

Project Summary

BOHEMIA ASHPHALT AND CONCRETE PLANTS

A and S General Contractors Inc.
SUB LOT A, BOHEMIA, CORENTYNE, BERBCIE
OCTOBER 2022

Project Description

A&S General Contractors Inc. has established an asphalt plant and a concrete plant at Sub Lot 'A', Plantation Bohemia, Corentyne, Berbice for the manufacturing of asphaltic concrete and rigid concrete. The site is already developed and the plants are installed.

The project site consists of 4.413 acres and the land was previously used for rice cultivation. However, the site is now developed to accommodate the project. The surrounding area is mainly utilized for rice cultivation. In the wider area there is a primary school, a church, a mandir, and a few residences. The land use of the area is shown on map included as Annex B.

The construction phase is completed and involved site clearing and grubbing, land filling and levelling, installation of drainage system, installation of the asphalt plant and installation of the auxiliary facilities such as generators, office, washroom, fuel storage, etc. The layout of the operation is shown on map included as Annex A.

For asphalt product, bitumen, sand, stones and sifting will be used to produce asphaltic concrete. These materials will be received at the site and stored in their respective storage areas. The plant installed is a brand new state-of-the art VINAYAK Asphalt Plant (ABP 160 Series) capable of production rates of up to 160 tons per hour. VINAYAK is one of the leading Indian companies that provide innovative designs for construction equipment including asphalt plants. The Asphalt Plant has several features which allows the environmentally safe production of asphalt products that meet or exceed the industry standard specification. The Plant produces "hot-mix" asphalt through a process that heats the bitumen and aggregate raw materials to remove moisture and obtain adequate fluidity for proper amalgamation and spreading. The first step of asphalt production involves the transfer of bitumen from the storage containers into tanks in which it is heated. Aggregate raw materials (stone, sifting and sand) are then loaded into the cold feed unit. The quantities of raw materials used during a production cycle depends on the product specifications required by the Client. The heated bitumen and aggregate raw materials are then mixed and dried in the drying drum unit. The finished product is then loaded via a conveyor system into trucks. The operation of the plant is controlled by a based control system housed within a control room.

For the manufacturing of concrete, sand, stone, water, and cement will be used to produce the concrete. The aggregates and cement will be received at the site and stored in their respective storage areas. The plant installed is a brand new state-of-the art Vinayak Concrete Plant (CCBP-30 series). The plant is designed for maximum efficiency and reliability for producing all types of high quality concretes and is capable of producing 30m³ of concrete per hour. The plant is fixed with a four compartment chamber aggregate feeder, one 20,000 litre water tank, air compressor, manual loading cement hopper and automated control cabin. Aggregates are manually loaded into the compartment chamber with a front-end loader while the cement is manually loaded into the hopper. The control cabin computes the specified mix design and materials are loaded into the mixing chamber. The concrete is produced and collected in a cement truck for transport. At the end of each production cycle the plant is washed and the discharge is channeled to the settling pond for reuse.

Five persons will be required to operate the facility. Approximately 1000 tonnes of asphalt is expected to be produced monthly but production will be dependent on orders received for the material. The asphalt plant capacity is 160 tonnes per hour. The concrete plant has a capacity of 30m³ of concrete per hour. However, production will also be dependent on orders received. The project is expected to have a lifespan of at least 25 years.

Water for the facility will be provided by Guyana Water Inc. (GWI). It is estimated that 100 gallons of water will be utilised daily. However, when the concrete plant is operational up to 2,000 gallons of water can be utilized per day. The facility will be powered by Guyana Power and Light Inc. (GPL). However, generators are installed to power the operation of the plant and to provide back-up power. It is estimated that 125kW of electricity will be consumed daily. Three generators (1 x 400 kVA, 1 x 82 kVA, and 1 x 35 kVA) will be installed. Approximately 5,000 gallons of bitumen will be stored onsite to support the operation. In addition, 2,500 gallons of diesel will also be stored in above ground storage tanks.

Environmental Management

The only process related solid waste to be generated will be surplus waste material (from production of asphalt) and material recovered by the dust collection system. The other form of process related solid waste would be the empty cement sacks. Surplus asphalt material will be spread around the project site or donated to the NDC for fixing of streets, etc. Material recovered from the dust collection system will be reused in the process. Empty cement sacks will be stored at a designated area onsite and will be collected for disposal by a waste disposal contractor. There will be no process related effluent. However, upon completion of production the concrete plant will be washed. The wash water will be diverted to a settlement pond for settlement and reused in the process. A septic tank is installed to receive waste from the toilets. The septic tank is equipped with a filter bed.

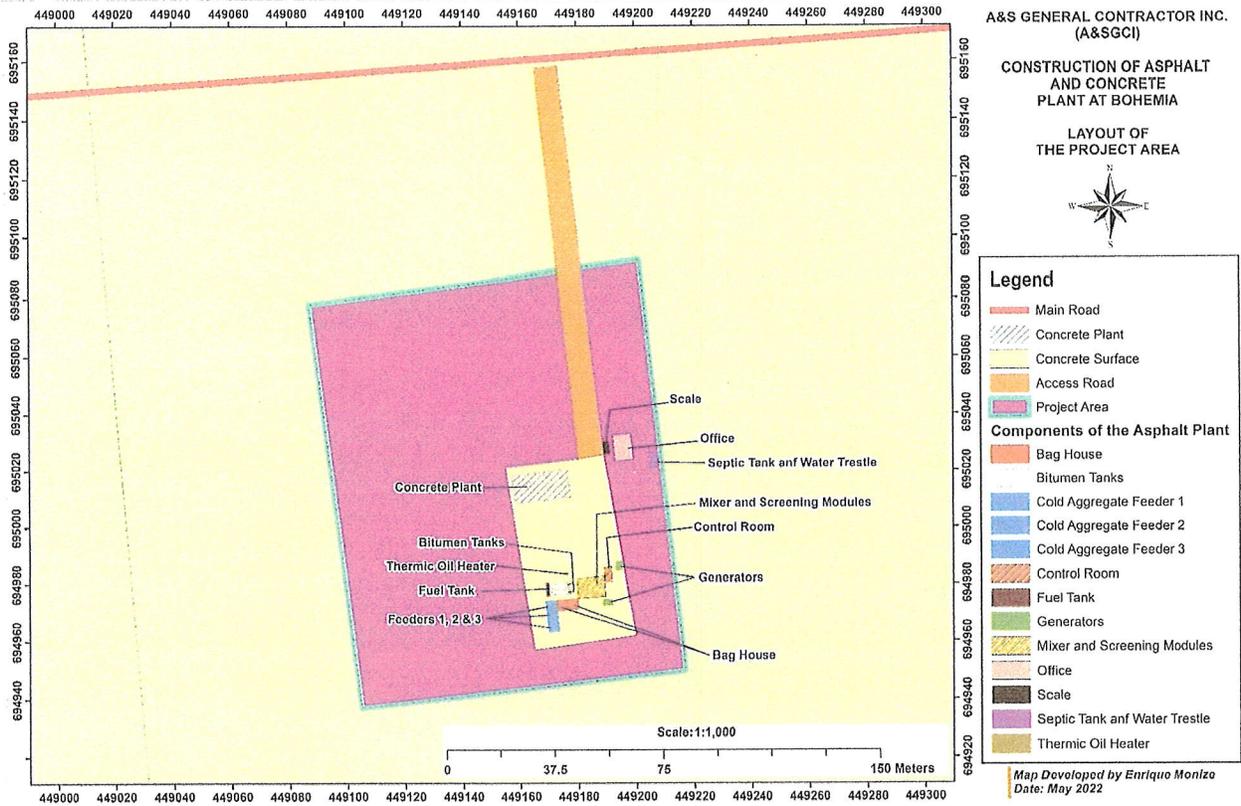
Particulate matter and gaseous emissions will be generated from the operation of the asphalt plant. Dust generation can also result from the stockpiling of materials to be used in the processes such as sand and shifting, and from the loading of these material into the receiving bins of both the asphalt and concrete plants. The asphalt plant is equipped with a dual stage pollution control system comprising of a twin cyclonic separators and a secondary bag house filter which are designed to ensure all emissions conform to strict environmental requirements. This system allows for the capture any emissions from the process and reduces the emissions of particulate matter and gases released into the environment. The remaining exhaust stream is emitted via a stack situated well above the plant and any surrounding structures and will disperse rapidly in the open air. In addition, the plant, especially the dust collection system, will be adequately maintained to ensure optimal operating efficiency, thus reducing emissions. Material stockpiles will be covered when not in use to prevent dust generation. Care will be taken during the loading of materials to feed both the concrete and asphalt plants to prevent dust generation. Workers exposed to dust generation or odour will be provided with the recommended PPEs such as dust masks or respirators. Surfaces to be traversed by trucks and other vehicles/machinery are either asphalted or concreted, thus preventing dust generation. Further, there is no immediate/close-by receptors downwind of the project site to be affected.

The most significant sources of noise are associated with the operation of the plant including the diesel generators which will provide power to support the production process. Given that the plants will be only operational when orders for asphalt or concrete are received there is no major continuous source of noise. Further, there is no immediate/close-by receptors to be affected. The free- floating screen design of the plant prevents vibration to be transferred to any other part of the asphalt plant or surrounding environment. The generators utilized are equipped with built on enclosures and mufflers. Any personnel working in noisy areas will be provided with and required to use hearing protection. Further, there is no immediate/close-by receptors to be affected.

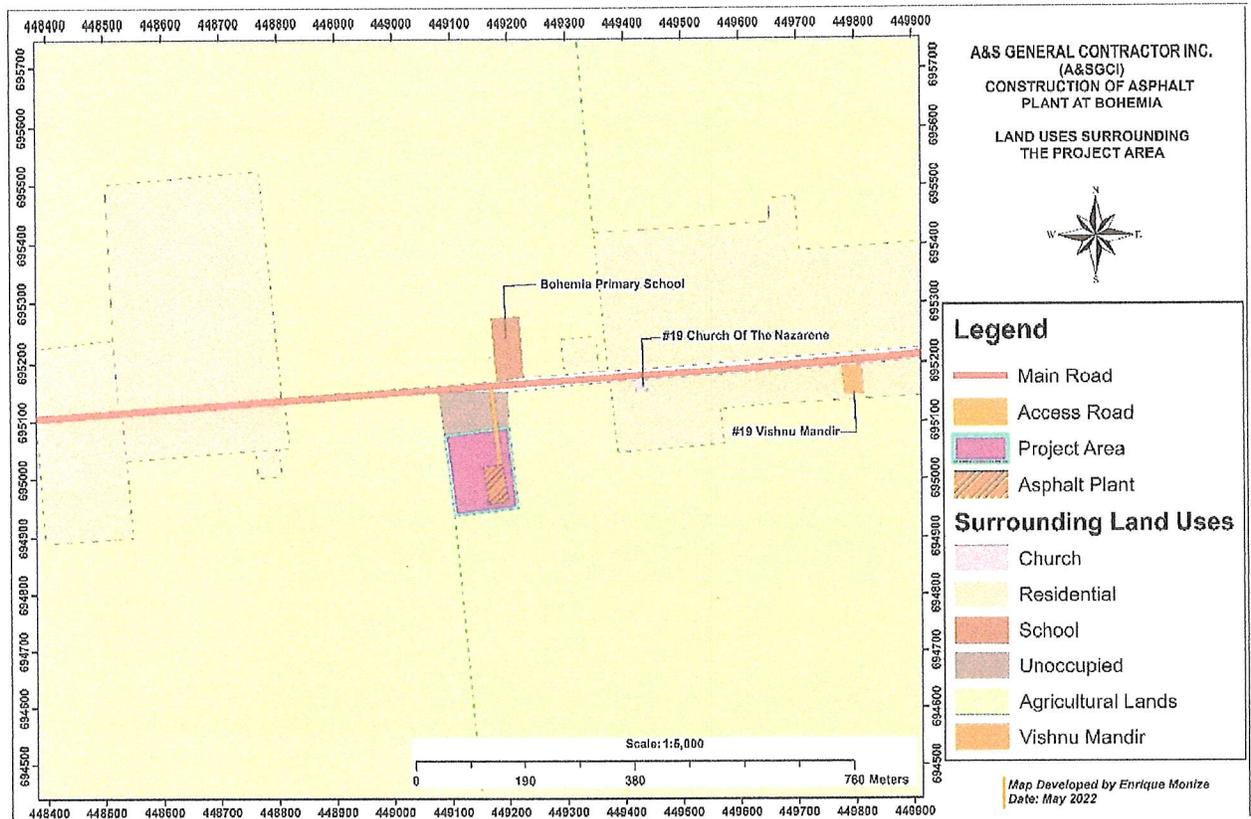
There is no anticipated impact to water quality from the operational process. However, spills of bitumen or fuel can result in surface water contamination. Untreated discharge from toilets can also impact surface water quality. Runoff from material storage areas can also result in sedimentation. Fuel kept onsite will be stored in tanks situated within an impervious and bunded area which will capture and

contain any spilled or leaked materials. A shed will also be installed to keep out rainfall. Bitumen storage tanks will be placed on an impervious area. All runoff, including those from the materials stockpile areas, will be collected by the installed drains. Drains will be equipped with sediment traps to capture any sediments contained in the runoff. Liquid waste from the toilets will be channeled to a septic tank which will be equipped with a filter bed. Wash water from the concrete plant will be collected and channeled to a sediment pond for settlement prior to being reused in the process.

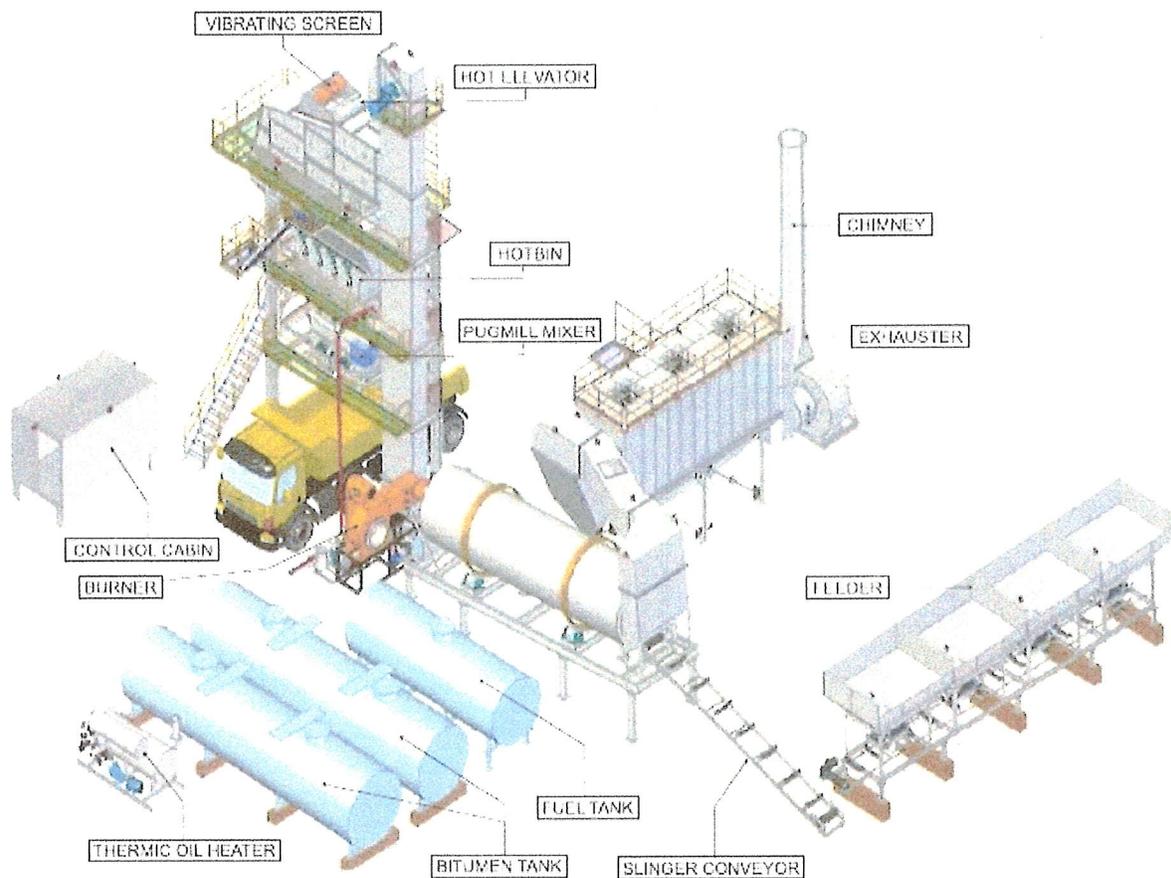
Annex A- Layout of the Operation



Annex B - Land Use surrounding the Project Site



Annex C - Components of a Typical Asphalt Plant



Annex D- Components of a Typical Concrete Batching Plant

