January 20, 2011

Baynes Sound Investments Ltd.
Attention: Mr. Jim Crawford
203 – 15272 Croydon Drive
Surrey, BC
V3S 0Z5

Dear Mr. Crawford:

RE: SERVICING REPORT for the PROPOSED DEEP BAY DEVELOPMENT REZONING APPLICATION

The following report outlines servicing requirements for the above noted project. The comments are based upon the Site Plan Drawing prepared by Zeidler Partnership Architects for this project dated January, 2011.

STORMWATER MANAGEMENT

Stormwater runoff from the Deep Bay Development project is tributary to Deep Bay Creek along a portion of the east side of the property and man-made and natural water courses within the property that discharge rain water runoff into Deep Bay along the northwest side of the land. Deep Bay Creek was historically a fish bearing water course and the Deep Bay area has an important shell fish industry and valuable fish habitat. To eliminate any potential detrimental effects from residential development of this site, integrated stormwater management practices would be followed as outlined in the Ministry of Environment publication "Stormwater Planning - A Guidebook for British Columbia".

The Development Site Plan prepared by Zeidler Partnership dated January 2011 indicates several storm water management features that will be incorporated into the project.

A report by the project Biologist, IEC International, dated October 26, 2010 also outlines concepts, publications and best management practices that will be implemented to protect the environment and fisheries resources within and surround the development. Many of these are related to stormwater management.

The stormwater management systems would be designed to maintain ground water recharge, contaminant removal and peak runoff flow control to predevelopment rates. The terrain, ponds, wetted areas and permeability of the upper layers of soil provides in
several areas provide the opportunity to use a wide variety storm water management features to emulate predevelopment conditions. The project site development layout is also conducive to incorporation of these “best practices” stormwater management features.

The following principles and systems have been identified as practical for use on the Deep Bay Development for surface water management:

- Minimize impermeable surface - This allows natural percolation of the rainwater into the vegetation and soils and controls water runoff rates and temperature. The project’s park/open/green spaces account for over 75% of the total property area. The road permeable pavement section has been reduced to the minimum practical to allow safe vehicular and pedestrian movement.

- Rainwater harvesting - Capture runoff from the roofs of homes and commercial buildings and store in above ground or below ground tanks for water reuse. In addition to reducing the demand on the domestic water supply and system, rainwater harvesting provides peak runoff rate reduction, stormwater temperature control and ground water recharge.

- Discharge roof water leaders onto the surface - Reduces peak runoff rates and provides natural irrigation and ground water recharge.

- Storm service rock pits - Provide each lot with a subsurface rock pit that would provide storage for runoff, control temperature and provide time for ground water recharge. An overflow to the off-site drainage system would be provided for major rainfall events.

- Bioswales - low gradient, linear, vegetated features that remove silts and other contamines from parking lots and road ways. They will often incorporate a below ground storage reservoir in the form of drain rock and an overflow pipe. The overflow pipe and surface configuration would provide runoff flow routes for major storm events. In addition to contaminant removal and major flow routing, the bioswales provide storage volumes, peak runoff rate reduction, temperature control and allow ground water recharge to occur.

- Rain garden - these are similar in function to the bioswales except they are not necessarily lineal and often treat larger volumes of water. The vegetation and soils provide contamination removal and the below and above ground systems provide storage volumes, temperature control and ground water recharge. Overflows from these features provide routes for major rainfall events.

- Constructed wetlands - these are pond features including a combination shallow water, deeper water and vegetation used for peak runoff mitigation and contaminant removal. The property contains existing ponds that may be able to be enhanced through the proper design of a constructed wetlands in addition to creating new ones.

- Oil/water separators - these are subsurface tanks that are designed to allow the separation of oil and sediment from stormwater runoff. They may be used to treat parking lot runoff from the commercial portion of the development.

- Detention ponds - these are features that would be used to control the release of major rainfall events to limit the peak discharge rates to predevelopment levels. They may include “dry ponds” that would only fill during heavy rainfall; “wet ponds” that contain water year-round or subsurface pipes. All would be designed to restrict the flow rate of runoff to the receiving surrounding water courses.
Using the above noted features in an integrated stormwater management system for the project would closely emulate the predevelopment rain fall runoff conditions and mitigate potential detrimental effects from the Deep Bay Development on the adjacent water courses, creek and ocean. The majority of flows from the proposed drainage works would be directed to on-site natural water courses.

Control of sediment during construction of utilities, road infrastructure and buildings is another important, although short term facet associated with stormwater management. To ensure protection of the surrounding natural watercourses from the discharge silt laden water, detailed Erosion and Sediment Control Plans would be prepared and monitored by the Geotechnical Consultant during construction of the utilities and roads. A pamphlet detailing erosion and sediment control measures to be used during home building would also be prepared and provided to each lot owner along with an explanation of the importance of controlling silt on-site. In addition, on-site silt control will be mandated within the design guidelines of the Disclosure Statement registered on the lots.

SANITARY SEWER

The Deep Bay area does not have a municipal type sewage collection and treatment system. Existing residential homes and business' utilize septic tanks and on-site in-ground effluent fields to dispose of sewage.

The Deep Bay Development project will require a sanitary sewer system including individual lot/building service pipe connections, gravity sewage transmission mains, a sewage lift station c/w back up power supply, a sewer force main, a sewage treatment plant and effluent disposal works. The gravity system would convey flows from the RV Resort northward through the development on Lot A to a pump station located in the north west area of Lot A. A force main would convey the raw sewage from the entire project southward to a treatment plant located on the west side of Lot B. Options for disposal of the treated effluent are outlined in a report prepared by Kala Geosciences Ltd.

The sewage system will be designed and constructed to the requirements of the Regional District of Nanaimo (RDN), Land Use and Subdivision Bylaw NO. 500, 1987 - Part 4, Subdivision Regulation "4D" - Community Sewer System Standards. The design sewage flow rate at complete build-out based upon this bylaw with an equivalent population of 1,220 persons is 1,401 cubic metres per day including a peak sewage flow of 1098 cubic metres per day plus a peak storm water infiltration rate of 303 cubic metres per day.

The sewage treatment and effluent disposal works will have to be designed, approved, constructed and maintained to the requirements of the Municipal Sewage Regulation of the Ministry of Environment of B.C. Kala Geosciences Ltd have prepared a report entitled "Baynes Sound Investments Ltd., Deep Bay, Wastewater Treatment and Disposal Considerations" dated January 17, 2011 that addresses these aspects of the sewage system.

The Deep Bay Development will be a strata project and the entire sewage system will be privately owned, operated and maintained by the strata corporations set up during the development.
WATER

The Deep Bay Development project lies within the western portion of the Deep Bay Waterworks District (DBWD) boundary and we anticipate that an agreement with them will be reached to provide domestic and fire flow water to the project.

In order to determine if the DBWD has the ability to provide water to the proposal as shown on Zeidler Partnership's Site Plan dated January 2011 we have examined the following reports and documents:

- Regional District of Nanaimo (RDN), Land Use and Subdivision Bylaw NO. 500, 1987 - Part 4, Subdivision Regulation "4C" - Community Water Standards;
- Completion Report, Groundwater Study at Deep Bay Waterworks District prepared by Pacific Hydrology Consultants Ltd. dated March 29, 2007;
- Deep Bay Waterworks District, Water System Evaluation prepared by McElhanney Consulting Services Ltd. dated February 15, 2008;

The equivalent population for the proposed uses including commercial, multi-family residential, single family residential and RV resort at full build-out is estimated to be 1,220 persons. This is based upon Bylaw 500, information from the RDN Staff and interpolation from the Sewerage Systems Standard Practice Manual, Ministry of Health of BC.

Estimated domestic water flow rates from a population of 1,220 and Bylaw 500 are calculated to be:

- Average daily flow rate - 586 cubic metres per day (6.8 litres per second)
- Maximum daily flow rate - 1,440 cubic metres per day (16.7 litres per second)
- Maximum peak flow rate - 2,355 cubic metres per day (27.3 litres per second)

Water flow rates for fire protection are to be based upon the guidelines contained in the publication "Water Supply for Public Fire Protection" prepared by the Fire Underwriters Survey (FUS). The estimate fire flow rate for a typical single family homes is calculated to be 75 litres per second while that for the proposed multi-family buildings indicated on the development plan is 150 litres per second. The residual pressure in the system shall not fall below 138 kilopascals during the fire flow demand.

The water system hydraulic network will need to convey the maximum fire flow demand of 150 litres per second plus the maximum daily domestic flow rate. We estimate this flow will be 184 litres per second at full build-out of the project plus an allowance for the surrounding existing population, but not additional growth.
Water storage volume requirement based upon full development of the subject property plus the existing population currently on the DBWD system is estimated to be 1,670 cubic metres to satisfy fire and domestic flows.

The Kala report indicates that the DBWD aquifer has sufficient capacity to provide sufficient water for the proposed development.

Static water pressures within the RV Resort (Lot B) development will vary from 362 to 578 kilopascals. Pressures within the Lot A portion will vary from 607 to 803 kilopascals. These values are within specified design limits for pressure.

The existing DBWD water system does not have sufficient water storage volume nor does the piping network have adequate capacity to provide the flows noted above as required for the existing population plus the proposed development. The following is a preliminary list of water system upgrades that we anticipate will be required for the Deep Bay Development:

- Increase water storage at the existing reservoir location by approximately 840 cubic metres;
- Install a 250mm or 300mm diameter water main from the reservoir to and along the proposed main project access road and connect to the existing 150mm diameter main in Gainsburg Road and/or Chrome Point Road;
- Install a 300mm diameter pumping main along Highway 19A from the existing wells to the reservoir;
- Install a dedicated reservoir feed line along the southern section of Gainsburg Road.

The system upgrades noted above will be installed within existing or new dedicated roadways or in statutory right-of-ways and would be owned, maintained and operated by the DBWD. The water systems within the development will likely be privately owned, maintained and operated by the each individual strata. The private systems would be connected to the DBWD system through water meter assemblies sized to suit the required on-site water flow demands.

The above information is preliminary and will require confirmation during the detailed design phase of the project. We anticipate the design values used are conservative and that recent legislated requirements to reduce water consumption may lessen storage volumes and pipe sizes.

**ELECTRICAL, COMMUNICATION AND GAS**

Representatives from BC Hydro, Telus Communications, Shaw Cablesystems have confirmed that they have infrastructure in the area that can service this development with their respective utilities.

BC Hydro has a three-phase distribution overhead power line that runs along the north side of Highway 19A plus single phase systems located on Gainsburg Road and Chrome Point Road. The development would be serviced by the connection to the three phase system on Highway 19A and extended along the main proposed dedicated access road.
Telus has existing overhead plant located on Highway 19A and on Chrome Point and Gainsburg Roads. Preliminary indications from Telus is that these existing system will likely require upgrading to provide sufficient communication service for the project. They will provide more information on the extent of improvements as the project moves forward to detailed design. Provision of service to the project will generally parallel that determined by BC Hydro.

Shaw has infrastructure in the area including copper wire and fibre optics. Similar to Telus, their systems will need to be upgrading and extended to service the proposed development. Again, these will generally follow the same route chosen by BC Hydro. Overhead plant will be placed on BC Hydro poles while underground systems will be placed in dedicated Shaw ducts.

It is anticipated that the Hydro, Telus and Shaw systems will be overhead within the proposed dedicated access road from Highway 19A through Lot B to the Railway and be placed in an underground duct system within the dedicated road through Lot A to the connection with Gainsburg and Chrome Point Roads. The electrical infrastructure will be underground within the strata lots and cover by third party agreements with BC Hydro and in statutory right of ways.

Natural gas is not available in the Deep Bay area. The nearest mains are located in excess of 20 kilometer away, both north and south, and it would not be feasible to extend either of these pipes to provide gas service to this project.

CONCLUSION

Subject to the requirements noted above and in reports prepared by Kala Geosciences Ltd., the Deep Bay Development can be serviced with drainage, sewer, water, electricity and communication infrastructure facilities.

Please contact the undersigned if you require additional information regarding servicing of this project.

Yours truly,

NEWCASTLE ENGINEERING LTD.

Rod Smith, P. Eng.