

## Checklist of Sustainability Measures

Sustainability Measures	Plan Provides For	Comments May 18, 2005
<b>Stormwater and Water Quality</b>		
Permeable paving on roads, shoulders and walkways used to reduce impervious area	✓	<ul style="list-style-type: none"> <li>▪ On public roads pavers will be provided in parking pockets, at road intersections with driveways to multi-family sites, around traffic circles, and at pedestrian crossings and this may help to reduce the effective impervious area on sections of the road with flatter slopes.</li> <li>▪ On private property, pavers will be used on pedestrian walks and all guest parking stalls within townhouse sites.</li> <li>▪ For the commercial site there will be extensive use of pavers for pedestrian circulation and courtyard areas.</li> </ul>
Narrower roads used to reduce impervious area, where safety is not compromised	✓	<ul style="list-style-type: none"> <li>▪ To reduce the area of impervious surface on roads, the paved surface on the internal loop road has been narrowed from 12 meters to 8.6 meters wherever there are no parking pockets on both sides and the paved surface on through local roads have been narrowed from 9 meters to 7 meters where there are no parking pockets on both sides.</li> </ul>
A stormwater management system will be used to capture and convey stormwater into catchbasins or infiltration areas (e.g., swales, gutters)	✓	<ul style="list-style-type: none"> <li>▪ An integrated system of stormwater source controls will be established throughout the property to convey and provide primary treatment of stormwater. These controls include bioswales, swales, wetlands, ponds, rock pits and cisterns.</li> <li>▪ The majority of townhouse complexes will convey stormwater into the integrated system of swales and bioswales strategically situated at the back of each complex.</li> </ul>
Roof leaders for single family homes and townhouses direct water onto pervious surfaces rather than into storm sewers	✓	<ul style="list-style-type: none"> <li>▪ For single family homes and townhouses roof leaders will be directed into rock pits and infiltrated into the ground. During periods of significant rainfall, an overflow within this system will convey excess stormwater runoff directly into the storm sewer.</li> </ul>

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Stormwater management will employ bioengineering technology such as engineered wetlands	✓	<ul style="list-style-type: none"> <li>▪ The integrated stormwater management system incorporates a series of bioswales and wetlands that will provide physical and biological treatment of stormwater prior to entry into the pond facility. The pond facility will also act as a free floating wetland, thereby providing further treatment of stormwater prior to release into Cougar Canyon Creek.</li> </ul>
Boulevards, medians and walkways landscaped with pervious materials as much as possible	✓	<ul style="list-style-type: none"> <li>▪ At least 20% of the surface area of road allowances is to combine landscaped boulevards and medians. Topsoil stripped from road allowances is to be redistributed over such landscaped surfaces.</li> </ul>
Extensive sediment control measures are in place during construction and operation to ensure sediment does not adversely affect water quality	✓	<ul style="list-style-type: none"> <li>▪ Sediment and erosion control facilities will be incorporated into the overall plan during the detailed design phase of the project and will include sediment basins, silt fences, swales with gravel berms, a truck wash station and erosion liners.</li> </ul>
Surface water temperatures reduced on-site to minimize downstream impacts to fish	✓	<ul style="list-style-type: none"> <li>▪ The proposed pond depth has been increased to 3 meters to assist in keeping water temperatures cooler. A cold water siphon will be incorporated into the pond design to draw cooler water from the bottom and thereby not decanting warmer water from the surface. A flow splitter will divert basal flows to Cougar Canyon Creek.</li> </ul>
Sediment and pollutants captured from storm runoff (e.g., oil, debris from roads)	✓	<ul style="list-style-type: none"> <li>▪ Sediments and pollutants in stormwater runoff will pass through a combination of bioswales, swales and wetlands. These features will provide biological and physical treatment, thereby significantly reducing the level of sediments and pollutants in stormwater runoff.</li> </ul>
Rainwater reused (e.g., rain barrels on site)	✓	<ul style="list-style-type: none"> <li>▪ Rainwater will be collected and stored in a series of underground cisterns. This water will then be used to provide supplemental irrigation to landscaped areas during periods of extended drought.</li> </ul>

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<b>Habitat Conservation</b>		
Existing stands of large trees preserved	✓	<ul style="list-style-type: none"> <li>▪ While the majority of the site is dominated by grasses, two significant tree stands within the subject property will be retained. Small clusters of individual trees may also be retained. 3060 new trees will be planted as part of the site landscaping and to replace lost trees and as street trees.</li> <li>▪ Where feasible, supplementary irrigation for such trees will be provided with stormwater dispersed over the ground surface.</li> </ul>
Natural vegetation other than trees retained where feasible	✓	<ul style="list-style-type: none"> <li>▪ The natural vegetation of the site is dominated by a variety of grass species. A small shrub component exists adjacent to the pond and will be incorporated as part of the park dedication.</li> </ul>
Terrestrial linkages provided between wooded areas to act as wildlife corridors	✓	<ul style="list-style-type: none"> <li>▪ A combination of natural and riparian planting will allow for wildlife movement create a wildlife corridor through the core of the property directly connecting to the park and pond facility. The Terasen Gas and B.C. Hydro right-of-ways are also acting as wildlife corridors connecting the south and west perimeters of the property.</li> </ul>
Provide a net gain of habitat diversity including the replanting of trees that must be removed	✓	<ul style="list-style-type: none"> <li>▪ Presently, habitat diversity is relatively low throughout the site. A net gain of habitat diversity will be achieved through native and riparian planting, provisions for wildlife corridors and the creation of engineered wetlands, and through enhancing the existing pond and surrounding riparian area. These enhancements will also induce a higher biodiversity by providing a wider range of habitats for wildlife species.</li> </ul>
<b>Landscaping</b>		
Existing landscape features incorporated into design concept (e.g., pond, tree clusters)	✓	<ul style="list-style-type: none"> <li>▪ A combination of tree clusters, ponds, swales and watercourses have been incorporated into the design concept. Overall, habitat and aesthetic values are expected to be enhanced as compared to existing conditions.</li> </ul>

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Plant species selected based on appropriateness for site and growing conditions	✓	<ul style="list-style-type: none"> <li>▪ Plant species were chosen based on site growing conditions, suitability of different species to enhance the aesthetic value of the property, and a desire to complement the native vegetation of the surrounding area.</li> </ul>
Plant species selected for easy and environmentally friendly maintenance (e.g., species that grow with minimal water and do not require pesticides)	✓	<ul style="list-style-type: none"> <li>▪ Plant species were chosen based on site growing conditions, suitability of different species to enhance the aesthetic value of the property, and a desire to complement the native vegetation of the surrounding area. As chosen plants occurring in riparian areas are native, maintenance is anticipated to be minimal. The onsite planting for the townhome sites will use a significant percentage of drought resistant planting.</li> </ul>
Stormwater collected for irrigation purposes	✓	<ul style="list-style-type: none"> <li>▪ Stormwater will be collected in a series of underground cisterns that will provide supplemented irrigation to landscaped areas during periods of prolonged drought.</li> </ul>
<b>Construction and Materials</b>		
Soil compaction and disturbance to vegetation minimized in areas which are not to be built on or paved	✓	<ul style="list-style-type: none"> <li>▪ Vegetation will not be disturbed and soil will not be compacted in covenanted tree retention areas. Disturbances to soils or vegetation in the parkland area will be limited to what is required to implement the proposed riparian enhancement, pond, grading for drainage and landscaping.</li> </ul>
Water control and conservation during construction phase	✓	<ul style="list-style-type: none"> <li>▪ Water will be controlled during the construction phase through a detailed sediment and erosion control plan, and best practices will be used to conserve water during construction.</li> </ul>
Wood waste and drywall separated during construction for ease of recycling	✓	<ul style="list-style-type: none"> <li>▪ Drywall and wood waste will be separated out and recycled (100%).</li> </ul>
Recycled content included in construction materials (e.g., use of GWB which is drywall where	✓	<ul style="list-style-type: none"> <li>▪ Drywall with recycled content of 15-20% will be used if available at the time of construction.</li> </ul>

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up to 20% of board core is recycled and face paper up to 100% recycled)		
Framing lumber is certified "environmentally friendly" according to accepted forest certification standards (e.g., ISO14001, Canadian Standards Association, Sustainable Forestry Initiative).		<ul style="list-style-type: none"> <li>▪ The lumber industry does not recognize one standard for environmentally friendly lumber. Engineered products such as parralam beams and OSB plywood will be used extensively.</li> </ul>
Finger jointed studs used (an engineered product which maximizes use of material)	✓	<ul style="list-style-type: none"> <li>▪ Finger jointed studs will be used where permitted by the structural engineer.</li> </ul>
'Hardi' panel siding used in place of wood siding as durable, low maintenance and environmentally sustainable alternative	✓	<ul style="list-style-type: none"> <li>▪ Some composite wood products (such as "Hardie" products) will be used on those buildings/structures where the architectural vocabulary suits the product. Composite panels will be used for Tudor and Georgian styles for example.</li> </ul>
Wireless technology installed in all units	✓	<ul style="list-style-type: none"> <li>▪ Wireless technologies will be used for security systems.</li> </ul>
Interior carpets and paints selected to meet CRI 'Green Label' standards for indoor air quality	✓	<ul style="list-style-type: none"> <li>▪ Interior paints and carpets that meet the CRI standard will be used.</li> </ul>
Heating, ventilation and air conditioning systems are high efficiency and employ CFC reduction technologies	✓	<ul style="list-style-type: none"> <li>▪ Efficiency standards will be met in the amenity building. Air conditioning will not be provided.</li> </ul>

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<b>Water &amp; Energy Conservation</b>		
Building sited and windows placed to maximize natural light and ventilation	✓	<ul style="list-style-type: none"> <li>▪ Buildings will be sited to follow the natural contour of the site to minimize the amount of cut and fill required. Once this basic parameter has been met then consideration will be given maximizing natural light. All townhomes are double aspect and as such have flow-through ventilation.</li> </ul>
Compact fluorescent bulbs used in all common areas	✓	<ul style="list-style-type: none"> <li>▪ Compact fluorescent bulbs will be used in all common areas (i.e. all outdoor lighting on common house meter)</li> </ul>
Low energy appliances installed in all units (e.g., 'energy star' rated)	✓	<ul style="list-style-type: none"> <li>▪ Low energy appliances (washer, dryer, range, fridge, and dishwasher) will be provided (100%).</li> </ul>
Low flow toilets installed in all units	✓	<ul style="list-style-type: none"> <li>▪ Low flow toilets will be installed (100%).</li> </ul>
Low flow showers and fixtures installed in all units	✓	<ul style="list-style-type: none"> <li>▪ Low flow showers (but not vanity and kitchen sink fixtures) will be installed (100%).</li> </ul>
Water meters installed (according to Delta specifications)	✓	<ul style="list-style-type: none"> <li>▪ It is proposed that each single family lot is to have a meter and each multi-family site will have a single meter.</li> </ul>
Adequate storage for on-site recycling containers	✓	<ul style="list-style-type: none"> <li>▪ Space for on-site recycling containers will be provide on all sites (100%).</li> </ul>
Alternative heating technologies incorporated (e.g., geothermal, heat generation from sewer system)		<ul style="list-style-type: none"> <li>▪ Geothermal heating continues to be explored on the clubhouse building, village commercial centre and seniors complex.</li> </ul>
Green energy alternatives incorporated into some or selected units (e.g., solar energy panels)		<ul style="list-style-type: none"> <li>▪ Other green energy alternatives such as solar and wind power <u>will not</u> be considered.</li> </ul>

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Links to sustainable water supply such as wells at Watershed Park		<ul style="list-style-type: none"> <li>▪ Links to water supply <u>will not</u> be considered.</li> </ul>
<b>Community Livability</b>		
A variety of housing types and forms incorporated into the community to meet the needs of different age groups or family types	✓	<ul style="list-style-type: none"> <li>▪ Housing choices will be provided to meet the needs of different age groups and household lifestyles to create a balanced community. Housing types available include single family, multi-family, senior and empty nester.</li> </ul>
A variety of recreation amenities provided on site to meet the residents needs	✓	<ul style="list-style-type: none"> <li>▪ The central neighborhood park will connect with an internal network of landscaped walkways, trail linkages, greenways, bikeways, children's playground, village centre and an amenities building.</li> </ul>
Recreation or community amenities provided for the use of the broader North Delta community (e.g., public access to central feature pond)	✓	<ul style="list-style-type: none"> <li>▪ The North Delta community will have access to the internal network of pathways and the centrally located park.</li> </ul>
Traffic calming measures (pavement patterns, traffic diverters, speed deterrents)	✓	<ul style="list-style-type: none"> <li>▪ Traffic calming measures to be provided including parking pockets, traffic circles, raised intersections, raised cross-walks and textured pavement.</li> </ul>
Site design (e.g., locations of amenities, pedestrian circulation) facilitates interaction between neighbours and a sense of place	✓	<ul style="list-style-type: none"> <li>▪ Planning has focused on providing a human-friendly neighborhood with continuous open space systems, linear parkways and greenways and creating a pedestrian orientated community. The central park has also been designed as the focal point for community gatherings.</li> </ul>
Commercial services provided within short walking distance to allow residents to shop locally		<ul style="list-style-type: none"> <li>▪ Planning has focused on providing easy access to commercial services to meet the daily resident needs. This will be conducted through a</li> </ul>

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and obtain basic necessities and services without relying on vehicles		network of pedestrian pathways, thereby allowing for walking and cycling to local destinations and less reliance on motor vehicles.
Continuous open space systems, linear parkways and greenways are incorporated to facilitate pedestrian circulation (to parks, schools, shopping and community facilities)	✓	<ul style="list-style-type: none"> <li>▪ Continuous open space systems, linear parkways and greenways incorporating a bicycle and pedestrian network and comprising an integrated system of routes, interconnecting areas of public and natural interest with mixed use and residential neighborhoods are to be provided to encourage alternatives to automobile travel and provide opportunities for passive recreation.</li> </ul>
Bicycle storage provided on site to encourage bicycle use by residents	✓	<ul style="list-style-type: none"> <li>▪ Residents will be able to store bikes within garages in the multi-family as well as single family homes.</li> <li>▪ Bicycle racks for short term convenience parking are to be provided outside community facilities, commercial amenities and parks. Secure bicycle parking and storage for extended periods are to be provided for amenity building and commercial centers.</li> </ul>
Noise mitigation measure employed to reduce noise impacts from surrounding areas (e.g., Hwy 91)	✓	<ul style="list-style-type: none"> <li>▪ Subject to recommendations from an acoustic consultant, it is expected that berms and/or acoustic fences will be provided for enhanced building construction.</li> </ul>
<b>Other</b>		
Sustainability parameters of the Delsom Development are communicated to potential purchasers and the community at large		<ul style="list-style-type: none"> <li>▪ The developer proposes to have prepared, one or more, educational brochures. There might be a different brochure for individual single family homeowners, strata councils and individual owners of units in townhouse projects, and the owner/manager of the commercial centre.</li> <li>▪ To further increase the overall public and community awareness the Developer also proposes to post informational signs in public open areas to explain the sustainability measures and how they need to be</li> </ul>

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	✓	maintained. Restrictive Covenants will also be registered against each separate parcel to protect the sustainability features incorporated into the lots such as rock pits and to the inform the owners of their existence and function.
LEED (Leadership in Energy and Design) certification sought for “marquee building” within the development complex		<ul style="list-style-type: none"> <li>▪ LEED equivalency will be considered for the amenity building.</li> </ul>
Development incorporates Crime Prevention through Environmental Design (CPTED) principles		<ul style="list-style-type: none"> <li>▪ Strategies incorporated into the CPTED include a clear overview to the park from all streets, the majority of units fronted onto adjacent streets thereby enhancing the overview of the area, and all walkways throughout the site can be overviewed by adjacent streets and homes.</li> </ul>

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