

Colliery Dam Update – 2016-Feb-15

Construction of the Lower Colliery Dam Auxiliary Spillway commenced in September 2015 and is scheduled to be completed in April 2016. Construction of the spillway is being undertaken by Copcan Civil Ltd of Nanaimo, following award of contract to Copcan 2015-Sep-03.

Copcan Civil Ltd was the successful bidder for a cost plus contract for the construction. Payment is based on actual work performed based on the following:

| | |
|-----------------|----------------------------------------------------------|
| Labour: | Paid at hourly rates provided. No additional markup. |
| Equipment: | Paid at Blue Book Equipment Rates. No additional markup. |
| Materials: | Paid at actual cost proven by invoice plus 10%. |
| Subcontractors: | Paid at actual cost proven by invoice plus 10%. |

Any purchase over \$25,000 is reviewed by the City and typically procured with Copcan issuing an invitational tender.

Copcan used Nanaimo/Island based companies for the majority of subcontracts and material supply. As of 2015-Dec, only two lower mainland companies were used. One was a specialty bridge material supplier and the other was the secant pile wall subcontractor who was the lowest price on a competitive bid process that included an Island based company.

Engineering design and supervision of the spillway is being undertaken by Golder Associates. The City retained Herold Engineering to provide structural design, field review and survey services. Golder and Herold commenced design of the spillway 2015-Jul-21.

Due to the limited timeframe to construct the spillway, Golder's design and Copcan's construction has proceeded in various phases, as detailed design drawings/specifications were developed while construction was underway. As the design was not completed prior to construction starting, actual design and construction costs were undetermined, and were estimated in the range of \$2.8 - 4.6 million. For budgeting purposes, the City allocated \$4.2 million for the project. If the budget exceeds \$4.2 million, as projected, staff will provide a report to Council with options to address the shortfall.

The City now has costs of the project to 2015-Dec-31 and has worked with engineers and contractors to estimate remaining costs to the completion of the project.

Cost to 2015-Dec-31, remaining estimated costs, and total estimated costs are documented in the table attached. Engineering costs are considerably higher than the original estimate. Costs increased due to engineering supervision/environmental monitoring during the seven month construction schedule and additional engineering/consultant analysis relating to site conditions noted below.

- Subcontractor drilling/soil testing
- Over excavation due to weak soils
- Temporary bridge/creek mitigation
- Secant wall design/supervision
- Harewood Creek hydrology review
- Lower reservoir protective boom
- Landscape architecture
- Environmental permits/reporting
- Phased design/reporting to DSS
- Seismic monitoring of Lower Dam core holes
- Emergency fuse plug removal

Next Steps

Cost estimates will be updated monthly and placed on the Colliery Dam website until work is completed. When the precast concrete bridge over the Auxiliary Spillway is complete and handrails are installed, a schedule for reopening the trail will be published. Final landscaping installation will extend into the spring, pending completion of the design, weather, contracting, etc. Once the Auxiliary Spillway is completed and operational, flood warning signage will be removed from the area below the Colliery Dams.

Overall Project Costs

| Design/Construction | Cost to 2015-Dec-31 | Estimated Cost to Completion | Estimated Total Cost |
|--------------------------------------|----------------------------|-------------------------------------|-----------------------------|
| Golder – Geotechnical Design | \$549,004 | \$114,500 | \$663,504 |
| Golder – Geotechnical Field Services | \$175,344 | \$142,609 | \$317,953 |
| Allowance – Seismic Monitoring | - | \$50,000 | \$50,000 |
| Herold – Structural Design | \$125,972 | \$9,028 | \$135,000 |
| Herold – Structural Field Services | \$5,453 | \$10,425 | \$15,878 |
| Herold – Survey | \$17,396 | \$2,604 | \$20,000 |
| Copcan - Construction | \$1,325,936 | \$1,801,564 | \$3,127,500 |
| Allowance – Landscaping | - | \$190,000 | \$190,000 |
| Other | \$22,472 | \$3,292 | \$25,764 |
| Totals | \$2,221,576 | \$2,324,023 | \$4,545,599 |