YCS Holdings Ltd. (dba Pittman Asphalt)

August 6, 2016

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Re: Management Plan for a License of Occupation Application – Dog Creek Aggregate Project

YCS Holdings Ltd. (dba Pittman Asphalt) **(YCS)** has developed the following Management Plan to accompany its License of Occupation (LoO) Application – Tracking No. 100172929, for the above noted project.

Section A – Project Overview

The project as proposed is a long-term development of a sand and gravel (aggregate) operation by YCS on a fairly flat area of ~ 6.1 ha more or less of un-surveyed crown land in the vicinity of Dog Creek. The plan for the parcel will be for development of a long-term (20 year) aggregate extraction operation by YCS, in which approximately 25,000m^3 per year will be extracted starting in April 2017. An "initial" mining area of ~3.0 ha will be developed over the time period of 2017 to 2021. For further details on the project can be found in the recently submitted **Notice of Work Application – Mine Plan Development Report, August 2016,** which has a Tracking No. 100172931.

The LoO Application will require clearing (logging) of both older and second growth forest for mining and storage of topsoil, mineral soil, overburden and saleable products. During development, a 5 meter buffer will remain between the LoO boundary and other portions of adjoining crown land. A point of reference (SE corner of LoO boundary) is at UTM (10U) 416775E and 6014621N (Figure 2). The land within LoO boundary (red outline) application is located ~19.9 km from the south of the center of Ft. St. James by going along Hwy 27 to the Dog Creek FSR, and then go ~1.5 km to the operating pit area (Figure 1).

It is anticipated that all mining and development activities will comply with the *Mines Act* and Health Safety and Reclamation Code for Mines in BC, 2008 (Code). To this end, YCS has applied to the Ministry of Energy and Mines (MEM) for a *Mines Act* permit for the mining (extraction) operation, as noted above.

The operational intent will be to locate equipment to the site during the work (summer) season (April to end of November).

The aggregate extraction project is expected to be developed in an environmentally sensitive manner, and YCS proposes to accomplish this by implementing plans, utilizing technology and using industry standard "best management practices" (BMP's) such as following the guidelines set forth by the "*Aggregate Operators Best Management Practices Handbook for British Columbia (April, 2002)"*

http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/permitting/agg_bmp_hb_2002vol1.pdf

The company's objections will always be to either eliminate and/or minimize potential environment impacts associated with the project. It is expected that standard BMP's for sediment and erosion control procedures for aggregate operations in BC will be more than adequate for this particular site.

Section B – Project Description

Part I – Description of Work

The site will be operated by YCS Holdings Ltd. (dba Pittman Asphalt) who has several decades of aggregate operational experience within the Prince George area.

The area of the proposed development is on un-surveyed crown land and is within the immediate vicinity of other aggregate extraction operations, which have been actively operated over the past several decades. The potential for aggregate materials from this particular site are based on a recent investigative test pit program and other adjoining aggregate operations.

The *Mines Act – Notice of Work Application* which has been submitted provides additional details on all required information pertaining to the pit development that is located within the boundaries of the parcel (red outline) shown on Figure 2.

It should be noted that initial extraction (mining) area will have a maximum height of seven (7) meters, which will be in compliance with Part 6.23.4 of the Code. Following development of the initial area, the mining faces will be reduced to a maximum height of three (3) meters within the final development area. On completion of mining, the pit faces will be resloped to a 2:1 slope angle and resurfaced with stockpiled soils. As noted in Figure 2, with stockpiles of product and topsoil/mineral soil, it is expected that a majority of the 6.1 ha LoO area will be utilized in some form during operations.

The mining and pit operations will be seasonal between April and the end of November, with activities driven by demand for the final products. The first year of operations will involve clearing the site for establishment of appropriate operating areas.

The aggregate extraction configuration will be capable of utilizing conventional mining equipment, and given that this project is a simple operation, there will be no waste rock dumps, no (milling) processing facility or any tailings facility, and no washing of materials; therefore the required engineering evaluations are limited for the project.

There will not be a requirement for an *Environmental Management Act* – Effluent Permit, as the project is not anticipated to have any effluent discharge. The control of TSS and turbidity of any contact surface waters will be achieved through use of erosion and sediment control measures such as sediment ponds, silt fencing and straw (hay) bales. The site will have in place a sediment and erosion control BMP, which will be submitted as part of the *Mines Act* permit application.

This particular development is not expected to have any environmental or socio-community impacts given its relativity small size.

The project will be developed in an environmentally sensitive manner, and YCS proposes to accomplish this by implementing plans, utilizing technology and using industry standard “best management practices” (BMP’s) in order to either eliminate or minimize any environmental impacts that might occur from the operational areas.

Part II - Present State of Land

- There is no known local government zoning for this particular area of interest.
- The current and end land use for the area is wildlife/forestry.
- The topography of the site is gentle, and
- The site is dry and there are no watercourses that will be affected by the investigation.

The project site is located within the Stuart Dry Warm Sub-Boreal Spruce (SBS) and subzone dw3 Biogeoclimatic unit. The climate of the SBSdw3 is warm relative to other Biogeoclimatic units in this region. Winter precipitation is relatively low for the subzone with snow packs generally accumulating up to about 2m in depth. Climatic growth-limiting factors are drought on drier sites and frost on frost-prone sites.

According to "Ecosystems of British Columbia - BC Ministry of Forests" and other sources, the following list of tree species are most commonly found in the SBSdw3 unit. Coniferous forests in this unit tend to be mixtures of Lodgepole pine, Douglas-fir, and hybrid white spruce with Lodgepole pine and/or Douglas-fir dominating on drier sties and hybrid white spruce dominating on wetter sites.

In an effort to achieve the above association, YCS will replant the site with Lodgepole pine and Douglas-fir. It is anticipated that some natural revegetation of shrubs and herbs such as Pinegrass, Cladonia, Feathermoss and Ricegrass will occur almost immediately following reclamation activities.

The vegetative cover for the site is currently "forested" consisting of a mixture of immature second growth forest plantation and older age trees typical of this Biogeoclimatic unit. The site is classified as upland landscape, which is treed (coniferous) but sparse. Figure 3 which is attached provides an excellent orthophoto view of the LoO parcel of interest at this time.

There is no official community plan designation for the site and/or any land use zoning. It is expected that YCS will maintain an end land use of wildlife habitat and/or forestry for the site.

The development area is outside the ALR, but is within the Ft. St. James Timber Business Sales Area.

There are no known overlapping uses for the area, and the proposed aggregate operation should have minimal impacts given required compliance with the Code.

There are no watercourses on-site, specifically no ephemeral creeks and/or small wetland complexes within the land base.

YCS will maintain a minimum forty (40) meter buffer between the operation and Dog Creek which is located north of the site, at all times.

The soils within proposed site are predominantly morainal materials. These deposits consist of gravelly clay loam and loam textures, associated with Gray Luvisolic soils, including Brunisolic Gray Luvisolics. Dystric Brunisols have formed on the coarser (gravelly sandy loam) morainal materials. Organic soils (Fibrisols) occur as a minor component of the morainal landscape. For this site, the soils tend to be very dry, and the retained nutrients are very poor to medium rich in quality. The thickness of the soil is limited; however YCS accepts the challenge to reclaim to the above preferred SBSdw3 species. It should be noted that every effort will be undertaken to achieve reclamation to these tree species.

Given the minimal soil depth, the salvage and stockpiling of these soils within a strategic location such as along the boundaries of the LoO and existing Dog Creek FSR, will be very important for YCS. **Note:** A discussion of soil salvage and handling is covered later in Part III – Reclamation Section of this document, along with reclamation and invasive plant management for the site.

Part III - Reclamation

Reclamation Objectives

The reclamation of the Dog Creek Aggregate Project will follow the general guidelines recommended by Part 10.7.1 to 10.7.10 of the Code. It will be the intent of YCS, to prevent long-term environmental impacts at the site and to eliminate potential health and safety issues, as required. It is expected that the reclamation program will foster return to appropriate and functional values on the site.

The objective of the reclamation plan that follows is to create a physically stable environment, which is consistent with the requirements of the Code.

The end land use of the site will be a return to forestry values, which support wildlife habitat. To accomplish this, the following is proposed:

- Soil productivity and hydrologic function will be re-established to the extent possible. During development YCS will ensure all topsoil/sub-grade mineral soils have been salvaged, stockpiled and protected for use in reclamation of the site;

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- The land surface and access roads will be left in a state that ensures long-term stability. As there is no surface drainages on site, they will not need to be restored; and
- The site will be re-vegetated to a self-sustaining state using suitable tree as indicated in Part II above.

It should be noted that YCS, reserves the right to have an opportunity for the reclamation plan to be refined during the operational period of the project. After closure, the site will be left in a safe and secure manner for the long-term with no projected maintenance.

Invasive Plant Management

In general terms, the invasive plant management for the site will include measures to prevent and control invasive plants and/or noxious weeds from becoming established on the site, including soil stockpiles, product stockpiles and site roads. In particular, invasive plant management on the site will emphasize stripping only the required amount of surface areas for short term mining, completion of rapid revegetation of cleared areas through growth of grasses, and undertake vigilant prevention and removal of problem plants during all phases of the project, in order to prevent the establishment and spread of invasive and noxious plant species. Invasive plant management will be applied and be adaptively managed at the site.
The approach for the ensuring success with invasive plants will include:

- Prevention of invasive and noxious plant species establishment through use of best management practices (BMP's), such as minimizing soil disturbance, ensuring that at all equipment taken to the site has been thoroughly cleaned, and all soil & overburden stockpiles are covered (seeded) with a interior erosion control seed mixture;
- Proper identification and knowledge of invasive and noxious plant species gained through review of various publications provided by the Invasive Species Council of BC;
- All non-native invasive plant species, listed in the BC Weed Control regulations, as well as those priority invasive plant species listed by Invasive Species Council of BC, will be removed annually from the site prior to seed set. Native trees and shrubs that have establish naturally on the soil stockpiles and other stripped areas will be retained, as much as possible;
- Inventories, mapping, and monitoring of invasive and noxious plant species on the site, will be annually completed by the company;
- YCS will combine invasive plant management, with methods such as mechanical and biological controls; and
- YCS will periodically contract, if necessary, a qualified professional for invasive and noxious plant species management assessment of the site.

General Reclamation Concepts

In general, following finalization of mining operations, all equipment will be removed, the access road(s) will be decommissioned, and the site reclaimed to the noted above standard. The (final) reclamation activities will commence immediately once weather conditions are favorable for working the soil, and after all the product stockpiles have been removed from the site. Any final pit walls, which have not been resloped to 2:1 slope angle as part of operations will be recontoured, and any remaining pit floor and access roads that have not been scarified will be, then they will be capped with salvaged soils and revegetated (replanted) with the trees as indicated in Part II above.

It is expected that overall, the reclamation activities for the site will generally consist of the following:

- During operations, stripping and stockpiling of topsoil and sub-grade mineral soil will be undertaken, whereby both the topsoil and sub-grade mineral soils will be mixed together given the negligible amounts of soils. The topsoil/sub-grade mineral soils will continue to be stripped to rooting depth. Working of soils during wet conditions will continue to be avoided and/or minimized. The (salvaged) soil stockpiles will be clearly delineated from adjacent areas in order to prevent equipment from driving over the stockpiles and/or mixing aggregate materials with soils throughout the operational periods. This delineation will be developed by stockpiling (windrowed) soils along the LoO boundaries. The soil stockpiles will be constructed with 3:1 slopes, average 3m in height and will not

be moved and/or disturbed during operations, expect when required for use in the reclamation of the site. The soil stockpiles will be seeded with an appropriate interior seed mixture, in order to prevent erosion and/or noxious weed invasion. Noxious weeds will be controlled by both mechanical and/or chemical (approved weed control products) means, as necessary;

- Utilization of soil salvage stockpiles for reclamation purposes will include soil replacement onto resloped pit faces, and placement of soils onto the scarified pit floor areas. The replaced soil materials will be left in a rough and loose mounded condition, in order to create micro sites to aid vegetation establishment, promote soil moisture infiltration and minimize the development of rills and channels for water erosion;
- Reclamation operations will establish final (ultimate) pit walls to a 2:1 slope angle;
- There will be re-contouring of any sediment basins constructed;
- The compaction of pit floors and access roads will be scarified by tilling with a winged sub-soiler to a minimum 50 cm depth;
- Decommissioning and removal of all mine site infrastructure will occur;
- If required, hydro seeding, fertilizing and application of a mulch application would be undertaken, to enhance revegetation and/or prevent erosion. The proposed hydro seeding mix might consist of 50 kg/ha of perennial native interior seed mix, 2,000 kg/ha of wood fibre mulch with 80 kg/ha non-asphaltic tackifier. Reclaimed areas would be completely seeded with the grass/legume mix to control erosion and/or maintain or increase soil productivity. Some quick establishing agronomic species such as hard fescue, alsike clover, white clover and hairy wild rye would be used in revegetation efforts of the reclaimed areas, since they are usually successful in a variety of site/soil types and climates. Fertilizer/lime addition maybe required before or after seeding depending on soil fertility. However, if possible fertilizer use will be kept to a minimum in order to help favour encroachment by native vegetation species. If required the initial fertilizer application would be limited to nitrogen and sulphur, with addition later of potassium or phosphorus. A fertilizer formulation of 34-0-0-11 (NPKS) is suggested with an application at a rate of 50 to 100 kg/ha, in order to promote initial establishment, followed by a slow release (nitrogen) formulation of 25-4-10 at an application rate of 50 kg/ha. The proposed interior (erosion control) seed mix would have a range of years of longevity after application. Most annuals will die out after 2 to 3 years, at which by this time other native grasses and herbs will have been established on the site;
- To promote structural and species diversity for the benefit of wildlife habitat and biodiversity, tree planting in clusters using the suggested trees species as noted in Part II, along with some deciduous tree species will be undertaken as part of the reclamation program. YCS will have tree seedlings planted on site to achieve a target stocking rate of 900, well-spaced trees per hectare at the free growing stage. To achieve this target, approximately 1350 seedlings/ha (coniferous and deciduous combined) will be planted;
- There will be placement of appropriate signage and marker berms to indicate potential hazards;
- If necessary there will be a completion of a soil sampling and testing program that would delineate any contaminated areas as required by the *Contaminated Site Remediation, Environmental Management Act;* and
- There will be post-closure maintenance and monitoring programs carried out for two (2) years, as necessary.

It will always be the intent of YCS to achieve the following reclamation goals:

- Minimize or eliminate public safety hazards;
- Minimize potential effects to the environment, particularly water resources;
- Provide long-term stable landform configurations;
- Reclaim surface disturbances for beneficial use; and
- Minimize the requirements for post-closure monitoring and maintenance.

The goals of the reclamation plan will be to provide the necessary details of the reclamation objectives, and to provide an opportunity for the plan to be refined during the operational period of the project. After

closure work has been completed, the project will be left in a safe and secure manner for the long-term with little projected maintenance.

YCS will deem the reclamation successful, if the following performance criteria and trends are observed:

- Soils are stable and no rill or gully erosion is occurring;
- Native plant species cover is increasing annually;
- Non-native invasive plant species are not present on the site; and
- A self sustaining, free-growing forest stand has been established that exceeds the minimum stocking standard suggested.

Long-term Stability

With no settling or tailings ponds, dams or waste dumps this means that there will not be a requirement for additional maintenance to ensure long-term physical stability on the site. With all physical structures being removed from the property during final reclamation, it can be appropriately decommissioned and reclaimed for long-term stability as required under the *Mines Act.*

Section C – Additional Information

The development is not expected to have any environmental or socio-community impacts given its relatively small size and/or location. The company will have in-place; plans such as archaeological chance find procedures, sediment and erosion control, mine emergency response plan, fuel management and spill contingencies, and noise and dust as part of operations.

It is expected that YCS will operate and use Best Management Practices approach in the development and operation of the site.

I. Environmental

a. Land Impacts

The LoO Application and attached information shows the potential area of impact to the land base.

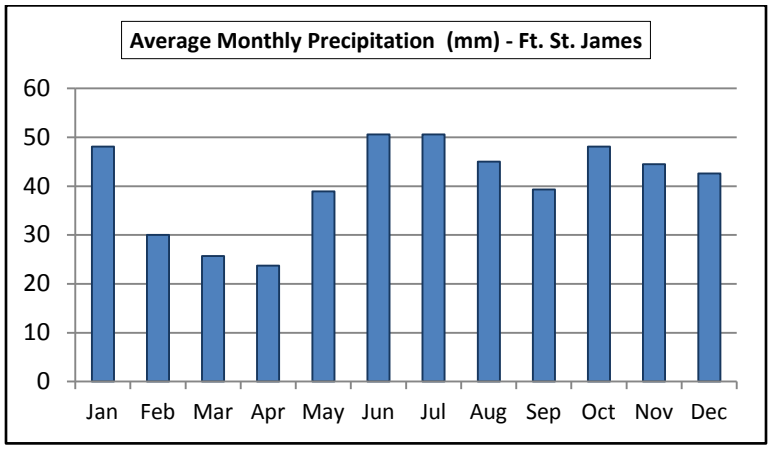
Given the proposed location of the operation, there is not a requirement for comprehensive plans to reduce visual, noise and dust impacts to outside sources. However, given the pit scenario development proposed, it is expected that natural berms consisting of aggregate and/or soil berms will surround the development in order to block visual, noise and dust impacts.

There are no documented archaeological sites within the proposed development area; however an Archeological Chance Find Procedure (CFP) will be in place during development.

b. Atmospheric Impacts

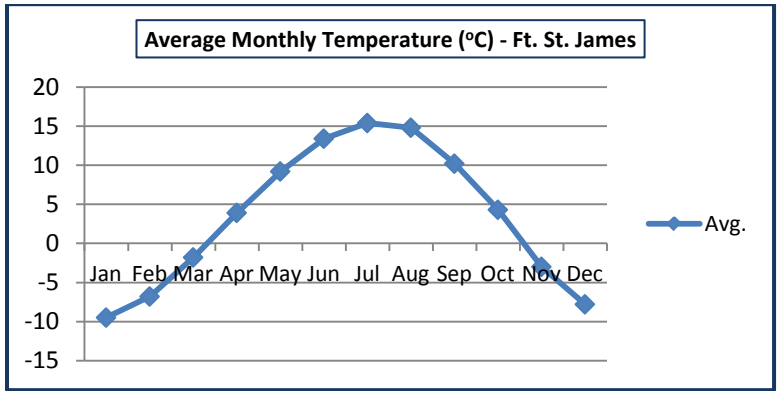
Climate

Annual precipitation in nearby Ft. St. James is 487 mm per year, which includes 315 cm of rainfall, with the majority falling during May through October. The area gets snowfall at an average rate of 173 cm per year mainly between November and March. The following graph depicts the average monthly precipitation.



The extreme daily rainfall event for the site in 24 hrs was determined to be 56 mm, with the extreme daily snow event to be 51 cm.

Annual temperatures in the area averages +3.5°C, with the warmest months being May through September having daily maximum average of +15.6 to +21.8°C, and the coldest months being December through February with daily minimums of -11.7 to -13.7°C. The following graph illustrates the average temperatures in the area.



Atmospheric Effects

It is expected that potential atmospheric impacts will be minimal, and come from equipment emissions and fugitive dust during mobilization, demobilization, land clearing, excavating, haulage and crushing and screening operations.

It is expected that there will be minimal (insignificant effects) impacts (such as deterioration or air quality and lower visibility due to diesel and fugitive dust emissions) on and/or from the site during construction and operations.

However, to assist with reducing atmospheric effects, YCS will undertake the following:

- Use modern construction (mining) equipment that meets latest applicable Canadian emission standards;
- Ensure proper inspection and maintenance of equipment;
- Operate equipment within specifications and capacity;
- Limit vehicle and construction equipment idling;
- Use low sulphur fuels for all diesel equipment;
- Re-vegetate any parts of the development that will not be disturbed in the future;
- Clear only the trees needed for mining in that particular area;
- Through a planned site layout (minimize creation), operational controls (control escape); air quality (dust removal) and cessation, the company can manage and mitigate any generated fugitive dust; and
- Maximize use and commit to Best Management Practices such as following the guidelines set forth by the "*Aggregate Operators Best Management Practices Handbook for British Columbia (April, 2002)".*

c. Aquatic Impacts

For the Dog Creek Aggregate Project it is expected that there will be insignificant (minor) changes to surface water quality and quantity, as there are no noted watercourses within the LoO area. It is expected that given the projects location and that it will not be operating continuously, potential aquatic impacts would be intermittent, if at all.

YCS will utilize mitigation and monitoring as tools to minimize aquatic impacts, as necessary. The operation will use water management structures, and appropriate erosion and sediment control strategies such as managing sediment mobilization and erosion by installing sediment controls prior to land disturbance, limiting land disturbance to the minimum practicable extent, reducing water velocities across the ground, progressively rehabilitating disturbed land, ripping areas to promote infiltration, and restricting access to rehabilitated areas, and installing appropriate temporary erosion and sediment control measures or "Best Management Practices" prior to, and during, construction and operations activities.

d. Fish and Wildlife Habitat

Given the relative small size of the proposed project, fish and wildlife habitats baseline studies were not undertaken as part of this application. At this time, there have been no literature reviews of management plans specific to the region, no identification of species at risk and/or no field surveys completed by YCS.

There will be no disturbances to any fish and/or fish habitat during construction/operations of this particular development.

As a means to minimize potential impacts to fish and wildlife habitat, it is expected that YCS, will utilize Best Management Practices as noted in the "*Handbook for Mineral and Coal Exploration in BC, 2008/09"* and the "*Health, Safety and Reclamation Code for Mines in BC, 2008*".

YCS will have as well, strict enforcement on removal of garbage, etc. on a daily basis in order to minimize attractants at the site.

II. Socio-Community

a. Land Use

The proposed project will not affect existing land uses in the area.

There are no known designated National Parks, National Historic Sites, National Marine Conservation Areas, National Wildlife Areas, Migratory Bird Sanctuaries or Marine Wildlife Areas within the development area.

There are currently no active forestry operations within the area.

Given that no environmental baseline work was undertaken on the site to date, the recreation values cannot be substantiated. However, the values are probably low sensitivity and low significance given the site's proximity to the other higher recreational areas located in the area.

b. Socio-Community Conditions

The project will not affect or influence any community services or infrastructure requirements due to it being a small sized operation that will operate intermittently.

c. Public Health

The project will not affect public health, again due to it being a limited size operation.

d. First Nations

The project site is located within the traditional territories of the Saik'uz First Nations, as indicated by the Consultative database. The company in the past has had good working relationships with various area First Nations, on this particular project there is currently efforts ongoing to develop a partnership arrangement between Pittman Asphalt and Saik'uz First Nation.

e. General Area Overview

The following photographs illustrate the general layout of the unsurveyed crown land in question.

Area previously logged, showing older growth trees in the background

Area alongside Dog Creek FSR

If you have any questions, please contact the undersigned by email Erwin.Spletzer@terusconstruction.ca or (604) 575-3689.

Regards

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