Transcript of Public Presentation for

Phenion on the Ridge Resort and Spa

Date: February 29, 2008

At 53 Queens Drive, Montego Bay

Chairman: Good Afternoon everyone and thanks for joining us at the presentation of the EIA Report for Phenion on the Ridge. I would like to welcome Mrs. Jill Williams from Northern Jamaica Conservation Association, Ms Janelle Ricketts, Communication Relations Officer at NWA, Mr. Anthony Tharpe, CEO, CAREIF LTD and Mr. Peter Wilson-Kelly, consultant on the project.

The next sets of slides, basically gives a general description of the source of natural habits, am going to touch things in negative ways, the experiences with rainfall, its experience with hurricane and there are some issue in respect to earthquakes. This side outlines, according to what the meteorologist like to call return periods, the amount of rainfall that would be experienced at this particular location, location meaning Montego Bay specifically the Donald Sangster International Airport and are measured over time. Last year we had a fairly good year.

Looking over on this side, between 2000 & 2004 you had, this is our chart, Dennis in 2005, Ernesto in 2006, Dean in 2007. So in summary, the area is vulnerable to hurricane. To follow onto to that, there was a study that was done I believe it was in 2002, which sort to predict if there was a hurricane passing this location with storm surge, basically it was predicted that if we had what is called a fifty year return period storm, Ivan was a fifty year return storm, hurricane Allen in 1980 was a fifty year return storm. Depending on its projector, the periphrases concern is met. Now the development is outside of that area so I put that to show that based on the information that was provided in this study, the storm surge limit puts the development outside of harms way but I had to include because nature have a way of turning things in all directions. Based on the information that was provided, the site itself is actually outside of the storm surge limits for a fifty year term return period.

Earthquake and a big word seismicity, basically describing the vulnerability, this map basically show probabilities outlined as earthquake events per hundred years. With the white being the least, less than five per hundred years and the dots being the greatest, greater than twenty earthquake events over hundred years. This is the site, basically what this is saying is that the site has some vulnerability to earthquake, but I think that is the common case in the entire island so we can't use that as a means of disqualifying the project. I put that up there just to show what the area is subjected to.

The Forestry Department had the benefit of a research that was done by O.D Eblem and R. Hamirant; they helped to develop forestry maps of the island. They use certain criteria to break down the island into different types of forest and they describe the forest areas that this development falls in as a tall, open, dry forest and in summary, this forest is assembly is typically an open natural woodland or forest with big word deciduous or semi-deciduous trees…big way of saying that they shed their leaves occasionally. Trees are at least five metres tall and counter not in contact with each other which basically means you have a tree here, you have a tree here you don't have trees overlapping and most importantly, they are the best indicators of whether or not your looking at a tall open dry forest. Is this tree here known as red birch tree example of it right outside here. But anywhere you see that type of tree you are guaranteed that you're within a dry landscape forest or a tall open dry forest. So we can generally classify this area here as dry landscape forest.

This is not so clear, sorry about that but the next three or so slides will illustrates the types of tree formation that you have the property itself and I divided the site in many sections in attempt to overlay those boundaries on top of an air photo I obtained. So we would be from a building just outside of the frame on the picture here, this location here of the palm trees that are below, the cedar trees are to towards the back section of the property and there are fruit trees all of those were planted here, so what you have now is not necessarily a christened dry landscape forest but one will regard that there has been some amount of disturbance.

This one more clearly illustrates the nutritious tree, these are your palm trees here, if am not mistaken sir these are the cedar trees runs toward the back area, the large fig tree here, oh yes it's a bitter wood tree, ok. The section of the property that has had the most human interference development can be an inference at some point in time, is this section here, the central section. The third slide is the view directly down south, there was some amount of clear cutting done in the central section of this property here, what you will see below it now is the green area. So in an attempt to illustrate how the vegetation density and type changes over the years, what I did here was define the different locations of the forest on the property as they change over the periods 1991, 2006 and 2007 so what we did, we got the air photos for all of those areas through the locations where the forest were and then compare and overlay them together and in terms of disturbances, back in 1991the area defined as one this dark green area here was they area that has been disturbed in terms of forestry. Here, here, here and here. As of 2007, these areas here were added to the area of disturbances. So what is left now in terms of natural forest cover is the light green area here and in terms of areas, the total forest area initially would be about approximately 3.6 hectares. In 1991, the area covered was about 2.3 hectares; in 2007 it was 1.4 hectares, so over the years there has been some amount of change in terms of the amount of trees in the area. So as of this point in time now this is what is left.

I was able to find two types of endemic plants on the site, endemic basically means that you find them only in either (a) one location or (b) in a particular forest and now in this particular case these two items here are only found in dry limestone forestry. This tree is at the north western section of the property, right towards where the property boundary meets the sunset avenue and this cactusy type of vine on here just a fancy name for i-lo-cer-iuous, I don't have a common name for you. The other is a type of bromeliad, except that it grows on tree. So those are special plants and one of the things you would want to be able to do is to ensure that those are preserved. And it's very easy to take them and plant, the physical taking up and plant in the gardens. The point is, we did find some special plants on the site. So we spoke about plants, that's one aspect and it's not like you will find a mongoose hiding out to find a piece of Coney. These are what we saw; lots of birds, lots and lots of birds and you would expect that because of the fact that you have the forest here and we can go down the list, I won't say this is a comprehensive list but its two mornings worth of assessment between eight a.m and nine forty five. And what I'd like you to note, four different birds, four of them; yellow tail parrot, that one surprised me because normally you don't see those parrots down in the lower area more formerly found in the covered dry lands instead of forest areas but there two of them chattering away in a tree just below here...member of audience said: "They were passing through" even if they were passing through the point is they were there. Like a lot of these other birds, Jamaican mango, I see humming bird there, doctor bird and this one also surprised me, long mouth Jamaican woodpecker, I did not expect to see one like that down there, but the second day of doing my work, there was one knocking away in the tree down there. So, the point is that it supports either (a) birds that nest there or birds that will…as you rightly said pass through here. From birds to butterflies, one, two, three, four, five, six varieties… they may have been brought there

Finally, two varieties of lizards, the big green lizard I found in the tree, this tree right here. Frighten the dickens out of me you know because I didn't expect to find him standing beside me and is typical with males, they start turning their heads up and the dewlap starts to coming out. This other one I found in the bromeliad, in the red birch tree, yes red birch tree. So, in summary the animals that you are most likely to find in vegetation types like these, birds, butterflies and lizards.

Alright, from the plants to the animals and to the layout of the land. This diagram gives a general understanding of the different types of geological land forms as you will find around the island and you will note that where that box says site location, it describes what is known as coastal limestone. And this basically what it looks like. The first cliff phase you see here, this is the type of geological feature that you will find and one of the very important characteristics of this type of geology is that it has cracks… so basically it would permit water to go through the property and you mentioned one of the issue part of where the tennis court cover a section pretty much like this prevented the water from getting down. So, fractured lime stones, ease of drainage are two big characteristics of this type of limestone shown here on the slide. Streams are also a

feature of this type of geology, we found one just down the corner…yes just down south from here. This happens after protracted rainfall, there was a period of time during the survey where rains were falling for weeks leading up to us finishing. Rains are being collected up hill from here, issuing down. One of the points to make about this type of geology is that it is ideal for routing and drainage… and I will elaborate a little more on that when I get to the impacts and mitigations. The shape of the land, one of the features is its cliff phase and for those of you who travel the north coast very frequently, you would recognize the character stemming from here, to Falmouth, Discovery Bay and as far East in St. Mary. What the Geologists like to call rays and litophesis beams, big word, simply meaning that these were produced over a period of time and over time a combination of sea falling and the land rising has brought about this.

We did some cross-sections, across the property, basically the cross section shows how the land changes in relation to distance from a point. The points E through F, this is what the land looks like if you were to cut it and divide it from the site and E through F is a line which will basically run from the right of this building my right down south towards Fantasy Hotel. C through D which is the flatter section of the property looks like this and A through B which is closer towards Sunset Avenue looks like that with a small cliff face just above here. So, the long and short of it is that much of the property has varying elevations, central portion being relatively flat. Green age…as you rightly said sir this property is… I won't say it's unique but it has its issues in respect to drainage. There's a fair amount of run off which comes from Queens Drive through this property. One of the things that will have to be addressed in terms of the development is drainage management… it's how to deal with that water which is not generated on the site but which runs through here and this picture here illustrates the path of one of two such drainage, which runs through the property. This one which is immediately to my right, this appears to be next door it runs in a straight line coming down south then makes a left turn onto the property and then washes out in the lands just below. The next one runs from here down south and then exit out onto the access road back out onto Gloucester Avenue. There is a culvert, I think about a foot and a half culvert just at the start of the road way here which expresses itself out onto the road where it also appears to run underground towards the central drain on Gloucester Avenue. Separate and apart from that, there is drainage which runs off Queens Drive through the entrance to this property… right here which turns and run down south and leads back into the first drain. So basically you have three points from which drainage from offsite accesses the site.

So, what I attempted to do and I will freely claim to not being hydrologist but formulas are formulas and the internet is a wonderful thing so, what we did was that we estimated the catchment area for that storm drainage issue onto Queens Drive through here. Basically, you define your catchment area as all of that area of land from the point which the drainage flow and

this white line defines that area. And there is approximately thirty one thousand and twenty eight square metres in area, these two lines here represent the points from which storm water, level of the site accesses this side of the property. So, like I said the internet is a wonderful thing and formulas are formulas but I can tell you, remember that same return period we spoke about earlier on? I averaged all the figures for a one hour storm event and use that to plug into a formula which is commonly used by meteorologist to forego material of discharge from the catchment area and basically what was calculated was that in a one hour storm event, approximately five hundred and four cubic metres of water will run through from that catchment area through this site.

To give you a little bit of perspective as to what that is, imagine a one hundred metre track that Asafa Powell would run on, that's the lent of a container, imagine the lane which is about a metre wide and imagine that is five metres high. If you were to tip over that container, that's the volume of water that would basically run through this property in a one hour rainfall event. So we have an idea we know that storm water accesses the site, currently in its vegetative state, I don't think that the site contributes a lot to the storm run off but in the impacts and mitigations you will see where I will speak to possibilities of increased run off in the chambers.

Now let's go on to dust and noise, I must admit that our attempts of trying to get some sort of baseline data on both dust and noise were prevented by the fact that we were not able to access the equipment needed to do this until after the field work was done so what I propose in the document is that as a part of the monitoring plan there must be an establishment of baseline figures for both noise and dust. Now just by the naked eye you will see the area where dust is being generated on the site, but certainly there are areas where noise is. The thing about this location is that that noise is not necessarily being generated on site but offsite. That red line represents Queens Drive which is this Drive here, is one of the main right down the slope from us. The point from which the aircrafts take off is right here, so when they give you full throttle, the noise gets here and during the time of the survey, construction was done at … I think this is Rampart Inn across the road from here, which shows up on the slide here. There was a Jack hammer during the time of doing the research. The point is, there is a lot of noise that is generated in and around the site at this point in time, there is no noise on the site it self. But I will reiterate that we still need to get some sort of baseline data and that data will be collected will be used as a monitory scheme.

Alright we move on to impacts, possible negative impacts. The first one up, but before that, it gives you a list of the possible impacts divided into short-term and long term, starting with the long term first. Vegetation related impacts, drainage impacts and aesthetics impacts. Basically

long term in the sense that if you don't mitigate them they left there. Possible short term negative impacts, would relate to the generation of dust like construction, construction noise, solid and liquid waste generation, siltation impacts as a consequence of the fact that the construction site, impacts due to inadequate traffic management and impacts related to the use of natural resources for construction. I put that last one there, because it turns out that a fair amount of this is showing some amount of scaffolding materials were taken from some a site.

The first of the possible negative impacts, & I say impacts in the sense that after this they will be mitigated. I like to try to keep that tone of negative out the door and force in the positives. We estimate based on the footprint of the development…this is just looking strictly at the footprint that we just take the plan of the building and just place it there. Approximately forty two percent of that one point one four hectares of natural forest remaining on the site, this what will be left. We also estimated that approximately fifty percent of the tree that have been introduced onto the site, have some nice way of generating themselves are considered to be disturbed. And as a consequence of that the lost of this forest could impact negatively on the presence of animals. So here, you could have lost some rain fall absorbing functions and as the slide would show tree do aid in the amount of water that leaves the site because the leaves basically act as storage and slowly leads to that watering cycle.

And finally, lost of soil retentive properties of plant, so in short the roots hold the soil…plants soil. These three pictures basically show how we came up with the percentage loss. This is what exist, natural forest life, these areas are mixture of shrubs and small trees. What we do is that we group the footprint of the building and place that on top of building, in terms of forestry and we came up with that. In terms of the trees that are naturally occurring on the site, these symbols represent those trees as in the survey. All of those that fall in the green area within the footprint of the building may end up being destroyed if no mitigations are put in placed. Certainly if you don't have the tree, you don't have vegetation then you won't have the birds and the butterflies because that's their habitat. And to go back to the discussion that trees aid in drainage, I got this from this website here fairmonthpark.org, and I felt it was important enough to put this inside here. So as with trees and it massive network of leaves, slows rainfall in a storm massively reducing the speed that rain drops hit the ground, slow allowing it downstream. Also leaves on trees absorb rain like sponges, giving more water a chance to seep slowly underground. Finally, unmitigated vegetation loss and construction alteration to the site will have negative impacts on the aesthetics characteristics…basically saying vegetation is also important, it looks good, it brings the birds, it's nice to be able to sit in your room and look out your room and see bird and hear them chirp. You want to ensure that the development factors that in to the equation.

A possible negative impact is construction noise, one of the most immediate impacts that can occur during a development. Construction noise generated by construction tools and heavy equipment in excess of the acceptable health standards could impact on residents, patrons and adjoining construction site. There are varying levels of noise starting from anywhere eighty five to ninety decibels for welding machines one hundred and twelve decibels. Anything above this red line here will require ear protection.

Proposed mitigation for vegetation, the removal of only natural occurring trees from within the footprint of the building, so basically if we can manage the development so that the move is confined to the area as oppose to clear cutting the site then that is one mitigation.

Question: I don't know if they have or they are putting in, a pump to take away that water, because there is a problem when it goes downstream.

Anthony Tharpe: In short what we are saying is that we are so proactive that we are willing to fix it ourselves if we have to. We won't be doing anything that will be detrimental to the project. The bottom line is, if it is not successfully absorbed we are going to suffer, so we need to say to the client and the end users coming in, these things have been met and therefore they can feel comfort when they get here especially with the price point, we're talking about enjoying your spent resources.

Question: The resolve board, this part of the corridor and the resolve board, all these things is taken into consideration, they're being worked on.

Answer: At least we can control this discussion by clearly identifying the issue of sewage with respect to its conveyance to the treatment facility and we've also hinted to drainage that I want to speak about in fair amount of detail

Question: You could also speak to NWA in regards to the water run off, from this road here. It goes down on the property and it causes a problem.

Answer: We are definitely on their case in that regard.

Chairman: If there are no further questions, I would like to thank you all for coming and have a good evening. You can help yourself to some refreshment over there.

End