Project Summary

Diamond Concrete Plant

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1.0 Company Background

RONOCA Concrete Inc. is a recently registered company (see Annex A for Certificate of Incorporation and Annex B for Article of Incorporation), as of April 03rd, 2024. The Company's registered office is Parcel 726, Block XXIII, Plantation Great Diamond, East Bank Demerara, Guyana. RONOCA Concrete Inc. is jointly owned by Mr. Terry Paul (see Annex C for ID information) and Mr. Imtyaz Imran Amin (see Annex D for ID information), both of whom are known businessmen, with over 15 years of experience in hardware supplies and the construction.

Over the years, these individuals, through other owned companies, have been providing various services to other contractors and developers in the construction industry. Their success and experiences in the hardware supply and construction industry have led them to this joint venture.

At present the company has a number of different types of equipment, such as excavators, bulldozers, motor graders, motor rollers, motor lorries, concrete plants, etc. to carry out works of different natures.

RONOCA Concrete Inc. is fully staffed with competent and experienced personnel. The list of employees includes project managers, civil engineers, construction foremen, operators, surveyors, masons, carpenters, plumbers, electricians, welders, skilled, semi-skilled and labourers.

2.0 Project Site Location and Land Use

RONOCA Concrete Inc. is in the process of establishing a concrete plant at Parcel 726, Block XXIII, Plantation Great Diamond, East Bank Demerara, Guyana for the manufacturing of rigid concrete. The land is currently owned by a company called Tilt-up Technology Guyana Inc., of which RONOCA Concrete Inc. has a two years commercial lease agreement with. A copy of Agreement of Sale and Purchase is provided in Annex E and a copy of the Commercial Lease Agreement is provided in Annex F. The land has been cleared of secondary vegetation and garbage and is currently being sand filled. The location of the site is shown in Figure 1. The specific location can be observed in Annex G and a proposed layout of the operation in Annex H.

The project site consists of 0.922 of an acre with no building currently erected. The land is located in a prime heavy industrial zone of which developments are guided by the Central Housing and Planning Authority (CHPA), Schedule 1 – Development Standards for Industrial Zones (see Annex I)

The surrounding area is mainly utilized for industrial activities similar in nature, as is shown on the Land Use Map included as Annex J. To the east of the project site is a zinc factory (Zinc Factory), to the south is a auto spare parts company (Caribbean Auto Spares) and to west are two companies that also manufacture concrete at a larger scale, these are the Puran Brothers Concrete Plant and DCSN Manufacturing Inc. as can be observed in Annex K.

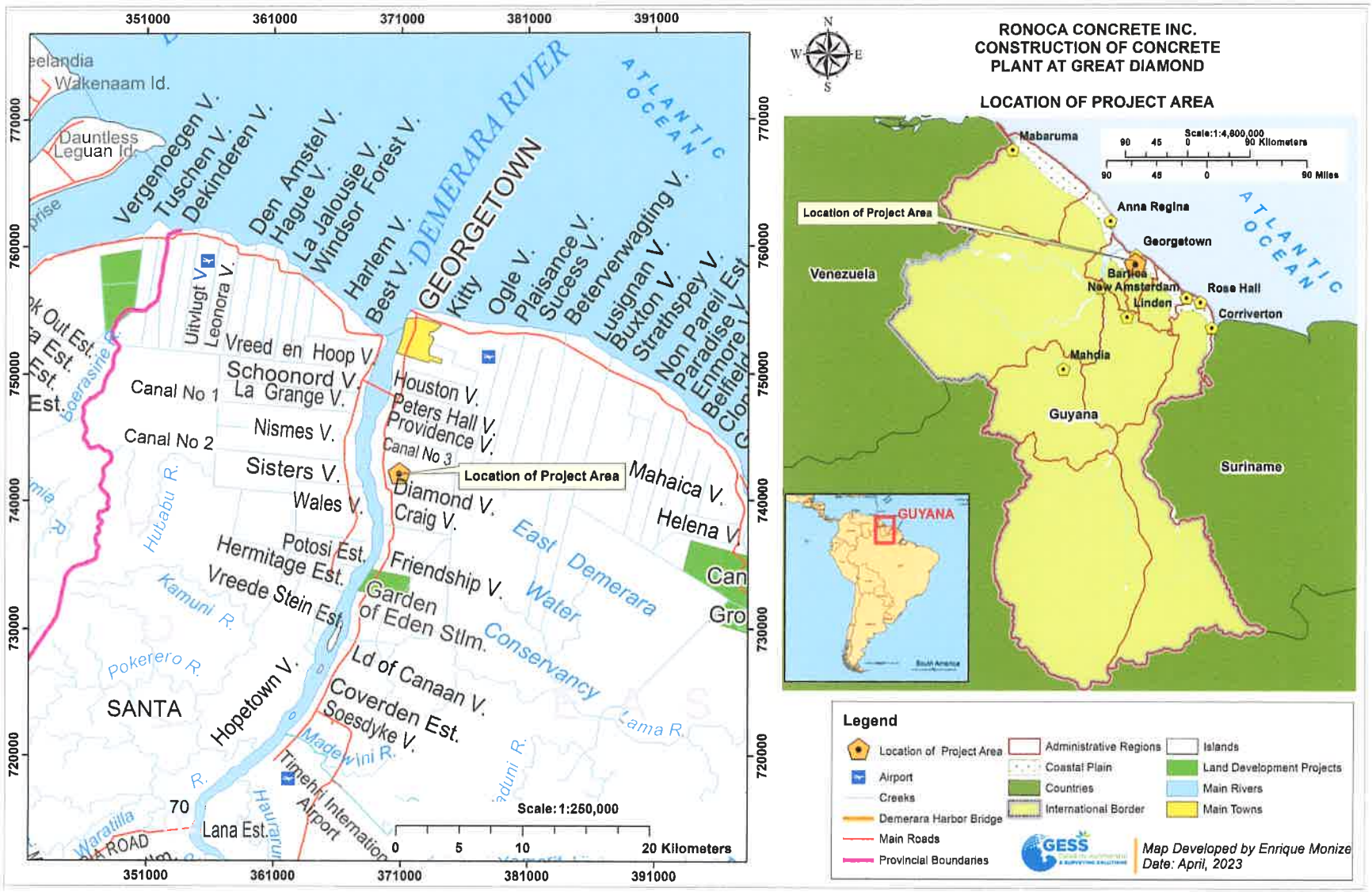

Figure 1: Location of the Friendship Asphalt and Concrete Plants

3.0 Project Description

RONOCA Concrete Inc. is pursuing the installation and operation of the concrete plants to support the booming construction sector in the country. There is currently a deficit in the supply of concrete for construction projects, particularly for government projects such as the construction of concrete roads, bridges and drains. It is anticipated that this project will benefit from, and contribute to the national infrastructure development which is expected as a result increased revenue nationally from the oil and gas sector and spin off activities. The Government of Guyana has indicated that infrastructure gaps that currently exists will be met with major transformative investment in all regions. As such, it is expected that the demand for concrete materials will increase as a result of upgrade and expansion of the road infrastructure across the country. The Government has indicated that major road works will continue to be extend along the East Bank Demerara and the West Coast Demerara corridors. The concrete plant is therefore poised to support such associated projects. Other projects such as concrete community roads will also be supported.

3.1 Construction Phase

The construction phase of the project is ongoing and involves repurposing of the site to facilitate the installation of the plant. Activities include site grubbing, land filling and levelling, installation of a drainage system, construction of concrete pads, installation of the concrete plant and installation of the auxiliary facilities such as generators, office, washroom, fuel storage, etc. The layout of the project site is shown on map in Annex H. Twenty workers are involved in the construction of the project. The project is expected to have a lifespan of at least 25 years, with extension on the Commercial Lease Agreement between RONOCA Concrete Inc. and Tilt-Up Technology Guyana Inc.

3.2 Concrete Plant Operation

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 to be 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 $30m^3$ 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 in channeled to the settling pond for reuse. The components and typical layout of the concrete plant is shown in Annex L.

The concrete plant has a capacity of $30m^3$ of concrete per hour. 500 cubic yards of rigid concrete is expected to be produced monthly. However, production will also be dependent on orders received.

3.3 Auxiliary and Support Services

Ten persons will be required to operate the asphalt and concrete plants.

Water for the facility will be provided by Guyana Water Inc. (GWI).

The facility will be powered by Guyana Power and Light Inc. (GPL). However, a generator will be installed to power the operation of the plant and to provide back-up power. The power generators (1 x 109 kVA) will be used to power the operation.

Approximately, 2,000 gallons of diesel will also be stored in above ground storage tanks for the operation.

A site office with amenities such as toilets, office space etc. will also be erected at the site.

4.0 Potential Environmental Impacts and Management Measures

This section summarises the potential impacts of the project and the mitigation and management measures being implemented.

4.1 Construction Phase

Impacts

The main adverse impacts during the construction phase of the project relate to noise and dust generation, waste management, workers health and safety, and management of hazardous materials (fuel). There immediate receptors to be affected by noise and dust generation can be observed in the Land Use Map attached as Annex J).

Mitigation

The following measures are being implemented during the construction phase to mitigate possible impacts to the environment:

- The construction works are being done based on construction best practices to ensure these impacts are avoided or minimised.
- Noise levels are kept within the recommended construction limit of 90 dB during the day. There is no construction during the night. Workers operating noisy equipment are required to utilize hearing protection.
- Dust generation is mitigated by reducing the height of construction materials stockpiles and use of dust mask by construction workers. Wetting of the site is also done when necessary.
- Construction waste is sorted. Those that can be salvaged for reuse such as form boards are kept. The remaining waste is transported to the Haags Bosch Landfill for disposal.
- Toilet facilities will be provided for construction workers.
- All workers are required to utilized Personal Protective Equipment relevant to their tasks, including dust masks, hearing protection, reflective vests, hard hats and safety boots. Workers are also trained in their respective tasks, and the associated health and safety requirements.

4.2 Waste Generation and Management

Impacts

Garbage will also be generated by routine activities and workers. The only process related solid waste to be generated from the operation will be surplus waste material (from production of asphalt) and material recovered by the dust collection system. There will be no process related effluent. However, upon completion of production, the concrete plant will be washed, thus generating wash water. Sewage will be generated from toilet facilities. Minor amount of hazardous waste in the form of waste oil and oily filters and rags will be generated from the servicing of the generators and other machinery. Improper waste management can be unsightly and impact water quality.

Mitigation

The following measures will be implemented to manage waste during the operation:

- Garbage including office waste and waste from small packaging, such as paper, cardboard and plastic and food waste such as boxes, wrappers, tins and bottles and residual food will be collected in bins provided at strategic locations around the site. Garbage will be disposed of at the Haags Bosch Landfill by a contracted waste disposal company.
- The wash water from the concrete plant will be diverted to a settlement pond for settlement and the water will be reused in the process.
- For sewage waste a septic tank is installed to receive and treat waste from the toilets. The septic tank will discharge through a filter bed.
- Waste oil from servicing of generators and machinery will be collected in drip containers and then consolidated in 45-gallon drums. Used batteries will be sold to authorised dealers.

4.3 Air Quality

Impacts

Particulate matter and gaseous emissions will be generated from the operation of the concrete plant. Dust generation can also result from the stockpiling of dry and loose materials to be used in the processes such as sand and shifting, and from the loading of these material into the receiving bins of the concrete plants.

Mitigation

The following measures will be implemented to prevent impacts relating to dust generation:

- 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 and will be maintained at a minimal height.
- 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 recommenced Personal Protective Equipment 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.
- Trucks transporting materials will be covered.
- Any complaint of a dust nuisance will be promptly addressed.

4.4 Noise

Impacts

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.

Mitigation

The following measures will be implemented to mitigate noise generation:

- 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 to be utilized are equipped with built on enclosures and mufflers.
- Generators will be sited away from the office and accommodation areas.
- Any personnel working in noisy areas will be provided with and required to use hearing protection.
- Monitoring will be done to ensure noise levels are within the industrial limits of 100 dB during the day and 80 dB at nights.

4.5 Water Quality

Impacts

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.

Mitigation

The following measures will be implemented to prevent any impacts to water quality:

- 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.
- 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 channel to a septic tank which will be equipped with a filter bed. Septic tanks will be well maintained to ensure optimum functionality.
- Wash water from the concrete plant will be collected and channeled to a sediment pond for settlement prior to being reused in the process.
- Sediment traps will be installed in the internal drainage system to capture any sediments from runoff.

4.6 Soil

Impacts

No impact to soil is envisaged from the construction since the site is already disturbed and used for industrial purposes in the past. During the operation phase soil contamination can occur.

Mitigation

The following measures will be implemented to mitigate any potential impacts to the soil at the project site:

- The project site will be compacted and capped in most areas with concrete.
- Adequate drainage will be installed to drain the site.
- Measures outlined above to prevent water contamination will also contribute to the prevention of soil contamination.

4.7 Occupational Health and Safety

Impacts

Due to the nature of the operations, there are possibilities for negative health and safety impacts from accidents from the use of heavy equipment, fires and burns.

Mitigation

Given the workplace risk, the following measures will be implemented to ensure that employees have a safe, healthy and secure workplace:

- Employees will be orientated to environment, safety and health practices.
- Providing employees with all Personal Protective Equipment relevant to their job.
- A First Aid Kit will be provided on-site with the requisite drugs, materials and equipment to cater to emergencies.
- Hazardous materials (diesel and bitumen) will be appropriately and safely handled and stored.
- Fire extinguishers and sand buckets will be placed strategically around the compound. A fire alarm system will also be installed and fire drills will be conducted periodically.
- Driving routes would be established within the premises.
- Access of vehicles, personnel and visitors will be restricted from operational areas.
- The diesel storage tank will be labelled to identify its contents and other safety signage is installed including "Highly Flammable" and "No Smoking".
- Warning Signs and Notices will be installed at the entrance to the site.
- Material Safety Data Sheets will be kept onsite for use, if necessary.
- A "Muster Point" will be designated where employees should assemble in the event of a fire or any other emergency.
- Training for selected employees will be provided on the proper use of fire extinguishers and on administering basic first aid.

5.0 Conclusion

The concrete plant to be installed is a modern plant utilizing current technology and has built in the necessary measures to prevent or reduce pollution and to ensure and a safe working environment. Additional measures were included at the facility to ensure environmental compliance. During operation the facility and operation will be monitored to ensure effectiveness of the mitigation and management measures. Training of personnel will be done to ensure they are aware of their roles and responsibilities. The relevant emergency preparedness and response system will be implemented, including the provision of emergency response equipment and training of personnel in response measures.