

PROPOSED SAND MINING IN THE FORT GHAUT MODIFICATION TO THE DEVELOPMENT PLAN, 2012-2022



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PLANNING & DEVELOPMENT AUTHORITY
Ministry of Agriculture, Lands, Housing & the Environment

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Cover Photo courtesy of Sand Miners Inc. and Panda Vlogs is an Aerial photo of stockpile areas for sand mining companies in Corkhill

Background:

In 2011, the mining of sand recommenced in the Belham Valley, and is still in operation at this time. Sand mining is currently the primary export industry in Montserrat. The local sand mining companies have made significant strides, and are becoming viable competitors in the regional market.

With the move to the Belham Valley, in 2013, and prior to the commencement of the A1 Road Rehabilitation Project, legislation was put in place to limit the amount of load that trucks were permitted to carry on the main road. In light of the new legislation, a policy decision was taken to allow for the use of the Plymouth jetty for the export of mining products, only.

The Physical Development Plan for North Montserrat 2012-2022, designates the areas permitted and earmarked for mining. Export operations in Plymouth (Zone V) are approved by the DMCA, supported by the MVO and the RMPS, and tonnage is checked and verified by the Customs Division of the MCRS and the Montserrat Port Authority for revenue collection purposes.

There are a number of challenges faced by the sand mining industry. These include the following:

- Having to close their operations when there is an elevation in volcanic activity;
- Legal challenges to the Belham Valley operations;
- Only being able to load one barge at a time at the Plymouth jetty;
- The need to import spares and equipment – each company would make their own application for concessions/exemptions on import taxes for equipment imported;
- Dwindling supplies of material in the Belham Valley

The legal challenges have resulted in the fact that all mining activities are now taking place above the Belham Bridge, and this has restricted the miners to conduct their operations in a much smaller area within the valley. Additionally, all sifting and grading operations are conducted on the southern end of the Cork Hill main road, near the Richmond Hill entrance. The Government of Montserrat has facilitated these operations by the leasing of lands through the Montserrat Land Development Authority (MLDA).

With the continued mining in the Belham Valley, a number of Guidelines were issued by the Government of Montserrat. These include:

- Noise and Dust Management;
- Biodiversity protection;
- Management of instability and erosion;
- Waste Management;
- Pollution prevention;
- Protection of Infrastructure;
- Enhancement of road safety.

These Guidelines were endorsed by Cabinet via Decisions 650 and 667 of 2016.

Impact of Sand Mining in Montserrat

The Government of Montserrat has emphasized its commitment to facilitating and promoting sustained economic growth, diversifying the economy and creating employment opportunities for locals. Research has shown that the sand mining industry is a significant contributor to the island’s economy with recorded increases in employment from 2011 to 2019. Table 1 shows current employment at the four (4) sand mining companies on island.

Table 1 – No. of Persons Employed by Sand Mining Companies

Company	Employees (Full time)	Employees (part time)	Total
Shamrock Industries	12	5	17
Eddies Trucking	8	2	10
Greenaway Equipment	6	5	11
Wall Trading			22
Total			60

Source: Sand Mining Companies

Additionally, the Government of Montserrat has given significant assistance to the industry over the years. This includes the following:

1. Regular repairs to damaged roads (in the north and south of the island);
2. Facilitation of each mining company to have access to land to set up their sifting, grading and storage of finished product;

3. The use of the Plymouth jetty for exports;
4. Duty Free concessions on the importation of mining equipment and parts (based on application from individual mining entities).

This support has led to a continuous increase in the yearly export of finished products, since the resumption of mining in 2012. Table 2 shows the sand mining export data for the period 2012 - 2019

Table 2 – Sand Mining Export Data (2012 – 2019)

Year	No. of Barges	Yearly Export (Tonnes)
2012	35	67,900
2013	51	88,900
2014	97	193,150
2015	109	246,860
2016	95	251,973
2017	126	269,183
2018	134	354,385
2019		399,370

Source: Montserrat Port Authority/MCRS

Loading Operations at Port Plymouth



Material being loaded on a barge

Photos: Courtesy Sand Miners Inc.

Revenue Generation from sand mining operations

Table 3 below gives an indication of the revenue generation to the Montserrat Port Authority and the MCRS, for the period 2014-2019. The table shows an increase in revenue over the period, and is consistent with the increase in export.

Table 3 – Revenue Earnings for the Montserrat Port Authority and MCRS

Year	Port Revenue – Wharfage (\$2.00 per ton)	Port Revenue – Admin Fee (\$0.50)	MCRS Revenue (\$2.00/ton less \$0.50 Admin Fee)
2014	\$314,520.00	\$78,630.00	\$235,890.00
2015	\$493,720.00	\$123,430.00	\$370,290.00
2016	\$414,960.00	\$103,740.00	\$311,220.00
2017	\$503,946.00	\$125,986.00	\$377,959.50
2018	\$708,770.00	\$177,192.00	\$531,577.50
2019	\$798,740.00	\$199,685.00	\$599,055.00

Source: Montserrat Port Authority

The sand mining industry also a major contributor to the overall Montserrat economic base, as outlined in Table 4.

Table 4 – Contribution to Different Economic Sectors

Item	Estimated Contribution/Yr. (\$)
Contribution to PAYE and Social Security	\$407,000.00
Duties paid on equipment/items for operations	\$517,000.00
Fuel (Diesel and Gasoline)	\$1,600,000.00
Estimated Tax % on Fuel to GoM	\$325,000.00
Royalties	\$340,000.00
Equipment Rental for sub-contractors	\$302,000.00
Payments to MVO	\$38,000.00
Safety Boat subcontract for Plymouth operation	\$109,000.00

Source: Sand Mining Operators

There is no doubt that the Government of Montserrat has provided considerable support to the private sector for the development of the mining sector. This is consistent with the policy objective of economic diversification and strengthening of the private sector. The broad analysis in Tables 1-4, demonstrates the fact that mining operations is having a positive impact on the local economy. It provides employment, as well as direct and indirect benefits to other sectors which stimulates additional activities.

Options for sand mining in Montserrat:

The success of, and by extension the longevity of the sand mining industry is dependent on a number of factors. It is therefore important that these issues are highlighted, and action taken, through intervention from the Government of Montserrat. Of immediate concern, is the continued mining in the Belham Valley. As noted before, because of the continued legal challenges to mining in the area, the miners have been forced to conduct all mining activities above the Belham Bridge, and this has restricted the miners to conduct their operations in a much smaller area within the valley. There is concern that the quantity of material to be mined will soon be exhausted.

Additionally, issues related to governance, volcanic risks, land use and management, environmental issues, road maintenance and traffic management have been a major concern with the occupation of the Belham Valley. This has led to the need to examine alternate areas and sources of material for continued operations of the sand miners.

Two (2) options have been raised for consideration, as follows:

1. Return to the eastern side of the island where the mining of sand started back in 2004;
2. Fort Ghaut.

Option 1 – Return to the Eastern side of the island:

This option has been ruled out as unattractive for the following reasons. Prior to moving to Belham, the finished product for export were transported by trucks along the northern main road to the jetty located at Little Bay, loaded onto barges and exported. The method of overland transport had a severe effect on the roads, and the northern main road was in a state of disrepair. In February 2010, a pyroclastic flow came down the eastern side of the volcano, and two of the companies lost their equipment.

The owners of the sand mining companies have stated that they are not willing to go back into the eastern side of the island. Additionally, there is no jetty facility on the eastern side of the island, which on the Atlantic side to facilitate exports of the finished product. The cost to haul finished material to the port facility in Plymouth and the potential damage to the road infrastructure makes this option very unattractive.

Option 2 – Mining in Fort Ghaut:

This option to go into Fort Ghaut in Plymouth to conduct sand mining operations has been seen as the most viable option put forward. In September 2019, the viability of utilizing Fort Ghaut as an option for the future of sand mining was discussed. A site visit by stakeholders was conducted, and coming out of that site visit, a number of issues have been highlighted for consideration, and how those challenges can be resolved and mitigated.

The issues and challenges include the following:

- Lack of a Local Area Plan for the area;
- The threat/risks posed by volcanic activity;
- Challenges for harmonious future development



Processing of mined material at stockpile area in Corkhill - Photo courtesy of Sand Miners Inc.

**MODIFICATION OF THE PHYSICAL DEVELOPMENT PLAN FOR NORTH
MONTSERRAT AS STIPULATED UNDER SECTION 9 OF THE PHYSICAL
PLANNING ACT, Cap. 8.03**

In moving forward with Option 2, one of the critical issues that needs to be addressed is the provision of a Local Area Plan for Fort Ghaut. Part 3, Sections 5 to 11 of the Physical Planning Act, Cap. 8.03, deals specifically with Development Plans. There is currently a Physical Development Plan for North Montserrat 2012-2022. This plan designates the areas permitted and earmarked for sand mining. However, this Development Plan does not extend to areas beyond Isles Bay.

Section 9 of the Physical Planning Act deals with the Revision and Modification of the Development Plan. It states as follows:

“(1) The Authority shall keep under review the Approved Development Plan, and shall prepare such proposals for its revision, and modification as it sees fit.

(2) A proposal for the revision or modification of the Approved Development Plan shall be subject to the procedures outlined in section 7”.

The requirements of Section 7 – Draft Development Plan, are attached as Annex 1

Proposals for Modification:

This option to go into Fort Ghaut in Plymouth for sand mining operations has been seen as the most viable option put forward. The positives for allowing sand mining in Fort Ghaut can be summarized as follows:

- Fort Ghaut is owned by the Crown, and this would allow for proper organization, monitoring and enforcement;
- There are no occupied residential properties in the vicinity;
- There is the opportunity for spill-off development.

The modification to the Approved Development Plan will now designate Fort Ghaut as an area designated for sand mining operations. The overall goal of the relocation of sand mining

operations to Fort Ghaut is the fact that it will enhance opportunities for the economic development of Montserrat through the continued development of a viable export industry.

Land Allocation:

Map 1, indicates the land allocation for the proposed Local Area Plan, as follows:

- land allocation for sand mining
- area of Plymouth demarcated;
- Lovers Lane road to show how access into and out of the proposed mining area;
- Location of current stock piling and sifting area;
- Access used to go into Plymouth jetty for barge loading.

An area of approximately 11.25 acres has been allocated for sand mining operations.

In terms of tourism development, the Tourism Division are supportive of sand mining once the activities are carried out in an environmentally sustainable manner. Consideration is being given in the south of the island for the establishment of a Geopark. This has been incorporated into the Draft Local Area Plan.

Access into Fort Ghaut:

One of the critical areas of consideration is the access into the Fort Ghaut area. It is proposed that extraction and mining of sand starts in the upper part of the valley. Based on this proposal, it is recommended that access into and out of Fort Ghaut be done via the Lovers Lane Road. This will serve two (2) purposes:

1. The Lovers Lane road is a natural link to and from Fort Ghaut and the storage and processing sites of the sand miners in Cork Hill. Utilizing this access will ensure that miners can easily get out of Fort Ghaut to safety, in case that there is an increase or a threat of volcanic activity;
2. Consideration is being given to the establishment and development of a Geopark in Plymouth, as part of the country's tourism product. The utilization of Lovers Lane will ensure that both the sand mining and tourism development can co-exist in that daily sand

mining traffic will be confined and not go through the Plymouth area. The only traffic that will go through Plymouth will be when there are exports and use of the Plymouth jetty.

Environmental Issues and Management:

The Ministry of Agriculture, Land, Housing & the Environment has responsibility for overseeing and regulating sand mining operations. The Ministry has faced challenges with sand mining operators adhering to the established rules of operation. As a result, there has been a depreciation of the aesthetic value of immediate and surrounding areas, through poor environmental management practices. The Ministry has two (2) Agencies which will be involved in the management of sand mining within Fort Ghaut, namely the Physical Planning Unit (PPU) and the Department of the Environment (DoE).

The Physical Planning Unit will play a key role in the oversight of the operations of sand mining in Fort Ghaut. The designation of the mining area will be critical for the effective management of the site. The Physical Planning Unit will work with the Lands and Survey Department to designate the boundaries of the area for sand mining. The Plan will seek to designate the area into portions for each of the sand miners or any other potential sand miner. The process would be conducted in a phased approach where sand miners are expected to operate as per best practice in accordance to the sand mining guidelines to be developed by the Department of the Environment and the Physical Planning Unit.

In order to have proper and effective monitoring of each area the area will need to be designated and demarcated. The designation would start at the most appropriate location in the upper end of Fort Ghaut and steadily progress to Plymouth to the west. The Ministry of Agriculture/Land Development Authority would have to devise an arrangement for these sand miners where each one is expected to operate within their designated site with conditional approval. Post sand mining and restoration will form part of the approval.

In overseeing the operations of the sand mining industry an administrative structure that gives clear responsibility and authority to the respective agencies would be necessary going forward. Discussions will be held with the Department of Environment (DoE) to agree on role and responsibility so that there will be no overlap.

Permits/Planning Permission:

The Department of Environment will oversee the management of the environmental impacts of sand mining and processing plants. Companies will need to apply for and receive a permit from the Planning and Development Authority (PDA). The Authority would issue an approval with conditions attached for sand miners to operate in line with best practice. Physical Planning Unit would report on breaches to the Planning and Development Authority and action for compensation if required, or alternative measures as instructed by the Authority. These agreements for use in the Fort Ghaut would be binding and Physical Planning Unit will report on these measures as outlined. The detailed responsibilities of each agency are as follows:

Physical Planning Unit

The Physical Planning Unit will be responsible for the following:

- Ensure sand miners stay within designated areas in accordance with sand mining guidelines to be developed by the PPU and the DoE;
- Monitor the depth of fill and excavation required for each site to ensure compliance;
- Report on breaches or non-compliance;
- Demarcate zones that the sand miners should not venture to include parts of Plymouth earmarked for tourism;
- Ensuring that daily operation hours are being adhered to in accordance with the guidelines;
- That approval shall be subject to periodic reviews of the operations to ensure compliance with the conditional use permit and to specific limitation over the portion of the lot or parcel where the extraction should occur; this must be in accordance with the Local Area/Development Plan for Fort Ghaut/Plymouth and surrounding area.

Department of Environment

The Department of the Environment (DoE) will identify the environmental issues which will inform Environmental Plan for the area. Additionally, the Department will assist with any scoping exercises which may be required. The DoE will also advise on the following:

- Environmental and public health considerations (The Environmental Health Department, Ministry of Health will be consulted on issues of sanitation and public health);
- Air quality-Air quality particularly for fugitive dust (sand that blows off site);
- Noise level;
- Dust Odors;
- Storm water runoff

Disaster Risk Management

Disaster Risk Management is a critical element in the conducting of mining operations in the Fort Ghaut. The proposed Disaster Risk Management Procedures are outlined in Annex 2.

A Volcanic Risk Assessment for the proposed sand mining operation at Fort Ghaut is being undertaken by the Montserrat Volcano Observatory (MVO). A longer-term project is being undertaken at MVO to develop a revised volcanic hazard map for Zone V. The revised hazard map, once complete, will form the foundation of all risk assessments that both the MVO and the SAC undertake. It will be based on state-of-the-art modelling of multiple volcanic hazards. This will enable the MVO to not only account more accurately for total risk (due to accounting for multiple hazards) but these advances mean that the MVO will be in a position to generate a more refined spatial analysis (micro-zoned) that can be used as an evidence base for deciding whether there are parts of Zone V that could have different levels of management procedures in place, i.e. possibly more activities could be undertaken in the lower-risk areas.

Having this sort of information is vital for GoM to be able to undertake long-term sustainable development in the southern part of the island and that it would be useful to have this completed as soon as possible. It is the aim of the MVO to have the first version of this new hazard map completed for referral during the generation of the next GoM Physical Development Plan for Montserrat (due in 2022). It should be noted that any risk assessment undertaken at this point in time will be superseded once the new analysis is complete and therefore operations would need to be re-evaluated.

Annex 1

Draft Development Plan

7. (1) When the Development Plan has been completed the Authority shall publish the plan as a Draft Development Plan together with a statement of the representations it has received and the responses of the Authority to those representations.

(2) The Authority shall invite further representations on the Draft Development Plan to be submitted within a period of sixty days from the date of its publication.

(3) The Authority shall consider all representations, and after making such revisions to the Draft Development Plan as it considers appropriate, submit the Draft Development Plan for the approval of the Governor acting on the advice of Cabinet through the Minister.

(4) For the purposes of this section “**publish**” means to display in a prominent place to which the public has access.

Source: Physical Planning Act, CAP 8.06

Annex 2

Disaster Risk Management Procedures for Sand Mining in Fort Ghaut

The following have been developed to ensure that sand miners operating within the Fort Ghaut area follow the proposed Risk Management Procedures.

1. Operational Overview

- (a) **(Name of Operator)** desires to conduct sand mining operations in Fort Ghaut (Zone V). **(Name of Operator)** recognizes the possibility of limited operational hours in the zones and will move expeditiously and safely in an effort to maximize the given time in the area.

2. Specific Areas of Operation and timings

Trucking of sand and aggregate will take place between Fort Ghaut and our stock pile location near Lovers Lane six (6) days per week between the hours of 8:00 am and 4:00 pm. Transporting said material to barges within Zone V will occur only on barge loading days between the hours of 8:30 am to 5:00 pm., in conjunction with the Montserrat Port Authority and Customs and Excise Department.

3. Designated Trucking Routes in Zone V and Emergency Guidelines

- (a) Vehicles must follow designated route with no diversions. Route: The main operational route into Fort Ghaut will be along the Lovers Land Main road into Fort Ghaut.(See Map 1);
- (b) In the event of an emergency during sand mining and loading operations personnel in the Fort Ghaut will be evacuated by road. (See Map 2);

4. Rendezvous Point

All personnel will meet at the Rendezvous Point in the vicinity of the old Adventist School and the Cork Hill Main Road; the safety officer will conduct a head count at the RV point. The safety officer/designate will inform the RMPS/DMCA/MVO of situation on the ground and await further instructions. All personnel will proceed to evacuation point if necessary (on advise of MVO)

5. Designation of a Health and Safety Manager

The **Health and Safety (H&S) Manager** is responsible for the health and safety of all workers. The responsibilities of the Health and Safety Manager include (but are not limited to) the following:-

- (a) The coordination of all safety and health concerns for the entire operations area;
- (b) The updating of this plan to ensure its relevancy;
- (c) To liaise with the Montserrat Volcano Observatory (MVO), The Royal Montserrat Police Service(RMPS), the Disaster Management Coordination Agency (DMCA) and The Montserrat Port Authority and Customs and Excise any other relevant authority necessary for the safe conduct of the operations.

.....are designated as the Health and Safety Manager for **(Name of Operator)** for operations in Zone C and V.

6. Safety Guidelines

- (a) All workers must attend hazard and risk briefings by the MVO and the DMCA;
- (b) All workers must be familiar with the Volcanic Hazards Guide produced by the DMCA;
- (c) All workers will be provided with an updated briefing;
- (d) Whenever there are significant changes at the volcano that would necessitate changes to this Health and Safety Plan;

- (e) Plan Evacuation drills will be conducted in conjunction with the Montserrat Port Authority;
- (f) (Name of Operator) will conduct its own drills as needed;
- (g) All workers must wear the approved safety equipment to include proper footwear, dust masks, hard hats and goggles;
- (h) All vehicles must be equipped with a handheld radio's with direct link to the MVO;
- (i) Prior to entering and exiting the Fort Ghaut area, radio contact must be made with the MVO;
- (j) Personnel in the Fort Ghaut area, the emergency vehicle and at stock pile site In Cork Hill must also have access to a handheld radio. The type, model and quantity will be determined by the MVO and the DMCA;
- (k) All personnel are to be advised of the location of the first aid kit and safety vehicle
- (l) Driver shall wear seatbelts and maintain a safe speed at all times;
- (m) Drivers must exercise extra care and attention as the roads in the area are not well maintained and dusty;
- (n) Vehicles equipped with radios should always monitor Radio Montserrat (ZJB) on 95.5FM or 88.3FM;
- (o) The designated Safety vehicle will remain in the area of operation at all times;

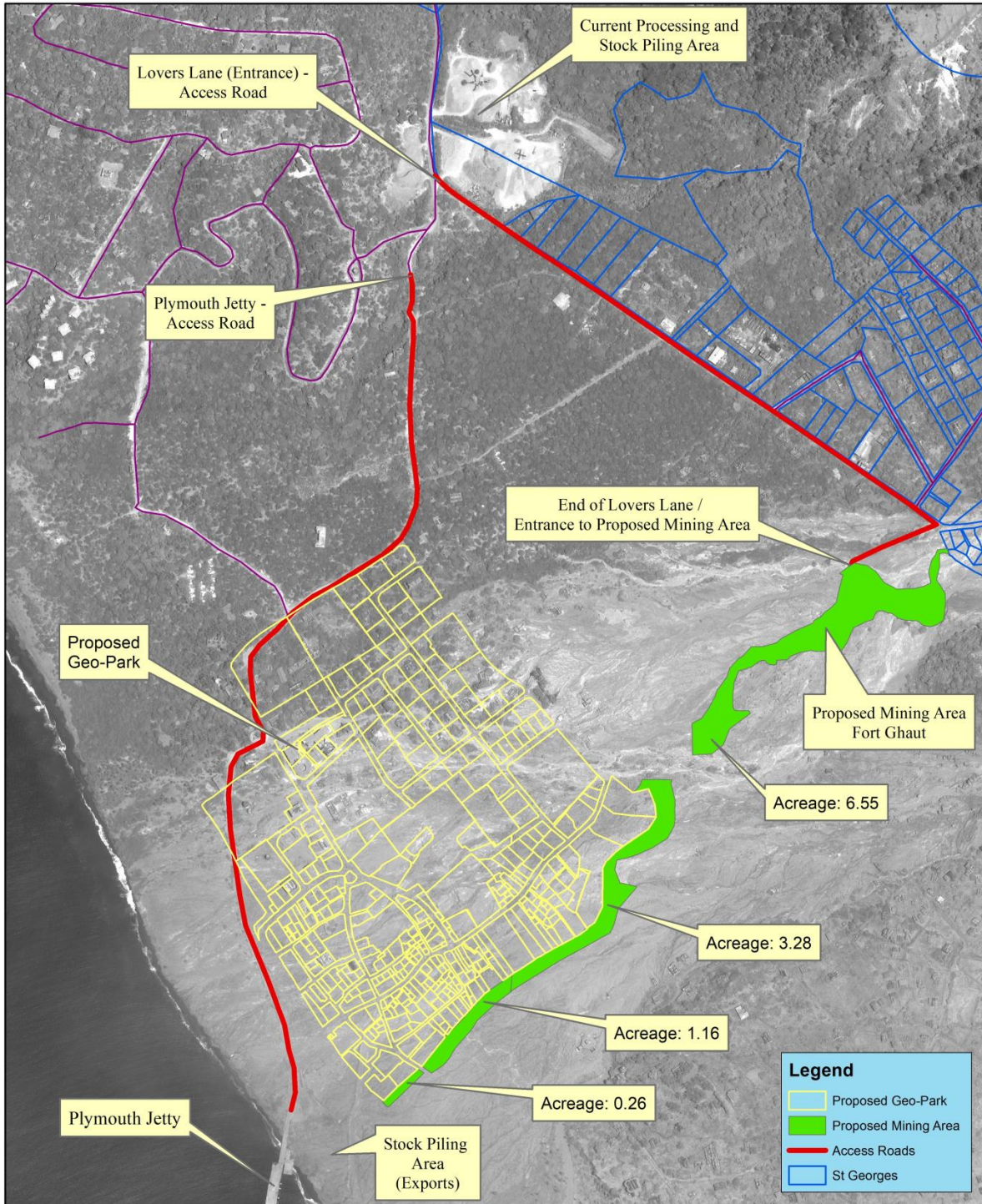
- (p) All workers must comply with the instructions given by the police or emergency officials;
- (q) Random testing of the emergency evacuation procedures will be conducted by the DMCA in conjunction with the MVO at least 2 times per year.

7. Emergency Procedures for Operations in Zone V

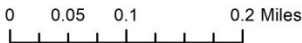
In the event of an emergency including heavy rain or increased volcanic activity:

- (a) The MVO will notify via radio, all safety officers/ operators in the work area of the threat and of any evacuation order;
- (b) The Safety Officer located at the stockpile site in Cork Hill will prevent anyone from entering Zone V;
- (c) All personnel will immediately evacuate the work area and will rendezvous at the Old Adventist School at Delvins and Cork Hill main road junction, and ultimately over the Belham to the north; This route is outlined in Map 2, and is the Primary evacuation route.
- (d) At Rendezvous Point the Safety Manager or designate will inform the RMPS/DMCA/MVO of situation and wait further advisories.
- (e) In the event that access across the Belham to the north cannot take place, it may be necessary to proceed to Evacuation Area at Foxes Bay; This route is also shown on Map 2, and the secondary evacuation route,
- (f) Notify the Police and DMCA by telephone that the area is evacuated.

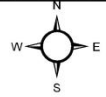
Map 1 – Local Area Plan for Plymouth



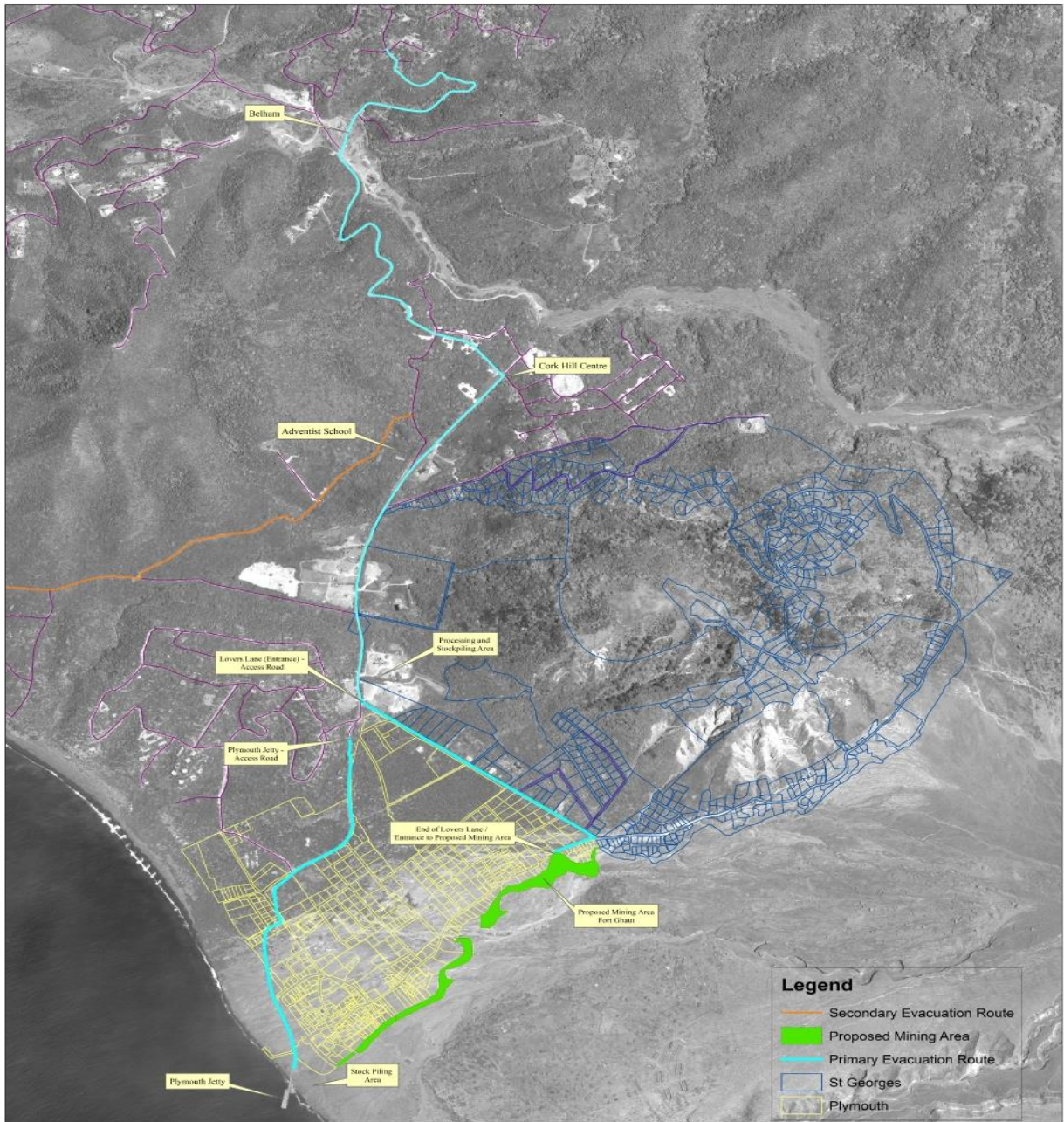
Modification of the Physical Development Plan
For North Montserrat: 2012 - 2022
Local Area Plan for Plymouth



Ministry of Agriculture, Trade, Land, Housing and the Environment
Prepared by: GIS Centre of the Physical Planning Unit
Approved by: Department of Land & Survey
Note: This map is for information only and does not constitute an official map.
Date: November 2012



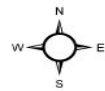
Map2 – Proposed Evacuation Routes



Fort Ghaut Proposed Sand Mining Area
Evacuation Routes

0 0.125 0.25 0.5 Miles

Ministry of Agriculture, Lands, Housing and the Environment
We acknowledge the Gift of the Physical Planning Unit
from the Hon. Minister, Department of Lands & Survey
Note: This map is a conceptual map and does not represent an approved EIA layout.
It is subject to further review and approval by the relevant authorities.



Source: GIS Centre Physical Planning Unit and the Lands & Survey Department, Ministry of Agriculture, Lands, Housing & the Environment