

PROJECT NAME

JSB Ultimate Concrete Blocks and Pavers

2021



Company Info: JSB Investment Inc

Block R, Public Road, Sosedyke, EBD

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Date : October 12, 2021

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1.0 PROJECT DETAILS

The project entails the construction of a facility approximately 90,000 square for storing of raw materials, house the production machinery and space for curing and storing of concrete blocks and pavers. **See Appendix I** for the layout of the Plant Facility.

The project will be developed over a period of 6-8months after receiving all approvals, permissions and licensing to establish and operate such a facility. Table I is the project development details/ activities and time lines.

Table I.

No.	Project Details/Activities	Timelines							
		Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8
1	Land Preparation	█							
2	Construction of Facility & Infrastructure	█	█	█	█				
3	Ordering, purchasing & Shipping of Plant & Machinery		█	█	█				
4	Assembling & Testing of Plant and Machinery				█	█	█		
5	Recruiting and Training of Staff					█	█	█	
6	Trial Run and Commencement of Production							█	█

1.10 Constructions Details

The Structures outlined in item 1.30 below will be constructed using pre-fabricated steel structures, concrete blocks for all internal and external walls, ready-mix concrete for the flooring with zinc roof including transparent zincs for light penetration. The roof and walls will have extractor fans install to keep the environment Kool as possible.

All building will be fitted with adequate gutters to harvest rainfall water for use and to avoid erosion of in the area.

1.20 Source of Utility Services

Electricity: The entire operation will be powered by the company generator.

Water Supply: The water required for the production of the products and other use will be harvest from rainfalls and stored in large tanks and reservoirs. Water will have to transported by water tankers which will be filled from nearby creeks. There will also be a private well in the near future.

Communications: Communications will be done via Mobile Phone and Landlines that are available in the area.

1.30 Facilities

The facilities for this project will comprise the following:

- I. A Shed with the dimension of 125 L'x45'W x 20'H for Batchers and Raw Materials Storage,
- II. A Shed with the dimension of 125 L'x45'W x 20'H for Blocks and Pave Manufacturing
- III. One Office Building
- IV. One Residential Building
- V. Fuel Storage Tank
- VI. Cement Silos

Details of the facilities and a site plan can be found in **Appendix II**.

1.40 Waste Management

Wastes: Basically, there will be no significant industrial waste that will be generated from this operation. There will be some paper waste emanating from the use of cement in sacks when there aren't any in the silo and cannot be obtained loose by batch. Also there will be some PETs bottle due to the use of hardeners in the curing process.

Domestic wastes such as food boxes, pet bottles will also be generated by employees and waste water that is derived from bathing and washing of household items. In addition, lavatory water will also be generated from bathrooms.

Waste Disposal Methods: With regard to collecting and disposing of all waste generated at the site, the following systems will be put in place.

For disposal of industrial waste, skip bins will be place at suitable location for the disposal of all industrial waste such as cement bags, pet bottles, etc. House hold waste will be place in small receptacles lined with plastic bags and place in the skip bin when fill.

There will a holding tank where all waste water will be diverted to for treatment and tested before being release to the ground into green areas and root of trees.

There will be septic tank build for the collection and store of sewage and will be pump out and dispose of when needed.

2.0 PROPOSED PROJECT SITE

The project site for the production of the concrete blocks and pavers is situated at Yarowkabra on the Linden Sosedyke Highway, Region 4. The site is approximately 4.2 miles from the junction of Linden – Sosedyke Highway and East Bank Demerara road.

The surrounding communities from the site are Kuru Kururu Housing Scheme & Swan Village which is approximately 3 miles to the North and Yarowkabra Housing Scheme which is approximately 2.15 miles South East. The map below is an extract from Google Map showing the location where the manufacturing of the blocks and pavers will take place.



As noted on the map, the geographic coordinates are 6°29'37.91"N and 58°12'52.05"W using WGS 84 datum.

The land required for this project is approximately 40 acres of State Land, situate at Yarowkabra, Eastern Side of Soesdyke Linden Highway. The tract commences at a point with coordinates E365940 N718499 being N303° 47' 35" (tr), 400 feet from the Soesdyke Linden Highway and the Emerald Tower Road, thence N303° 47' 35" (tr), 871.20 feet in facade, thence N213° 47' 55" (tr), 2000 feet for a mean depth, as shown on GLSC Plan No. X-1051. See Plan X-1051 attached as per **Appendix III**.

The current land use for this area and the contiguous areas are used for sand mining. There will be no intake or discharge of structures close to the location. Please find current pictures of the location and its surroundings in **Appendix IV**.

3.0 PROJECT SIZE

3.10 Investment: This project will be one of the first on the Linden Sosedyke Highway in Region 4. The estimated level on Invest for this Phase of the project is G\$ 120,000,000 which will be financed by a debt to equity ratio of 45% to 55 %. The areas of investment are outlined in **Table II**.

Table II

No.	Area of Investment	Amount in G\$
1	Plant & Machinery	48,000,000
2	Building & Infrastructures	23,000,000
3	Equipment	39,000,000
4	Startup Working Capital	10,000,000
	Total	120,000,000

3.20 Employment: The facility will also provide employment for a minimum of 32 persons in the following categories.

No.	Designation	Number of Persons
1	Managers	3
2	Supervisors	2
3	Clerks	2
4	Plant Operators	2
5	Forklift Operators	2
6	Truck Operators	2
7	Electrician	1
8	Mechanic	1
9	Serviceman	1
10	Block/ Pavers Makers	4
11	Security Personnel	2
12	Labourers	10
	Total	32

Preference of employment will be given to the persons living within the surrounding communities.

3.30 Production Capacity:

PRODUCTION CAPACITY WITH POSSIBLE SIZES					
Sr. No.	Product	Image & Sizes	Pcs/Mould	Pcs/Hr	Pcs/Shift
1	Fly Ash Brick (With Frog)	 230 x 110 x 75	8	1920	15360
2.	Fly Ash Brick (With Frog)	 190 x 90 x 90	10	2400	19200
3.	Fly Ash Brick (Light Weight)	 240 x 115 x 90	8	1440	11520
4.	ZIG-ZAG Shape Paver Block	 225 x 112.5 x 80	6	1080	8640
5.	I - Shape Paver Block	 200 x 165 x 80	6	1080	8640
6.	Solid Concrete Block	 300 x 150 x 200  400 x 150 x 200	3 3	540 540	4320 4320
7.	Hollow block	 390x 190 x 190	2	360	2880
8.	Retain Block	 450 x 300 x 190	1	120	960
9.	Ventilation Block	 225 x 225 x 100	4	720	5760

The Production per shift is based on an 8-hour shift.

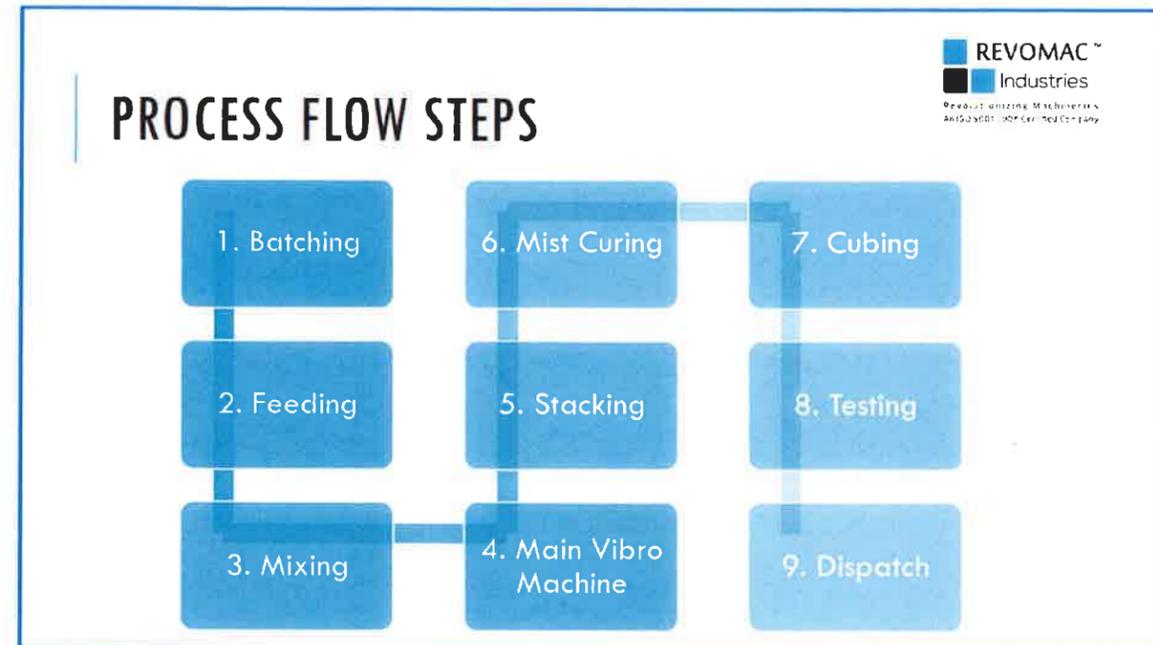
3.40 Marketing Strategies: JSB Investment Inc has added the above products to its line of existing products. These new products will now add to make the firm a major all in one suppliers of main building products.

Upon the commencement of production, steps will be taken to work the all the relatives' standards body including ISO to have its factory and products ISO Certified. With established link to major Caribbean Contractors, JSB Investments Inc is position to be the first producers of Concrete Products in Guyana to start export to the Caribbean.

4.0 PRODUCTION PROCESS AND OPERATIONS OF PROJECT

This project entails the production of concrete blocks/bricks and pavers to sell to the general public, contractors and home builders.

The following diagram depicts the operation flow of the plant.



4.10 Description of Brick/Block/Paver making production process

Raw Materials: The most common raw materials used for brick/block/paver production are powdered Portland cement, water, sand and gravel. This produces a light gray brick/block/paver with a fine surface texture and a high compressive strength. The concrete mixture that will be used for blocks will have a higher percentage of sand and a lower percentage of gravel and water than the concrete mixtures used for general construction purposes. This produces a very dry, stiff mixture that holds its shape when it is removed from the brick/block/paver mold. Lightweight concrete brick/block/paver are made by replacing the sand and gravel with expand clay, shale, or slate.

In addition, the concrete mixtures used will contain admixtures that will alter curing time, increase compressive strength. Pigments will be added to give the blocks a uniform colour throughout, or the surface of the blocks will be coated with a baked-on glaze to give a decorative effect and to provide protection against chemical attacks. The company will be mixing sifting dust into the mixture for its production of its blocks. Sifting dust is normally retailed to other users to be utilized in asphalt plant and is known to increase

compressive strength 10 to 20 percent, which J.S.B. Investments Inc. will use to their advantage on the competitive market. The company will be sourcing and buying cement locally, J.S.B. Investments Inc. also owns and operates a sand pit which is in the same area as the brick/block/paver making plant. Hence, the sand will be readily assessable and available. Sifting dust will be imported from a supplier that the company's already have a well-established relationship with.

4.20 Raw material preparation & Production Stages: The production of brick/block/paver consists of four basic processes: mixing, molding, curing and cubing.

Mixing:

- I. The sand, gravel, sifting dust, etc are stored inside the compound in storage area. These are then loaded onto the storage bins, which then transfer the material to the processing plant by a conveyor belt as they are needed. The Portland cement is stored inside in large vertical silos to protect them from moisture.
- II. As production runs starts, the required amounts of sand, gravel, cement and sifting dust are transferred to a weigh batcher which measures the correct proportion of each material.
- III. The dry materials then flow into a stationary mixer called the pan mixer where they are blended together for several minutes. Mixing blades are attached to a vertical rotating shaft inside the mixer.
- IV. After the dry materials are blended, a small amount of water is added to the mixer. Admixture chemicals and colouring pigments will be added at this time. The concrete is then mixed for six to eight minutes.

Molding:

- I. Once the load of concrete is thoroughly mixed, it is dumped into an inclined bucket conveyor and transported to an elevated hopper. The mixing cycle begins again for the next load.
- II. From the hopper the concrete is conveyed to another hopper on top of the block machine at a measured flow rate. In the brick/block/paver machine, the concrete is forced downwards into molds. The molds consist of an outer mold box containing

several mold liners. The liners determine the outer shape of the block and the inner shape of the block cavities. As many as 10 brick/block/paver may be molded at one time.

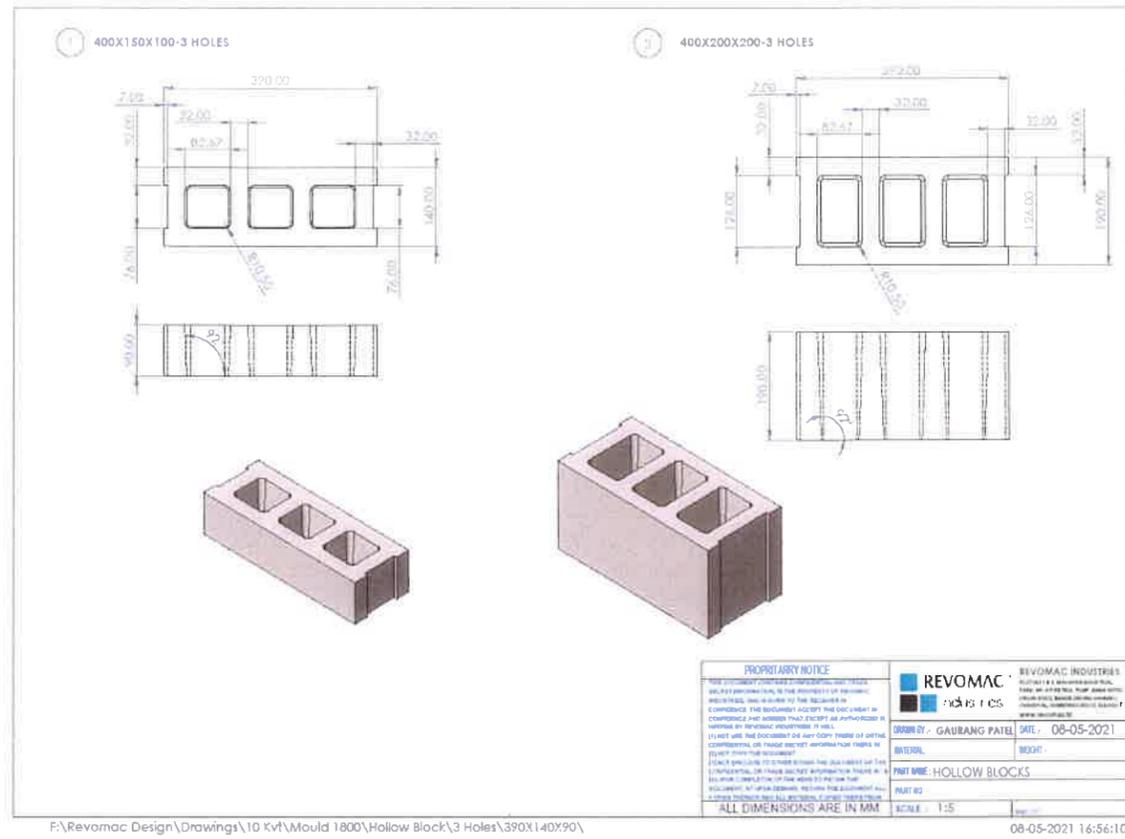
- III. When the molds are full, the concrete is compacted by the weight of the upper mold head coming down on the mold cavities. A short burst of mechanical vibration is added to further aid compaction.
- IV. The compacted blocks are pushed down and out of the molds onto a flat steel pallet. The pallet and blocks are pushed out of the machine and onto a chain conveyor. The block then passes through under a rotating brush which removes loose materials from the top of the brick/block/paver.

Curing:

- I. The pallets of brick/block/paver are conveyed to an automated stacker or loader which places them in a curing rack. Each rack holds several hundred brick/block/paver. When a rack is full it is rolled onto a set of rails and moved into a curing kiln.
- II. The kiln is an enclosed room with the capacity to hold several racks of brick/block/paver at a time. The brick/block/paver are held in the kiln for about one to three hours at room temperature to allow them to harden slightly. Steam is then gradually introduced to raise the temperature at a controlled rate. When the curing temperature has been reached, the steam is shut off, and the brick/block/paver are allowed to soak in the hot, moist air for 12-18 hours. After soaking, the brick/block/paver are dried by exhausting the moist air and further raising the temperature in the kiln. The whole curing cycle takes about 24 hours.

Cubing:

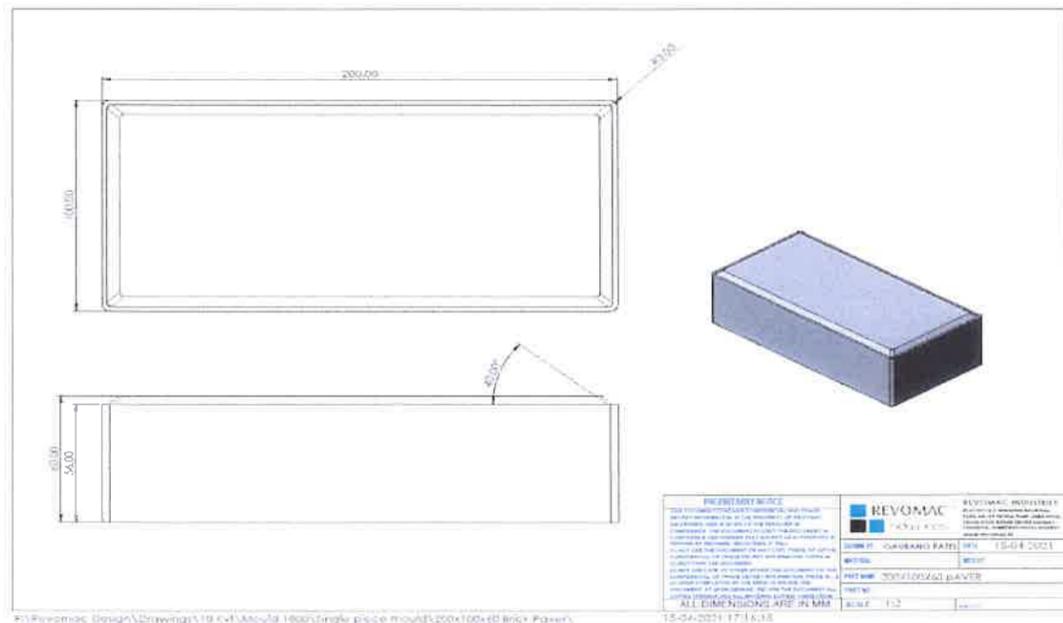
- I. The racks of cured brick/block/paver are rolled out of the kiln, and the pallets of brick/block/paver are unstacked and placed on a chain conveyor. The brick/block/paver are pushed off the steel pallets, and the empty pallets are fed back into the block machine to receive a new set of molded brick/block/paver.
- II. The brick/block/paver passes through a cuber which aligns each brick/block/paver and then stacks them into a cube. These cubes are carried outside with a forklift and placed in storage.



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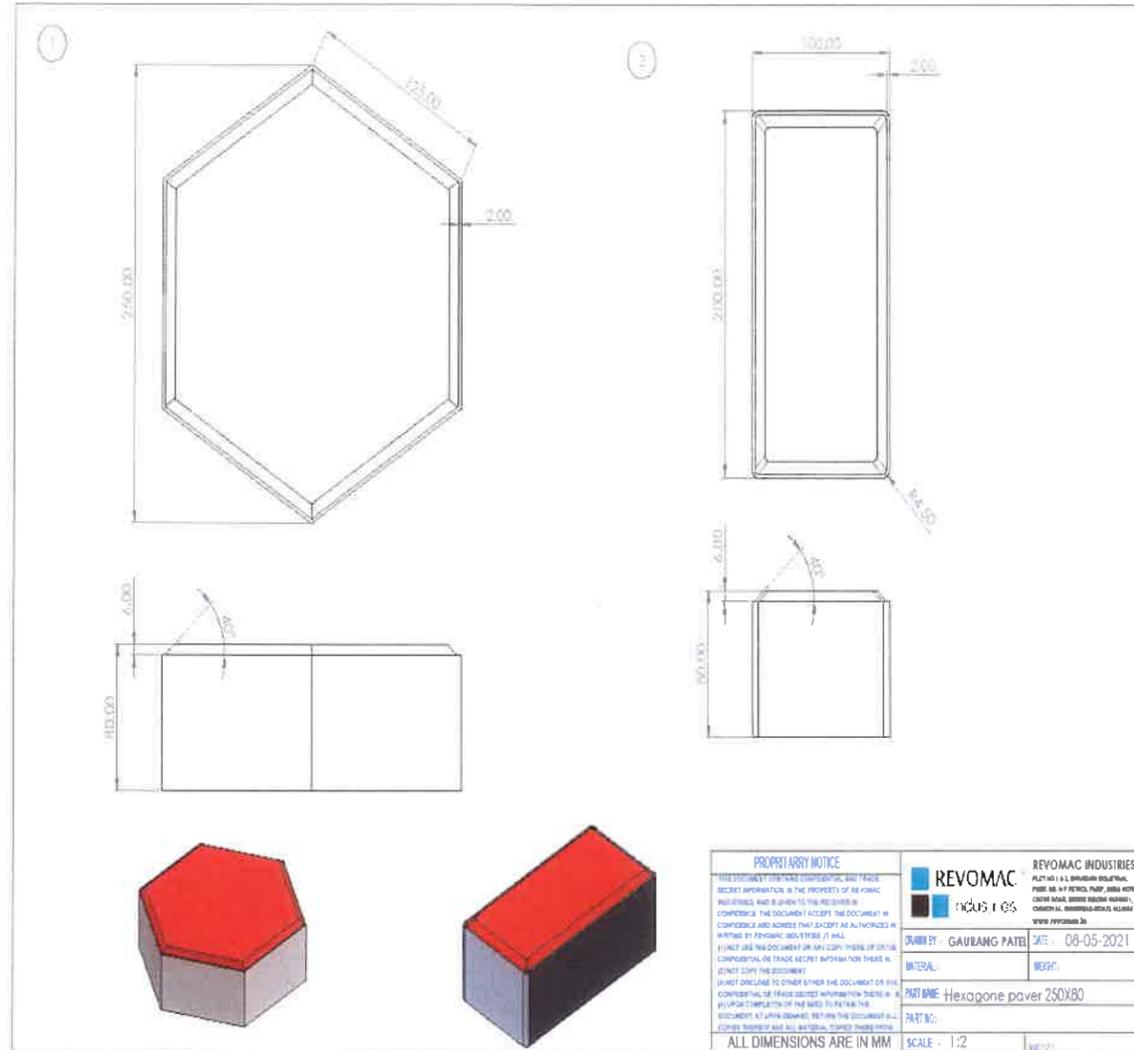
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Pavers:



F:\Revomac Design\Drawings\10 Kv\1\Mould 1800\single piece mould\200x100x50 Brick Paver\

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4.50 Human Resources & HSE Requirements:

JSB Investments Inc will ensure that all of employees, equipment, plant and machinery are equipped with the required safety clothing and devices to ensure that the operations are accident free.

Employee will be outfitted with all the required PPE Gears including respirators and or masks to ensure they inhale dust free air. Steps will be taken to minimize the dust emanating from the operation to almost zero.

5.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Basically, an operation of this nature have minimum or nil impact on the environments. However, Table III outlined the potential environmental impacts and the mitigation measures that will put in place to avoid any sort of impact on the environs.

Table III

No.	Potential Environmental Impacts	Mitigation Measures
1	Land: The land can be eroded as a result of the intense cleaning and excavation for establishing buildings and required infrastructures.	Trees will be planted and revetment will be done with stable soil such as clay to vulnerable areas to curb erosion.
2	Soil: Soil erosion and degradation can occur as a result of the deforestation of the area to establish buildings and required infrastructures, hence poor drainage of water, etc can occur which can result to flooding.	The area identified is fully cleared and steps will be taken to plant grass and shrubs to area where there will be no intense traffic by humans or machinery. Further, proper drainage will be put in place with area for capturing run off water from rain so as to mitigate soil erosion.
3	Water: The only waste water that will emanate for this project are the ones related to domestic/ household use.	Two reservoirs will be built to capture all waste water since there are no current drainage system in place. Systems will be put in place to allow for all waste water diverted to the primary reservoir and then filtered and transfer to a secondary reservoir for treatment and tested before being release to the ground into green areas and root of trees.

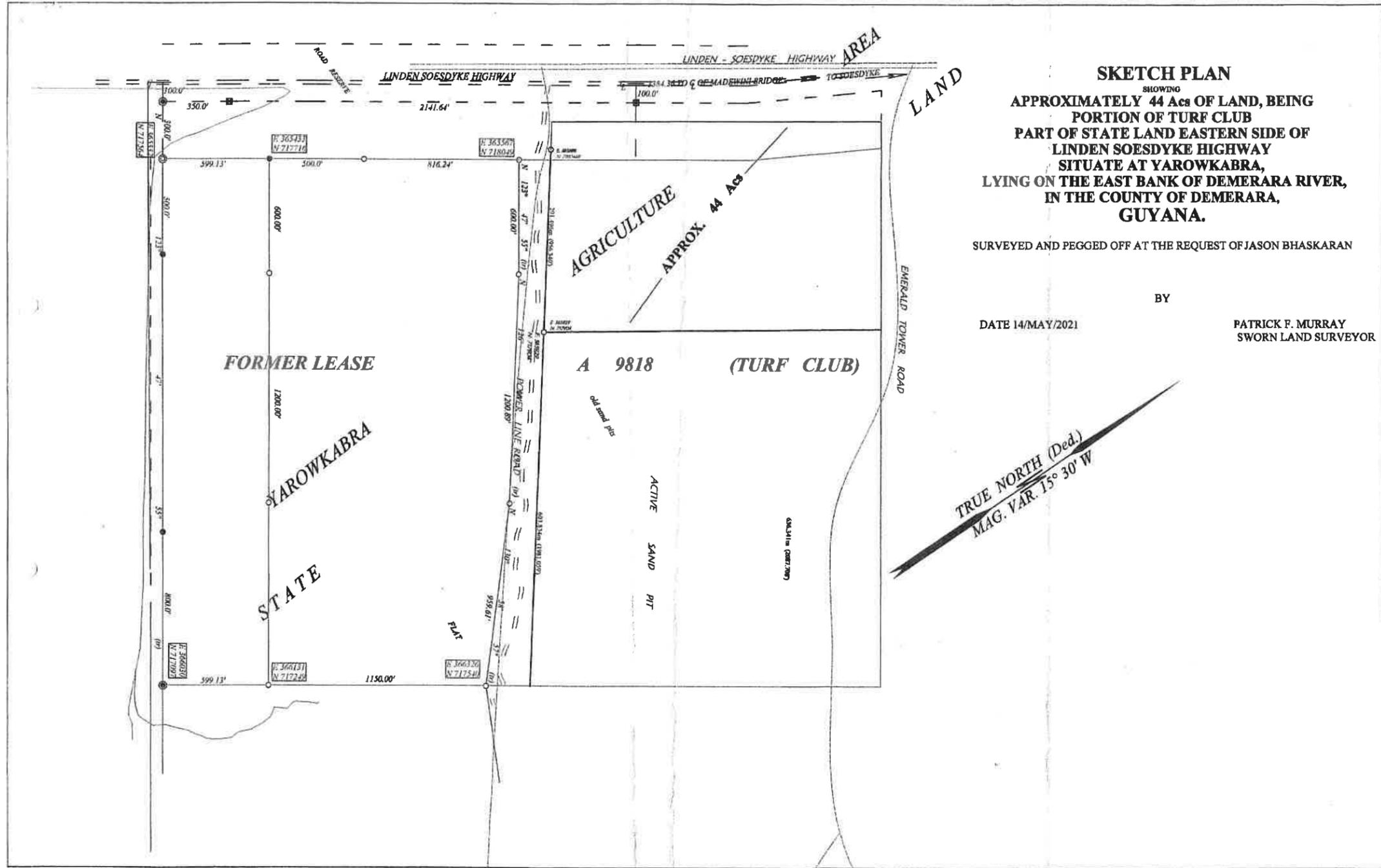
		This will be exercise will be done on regular intervals as required.
4	Air: There will be no environmental effect to the air during the operations of the project since the cement will be kept in silos and pass through an extruder for mixing and other materials will kept in closed building.	
5	Natural Resource Use: No environmental impact since all natural resource – sand and shifting (fine bricks) are acquired from licensed operators.	

6.0 CONCLUSION

In-keeping with the rapid growth in the construction industry, the demand for construction products such as what this project is planning to produce will rise. If there is not an increase in the supply of the products to meet the demand, there will be a high rise in the price for the product which will result in the rise of cost for housing and other infrastructures.

A project of this nature will tend to cushion the effect of the rise in price since there will be an increase in the supply of the products. Further, this project will not have any impact on the environment and will serve well for the country and its citizens.

**Appendix I:
Layout of Plant Facility**

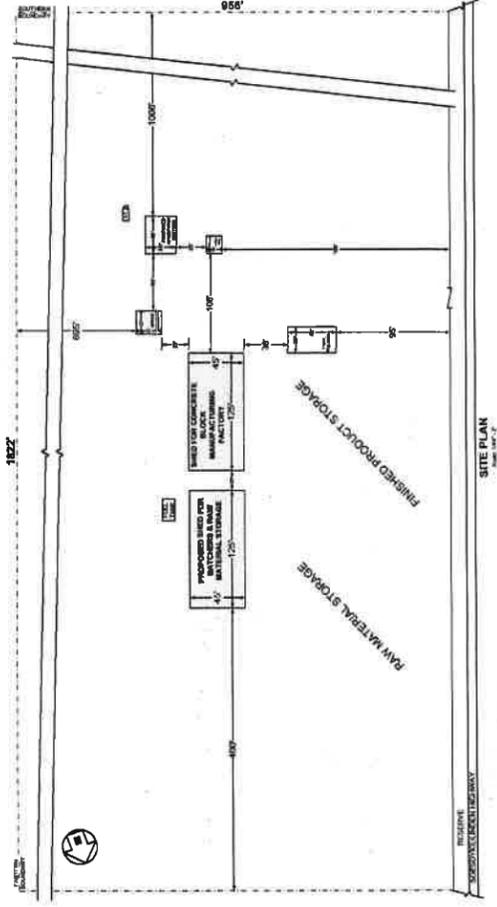
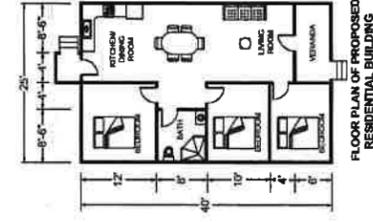
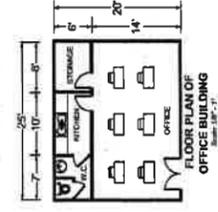
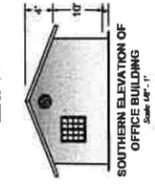
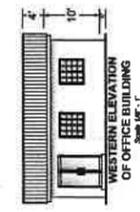
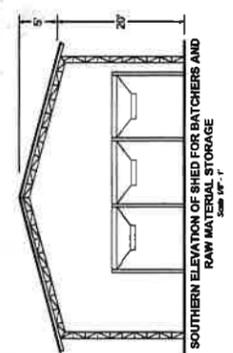
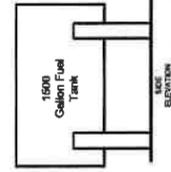
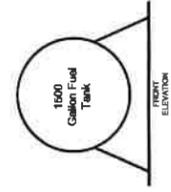
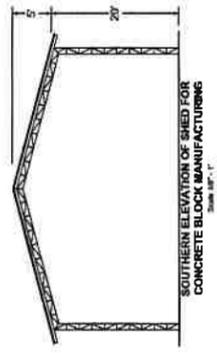
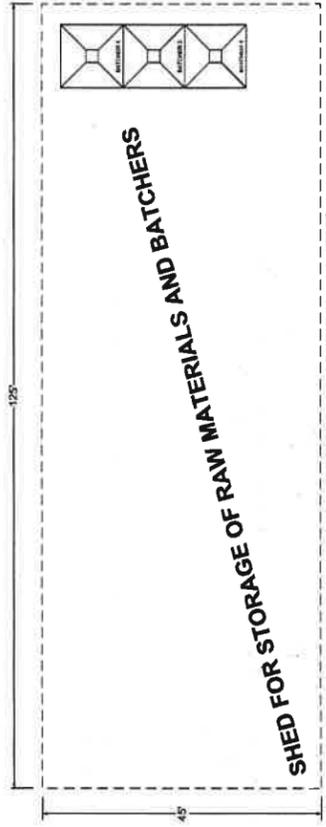
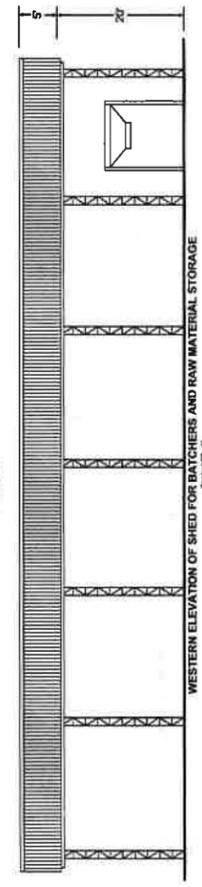
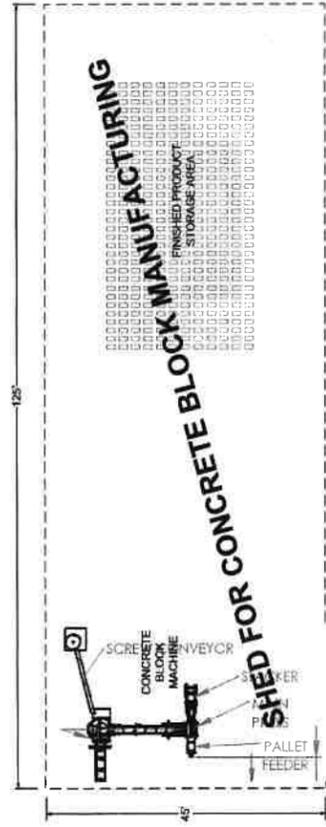
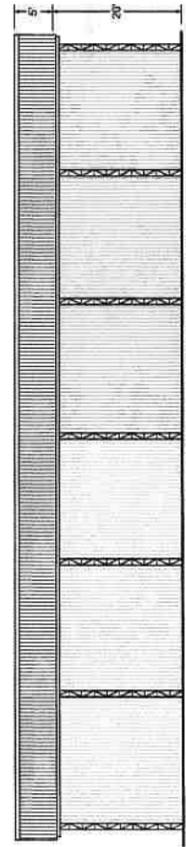


SKETCH PLAN
 SHOWING
 APPROXIMATELY 44 Acs OF LAND, BEING
 PORTION OF TURF CLUB
 PART OF STATE LAND EASTERN SIDE OF
 LINDEN SOESDYKE HIGHWAY
 SITUATE AT YAROWKABRA,
 LYING ON THE EAST BANK OF DEMERARA RIVER,
 IN THE COUNTY OF DEMERARA,
 GUYANA.

SURVEYED AND PEGGED OFF AT THE REQUEST OF JASON BHASKARAN

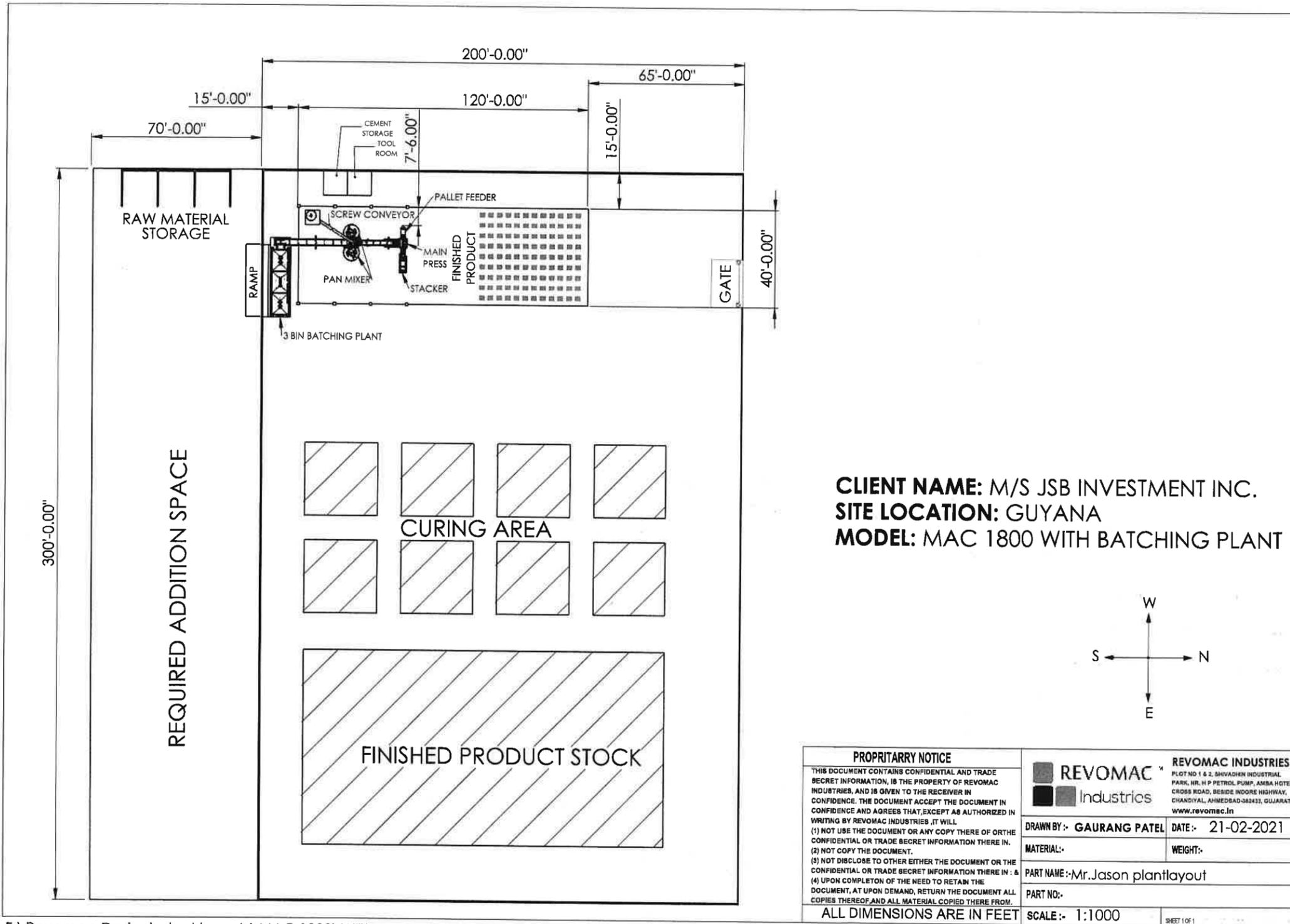
DATE 14/MAY/2021 BY PATRICK F. MURRAY
 SWORN LAND SURVEYOR

TRUE NORTH (Ded.)
 MAG. VAR. 15° 30' W

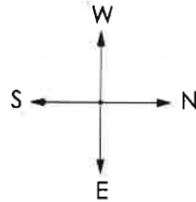


DESCRIPTION	PLANS AND ELEVATIONS SHOWING PROPOSED CONCRETE BLOCK FACTORY
ADDRESS	PORTION OF TRAC CLUB PART OF STATE LAND EASTERN SIDE OF THE UNDER SLOTTYPE HIGHWAY, YASOWAKARA
APPLICANTS	JASON BASKARAN
SCALE	1/8" = 1' & 1/4" = 2'
PAGE	1 OF 1
DATE	2021-07-15

**Appendix II:
Proposed Site Plan for Project Area**



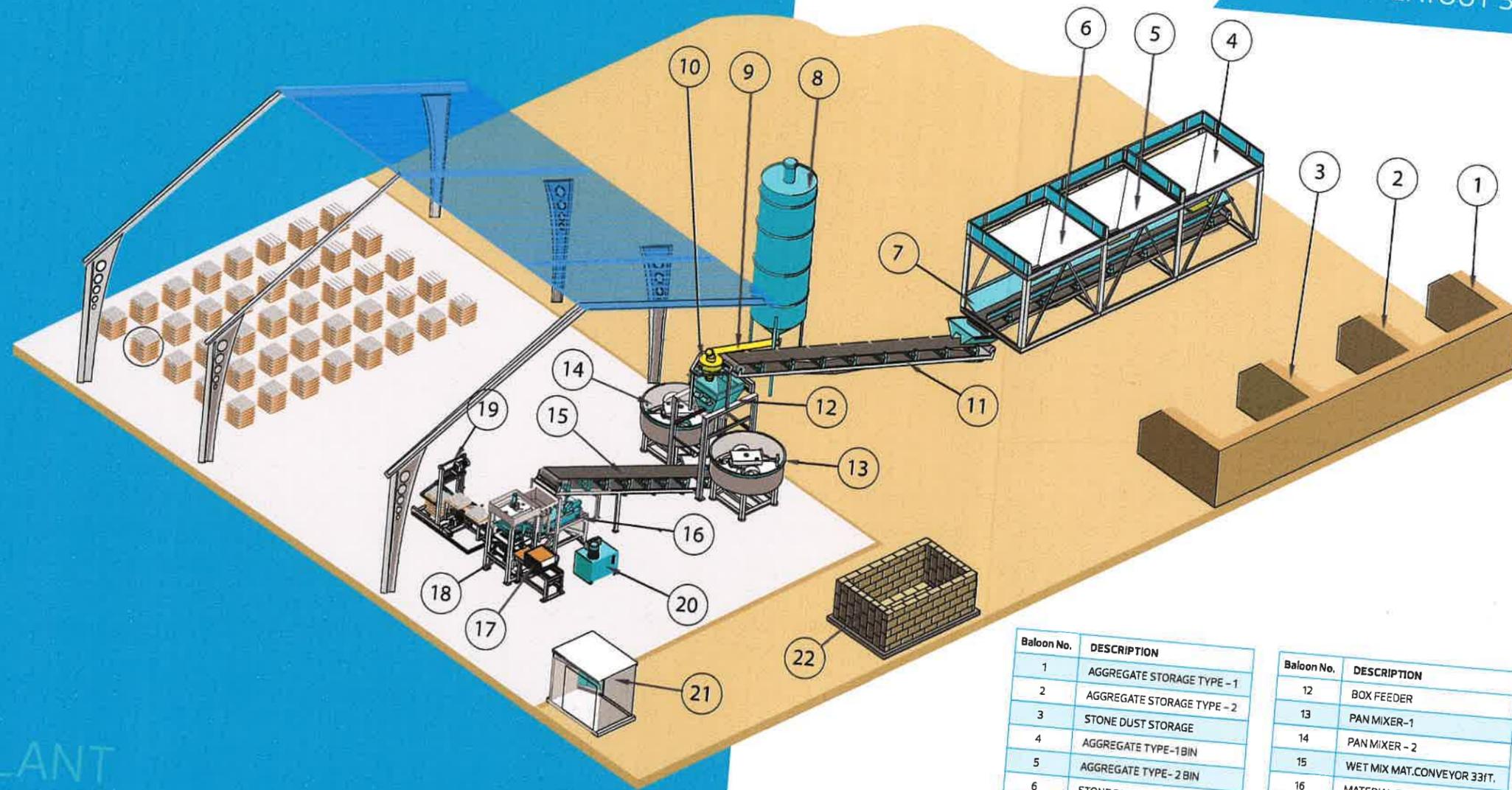
CLIENT NAME: M/S JSB INVESTMENT INC.
SITE LOCATION: GUYANA
MODEL: MAC 1800 WITH BATCHING PLANT



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**Appendix III:
GLSC Plan X-1051**

PLANT LAYOUT 3-BIN



PLANT LAYOUT 3-BIN

Baloon No.	DESCRIPTION
1	AGGREGATE STORAGE TYPE -1
2	AGGREGATE STORAGE TYPE -2
3	STONE DUST STORAGE
4	AGGREGATE TYPE-1 BIN
5	AGGREGATE TYPE-2 BIN
6	STONE DUST BIN
7	GATHERING BELT
8	CEMENT SILO
9	SCREW CONVEYOR
10	CEMENT WEIGH HOPPER
11	DRY MAT.CONVEYOR 33FT.

Baloon No.	DESCRIPTION
12	BOX FEEDER
13	PAN MIXER -1
14	PAN MIXER - 2
15	WET MIX MAT.CONVEYOR 33FT.
16	MATERIAL FEEDER
17	PALLATE FEEDER
18	MAIN PRESS UNIT
19	AUTO STACKING SYSTEM
20	HYD. POWER PACK
21	CONTROL CABIN
22	WATER TANK

MAC 1800



MAC 2500



PRODUCTION CAPACITY WITH POSSIBLE SIZES

Sr. No.	Product	Image & Sizes	Pcs/Mould	Pcs/Hr	Pcs/Shift
1.	Fly Ash Brick (With Frog)	 230 x 110 x 75	10	2400	19200
2.	Fly Ash Brick (With Frog)	 190 x 90 x 90	12	2880	23040
3.	Fly Ash Brick (Light Weight)	 240 x 115 x 90	8	1440	11520
4.	ZIG-ZAG Shape Paver Block	 225 x 112.5 x 80	8	1440	11520
5.	I-Shape Paver Block	 200 x 165 x 80	6	1080	8640
6.	Solid Concrete Block	 300 x 150 x 200 400 x 150 x 200	4 3	720 540	5760 4320
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5.	I-Shape Paver Block	 200 x 165 x 80	8	1440	11520
6.	Solid Concrete Block	 300 x 150 x 200 400 x 150 x 200	6 5	1080 900	8640 7200
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