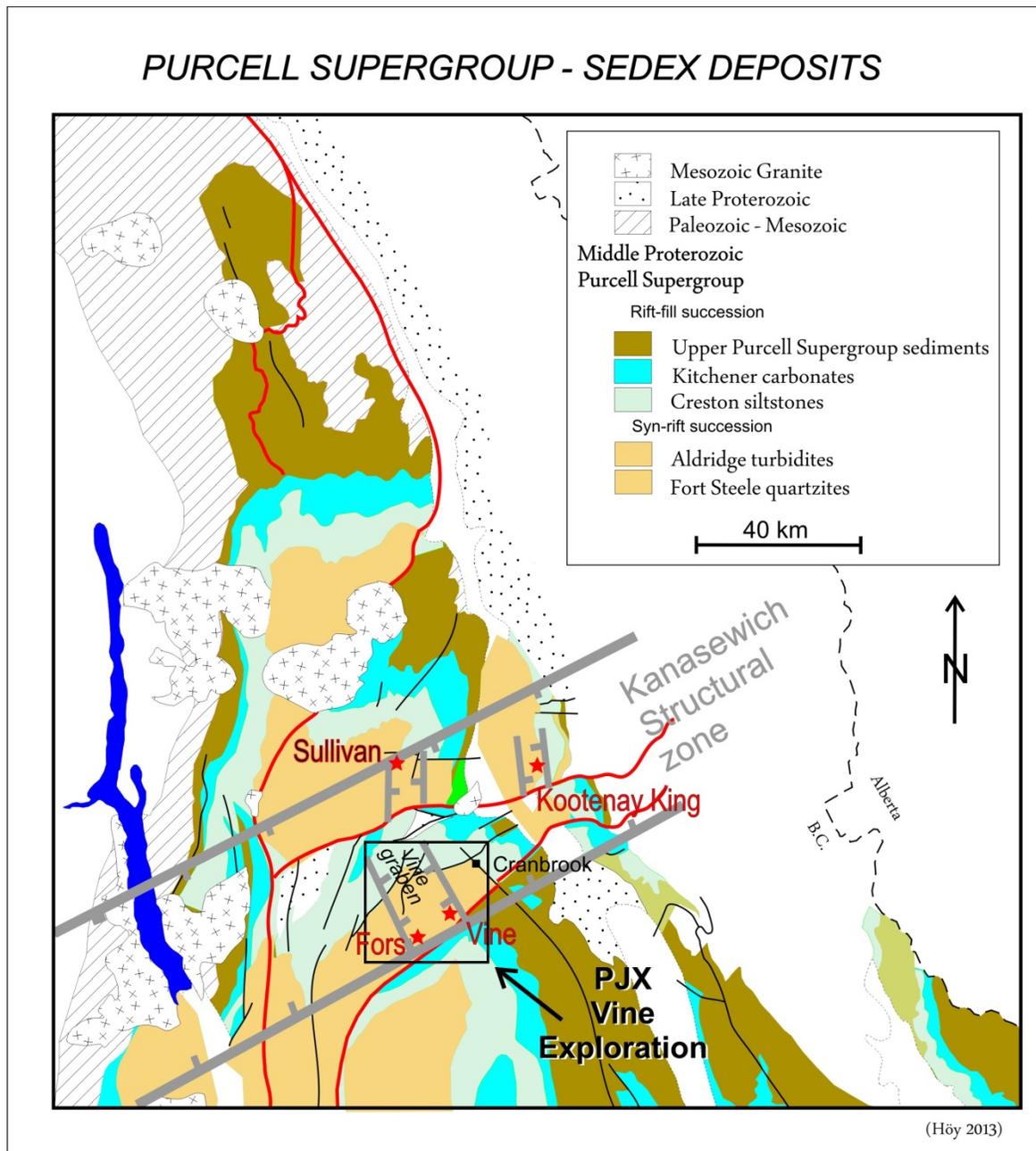
## Local and Regional -Geology and Mineralization

The Sullivan Mine and the Vine and West Basin properties are underlain by a thick succession of sedimentary rocks that extend south-eastward into Idaho and Montana. This belt of rocks, referred to as the Purcell (Canada) or Belt (USA) Supergroup, comprises mainly sandstones (turbidites) and siltstones of the Aldridge Formation intruded by laterally extensive gabbroic sills that were deposited in an extensional rift environment in middle Proterozoic time. The syn-rift Aldridge Formations hosts the Sullivan deposit but also contains considerable exhalite (sedex) mineralization at a number of other stratigraphic horizons with similar lithologies to the Sullivan horizon. The Aldridge Formation is overlain by shallow water rift-fillrocks, including carbonates, thin bedded quartzites and siltstones and rare subaerial mafic volcanics. This overlying succession contains a variety of mineral deposits, including the silver-copper deposits of the Spar Lake district, lead-zinc-silver veins of Coeur d'Alene and copper-cobalt deposits of Black Butte (Sheep Creek) and Blackbird. In Canada, the Kimberley Gold Belt is within both syn-rift facies of the Aldridge Formation and overlying cover rocks of the Creston Formation.



*Distribution of Belt/Purcell Supergroup rocks in B.C and U.S.A, showing Proterozoic tectonic elements and location of major deposits or camps (after Lydon, 2001; Höy et al., 2001)*

Dominant controls to mineralization within Belt-Purcell rocks are broad generally west-southwest trending structural or tectonic zones that reflect underlying Archean basement structures. These zones were reactivated repeatedly through geological time and played a role in the distribution of sedimentary facies, including those in the Belt-Purcell basin, late Proterozoic Windermere sedimentary rocks, granitic intrusions, thrust faulting during the Laramide orogeny and the distribution and abundance of mineral deposits that range in age from the middle Proterozoic Sullivan deposit to late Mesozoic (Cretaceous) gold deposits.



*Geological map of the Purcell Supergroup, showing Proterozoic-age structures and fault-bounded basins (grabens) and location of the Vine exploration target.*

The Kanasewich structural zone (see maps above), extends south-westward across the Purcell Mountains into the southern Kootenay arc in the Salmo-Rosslund area of southeastern British Columbia. It coincides approximately with the western extension of an Achaean basement structure, referred to as the Vulcan structure, that separates two cratonic blocks of the Canadian Shield. The Kanasewich zone delineates one of the more prominent metallogenic belts in British Columbia that includes deposits such as the Sullivan mine, lead-zinc replacement deposits in the Kootenay Arc, the Rosslund gold-copper camp, the Pend O'Reille lead-zinc camp, and gold deposits in the Sheep Creek camp. In addition, the Kimberley Gold Belt, containing placer gold in Wild Horse Creek, Moyie River and Perry Creek, and gold mineralization in bedrock on PJX Resources' Dewdney Trail and Zinger Properties, are within the belt.

### **The Target: a massive sulphide sedex deposit**

Lead-zinc-silver massive sulphide or sedex deposits were deposited on or near the ocean floor, in basins that generally formed during periods of regional extension. The middle Proterozoic Sullivan deposit, one of the largest sedex deposits known, is characteristic of these deposits. It comprises a central zone of dense massive sulphides of zinc, lead and iron with a variety of other metals, most notably silver, surrounded by more distal finely layered or disseminated mineralization. It is underlain by a stringer zone comprising dominantly vein mineralization that is inferred to represent the conduit for upwelling metal bearing fluids that exhaled on to the seafloor.

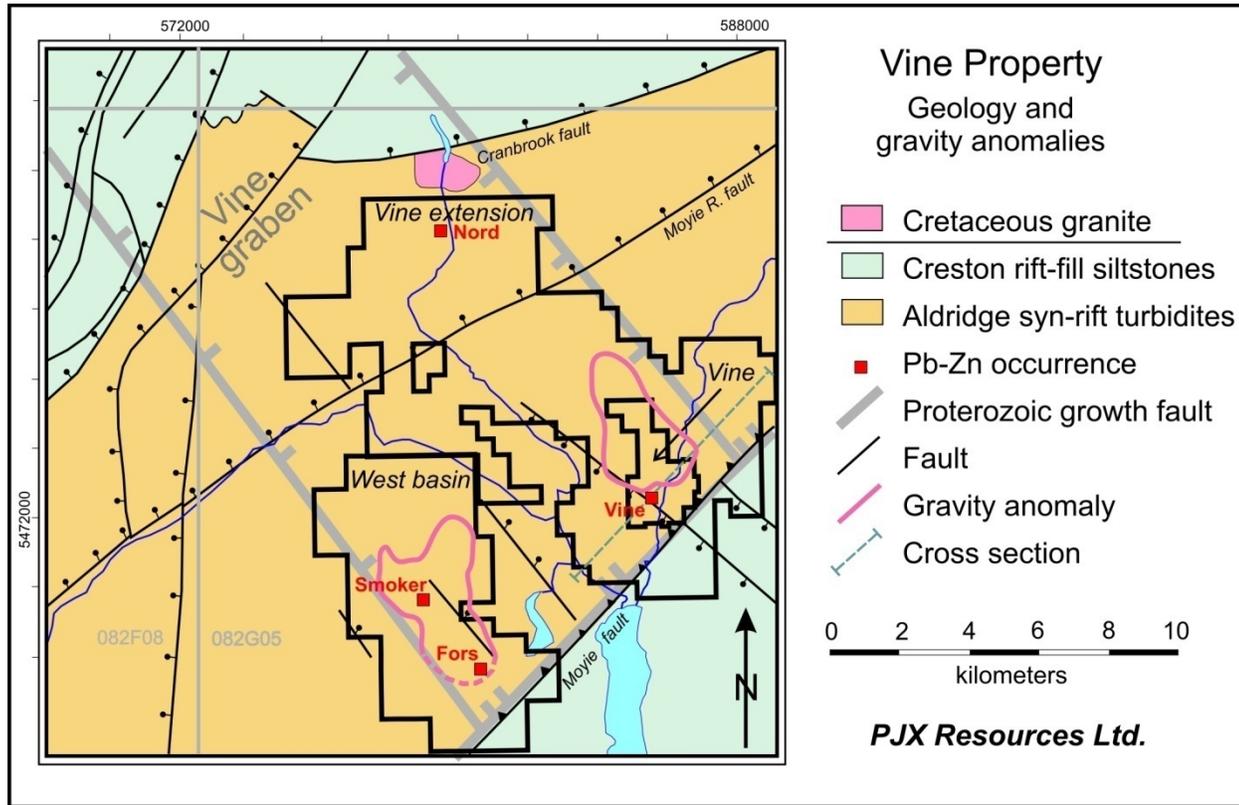
Sedex deposits typically occur in small structural basins, commonly bounded by faults, and recognition of these basins in the geological history is an important tool for their exploration. The setting of the Vine and West basin areas of PJX Resources has many similarities to the structural basin that hosts Sullivan. Both occur near the intersection of easterly trending faults with more northerly faults, and in both areas detailed geological mapping has recognized that these bounding faults date back to Proterozoic time. Disrupted bedding and massive fragmental units or conglomerates within these zones are compelling evidence of faulting during sedimentation and coincident mineralization. As well, intense alteration can locally occur as upwelling hydrothermal fluids, commonly channelled by faults, react with host rocks.

The Aldridge Formation, host to the Sullivan deposit, has been intruded by laterally extensive gabbro sills. These are inferred to have intruded during Aldridge time and may have provided a necessary heat source to drive metal bearing hydrothermal fluids through fault-generated fractures to eventually exhale as metal accumulations on the seafloor. These sills, referred to as the Moyie intrusions, typically extend for tens of kilometers along a single stratigraphic horizon. Within the Purcell basin, they occasionally cross-cut stratigraphy as dykes, generally along major Proterozoic-age faults. One of the best documented gabbroic dykes occurs at the Sullivan deposit where a 150-200 m Moyie intrusion more than 500 m below the deposit forms an arch structure by cutting up-section near the margins of the deposit and the host structural basin, extending to the level of the deposit, then plunging down section to again form a sill like body.

Sedex deposits are very attractive exploration targets, due in large part to their form and shape as massive deposits of metallic sulphides. As they formed during sedimentation, exploration for them is directed initially to locating a favourable stratigraphic and structural setting – a small structural basin, bounded by faults, in an area of enhanced heat flow. Sub-surface exploration typically includes both magnetic and conductance studies, and because of the concentration of dense sulphides, gravity studies. Exploration by

PJX Resources Inc. in the Vine and West basin areas have recognized the existence of a Proterozoic age structural basin, sedex style mineralization at both the Sullivan horizon and an underlying horizon – the base of the footwall quartzite – and perhaps most important, two prominent gravity anomalies within the basin.

### Exploration Potential

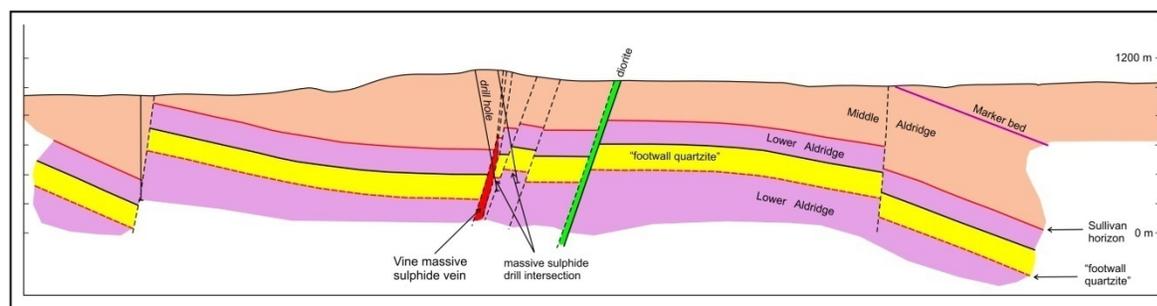


*Map of the Vine Graben area*

Recent exploration by PJX Resources Inc. for massive sulphide sedex mineralization has focused in the Vine to West Basin area located along the southern margin of the Kanasewich zone (see “Geological map of the Purcell Supergroup” and “Map of the Vine Graben area” above). The area is immediately north of the Moyie fault, a northeast-trending structure that parallels the Kanasewich zone and has a history of movement that can be documented to middle Proterozoic time during deposition of the Aldridge Formation and the Sullivan deposit. Furthermore, the Vine to West Basin area is within a small north-trending structural graben or basin, similar in size and characteristics to the Sullivan graben, and known to be an important control for localizing sedex mineralization. Several mineralizing horizons are recognized within these basins during Aldridge time, including the Sullivan horizon that hosts the Sullivan deposit and the base of a prominent quartzitic unit, the “footwall quartzite”, that underlies the Sullivan horizon. These horizons developed during times of periodic extension and are marked by a sudden increase in coarse sedimentation, deepening of the basin, and deposition of sulphide mineralization. Sedex style mineralization has been recognized on the Vine property by previous drilling that intersected massive

sulphide mineralization at the base of the “footwall quartzite” while drilling to define the Vine massive sulphide vein mineralization.

Current exploration by PJX has identified a significant gravity anomaly, indicative of high density rock that could be related to dense massive sulphides. The anomaly is centered immediately east of the Vine vein system (see “Map of Vine Graben area” above). The anomaly trends north-northwesterly, within and parallel to the trend of the Vine graben and to several parallel extensional or growth faults. It is restricted to the south by the Moyie fault. The anomaly is 3-4 km in length and approximately 2 km in width. It is inferred to be sourced at a level represented by the “footwall quartzite” where 2 historical drill holes intersected massive sulphides with lead, zinc and silver mineralization (see section below). These were the only holes to have drilled to the “footwall quartzite” depth within the gravity anomaly area. A second gravity anomaly, located 6 km southwest of the Vine anomaly, occurs under the West Basin property on the western side of the Vine graben (see map above). The West Basin Property contains two known lead-zinc occurrences, the Fors massive sulphide and Smoker vent breccia with sulphides.



*Schematic section through the Vine property area; location is shown on Vine property map (from Pighin, personal communication)*

In summary, the Vine and West Basin area has potential for discovery of a significant lead-zinc-silver sedex deposit. The area is within a highly favourable structural and metallogenic belt, has characteristics and controls that are similar to those in the Sullivan camp area, has known Proterozoic-age lead-zinc-silver mineralization, and a prominent geophysical target. Future exploration should be directed to mainly defining more rigorously the gravity geophysical anomaly and systematic diamond drilling to test the “footwall quartzite” horizon as well as the overlying Sullivan horizon.

### **Sources of data**

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