PROJECT SUMMARY

EAST BANK DEMERARA ROAD IMPROVEMENT PROJECT

CHINA ROAD AND BRIDGE CORPORATION
GUYANA BRANCH

MAY 2024

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1 INTRODUCTION

1.1 Company Background

China Road and Bridge Corporation (CRBC) is a registered external company under the Companies Act of Guyana on the 16th day of December 2021. The company's office is located at Lot 61, Continental Park, East Bank Demerara. On December 25th, 2023 CRBC was awarded the Ministry of Public Works Contract; GY-L1081: Program to support climate-resilient road infrastructure development East Bank Demerara Road Improvement (Good Success to Timehri).

CRBC is an international civil engineering construction organization with over twelve (12) years of extensive experience in constructing roads, bridges, culvert construction, track laying, and station building construction. Over the years, CRBC was awarded contracts from the Governments of countries such as Mozambique, Kenya, Pakistan, Cambodia, Rwanda, and Indonesia.

With a core team of over 40 experts including 5% female representation, CRBC has the competency to address this project's technical and social aspects. Apart from the core team, the project will employ over 100 persons from surrounding communities.

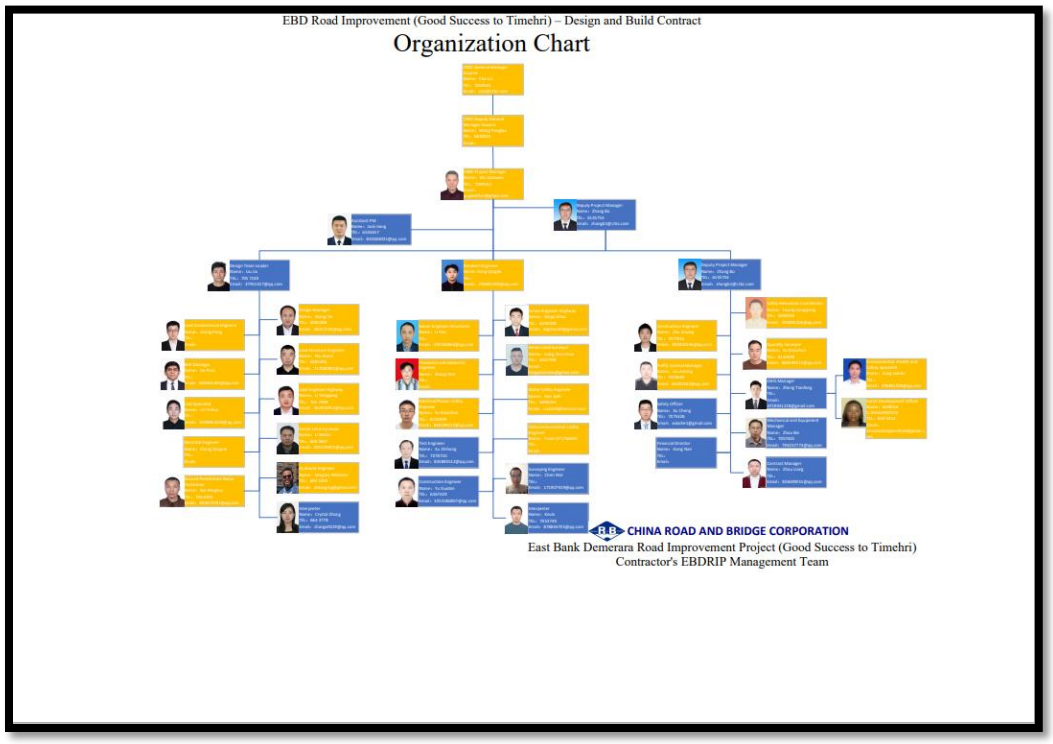

Figure 1: CRBC Organization Chart of Core Employees

On April 1st, 2024 CRBC was issued an Order of Commencement by the Ministry of Public Works. In this regard, the Company is seeking Environmental Authorization for road construction activities including concrete batching and asphalt mixing.

2 PROJECT OVERVIEW

2.1 Site Description

CRBC will be operating from two sites for better and more convenient execution of the East Bank Demerara road improvement project works:

1. Track “J” Land, Coverden Public Road, East Bank of Demerara River, County of Demerara
2. 500 meters on the eastern side of the Soesdyke Linden Highway between Madewini Creek and Kuru Kururu.

The site at Track “J” Land, Coverden Public Road, East Bank will be the main project site and covers an area of 8.19 acres, with coordinates as follows:

No.	E	N
1	364448.511	725571.572
2	364768.142	725672.402
3	364401.946	725673.296
4	364740.875	725584.632

This site is surrounded by industrial activities including a sawmill to the south and a hazardous waste treatment facility to the west. Sensitive receptors within a 500-meter radius of this site include the Demerara River, situated approximately 300 meters to the west, and the nearest resident approximately 250 meters north, buffered by dense vegetation. The East Bank Demerara main road is immediately west of the site.

Figure 2: Google map of Site #1

Figure 3: Site #1; the current phase of development

Figure 4: Site #1; direct access to the EBD Public Road

Figure 5: Site #1; thick vegetation to the immediate north.

Figure 6: Site #1; thick vegetation to the immediate west and sawmill with a mechanical workshop to the south

The second site located at Soesdyke Linden Highway will be the project's secondary site and covers an area of 6.29 acres, with coordinates as follows:

No.	E	N
1	366972	719800
2	367002	719899
3	367211	719728
4	367242	719828

There are no sensitive receptors within 1000 meters of this site. It is surrounded by other industrial activities such as sand pits and unoccupied vegetative lands. The Soesdyke-Linden Highway is located approximately 500 meters south of this site.

Figure 7: Google map of site #2.

Figure 8: Site # 2; the current phase of development

Figure 9: Site #2; surrounded by sand pits and vegetation

2.2 PROJECT DESCRIPTION

The activities or works at both sites are in support of the East Bank Demerara road improvement project under the Ministry of Public Works. Activities or works at both sites will be executed in the following three phases:

- Pre-construction Phase
- Construction Phase
- Operation Phase

Phase	Activities/Works	Site
Pre-construction – 2 months	Stabilizing the foundation via filling and compaction with sand, loam, and gravel.	1 and 2
	Installing boundary fence.	1 and 2
	Modification of existing drainage/ditches.	1
Construction – 4 months	Construction of: Office and living areas (staff)	1 and 2
	Machine Parking Area	1 and 2
	Machine Repairing Workshop	1 and 2
	Laboratory	1
	Precast Yard	1
	Material Storage Areas	1 and 2
	Installation of: Cement Concrete Batching Plant	1 and 2
	Asphalt Mixing Plant	2
Operation – 3-5 years	Operations for three (3) years and decommissioning activities during the latter two (2) years of the project period.	

Office and Living Area

The office and living area covers approximately 1.33 acres, accounting for 16.2% of the project sites. This area will contain 20 offices, 40 living rooms, conference rooms, bathrooms, activity rooms, kitchens, restaurants, generators, and other facilities, to meet the living and office needs of 94 people.

Machine Parking Area

This impervious area will contain a machine parking area, a machine-repairing workshop, and a fuel storage area with a fuel tank with a capacity of 40000L.

East Bank Demerara Road Improvement
List of equipment used on site and parking at Main Camp

No.	Name of the item	Specification	Model	Manufacture year	Equipment status	Make	Manufacturer	Unit	Quantity	Original
1	Crawler excavator	22T	XE215DA	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	6	Import from China
2	Wheeled excavator	14T	XE150WD	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
3	Loader	3M3	LW500H	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	6	Import from China
4	Grader	3.66M	GR1653	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	2	Import from China
5	Bulldozer	16T	SD16	2024	new	China	SHANTUI CONSTRUCTION MACHINERY	u	1	Import from China
6	Hydraulic breaker	0.5T	XEB100	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
7	Excavator long arm	15M	15M	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
8	Dump truck 20M3	20M3	F3000	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	10	Import from China
9	Dump truck 25M3	25M3	F3000	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	18	Import from China
10	Sprinkler truck	10M3	SX5254GSSBM434	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	3	Import from China
11	Concrete mixer truck	10M3	ZZ5257GJBN3841W	2024	new	China	CHINA NATIONAL HEAVY DUTY AUTOMOBILE	u	4	Import from China
12	High flatbed trailer	30T	ZZ4257M3241W	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	1	Import from China
13	Low flatbed trailer	30T	ZZ4257M3241W	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	1	Import from China
14	Fuel truck	8000L	ZZ5257GJBN3841W	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	1	Import from China
15	Single drum roller	22T	XS225	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	3	Import from China
16	Rubber-tyred roller	30T	XP30	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	2	Import from China
17	Dual drum roller	13T	XS13J	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	2	Import from China
18	Small dual drum roller	3T	ZLR30	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	2	Import from China
19	Hand-held roller	1T	1T	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
20	Asphalt spreader	8M3	SX5160GLQ	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
21	Asphalt concrete paver 7m	7M	7M	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
22	Asphalt concrete paver 7m	7M	7M	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
23	Asphalt concrete paver 3m	3M	3M	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
24	Pavement milling machine	2.44M	2.44M	2024	new	China	WIRTGEN MACHINERY	u	1	Import from China
25	Cement concrete mixing plant	90M3/H	HZS90JZ	2024	new	China	SHANTUI JANEOO MACHINERY	u	1	Import from China
26	Vibrating pile hammer	90KW	DZJ90	2024	new	China	YONGAN MACHINERY	u	1	Import from China
27	Mobile crane	50T	XCT50_Y	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
28	Crawler crane	80T	XGC85	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
29	Trailer crane	8T	SQ8SK2Q	2024	new	China	SHAANXI HEAVY DUTY AUTOMOBILE	u	1	Import from China
30	Graded crushed stone mixer	500T/H	MWB500	2024	new	China	SANY HEAVY INDUSTRY	u	1	Import from China
31	Gravel spreader	20M3	20M3	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
32	Chipseal machine	20M3	20M3	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
33	Gantry crane	16T	16T	2024	new	China	SHUANGLI MACHINERY	u	1	Import from China
34	Generator 50KW	50KW	50KW	2024	new	China	YOUHUAN MACHINERY	u	5	Import from China
35	Generator 200KW	200KW	200KW	2024	new	China	YOUHUAN MACHINERY	u	2	Import from China
36	Generator 300KW	300KW	300KW	2024	new	China	YOUHUAN MACHINERY	u	1	Import from China
37	Sweeper	3M	3M	2024	new	China	XUGONG CONSTRUCTION MACHINERY	u	1	Import from China
38	Transformer 630KVA	630KVA	630KVA	2024	new	China	BEIYOUTE TRANSFORMER	u	1	Import from China
39	Transformer 315KVA	315KVA	315KVA	2024	new	China	BEIYOUTE TRANSFORMER	u	1	Import from China
40	Weighbridge	100T	100T	2024	new	China	BAOZHILE MACHINERY	u	1	Import from China
41	Centrifuge tube machine	2M	2M	2024	new	China	CHANGJIANG MACHINERY	set	1	Import from China
42	Water purification equipment	6M3/H	WT-6000G	2024	new	China	HENGNAN MACHINERY	set	2	Import from China
43	Drum mixer	18M3/H	18M3/H	2024	new	China	CHANGJIANG MACHINERY	u	2	Import from China
44	Forklift	3T	3T	2024	new	China	JIEKE MACHINERY	u	1	Import from China
45	Tire-type pile driver	250MM	250MM	2024	new	China	JIEKE MACHINERY	u	1	Import from China
46	Automatic Leveling kerbing machine	0-6M/MIN	KEP-L5	2024	new	China	SHANDONG KAERPU	u	1	Import from China
	合计Total								100	

Material Storage Area

The material storage area will primarily be used for the storage of white sand, loam, and aggregates for the EBD road improvement /construction. The white sand will be sourced from the right side of Soesdyke-Linden Road K10, the loam sourced from the right side of Soesdyke-Linden Road K46, and aggregate sourced from about 60km from Linden and about 130km from site #1.

Precast Yard

The Precast yard will be installed/constructed under a 22m-width Gantry crane with a track length of 180m. This yard will contain 660m^2 of raw material storage area, 440m^2 of Steel processing area, 660m^2 of Semi-finished product storage area, 880m^2 of culverts prefabricated storage area, 1540m^2 of concrete beam-slabs/piles/pipes prefabricated storage area. The precast structures will be used for the bridges and culverts by the EBD road improvement/construction project, and other drainage works on the project sites.

Laboratory

The laboratory will be responsible for raw material testing, graded gravel, and cement concrete testing as well as on-site inspection and other testing works. The laboratory will be mainly equipped with Laboratory equipment (list attached).

Warehouse

The warehouse will be a closed building used for the storage of bagged cement, which will be utilized at the project sites during the concrete batching process. The warehouse will cover an area of 300m^2.

2.2.1 CEMENT CONCRETE BATCHING PLANT

Specification of the Cement Batching Plant

Main technical parameters

Site #1

- System Model: HZS090-5R
- Host Model: JS1500-3B;
- Theoretical productivity 90m3/h;
- The power of the whole machine is 105kW, and the weight of the whole machine is 43t.

Site #2

- System Model: HLS60
- Host Model: PL1600QD;
- Theoretical productivity 60m3/h

Powder storage and supply system

Site #1

- Supporting cement 2 silos;
- Supporting cement screw conveyor.

Site #2

- Supporting cement 3 silos;
- Supporting cement screw conveyor.

Dust removal system

Site #1

- Supporting Pulse dust collector power: 3kW.

Site #2

- Reserve pulse anti-blowing system.

Features to mitigate environmental impacts

Site #1

- The main plant is configured with container-type external sealing, to prevent aggregate powder dust from overflowing;
- The main mixing building is equipped with a pulse dust collector, which can effectively collect and remove the dust, preventing dust leakage, to protect the environment;
- The cement silo is equipped with a pulse reverse-blowing dust collector, which can effectively collect and remove the dust, preventing dust leakage.

Site #2

- The aggregate system is equipped with a PL1600QD batching machine and a 40° 40-high-angle Angle belt conveyor. It has a container panel control room with interior insulation decoration.
- The master is equipped with a dust removal system and dust removal cloth bag.
- The cement silo is equipped with pulse-type reverse blowing dust removal system to protect the environment.

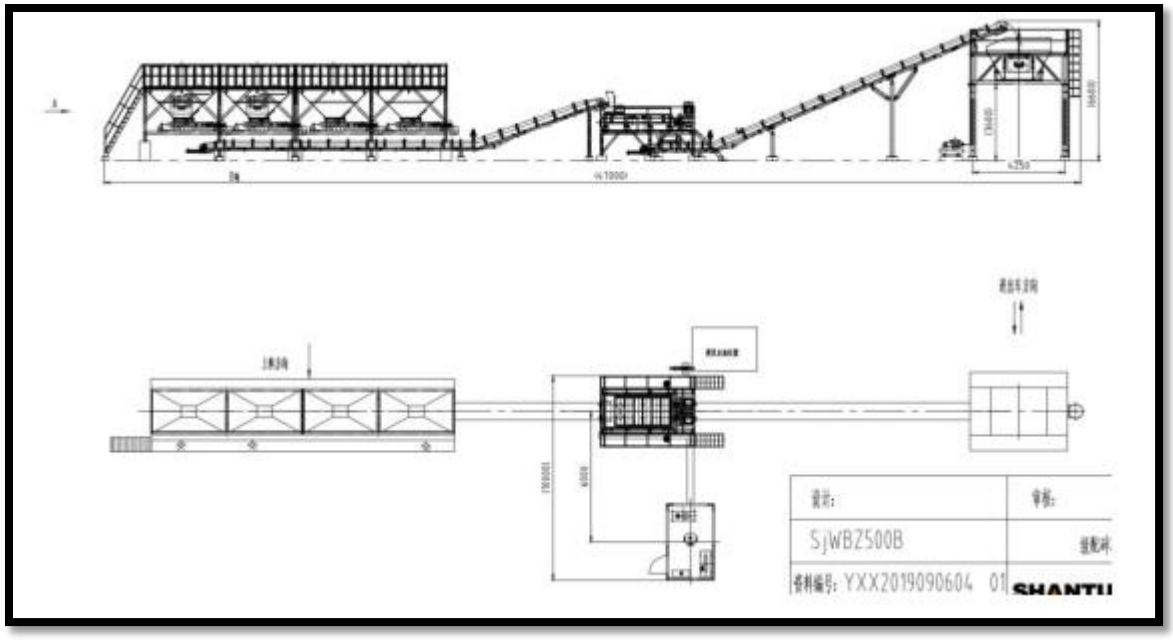

Figure 4: Layout of cement concrete batching plant HZS090-5R

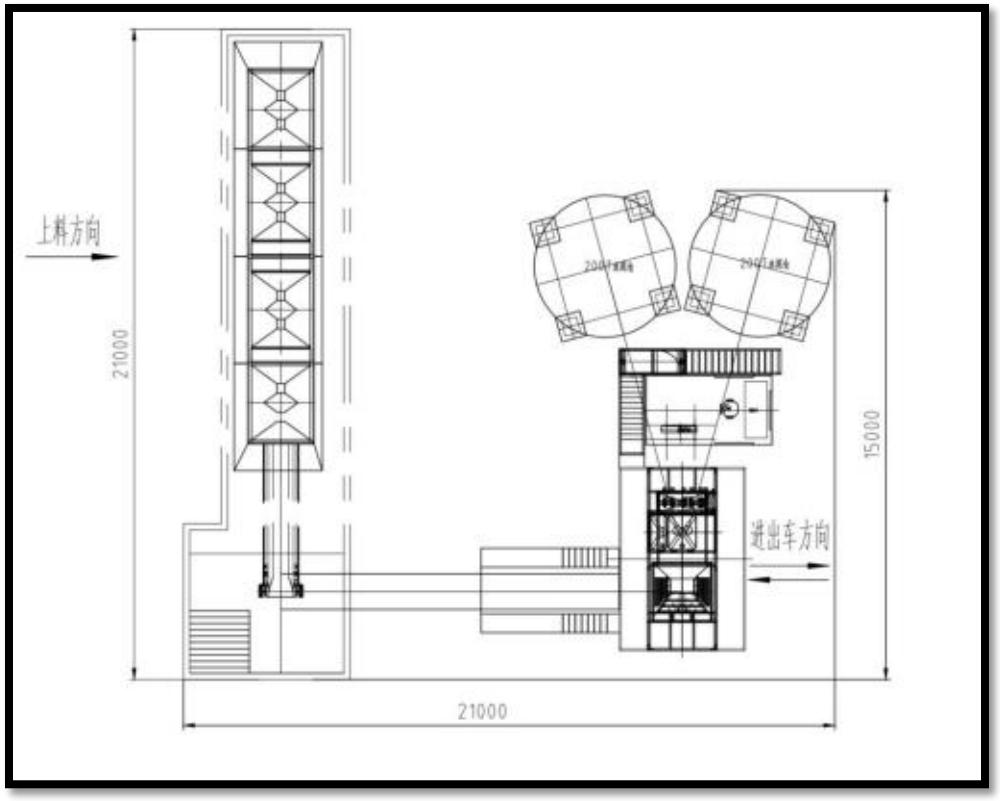

Figure 5: Illustration of Cement Batching Plant

Figure 6: Photo of Cement Batching Plant

2.2.2 CRUSHED STONE MIXER

Brief introduction: This equipment is used for the Road Base Material. The material used in the road base does not contain cement or any additional powder. Moreover, the production process adopts wet mixing. SjWBZ500B stabilized soil plant mixing equipment is the equipment of blocks combination mixing plant. It consists of a grain batch system, powder batch system, material conveying system, water supplying system, mixing system, pneumatic system, controlling room, ready materials storage bin, and electric control system.

Main technical parameters

- System Model: SjWBZ500B
- Host Model: SjWS500.
- Theoretical productivity 500t/h.
- The power of the whole machine is 122kW, and the weight of the whole machine is 37t.

2.2.3 ASPHALT MIXING PLANT

Main technical parameters

- System Model: J2000
- Production capacity: 120～160t/h.
- Fuel consumption rate: ≤6.5kg/t (there is a deviation based on the actual fuel calorific value consumption rate).
- Standard installed capacity: 446KW.
- Dynamic measurement accuracy: aggregate 2%, powder 1.5%, asphalt 1%.
- Static measurement accuracy: aggregate 0.3%, powder 0.2%, asphalt 0.1%.
- Environmental performance: Smoke and dust emission ≤30mg/Nm3. The blackness of soot is less than Ringelmann's blackness Level 1.
- Complete machine weight (approx.): 209t.
- Covered area: length: 41m, width: 36m, highest point of equipment: 20m.

Siege, Illegal, and Mixing System

Equipped Dust room

- Type： Closed type, connected to the first-class dust removal with pipelines.

Asphalt supply system:

- Type: 2 asphalt cans, heat-conducting oil indirect heating, and automatic temperature control
- ***Asphalt can*:**
- Quantity: 2;
- Capacity for each: 54,500 liters;
- ***Heating method:*** Indirect heating of thermal exchangers of thermal oil disk tube;
- ***Insulation method***: Heat insulation layer and outsourcing galvanized plate.

The asphalt/bitumen will be imported from other countries, transported to the project site (#2) in barrels or containers, and then transferred into the asphalt storage tanks.

Power supply system

Type: powder warehouse + recycling warehouse + feed pneumatic butterfly valve + Spiral conveyor (for the supply of powder supply) + related dust, safety, and control devices.

Powder warehouse

- ***New Fancang (Xin Fan):*** Volume capacity: 46 m3 (about 52 t).
- ***The method of feeding:*** the pink tank is delivered with internal over-pressure safety protection, and the top is equipped with an automatic load-unloading device.
- ***Dust pollution control***: the exhaust mouth is equipped with a pulse dust collector and automatic blowing system; Materials detection: configuration material detection system.
- Prevent arch arches: vibrator and compressed air floating device (easy to flow power).
- In addition, there are escalators in maintenance, safety guardrails, and internal and external.

Recycling powder warehouse: Volume capacity: 46 m3 (about 52 t)

- ***Method method***: Recycling powder improvement machine.
- ***Ultra-pressure security protection in the tank***: the top is equipped with an automatic load-unloading device.
- ***Dust pollution control***: exhaust mouth with cloth bag filter.
- ***Materials detection:*** configuration of the material position detection system.
- ***Prevent arch arches:*** vibrator and compressed air floating device (easy to flow powder).
- ***Others:*** Maintenance into the holes, safe guardrails, escalators inside and outside.

Dust removal system

- Type: Primary inertial dust removal + second stage cloth bag dust removal system.
- Primary dust removal performance: separated dust particle size ≥75 μm.
- Two-level dust removal performance: dust pollution control ≤30 mg / nm3.
- Maximum processing air volume: 75000 m3 / h.

Features to mitigate environmental impacts

- The discharge port of the powder silo is equipped with a pulse dust collector and automatic cleaning system to prevent dust pollution.
- The type of dust removal system is "primary inertial dust removal + secondary bag dust removal system".
- The inertial dust collector is used for settling dust with particle size ≥75μm.
- The bag dust collector adopts an atmospheric reverse cleaning dust removal system to protect the environment.

Figure 7: Layout of Asphalt Mixing Plant J2000

2.3 UTILITIES

The main electricity supply will come from the Guyana Power and Light (GPL) with backup power provided by a 200KW/60HZ standby generator. The generator will be equipped with the necessary mufflers and located in a soundproof enclosure. Water will be provided by Guyana Water Inc. (GWI) and there will be at least 10,000 gallons of storage provided on the property to cater for interruptions in the service. Communications and data will be provided by Guyana Telephone and Telecommunications (GTT).

The sewage in the project sites will be collected into the sewage sedimentation tank through a special PVC pipe. After being filtered and treated to meet the GNBS standards, it will be discharged into the external ditches.

3 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section summarizes the potential impacts of the project. The projects' planned control and mitigation measures to reduce or minimize identified potential adverse impacts are also discussed in this section of the report.

3.1 AIR QUALITY IMPACTS

Particulate matter and gaseous emissions will be generated from the operation of the asphalt mixing and concrete batching plants. Dust generation can also result from the stockpiling of dry and loose materials to be used in processes such as sand and shifting, and from the loading of these materials into the receiving bins of both the asphalt and concrete plants. However, there are no immediate receptors to be affected by dust generation.

Mitigation

The Asphalt Plant will be equipped with the following features to minimize fugitive emissions:

- ***Dust pollution control***: exhaust mouth with cloth bag filter.
- ***Materials detection:*** configuration of the material position detection system.
- ***Prevent arch arches:*** vibrator and compressed air floating device (easy to flow powder).
- ***Others:*** Maintenance into the holes, safe guardrails, escalators inside and outside.

Dust removal system

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- The type of dust removal system is "primary inertial dust removal + secondary bag dust removal system".
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- The bag dust collector adopts an atmospheric reverse cleaning dust removal system to protect the environment.

The Cement Batching Plants will be equipped with the following features to minimize fugitive emissions:

Site #1

- The main plant is configured with container-type external sealing, to prevent aggregate powder dust from overflowing;
- The main mixing building is equipped with a pulse dust collector, which can effectively collect and remove the dust, preventing dust leakage, to protect the environment;
- The cement silo is equipped with a pulse reverse-blowing dust collector, which can effectively collect and remove the dust, preventing dust leakage.

Site #2

- The aggregate system is equipped with a PL1600QD batching machine and a 40° 40-high-angle Angle belt conveyor. It has a container panel control room with interior insulation decoration.
- The master is equipped with a dust removal system and dust removal cloth bag.
- The cement silo is equipped with a pulse-type reverse-blowing dust removal system to protect the environment.

Other mitigation measures include:

- 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.

3.2 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.

Mitigation

The following measures will be implemented during the construction phase to mitigate possible impacts on the environment:

- All equipment will be maintained following the manufacturer's specifications.
- Vehicles (trucks, forklifts, delivery trucks) and machinery will be turned off when not in use.
- All fixed and mobile equipment will be checked regularly to ensure they are in good working order and are maintained regularly following the manufacturer's specifications. Machinery found to produce excessive noise compared to industry normal standards will be checked for the source of excessive noise and serviced.
- All engine covers will remain closed while the equipment is operating.
- Where practical, machinery will be operated at low speeds or power and switched off when not in use to avoid unnecessary idling.
- Noise levels will be monitored to ensure compliance with recommended threshold levels.
- Posting visible warning signs in areas of high noise levels instructing employees to wear ear protection.
- During operations, workers will be equipped with hearing protectors (earmuffs, earplugs).

3.3 WATER QUALITY IMPACTS

There is no anticipated impact on 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.
- Bitumen storage tanks will be placed in 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.

- Sediment traps will be installed in the internal drainage system to capture any sediments from runoff.

3.4 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 the production of asphalt and concrete) and material recovered by the dust collection system. There will be no process-related effluent. Sewage will be generated from toilet facilities. Hazardous waste including waste oil, oily filters, and rags will be generated from the servicing of the generators and other machinery. Improper waste management can be unsightly and impact the soil and water quality.

Mitigation

The following measures will be implemented to reduce any adverse impact from waste during the operation:

- Garbage including office waste and waste from small packagings, such as paper, cardboard, and plastic; food waste such as boxes, wrappers, tins, and bottles; and residual food will be collected in bins provided at strategic locations around the sites. Garbage will be disposed of at the Haags Bosch Landfill by a contracted waste disposal company.
- Surplus asphalt and concrete material will be spread around the project site or donated to the Neighbourhood Democratic Council (NDC) for fixing streets, etc.
- Material recovered from the dust collection systems will be reused in the asphalt and concrete manufacturing process.
- Wash water from concrete tank trucks or wastewater from cement concrete mixing stations will be directed to a settlement pond/tank. After settling and filtering, the water will be discharged into the environment. CBRC will maintain a strict policy rule that prohibits the random discharge of wastewater from concrete tank trucks.
- Sewage will be directed to a septic tank via a special PVC pipe. The septic tank will treat and discharge the sewage through a filter bed.

Fuel Storage, spill management, and dumping of waste oil

Spills during refueling and from stored fuel oil could contaminate soil, surface, and groundwater. Areas designated for fuel storage will be located well away from areas of fire hazard. All fuel will be trucked to the sites by secure fuel trucks and transferred into fuel storage tanks (***20,000L at Site #2 and 40,000L at Site #1***) that are installed on impervious surfaces. The fuel tanks will be housed within enclosures. The enclosures will be sized to retain the contents of 110% of the tank in the event of tank failure.

Discharge from fuel storage areas will be channeled to oil-water separators before being discharged to surface water. Indiscriminate dumping of waste oil will not be permitted at the Project sites or in its environs. Waste oil will be stored in suitable containers at designated points at the Project sites. All waste oil storage areas will be provided with secondary containment to deal effectively with any leakage or spillage.

Other impacts can also arise from the improper storage and handling of fuels lubricants, and chemicals. Soils can become contaminated from fuel spills and improper disposal of waste oil and solid waste contaminated with fuels. Mitigation measures include:

- Use of drip pans, and trays when refueling equipment/trucks on site.
- Storage of fuel in fuel truck with adequate spill prevention.

3.5 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.
- Employees will be provided 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 to 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 will be 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.

4 CONCLUSION

CRBC aims to adhere, achieve, and comply with all relevant laws and regulations including those of the Environmental Protection Agency (EPA). Both projects will be implemented with minimal adverse impacts on the local environment. Further, stringent monitoring, prevention, response, and reporting plans will be established and maintained to achieve compliance during all phases of the projects. Employees, contractors, and sub-contractors will be trained to maintain the company's environmentally sound goals and standards thus ensuring CRBC's excellent track record and reputation for international Health & safety and environmental compliance is maintained.