Ministry of Transportation and Infrastructure

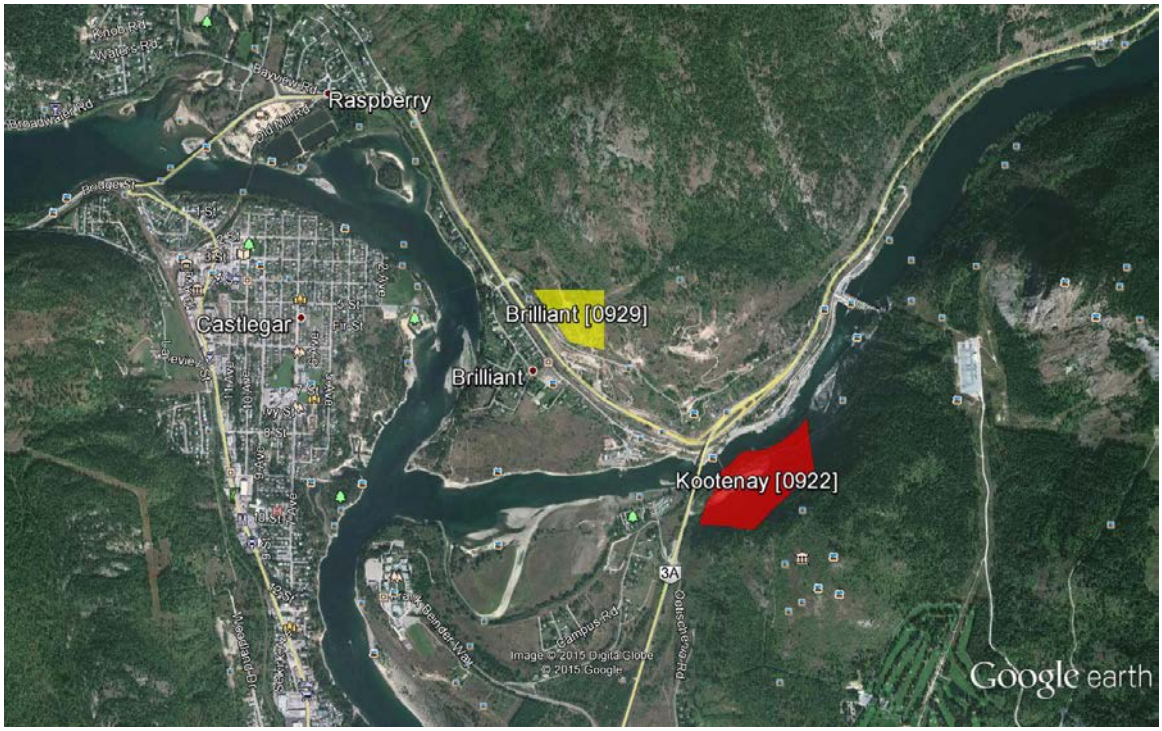
Geotechnical and Materials Engineering

Southern Interior Region
447 Columbia Street
Kamloops, BC V2C-2T3
Telephone: (250) 371-3968
Fax: (250) 828-4083

Kootenay Quarry No. 0922

2017 Technical Information Report

Location: Located near the Brilliant interchange and Brilliant Bridge, adjacent to the Kootenay River and Highway 3A.



Legal Description: The pit is legally described as part of SL 67 of DL 4598, K.D., Plan X35. The pit is held by a Crown Land Act Section 16 Map Reserve in the name of the Ministry of Transportation and Infrastructure. UTM coordinates for the pit are Grid Zone 11, 5462850 Northing, and 454400 Easting.

Gradation: Material within the mining and stockpile area of Kootenay Quarry is comprised of material hauled in from the Brilliant Dam expansion project. The mining area was tested in 2010, however; has been mined fairly extensively since then. The average and range of material that is anticipated to be contained within the mining area is as follows:

Laboratory Samples 2010

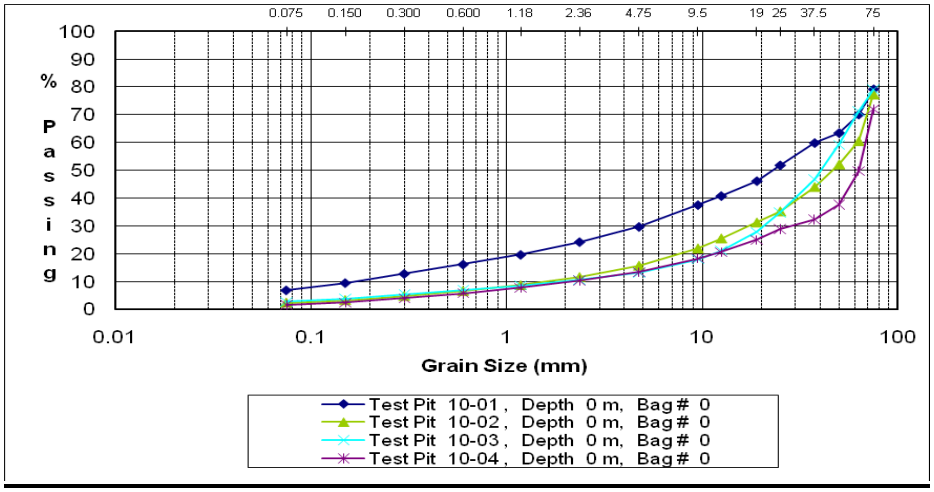
Classification:	Average (%)	Range (%)
Gravel (4.75-75mm)	81.0	70.3-86.8
Sand (0.075-4.75mm)	14.9	10.5-22.8
Fines (<0.075mm)	4.1	1.6-6.9

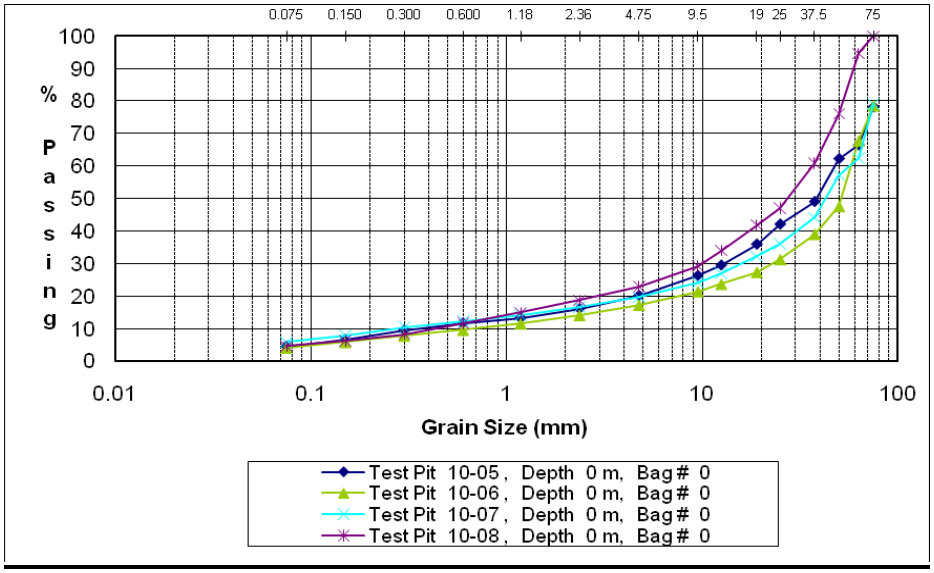
Oversize Field Estimates

Classification:	Average (%)	Range %
Cobbles (75-150mm)	17.5	10-20
Cobbles (150-375mm)	14.7	5-20
Boulders (+375mm)	3.6	1-6

The maximum size rock observed was 2500mm.

Aggregate Gradation Charts:





Aggregate Quality: A summary of aggregate quality tests performed on samples obtained from the quarry are as follows:

Test	Average	Range
Micro Deval	8.20	5.85-10.54
Sand Equivalent	69.07	64.04-74.09
Bulk Relative Density (Coarse)	2.665	2.660-2.669
Bulk Relative Density (Fine)	2.677	2.671-2.683
Absorption (Coarse)	0.95	0.91-0.98
Absorption (Fine)	0.70	0.63-0.76

Granular Volume:

Estimated Volume: 20,000 m^3

Pit Development and Recommendations:

- The crusher is recommended to be located at the base of the upper bench south of Test Pit 10-05 with mining proceeding in a northeasterly direction.
- Due to the large amount of oversize rock present a primary crusher is required.
- Processed aggregate may be stockpiled to the southwest of the crusher location. It should be noted that the available stockpile area is limited in size.
- A 2 metre shoulder is to be maintained along the northern edge of the Brilliant Power House access road. The back slope off the access road down to the pit floor shall be a minimum of 2:1.
- During crushing it is recommended no post guardrails or rock berm be installed along the edge of the access road adjacent to the mining area.
- At the completion of mining, all slopes shall be trimmed to a minimum slope of 1.5:1 with native granular material. **Reject material from aggregate production is not be used to slope or infill pit faces without the prior approval of the Ministry Gravel Resource Manager.**

Pit Photographs:

From mining area looking towards Crusher site

Samantha Kinniburgh
Senior Aggregate Resource Specialist