DUKE TOWER
LUXURY RESIDENCES

THE DUKE TOWER RESIDENCES

Developer: DUKE TOWER INC

Contact number: 592 681 4173

Date: 19 JAN 2026

Prepared by: CAMILO FAJARDO, ANDRUNIE HARRIS

The Duke Tower Project is located at lots 93B, 94, and 95 Duke Street, Kingston, Georgetown, the project site occupies 0.65 acres of generally flat terrain characterized by a predominant clay soil type and a history of being flood-free, with GPS coordinates 6°49'22.94" N, 58°9'41.56" W. The closest town to the capital city is Mahaica, approximately 36.1km away, with the nearest indigenous village being Pakuri Village, some 83.7km away. The site currently houses the operational Duke Lodge Hotel, which is slated for demolition. Strategically positioned in a coastal urban setting, the development is situated between 101m–500m away from the Atlantic Ocean to the north and between 501m–1,000m of the Demerara River to the west. The surrounding area is defined primarily by institutional and residential land use, with the Ministry of Natural Resources and the United States Embassy located to the north and east, respectively. A few sensitive receptors are located in the immediate vicinity, including a private residence (<50m), St. Joseph Mercy Hospital (50m–100m), and the Kingston Methodist Church (50m–100m), as well as Kingston Secondary School within 500m. As the project is situated in a well-developed urban area, there are no natural resources (minerals, metals, etc.) that could be affected.

The land designated for the Duke Tower Project is undisputed in ownership and held outright by a partner of Duke Tower Inc. The company has entered into a formal agreement with this partner granting full rights to utilize the property for the development of the project. Lot 93B was obtained in 2011, and lots 94-95 were obtained in 2009. The original transport documents do not specify any intended purpose for the land use. There are no alternative designs or uses for the land.

As a fully developed urban area, the project environs contain very little natural vegetation or sensitive ecosystems and therefore supports no significant flora or fauna. Economically, the project represents a substantial $52 million USD investment that will transition the site from a commercial hotel (Duke Lodge) into a high-end residential complex, creating approximately 45–75 jobs during its peak construction phase and 10–15 permanent positions thereafter. Socially, the project will introduce new recreational activities for the area, however access will be limited to residences and their guests. The cultural fabric of the surrounding area is defined by a mix of historical prestige (the Red House, the Anglican diocese, etc.) diplomatic significance (US and Canadian embassies, the UNDP, etc.), institutional agencies (government ministries, utility companies) and modern urban transition (bars, restaurants, private schools, etc.), with a few residences. In this area, Guyana's colonial heritage meets its future as an emerging energy hub.

The project is currently awaiting feedback from the Central Housing and Planning Authority (CHPA) regarding our building application submission (submitted July 2025). Subsequent permits will be obtained from the Mayor and City Council (M&CC); however, these processes are contingent upon receiving CHPA approval first. The project has never applied to EPA for any permits.

Please see following pages for Project Site map with surroundings

N
W
E
S

330.01
1000 ft

YOUNG ST.

HIGH STREET

DUKE STREET

BARRACK STREET

DUKE TOWER

Meters
6 0 6 12
1:285

LEGEND

STREET	DRAIN (OPEN)
FENCE	CONTOUR
BUILDING	SPOT ELEVATION (16.55)
CONTROL MARK	FRUIT TREE
UTILITY POST	CADASTRAL BOUNDARY
DRAIN (COVERED)	

Project Title:

TOPOGRAPHIC SURVEYS AT DUKE LODGE, KINGSTON GEORGETOWN

Client:

FRASIER CONSTRUCTION GROUP INC.

Surveyed by:

NARENDRA SUKHDEO
S.L.S, BEng., CECP, MEng.

22-07-2025

Notes:

1. All coordinates are in UTM 21N and referenced to ITRF 2014.
2. All elevations are in meters and are referenced to Georgetown Datum.
3. Contours Lines are shown at 0.5m intervals.

Description of the design of the activity

i) Detailed description of the processes generating discharges/emissions

Construction Phase Processes

During site preparation and vertical assembly, emissions and discharges are primarily mechanical and temporary:

- Demolition and Earthworks: The demolition of the existing Duke Lodge buildings and subsequent excavation for the foundation will generate significant fugitive dust (particulate matter). This process also involves the generation of approximately 1,500 to 2,500 metric tons of demolition debris and 4,300 metric tons of excavated soil.

- Machinery Operations: The use of heavy equipment, delivery trucks, and a $2m^3$ capacity diesel backup generator will produce gaseous emissions, specifically carbon monoxide, nitrogen oxides, and sulfur dioxide.

- Foundation Piling: While the project uses "Cast-in-Place" (drilled) piles to minimize vibration, this process generates concrete slurry and potentially sediment-laden runoff.

- Site Runoff: Exposed soil during the "Groundbreaking and Substructure" phase creates a risk of sediment runoff into the adjacent drainage canal during rainfall events.

Operational Phase Processes

Once the building is occupied, the processes shift to continuous domestic and utility-related outputs:

- Wastewater Treatment: Compact Aerobic Biological Treatment Plant utilizing extended aeration and sedimentation to reduce BOD and TSS.

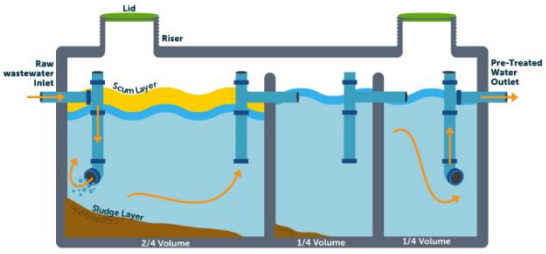
- Power Generation: A larger 3.8 m^3 capacity backup diesel generator will be used for emergency power. Its operation will periodically discharge combustion gases and generate localized noise.

- Solid Waste Management: Daily residential activities are projected to generate approximately 7 to 8 tonnes of domestic solid waste per month, categorized into organic food scraps, recyclables (plastic, glass, metal), and non-recyclable general waste.

- Facility Maintenance: The maintenance of the swimming pool and landscaped areas will involve the periodic discharge or use of chemicals, including chlorine, algaecides, pH regulators, and fertilizers.

ii) Design\construction drawings, specification of any structures meant to handle discharges or waste

See below for drawings and specifications for water treatment plant:



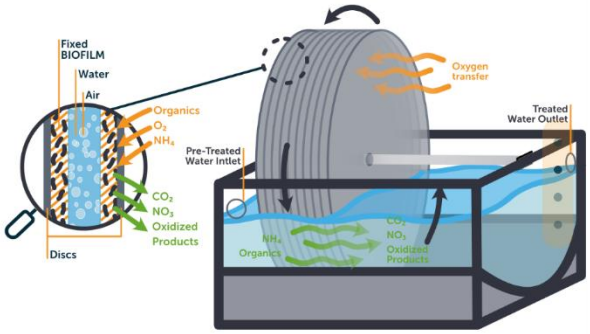
STEP 1 : Wastewater Is Collected And Enters the Primary Settlement Zone (Anaerobic)

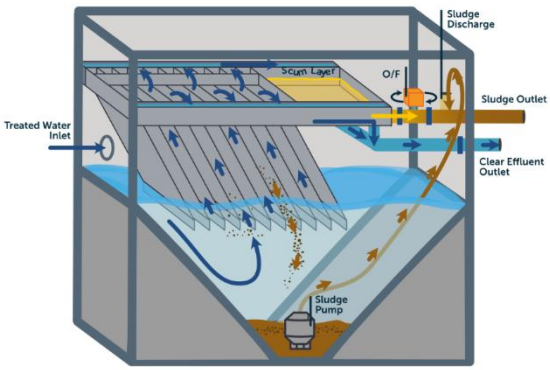
The wastewater enters the **primary tank in which the solids and liquids separate**. As sludge settles at the bottom, scum forms on the surface, then the pre-treated water flows into the BIOROTOR.

STEP 2 : Liquid Enters the BIOROTOR (Aerobic treatment)

In the **BIOROTOR (Aerobic zone)** the wastewater is exposed to a series of discs on which a matrix of microorganisms grow. The bacteria then consume the nutrients in the water. The discs rotation creates a gentle flow path, moving wastewater along the zone while sloughing ageing surplus biomass from the discs. This enables space for new biofilm development.

Should nutrient reduction (denitrification) be required, anoxic conditions can be created in the primary settler by recirculation of the mixed liquor from the aerobic zone through the first stage of primary settlement.





STEP 3 : Final Settlement Zone

The treated effluent flows into a **lamella clarifier**, where accumulated sludge in the bottom of the unit is

periodically removed with a pump. The swimming sludge is also frequently removed through an automatic valve.

DISCOVER OUR LAMELLA CLARIFIER

iii) Description, discharge rates, concentrations and volume of expected pollutants.

Liquid Effluent (Wastewater)

The most significant continuous discharge occurs during the operational phase from the 131 residential units.

- Description: Domestic sewage and greywater (from kitchens, bathrooms, and laundry).
- Treatment Process: Aerobic Biological Treatment (Aeration and Clarification).
- Discharge Rate: Approximately 40 m^3 per day (calculated from the monthly estimate of 1,200–1,300 m^3).
- Concentration: The effluent will be treated to strictly adhere to GNBS permissible limits for organic load (BOD) and suspended solids (TSS) prior to discharge.
- Final Discharge Point: The adjacent existing water canal.

Solid Waste

Solid waste volumes fluctuate significantly between the one-time construction events and the recurring operational cycle.

Phase	**Description of Pollutants**	**Total Volume (Estimated)**	**Disposal Method**
Demolition	Concrete debris, steel, wood, glass.	1,500 – 2,500 Metric Tons	Haags Bosch Landfill
Foundation	97% Excavated soil; concrete slurry.	4,300 Metric Tons	Haags Bosch Landfill
Construction	Steel off-cuts, PVC, gypsum, packaging.	~510 Metric Tons	Licensed Waste Contractor
Operation	Organic (75%), Recyclable (22%), General (3%).	242 Metric Tons / Year	Haags Bosch Landfill

Atmospheric Emissions & Noise

These pollutants are primarily generated by mechanical processes and combustion.

- Dust (Particulate Matter): * Source: Demolition, excavation, and stockpiles.
    - Volume/Rate: Variable based on wind and activity levels; managed via site screening and water sprinkling.
- Combustion Gases (NO_x, SO_2, CO):
    - Source: Backup diesel generators.
    - Storage/Volume: Construction uses a 2m^3 diesel tank; Operations uses a 3.8 m^3 diesel tank.
    - Concentration: Dependent on generator engine load; mitigated by placing units in well-ventilated areas away from sensitive receptors.
- Noise and Vibration:
    - Sources: Heavy machinery and vehicle movements.
    - Mitigation: schedule movements during off-peak hours

Hazardous Substances

- Description: Diesel fuel.
- Volume: Maximum of 3.8 m^3 stored in heavy-duty 55-gallon containers with secondary containment (spill trays).
- Concentration/Risk: High flammability; mitigated by strict logs, spill kits, and distance from hot works.

iv) The project size, e.g. capital investment, number of employees projected for each stage of the project, rates of production, transportation route etc;

This US52M project will utilise a fluctuating workforce of skilled and semi-skilled personnel, peaking during the construction phases.

Project Phase	**Description of Roles**	**Estimated Number of Employees**
Phase 1: Pre-Construction	Consultants, designers, and financial advisors.	10
Phase 2: Foundation	Heavy equipment operators, demolition technicians, truck drivers, and site supervisors.	35 – 50
Phase 3: Superstructure	Engineers, project managers, carpenters, ironworkers, electricians, and crane operators.	45 – 75
Phase 4: Interior/Handover	Finishers, plumbers, HVAC technicians, and administrative staff.	~50
Operational Phase	Property managers, concierge, security, janitorial, and WWTP technicians.	10 – 15 (Permanent)

As the final "product" is a serviced residential complex, the production rates refer to the occupancy and the resulting utility/waste outputs.

- Final Product: 131 upscale residential condominium units.
- Average Occupancy: 150 occupants (at a target 70% monthly occupancy rate).
- Wastewater Output: 1,200 – 1,300 m^3 of treated effluent per month.
- Solid Waste Output: 7 – 8 tonnes of domestic solid waste and recyclables per month.
- Power Consumption: 9,266 kWh per day.

Inbound Materials will enter Duke Street's southern entrance from Barrack Street, and travel north along the street to the project site. All outbound vehicles will exit the project site and travel to the northern end of the street, to enter Young street.

Permission will be sought for temporary north-south contraflow from Young Street, during off peak hours for delivery of large heavy-loads of material.

All demolition debris, excavated soil (approx. 4,300 metric tons), and construction waste will be transported from the site to the Haags Bosch Landfill (located on the East Bank of Demerara) or the Lusignan Landfill (located on the East Coast of Demerara).

To minimize urban disruption, material deliveries will be scheduled to avoid peak traffic hours, and flag personnel will be utilized at the site entrance to manage the flow of heavy vehicles and pedestrians.

v) Activities associated with all development stages from construction to closure:

Production Processes (Construction Phases)

The "production" of the residential complex involves the transformation of raw materials into a 131-unit high-rise structure through four distinct stages:

Project Construction Schedule (28-Month Timeline)

Phase 1: Demolition & Site Clearance (Months 1 – 2)

Activity: Decommissioning of utilities and safe removal of hazardous materials (pool chemicals/fluids).

Activity: Demolition of the 3 existing "Duke Lodge" structures (concrete/masonry) and swimming pool removal.

Activity: Debris segregation (recyclable zinc/steel vs. rubble) and transport to Haags Bosch Landfill.

Output: Cleared and leveled 0.65-acre site ready for piling.

Phase 2: Mobilization & Substructure (Months 3 – 6)

Activity: Site setup: Installation of hoarding, site offices, and Main Diesel Generator Farm.

Activity: Deep Foundation Works: Installation of 90 driven piles (Ø70cm x 30m) using heavy diesel rigs.

Activity: Excavation for pile caps and casting of the monolithic reinforced concrete Raft Foundation.

Milestone: Completion of "Wet Works" (Ground Level reached).

Phase 3: Superstructure Assembly (Months 7 – 18)

Activity: Erection of imported Structural Steel Skeleton (Columns & Beams) using the Electric Tower Crane.

Activity: Installation of Metal Decking (composite floors) progressing vertically.

Activity: Concrete slab pouring on metal decks (approx. 2 floors per month).

Milestone: Structural Top-out (Level 23) by Month 18.

Phase 4: Building Envelope & Façade (Months 12 – 22)

Note: Starts concurrently with structure once lower levels are safe.

Activity: Installation of Unitized Glass Curtain Wall panels (pre-assembled).

Activity: Weatherproofing of balconies and terrace levels.

Milestone: Building fully enclosed (Watertight) by Month 22.

Phase 5: MEP & Interior Fit-Out (Months 10 – 26)

Note: Starts early on lower floors (Parking/Lobby).

Activity: Rough-ins: Electrical, Plumbing, and HVAC ducting installation.

Activity: Interior Finishes: Drywall partitions, flooring, ceiling installation, and joinery.

Activity: Installation of elevators (lifts) and fire safety systems.

Phase 6: External Works & Commissioning (Months 26 – 28)

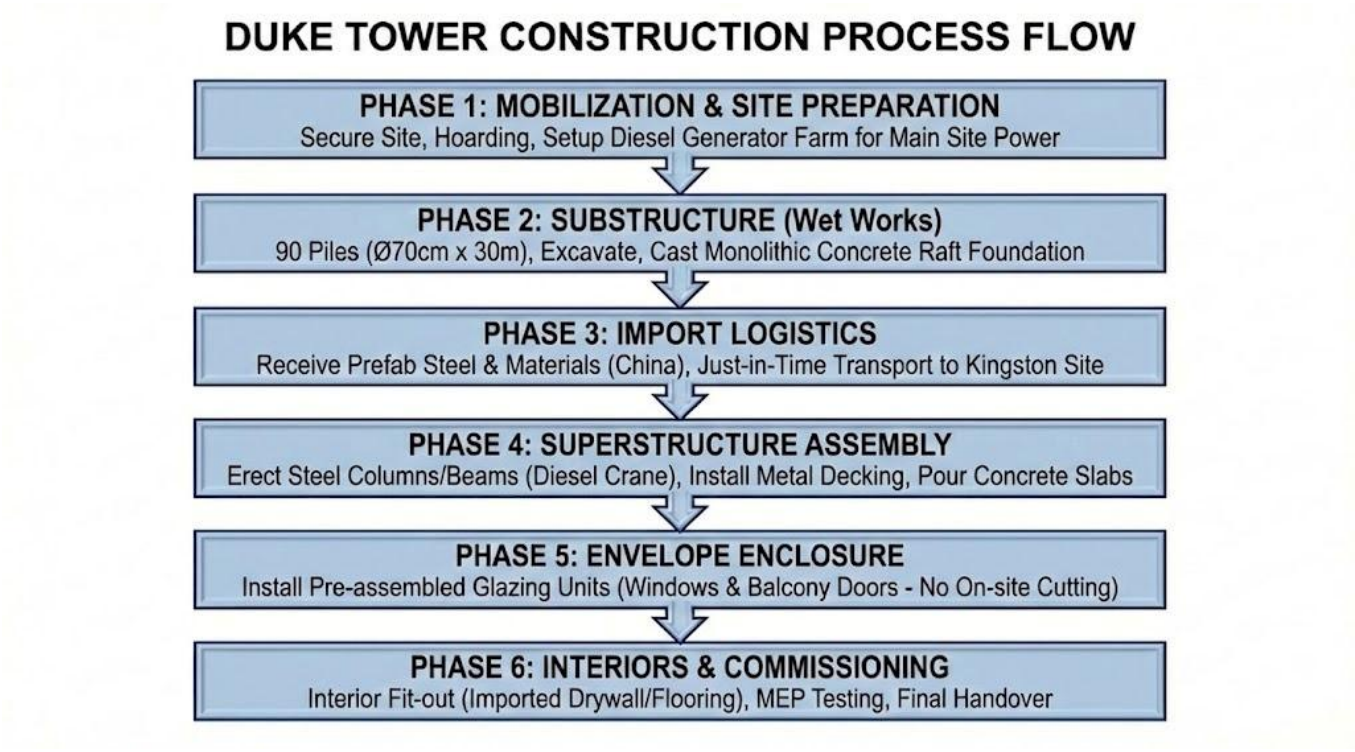
Activity: Landscaping, paving of driveway, and finishing of the Level 4 Amenities Deck (Pool/Gym).

Activity: Testing & Commissioning (T&C) of all systems (Generators, Pumps, Fire Alarms

Activity: Final cleaning and defect rectification (Snagging).

Final Milestone: Project Handover (Month 28).

Please see below for process flow diagram



vi) Key Raw Materials Used, Quantities and Sources

Foundation & Substructure

Material	**Quantity**	**Source**
Steel (rebar)	380 tons	Imported – China
Sand	2,250 tons	Local
Stone	3,300 tons	Local quarries
Cement	1,050 tons	Imported - Colombia / Central America
Diesel	~25,000 gals	Local (heavy piling rigs & site power generators)
Wood	< 800 BM	Local (minor formwork/bracing)

Superstructure & Façade

Material	**Quantity**	**Source**
Steel (structure)	1,800 ton	Imported - China (prefab)
Sand	1,800 tons	Local (slab mix and finishes)
Stone	2,600 tons	Local (slab mix)
Cement	850 tons	Imported - Colombia / Central America
Glass/Windows	6,500 m²	Imported - China (fully assembled units)
Diesel	~100,000 gals	Local (auxiliary equipment only)
Wood	~2,500 BM	Local (drywall reinforcement / backing)

vii) Source of utility services such as water supply and treatment options, energy/electricity and communication facilities;

Water Supply – Guyana Water Incorporated

Electricity Supply – Guyana Power & Light and Diesel generators

Internet Supply – Sky link

viii) Waste production: types of waste, the monthly quantity/volume of waste managed (generated, stored, transported), the volume of effluent to be discharged along with a chemical analysis indicating the effluent's composition and methods of waste disposal/treatment. Potential locations for recovery/disposal sites shall be identified with justifications for the site selection;

Considering this is a construction project, the amount of waste will vary by stage. We present the estimated quantities for the entirety of each phase.

Demolition (1 month)

Type of Waste	Quantity	Disposal type	Disposal location	Justification
Concrete waste (including sediment from silt laden water)	~1,800 metric tons	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Wood	~25 metric tons	Removal/salvage	Haags Bosch Landfill	Only authorised disposal site for debris
Glass	~3 metric tons	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
PVC	~1.5 metric tons	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Zinc	~4 metric tons	Removal	Haags Bosch Landfill	Only authorised disposal site for debris

Type of Effluent	Quantity/mthly	Treatment/mitigation type	Disposal Type	Disposal location	Justification
Silt laden water	~80 m^3	Sediment trap / Screens	Evaporation / drain / removal	Municipal drain (water) / Haags Bosch (sediment)	Traps capture sediment for landfill; only filtered water enters the drainage system or evaporates
Concrete wash water	<1m^3	Sediment trap / Filters	Removal	Municipal drain	Runoff will be filtered before distribution. Minimal during demolition phase
Oil & grease	~25 gals	Collection in drums	Removal by licensed contractor	Authorised collector	There will be no room for storage
Dust suppression water	~150m^3	Sediment trap / Filters	Evaporation / drain	Municipal drain	Runoff will be filtered before distribution

Foundation & Substructure (5 – 7 months)

Type of Waste	Quantity/mthly (metric tons)	Disposal type	Disposal location	Justification
Concrete waste (including sediment from silt laden water)	~ 14.7	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Wood	~2.2	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Scrap metal	~0.9	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Packaging & misc.	~0.5	Removal	Haags Bosch Landfill	Only authorised disposal site for debris

Type of Effluent	Quantity/mthly (gallons)	Treatment/mitigation type	Disposal type	Disposal location	Justification
Silt laden water	~228,000	Sediment trap / Screens	Evaporation / drain / removal	Municipal drain (water) / Haags Bosch (sediment)	Traps capture sediment for landfill; only filtered water enters the drainage system or evaporates
Concrete wash water	~8,500	Sediment trap / Filters	Removal	Haags Bosch landfill	Only authorised disposal site for debris
Oil & grease	~<100	Collection in drums	Collection in drums	Authorised collector	There will be no room for storage
Sewage (worker toilets)	~23,500	Collection in port-a-potty holding tanks	Removal by licensed contractor	Authorised collector	There will be no room for storage
Dust suppression water	~30,000	Sediment trap / Filters	Removal	Haags Bosch landfill	Only authorised disposal site for debris

Superstructure & Façade (12 – 18 months)

Type of Waste	Quantity/mthly (metric tons)	Disposal type	Disposal location	Justification
Concrete & cement (including sediment from silt laden water)	~9.8	Removal	Haags Bosch Landfill	Only authorised disposal site for debris

Wood	~5.5	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Steel & metal	~3.3	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Glass and façade	~1.1	Removal	Haags Bosch Landfill	Only authorised disposal site for debris

Type of Effluent	Quantity/mthly (gallons)	Treatment/ mitigation	Disposal type	Disposal location	Justification
Suspended solids runoff	~144,000	Sediment trap / Screens	Evaporation / drain / removal	Municipal drain (water) / Haags Bosch (sediment)	Traps capture sediment for landfill; only filtered water enters the drainage system or evaporates
Concrete wash water	~7,200	Sediment trap / Filters	Removal	Haags Bosch Landfill	Only authorised disposal site for debris
Oil & grease	~11	Collection in drums	Removal by licensed contractor	Unknown	
Sewage (worker toilets)	~30,500	Collection in port-a-potty holding tanks	Removal by licensed contractor	Authorised collector	There will be no room for storage
Dust suppression water	~19,400	Sediment trap / Filters	Removal	Haags Bosch Landfill	Only authorised disposal site for debris

i) The duration of each phase of the project.

Phase	Activity Description	Duration	Timeline
Demolition	Demolition of Duke Lodge (3 Bldgs + Pool) & Clearance	2 months	M1-M2
Foundation	Piling (90 piles) & Raft Foundation Concrete	4 months	M3-M6
Structure	Steel erection & Slab Casting (levels 1-23)	12 months	M7-M18
Envelope	Unitised Glass Façade Installation	11 months	M12-M22
Interiors	MEP, Drywall, Finishes & Fixtures	17 months	M10-M26
Handover	Commissioning, Landscaping & Final Clean	3 months	M26-M28
TOTAL	Project Duration	28 months	Start to Finish

There will be no decommissioning of this project

Proposed/Potential environmental Impacts and Mitigation Measures of the Construction Process.

The project will have a massive impact on the landscape of the area as it will be the only 23-floor building. The impact to the soil, water and air will be minor with most disturbances during the demolition, foundation and superstructure phases. The project is situated in an urban area that does not house any significant natural ecological systems, thus not disturbing any flora or fauna.

DEMOLITION

Before the construction process begins, all existing structures on the properties will be demolished, which will take approximately 1 month. We anticipate a high probability of the following impacts as follows, with no reversibility:

IMPACT – MIXED DEBRIS GENERATION

The current buildings on the properties are wooden and concrete. We anticipate the demolition will generate 1,500 to 2,500 metric tons of primarily broken concrete blocks and wood, as well as zinc (roofing), scrap steel, glass, PVC piping and metal hardware (door handles, hinges, nails, screws, etc.)

MITIGATION MEASURE – WASTE REMOVAL AND LANDFILL USE

Demolition debris will be removed from the project site to Haags Bosch Landfill site.

IMPACT - AIR POLLUTION

We expect a fair amount of dust and airborne particles from wood and paint. No lead paint was used in the painting of any of the buildings, as such we expect no lead paint contamination. There is currently no mold contamination in any of the buildings, as such we do not anticipate any mold particulate release into the atmosphere. The impact on air pollution will be minimal.

MITIGATION MEASURE - PERIMETER SCREENING

The entire construction site perimeter will be screened to contain dust within the project boundaries.

IMPACT - WATER AND SOIL CONTAMINATION

We anticipate some runoff from the demolition activities, and it may carry small amounts of pollutants such as paint particles, debris and solvents into the soil within the boundaries of the properties, and to a lesser extent to the local drains outside of the boundaries. The impact on water and soil will be minimal.

MITIGATION MEASURE – FABRIC FILTERS/SEDIMENT TRAPS

We plan to install fabric filters and/or sediment traps at nearby drain inlets to prevent sediment flow into adjacent drainage.

FOUNDATION

Considering the density of the surrounding community, the foundation will be built using cast-in-place (CIP) piles, running between 25 - 30 meters into the ground. This will produce approximately 4,300 metric tons of excavated clean soil, but very little vibrations as with traditional pile driving. We anticipate a high probability of the following impacts as follows, with no reversibility:

<u>IMPACT – GROUND DISTURBANCE AND WASTE</u>

Excavating the boreholes for the CIP piles will disturb the soil's profile and can potentially lead to erosion and sediment runoff. In some techniques, there may be some excess slurry and excess spoil piles (dug-up soil).

<u>MITIGATING MEASURES – SILT FENCING, MANAGEMENT AND INSTITUTING BEST PRACTICES.</u>

Considering the size of the properties, heavy machine movements will need to be staggered which will affect the rate at which large quantities of spoil piles can be removed. Silt fences will be used to cordon off the spoil piles if removal cannot be done immediately. Removal will be scheduled every 8 hours, to avoid the accumulation of debris on site.

IMPACT – SOIL AND WATER CONTAMINATION

Runoff can cause chemicals from concrete, fuels, oils, paints, etc., to seep into the ground, affecting soil integrity, as well as soil and groundwater quality.

MITIGATION MEASURES – CONTAINMENT, WASTEWATER MANAGEMENT, EQUIPMENT MAINTENANCE

The prevention of soil and groundwater contamination will primarily be mitigated by proper storage and strict management (transport, use, storage) of all substances (fuels, oils, etc) on site. During all construction phases diesel fuel will be managed as follows:

1. Storage Quantities
    - Construction Phase: A bunded fuel storage area with a capacity of 4,000 - 8,000 liters ($4m^3$- $8m^3$) will be maintained to ensure operational autonomy for the Main Diesel Generator Farm and minimize the frequency of refuelling truck traffic.
    - Operational Phase: Storage capacity will increase to $3.8m^3$ to support the permanent backup generator for the 131-unit complex.
2. Storage Infrastructure and Containment
    - Containers: Diesel will be kept in heavy-duty yellow plastic containers (55-gallon cans).
    - Secondary Containment: To prevent ground seepage, all containers will be placed in spill/drip trays.
    - Stability: Storage will be located on solid, flat ground to ensure container stability.
    - Integrity: Seals and caps will be inspected daily for wear and tear to prevent leaks.
3. Operational Safety and Signage
    - Exclusion Zones: Fuel will be stored away from any "hot works" (welding, cutting) or other potential ignition sources.
    - Labelling: All cans will feature appropriate labels and safety signs detailing the contents and necessary precautions.
    - Ventilation: During operations, the generator (and its fuel source) will be placed in a well-ventilated area to allow for the safe dispersion of any fumes.

4. Monitoring and Record-Keeping

The project implements a "Controlled Use" policy to track every liter of fuel:

- Usage Logs: Written records will track the amount, date, time, and user for every consumption event.
- Movement Tracking: Any relocation of fuel (temporary or permanent) must be documented.
- Safety Inspections: Daily safety checks will be performed, and the results will be officially recorded and acted upon if discrepancies are found.

5. Spill Response

- Spill Kits: Specialized spill kits will be maintained in close proximity to the storage area.
- Response Plan: All fuel management is integrated into a broader Spill Response Plan, ensuring personnel are prepared to contain and clean up accidental releases immediately.

IMPACT - WATER AND SOIL CONTAMINATION

We anticipate some runoff from the excavation activities during the foundation stage, which can carry sediment into the local drains.

MITIGATION MEASURE – FILTERS/SEDIMENT TRAPS

We plan to install fabric filters and/or sediment traps close to nearby drain inlets to prevent sediment flow into adjacent drainage.

Additionally, all heavy machines that enter the site will have to pass an inspection process off-site to gain permission to the site. The inspection process will be governed by an in-house standardised check list that will assess the vehicle's condition and roadworthiness, keeping record of the specific vehicle's license number. Parts that will be inspected specifically for oil leaks include, but are not limited to: brake lines, gaskets, seals, pressurised components, etc.

SUPERSTRUCTURE AND FAÇADE

Erecting the steel framing will be a massive undertaking, considering the location is within a dense urban area, with narrow streets. This project will require the use of a climbing tower crane. The potential impacts would be air and noise pollution. The likelihood of these occurring is high, as this is our only method of erecting the steel structure, within the properties' boundaries.

Additionally, there will be some welding involved on rigid connections where bolted joints are not sufficient, as well as to connect shear studs onto beams and girders to guarantee a strong bond between the frame and future concrete slabs.

IMPACT – AIR POLLUTION

The climbing tower crane utilizes electric motors powered by the site's central Diesel Generator Farm. The emissions calculated below correspond to the load demand placed on the generators by the crane operations.

POLLUTANT	**EMISSION RATE (APPROX.)**	**TOTAL FOR 23-STORY PROJECT (1 YEAR)**
CO_2 (Carbon Dioxide)	2.68 kg/liter	**~120.6 Metric Tons**
NOx (Nitrogen Oxides)	24 g/liter	**~1,080 kg** (1.08 Metric Tons)
Particulate Matter (PM)	0.25 g/liter	**~11.25 kg**

Please see below table showing the tower cranes' emissions over a 1-year period compared to "Significance Thresholds" set by institutions such as the World Bank and International Finance Corporation to determine if a project requires an Air Quality Impact Assessment.

Pollutant	**Project Total (Est.)**	**International "Significance" Threshold**	**Status**
CO2 (GHGs)	**~120 tonnes**	**25,000 tonnes** CO2e / year	**0.5%** of limit
NOx	**1.0 tonne**	**500 tonnes** / year	**0.2%** of limit
PM (Dust)	**0.011 tonnes**	**50 tonnes** / year	**<0.1%** of limit

The above table suggests the emissions created by this project would not have a significant impact on air quality.

The steel framing will be imported, and therefore only assembly will be conducted on site. Some connections (bolts and studs) may be welded for added integrity, however, the fumes

and radiation produced will have no significant impact on the environment. The impact would be on workers conducting the activity, but they will be provided with appropriate personal protective equipment to safeguard their health and ensure safety.

MITIGATION – efficient planning

The crane lift plan will be meticulously designed to make good use of time and energy. For example, moves will be planned for load optimisation, so as to reduce the likelihood of dry swings (movements without loads) to lower fuel consumption. The project will invest in energy efficient welding machines that consume less energy than older models. All waste from consumables used for welding activities (electrodes, shielding gases, etc.), will be disposed of responsibly, to avoid soil contamination.

INTERIOR WORKS

The interior works for this project will primarily include the installation of electrical & plumbing material, cladding, fixtures, HVAC systems, security systems and finishes. All these items will come packaged in wooden pallets, cardboard boxes, plastic wraps and styrofoam.

IMPACT – HIGH VOLUMES OF PACKAGING WASTE

The likelihood of the project generating an estimated 115 metric tons of packaging waste is high and cannot be avoided or reversed. The impact of any noise or vibrations caused by the installation processes will be contained within the building and will not significantly impact the environment.

MITIGATION – WASTE REMOVAL PLAN

All waste generated during this phase will be collected in skid bins and transported to the Haags Bosch landfill site.

We have met with stakeholders, however we do not have any meeting minutes.

We are not currently facing any uncertainties or gaps in knowledge.

NON-TECHNICAL SUMMARY

The Duke Tower Luxury Residences is a high-rise residential development to be constructed on lots 93B, 94 and 95 Duke Street, Georgetown, Guyana. The project will replace the existing Duke Lodge Hotel, currently comprising three buildings operating on the site, which will be fully demolished to allow for the construction of a modern residential tower.

The new development will consist of 23 floors above ground and will reach an approximate height of 84 meters (276 feet). The project is designed to accommodate luxury condominiums, complemented by residential amenities, parking, and building services. The

construction is part of an urban renewal initiative that aims to strengthen the architectural identity of central Georgetown.

The first three levels will contain parking facilities for residents and visitors, accommodating a total of 168 parking spaces. The fourth level will include a comprehensive amenity deck with recreation and wellness facilities such as a gym, pool, co-working lounge, and social areas. Levels 5 through 21 will house private residential apartments of various sizes, while the 22nd level will feature exclusive penthouse suites with terraces and panoramic views of the city.