HGI is driven to build a first-of-its-kind green, high-quality, housing development to support sustainable, intergenerational living.

HORIZON GROUP INC

PROJECT SUMMARY

[Planned Green Community]

Environmental Protection Agency
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CENTRAL REGISTRY

Introduction

This document presents a summary of the above project containing the details to enable an understanding of the project activities.

The Horizon Group Inc Gated Green Community project is currently being established at Hauraruni Village, Linden – Soesdyke Hwy. The area to be utilised is uninhabited and occupies approximately 30 acres of land. Our team is driven to build a first-of-its-kind deep green, high-quality, and healthy housing development to support sustainable, intergenerational communities. This master-planned community will feature a design focused on inclusivity, convenience, technology, and sustainability. Amenities will include the following:

- Clubhouse
- fitness center
- day-care center
- swimming pool
- walking & biking trails, and playground.

Horizon Group Inc during its execution of construction activities has ensured that its activities do not negatively impact the surrounding environment by means of implementing as reasonable as possible, pollution control measures and safety and health best practices. The Operator will maintain a positive track record of environmental stewardship and social corporate responsibility within the communities where its projects are undertaken. As such, the Contractor will be committed to implement the necessary steps to ensure that the environmental requirements outlined under the Environmental Protection Act and the Environmental Protection Regulations and other national regulations are complied with to mitigate any negative affect on the surrounding environment. These include;

- Use of Green Building Practices and Materials
- Development of More Green Spaces with lots of trees and gardens
- All Homes to be 100% Solar-powered
- Install Solar-powered Lights in Public Spaces
- Increased Flood Control Systems
- Maximization of Walking Spaces
- Top Notch Security for community
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Project Site

The project area under preparation for the housing development is virgin land situated along the Soesdyke – Linden Highway and extends south from the Highway to the Hauraruni Creek. Appendix A Site Location Map provides an illustration of the project site.

This plot of 30 plus acres of virgin land is a perfect place to create a picturesque gated housing community whose topography is mainly flat consisting predominantly sandy clay soils that earlier contained sparse secondary successors flora species. The flat area will be elevated to reduce the possible occurrence of seasonal flooding during periods of persistent heavy rainfall. The drainage system developed will also support channelling flow within the site and along its perimeter. The surrounding area has some residential settlements, poultry and sand mining activities and abandoned lands.

Hauraruni is a village in Guyana located 25 miles to the south of the nation's capital Georgetown and 5 miles from Cheddi Jagan International Airport, formerly called Timehri International Airport, which is the major international airport of the country. The land is lightly disturbed and contained natural drains that are associated with slight gradient towards the creek. There are no know threaten or endangered species within the area. A Northern access to the project site is facilitated by the Soesdyke – Linden Highway that extends along the northern boundary and a western access is facilitated by the Hauraruni Village access road.

The Developer has attained from the associated NDC on objection to establish the housing development activity. The RDC for the region has also issued an approval for the development activity. So far, approximately 1% of infrastructural works are completed with surveying completed to identify an internal road network, concrete culverts for drainage system with ex-situ concrete drain. Potable water main pipelines will be installed and a permit for the establishment of a groundwater well will be obtained from the GWI.

The layout of the proposed Housing Development caters for green spaces, residential gated community and recreational zones for relaxation. All weather access road network will be prepared (awaiting surface material) and drainage system will be controlled by culvert and mini sluices. All utilities including potable water, telecommunication and solar electricity will be installed.

Impacts to the Environment

Construction is one of the major contributors to environmental impacts resulting in pollution risks - air pollution, waste pollution, noise pollution, and water pollution. The risks to the environment are particularly high when work is undertaken in sensitive areas such as on highlands, steep slopes, significant water ways and where persons reside. Works will comprise of cutting top soil and stockpiling materials; de-watering and excavation of existing internal drainage systems; creation of access to transport and store excavated materials to designated location on site; shaping of land to required elevation; construction of concrete culverts; preparation of internal roadways and accesses and drains and construction of green homes to home owners.

The main environmental impacts anticipated from the preparation of the housing development are anticipated to be minor noise nuisance and particulate matter emission; traffic and access safety; workers' safety; accidental spillage of petroleum-based products, improper waste management and deposition of materials adjacent to existing water ways.

Environmental management of the following parameters during construction include, but not be limited to, the following:

- Air Quality, Dust and Noise
- Traffic Management
- Waste Management
- Health and Safety
- Hazardous Materials Management
- Water Quality

AIR QUALITY, DUST AND NOISE

Engine Combustion Emissions

The use of heavy-duty equipment and generator will result in combustion emissions from the use of a diesel generator with minimal, short-term and contained to the area of the vicinity of works. Emission impacts are also unavoidable.

Mitigation measures

✓ Maintaining construction equipment in accordance with manufacturer's specifications in order to operate at optimal efficiency.

Dust

Dust can be generated at levels which can affect the air quality within the project area. However, most of these impacts are expected to be localised and can either be prevented or reduced.

Dust will also be generated from several aspects of construction including:

- Emissions of dust particles from off-loading aggregates from trucks and
- Location of material stockpiles.
- Dust nuisance can be accelerated due to climatic conditions especially in dry and windy conditions

Impacts associated with dust nuisance

- Workers exposed to prolong dust pollution can develop acute respiratory ailments.
- Further, dust can pose a nuisance to nearby residents in the immediate area of construction activities.

These impacts are controllable and are expected to be localised and short-termed since a small percentage of works are located near residents. When not managed they may present significant impacts to the surrounding areas.

Mitigation measures

The following measures would be implemented to reduce the impact of dust within the project environment:

- ✓ Material stockpile will be positioned away and downwind from residents, offices and working environments.
- ✓ Personnel working within dusty environments would be required to use dust masks or respirators or other necessary personal protective equipment (PPE).
- ✓ Loaded Trucks tray will be covered when transporting material to site in order to minimise dust emission.
- ✓ Material stockpile will be kept to a minimum height to reduce wind action on materials.
- ✓ Employing dust suppression techniques such as applying water to bare surfaces especially in dry and windy conditions.

Noise

Noise will likely be generated mainly for power generation and the use of heavy-duty machinery. These impacts are unavoidable and are expected to be short-term and localised.

Impacts associated with noise nuisance

- Exposure to noise levels above the internationally accepted level of 90 decibels[1] can cause noise induced hearing loss. Noise levels above the tolerable threshold of 72 decibels can result in fatigue, tiredness, low morale and decreased productivity.

Mitigation measures

- ✓ Employing best practices on-site to minimise occupational noise levels and provide noise protection equipment to employees.
- ✓ Hearing protection will be provided to employees exposed to high noise levels.
- ✓ The generator to be used will have built-on sound proofing installed by the supplier.
- ✓ Noise levels will be controlled at the source via installation of silencers and mufflers on exhaust systems where practical. Efforts will be made to ensure machinery and equipment are working efficiently and have installed the required muffler devices.
- ✓ Night works will be avoided, to the extent practical.

TRAFFIC MANAGEMENT

Temporary Traffic Control Plan

It is anticipated that during works there will be some level of periodic change in traffic flow along the roadway leading to the entrance/exit of the construction zones. A site-specific Temporary Traffic Control Plan (TTCP) to address traffic and accident risk during construction activities will be developed and implemented. Furthermore, TTCP is also expected to address pedestrian traffic, addressing road safety and minimal disruption of commuter traffic road and creek safety management considerations, access restriction management during construction as well as driver's awareness and evaluation programme.

Throughout the course of the works Horizon Group Inc will be responsible for the safety of all persons present on the site of the works. As such, workers shall ensure, as far as is reasonably practicable and to the satisfaction of the engineer, the health, safety and welfare of employees, including those of sub-contractors and all other persons on the site. The responsibilities undertaken shall include.

- The Contractor is required to perform work in a manner that ensures the safety and convenience of the public and protects the residents and property adjacent to the site.

[1] 90 dB is the level recommended for eight hours exposure to avoid hearing loss by a number of national and international institutions worldwide including the Ontario Regulation 488/01 under the Occupational Health and Safety Act.

- Construction works must be conducted in a manner as to offer the least possible obstruction to the safe and satisfactory movement of traffic over the existing roads. All drivers/operators of project vehicles will be licensed and will obey all country driving requirements.

- The Contractor will procure, erect, and maintain traffic signs, barricades, and other traffic control devices necessary for the maintenance of traffic along the road corridor. Barricades, warning signs, lights, temporary signals, other devices, flagmen, and signalling devices will meet the minimum requirements of the traffic management guidelines of the Ministry of Public Works.

WASTE MANAGEMENT

Some activities will generate waste which, if not managed properly, can result in soil and water contamination, contribute to ill health, and affect the aesthetic of the area.

Waste to be generated includes:

- Sanitary waste water/toilet waste
- Surplus/ waste soils from construction works.
- Food waste.
- Hazardous waste from the maintenance of construction machinery and equipment such as used batteries, waste oil, filters, oil containers and contaminated soils.

Impacts associated with the improper disposal of wastes

- Waste heap piles often present an eye sore and can affect the aesthetic of any environment.
- The improper disposal of waste, especially food waste can result in odour and attraction of vermin.
- Mismanagement of waste can lead to secondary sources of pollution and contamination of land and water.
- Increase in the potential of Occupational Safety & Health hazards.

Mitigation measures

- ✓ Waste generated within the facility will be collected, segregated and transported to an approved off-site waste disposal/landfill site.
- ✓ Waste generated will be segregated into wastes that are reusable; inert waste such as plastics, food boxes, rubber, etc.; and hazardous waste.

- ✓ Waste will not be allowed to accumulate at facility's fronts and will be removed weekly or depending as the need arise to the dedicated waste storage area or waste bins.
- ✓ Littering will be strictly prohibited.
- ✓ Toilet fitted with septic tank treatment is installed on site.
- ✓ General refuse and litter will be temporarily stored in enclosed bins separate from hazardous wastes.
- ✓ Segregated waste disposal bins will be maintained.
- ✓ Workers will receive training on waste classification and segregation.

HEALTH AND SAFETY

Site preparation – erection of an area (tent) to consist of a screening area at the entrance to facilitate proper awareness of all safety protocols before entrance to the site. The screening area will be fitted with a desk and chairs where interviews and training will be conducted with personnel entering the site. This section will also be equipped with a kit containing the necessary materials such as PPE, log data sheets, etc.

Signage - displaying information and guidance on safety measures to be adopted during works. Information signage will be erected at the site office to include:

- Use of PPE required
- Speed limit importance
- Assembly points
- Safe distancing from heavy equipment
- NO ENTRY TO UNAUTHORIZED PERSONS

General Occupational Safety
In order to ensure the safety of all workers on the site, the following measures will be in place to protect workers' health and safety at all times:

- ✓ Provide relevant safety gear for each worker base on work condition. Gears include; Helmets, Safety boots, Reflective vests, Goggles, Respirators and Earplugs.
- ✓ Train workers on the proper use of the safety gear.
- ✓ Provide notices and signs at construction site on the proper usage of safety gears.

- ✓ Provide safe working conditions at all times. Caution would be taken if workers are in proximity of equipment, electricity, water and at unsafe heights and depths.
- ✓ Provide First Aid kits at active construction site and Concrete Plant.
- ✓ With respect to workers coming into contact with toxic substances, A&S General contractors Inc. will inform workers of the relevant steps to be taken such instances occur.
    a) For skin contact, clothing would have to be removed immediately followed by a dry cleaning of the skin to remove the substance. The skin would then be washed thoroughly with soap and water. Contaminated items are to be securely discarded.
    b) For eye contact immediate washing of the eyes are required.
    c) For ingestion medical attention would be required immediately.
- ✓ The Contractor will arrange with medical instituting in the environs of de Hoop (High Dam Health Centre) to deal with emergency cases.
- ✓ Adequate amounts of water for drinking and washing will be available on the site in sealed and safe water tanks.
- ✓ Toilet facilities is available on site.
- ✓ Garbage bins would be provided on all sites to promote proper disposal methods. These bins would be emptied on a regular basis as needed.
- ✓ If an unfortunate incident occurs Horizon Group Inc. will ensure workers receive immediate medical attention.

HAZARDOUS WASTE

Fuel (gasoline, kerosene, and diesel) and lubricants (oil and petroleum products, waste oils and grease) are classified as hazardous materials and require special consideration in terms of transportation, storage and handling.

Fuel/lubricants will be transported via 5-gallon containers when the need arises for equipment and generator. However, refuelling of heavy-duty equipment can also present a spill risk to soil and surface water contamination.

Impacts associated with hazardous material management

- Fuel, lubricants and waste oil, if not properly managed, can spill which can result in water and land contamination.
- Water can also be contaminated from fuel and waste oil from leakage that may occur.
- Fuel leaks can also increase the potential of Occupational Safety & Health hazards, such as fires, explosions, etc.

Mitigation measures

Refuelling areas will be sited at a safe distance from any waterways, offices and work areas.

- ✓ Care would be taken to prevent spillage and leakage of fuel during refuelling. When refuelling is completed, all funnels, hoses and other materials should be stored in a proper manner to avoid secondary spills.
- ✓ Oil changes from maintenance works and repairs from vehicles and machinery will be collected by pans/trays and transferred to storage drums located in a designated area. Drums will be stored within an impervious and contained area.
- ✓ Oil changes, and/or major maintenance to equipment and machinery will be conducted a designated area in staging yard at the construction fronts. Only routine/minor maintenance activities will be allowed outside the staging yard.
- ✓ Regular maintenance of machinery would be done to avoid leakages.
- ✓ Used drums would be reused as much as possible, or would be stacked on pallets and returned to the supplier.
- ✓ Employees would also be trained in the management of hazardous materials to reduce the risk of contamination from spillages.
- ✓ Spill kits would be provided onsite to assist in any clean up as a result of accidents.
- ✓ Spill kits would be made available in the event of spillages. The kits will be placed in strategic locations that are accessible to key personnel including drivers, security officers, and foreman.
- ✓ Workers, mechanics and other staff will be trained in the proper use of these kits through the executions of drills.
- ✓ Appropriate fire extinguishers will be suitably placed.
- ✓ Adequate signage would be installed in the refuelling area such as 'No Smoking' and 'Highly Flammable' and 'Hot Areas'.

WATER QUALITY

The surface water quality can become contaminated or affected from potential threats such as:

- Fuel, lubricant/oil spills;
- Sediment deposition;
- Blockage of existing drainage system from erosion and sedimentation; and
- Improper solid waste disposal by workers such as food wrappers, boxes etc.

Mitigation measures

- ✓ Care will be taken during the re-fuelling process and when transporting fuel from the storage tanks/trucks to the machines to avoid unnecessary spills and reduce the risk associated with contamination.
- ✓ Regular maintenance of machines and equipment must be carried out frequently to ensure proper functioning as this reduces the potential for oil leaks.

- ✓ Waste debris, especially surplus concrete, will have to be removed from the site in a timely manner.
- ✓ Any blockage of waterways as a result of sedimentation would be removed immediately.
- ✓ Care will be taken by all workers to correctly dispose of any solid waste material generated.

SOCIAL BENEFITS

This housing development project will enable home ownership in a beautiful country side setting. A well organised setting with modern amenities will propel socio-economic and environmental benefits in a rural community.

Appendices

Appendix A – Site Location Map