Development Permit

Permit No: DP000054/15.06
Registered Owner: 1909988 Ontario Limited, Inc. No. A0091380
Subject Property: Lot A, Plan EPP35449 – Cowichan Valley Highway Folio: 5005-100
Description of Land:
Parcel Identifier: 029-201-675
Legal Description: Lot A, Section 3, Range 1, Somenos District, Plan EPP35449
Proposal: Private Vehicle Testing & Training Facility

Conditions of Permit:

1. This permit is issued subject to compliance with all relevant District of North Cowichan bylaws, except as specifically varied or supplemented by this Permit.

2. This permit applies to the lands described above, and any buildings, structures, and other development thereon (hereinafter called ‘the Lands’).

3. The Lands and building which are subject to this Permit shall be developed strictly in accordance with the terms and conditions of this Permit and in accordance with the following schedules:

   Schedule A  Site Location and Development Data
   Schedule B  Site Plan and Contours
   Schedule B  Building Footprint and Parking Plan
   Schedule D  North/South Building Elevations
   Schedule E  Building Elevations and Materials Schedule
   Schedule F  Vignettes of the Building
   Schedule G  Materials Schedule and Colour Palette
   Schedule H  Building Main Floor Plan
   Schedule I  Building Second Floor Plan
   Schedule J  Landscape Design Strategy
   Schedule K  Perimeter Landscape Restoration Management Plan
   Schedule L  Bollard Lighting Type
4. Pursuant to section 926(1) of the Local Government Act, this permit will lapse two years from the date of the Development Permit approval unless construction, in accordance with the terms and conditions of this permit, has substantially started.

5. This permit is not a building permit.

6. Further to condition 4, construction is considered to be substantially started when a valid building permit for the development has been issued and shall not have lapsed; and excavation or construction works associated with the development hereby approved must have commenced to the satisfaction of the Director of Development Services. Demolition does not constitute construction.

**Landscape/Environmental Requirements**

7. Landscaping for the project will occur in two separate zones. Restoration areas along the majority of the northeast property line and southwest property line will be replanted utilizing native species as identified and specified in Schedule K. Landscape areas around the building, parking lot, and entrance to the site will be detailed in the landscape plan which must be submitted as part of the Building Permit submission for the principal building and in accordance with the Landscape Design Strategy (Schedule J) – see item 9 below.

8. Plants within the restoration area to be planted in the fall or early spring (rainy season) to ensure survival of new plants. Mulch is required in all newly planted areas to retain as much soil moisture as possible. Since no irrigation is proposed for these areas, manual watering must be maintained during the first two dry seasons until plants are well established.

9. A comprehensive Landscape Plan must be submitted in accordance with the Landscape Design Strategy (Schedule J) as part of the complete Building Permit application submission for the proposed principal building. Rainwater retention proposed onsite shall be utilized for irrigation of all landscaping proposed within the strategy.

10. A landscaping bond equal to 100% of the required landscaping is required for both the restoration vegetation management area and the Landscape Design Strategy area. An estimate of the works including at minimum a 10% contingency must be provided to staff from the qualified professional for the purpose of determining project bonding requirements by the professional and will be based on all costs (including all base and sub-base material, soft and hard landscape material, furnishings (for example, bike racks, benches, garbage, recycling containers), irrigation, installation, inspection, labour, taxes of a complete installation of the approved landscape, and/or bio-retention management system, and/or natural environment Protection/Enhancement/Mitigation plan. Due to unknown site conditions the professional will determine an appropriate contingency higher than the minimum.
11. The proposed stormwater detention pond and the principal driveway access in the southwest portion of the property requires the installation of infrastructure across the watercourse which requires Water Act Section 9 approval through the Ministry of Forests, lands and Natural Resource Operations.

12. As a condition of the issuance of this Permit, Council requires a security as authorized by Section 925 of the Local Government Act, to ensure that any conditions with respect to landscaping are satisfied or to ensure that no conditions of the Permit are being breached resulting in an unsafe condition of the Land.

13. Where any security is required by the Corporation of the District of North Cowichan, the security provided by the Permit holder in the amount of is to be submitted at time of building permit application submission.

14. Where the District of North Cowichan considers that:

   a) A condition in the Permit with respect to landscaping has not been satisfied, or

   b) where, as a result of the contravention of a condition in a Permit, an unsafe condition has resulted.

The District of North Cowichan may undertake and complete the works required to satisfy the landscaping condition or carry out any construction required to correct the unsafe condition, at the cost of the Permit holder, and may apply the security in payment of the cost of the works with any excess to be returned to the Permit holder.

15. Where the development authorized by this Permit has lapsed prior to commencement of any work pursuant to this Permit, the security shall be returned to the Permit holder.

**Engineering Requirements**

The following will be required as part of the subsequent Building Permit application process:

16. General: The submitted site and erosion control plans by J E Anderson and Associates are acceptable. All areas of vegetation retention and limits of disturbance shall be clearly flagged and/or fenced as required.

17. Roads and Access: A Ministry of Transportation and Infrastructure permit will be required.

18. Drainage: The site drainage shall be directed to the existing MOTI culvert. Protection of the identified seasonal watercourse and associated setback is required. Ensure adequate erosion control to prevent siltation of downstream watercourse. A Stormwater Management Plan is to include design of stormwater storage facilities capable of supplying firefighting demand needs as required by the building permit process.
19. Sanitary Sewer: Private septic system, filing by Certified Waste Water Practitioner and VIHA acceptance is required.

20. Water: Private wells must meet minimum requirements as per DNC Subdivision bylaw.

21. Fire Protection: A fire protection plan is to be submitted outlining prevention measures as well as procedures to be followed in the event of a car / chemical fire. The Stormwater Management Plan is to include design of stormwater storage facilities capable of supplying firefighting demand needs as required by the building permit process.

22. Hydro / Tel / CATV / Gas: There are existing overhead services. Consultation with respective utility required.

An inspection of the application site by Development Services staff will take place prior to the issuance of an Occupancy Permit to ensure that the development is in complete accordance with the approved Development Permit plans. The applicant is responsible for contacting the Development Services Division to arrange the inspection at least two weeks prior to applying for an Occupancy Permit. Additional site inspections by Development Services staff may occur during the construction phase of the project.

This Permit does not constitute a building, sign or awning permit or a subdivision approval. The applicant may contact Development Services to determine whether further permits are required in association with the development hereby approved.

This Permit does not authorize altering an archaeological site. The owner/applicant is responsible for ensuring compliance with the Heritage Conservation Act, including steps to determine whether or not a site is an archaeological site. Under s.36 of the Heritage Conservation Act it is an offence to alter an archaeological site without first obtaining a permit to do so from the Province of British Columbia.

Date of Development Permit Approval/Issue by Council or its Delegate:

This permit was approved and issued on August 17, 2015.

This permit expires on August 17, 2017.

The Corporation of the District of North Cowichan

Designated Municipal Officer
MATERIALS SCHEDULE

1. METALIC CORREGATED STEEL SIDING
2. GREY CORREGATED STEEL SIDING
3. GREY CONCRETE FIBRE BOARD PANELS
4. WHITE COMPOSITE METAL PANEL
5. LIGHT GREY FINISHED METAL
6. GREY COMPOSITE METAL PANEL
7. DARK GREY FINISHED METAL
8. PRE FINISHED METAL FLASHING
9. EXPOSED CONCRETE
10. PAINTED CONCRETE
11. ANODIZED METAL AND GLASS CURTAIN WALL
12. ANODIZED METAL SUN SCREEN
13. METAL AND WOOD FENCE
14. WOOD BENCH AND CONCRETE PAVERS
15. ANODIZED METAL AND GLASS DOOR
16. DECORATIVE TRELLIS WITH FLOWERING EVERGREENS
17. GLASS AND METAL RAILING
18. PAINTED METAL DOOR AND FRAME
19. PREFINISHED CEDAR WOOD SIDING & SOFFIT
20. SPLIT FACE CONCRETE BLOCK, LIGHT GREY
21. LIGHT GREY FINISHED STEEL STAIR

SCHEDULE G - MATERIALS SCHEDULE & COLOUR PALETTE
NOTES TO PLAN

PAINTED WALKWAYS.

DYNAMIC TEST AREA & PARKING ASPHALT, REFER TO CIVIL

INTERLOCKING CONCRETE PAVERS

NATIVE LANDSCAPE.

FAST LANE, WORKING LAND ASPHALT/CONCRETE SURFACE, REFER TO CIVIL

NON-MOUNTABLE CURB.

MOUNTABLE CURB

LINE OF ENTRY PORTAL BELOW

LINE OF EXT. WALL BELOW

SECOND FLOOR PLAN

SCALE: 1:100

VIMR GAIN EXPERIENCE CENTER 2nd FLOOR - Roof PLAN A4

Project No. 1502

July 29, 2015

James E. Irwin ARCHITECT INC.

Vancouver Island's Premier Dealer Group

Tel: (250) 213-5556

Victoria B.C.
Introduction

The site: The project site, located north of Duncan on the Cowichan Valley Highway, is south facing, exposed, and well-drained, with a seasonal watercourse in the south-west section. There are existing trees surrounding this watercourse and along the south property line that will be retained. The remainder of the site has been cleared and can be broken into 3 major zones, see the Landscape Zones Plan, Drawing L1.

- The Buffer
- The Track
- The Site Entrance, Building and Dynamic Area

The Buffer: Aquaparian Environmental Consulting Ltd. has prepared a Vegetation Management Plan for the buffer areas of Phase 1 of the project, which will be included in the detailed landscape design.

The Track: Due to the nature of the activities planned for this zone, some planting species may be hazardous to safe operations of the track. The track zone is not included in this landscape strategy document.

The Site Entrance, Building and Dynamic Area: This is the zone that will be the focus of this document, see Landscape Strategy Plan (Entrance, Building and Dynamic Area), Drawing L2

Overall Concept for Site Entrance: The entry to the site travels through the existing Douglas fir and Maple forests that line much of the Cowichan Valley Highway adjacent to the site. Once onto the site, through the forest and over the seasonal watercourse the site opens out into the dynamic area with the building and parking areas. The landscape scheme will be used to clearly define the parking areas and separate them from the track both for visual and security purposes. The landscape scheme will consist of informal plantings at the entrance to the site, and as the building is
approached it will become more formal and organized to frame and soften the architecture. The vegetation will be native species at the entrance areas to blend into the native forests and will transition to a mix of native and exotic plants as you approach the building. The intention is to utilize the storm water collected from the site to irrigate the plants. All plants have been selected to be drought tolerant, so after a two year establishment watering regime it is anticipated that irrigation will only be required in Areas 5, 6, 7 and 8.

Area 1 and 2: 
Entrance to the site:
The entrance into the site off Cowichan Valley Highway crosses the seasonal creek through the forest. Where the existing vegetation is impacted by construction of both the road and retaining walls native species will be planted, including coniferous and deciduous trees and shrubs. The retaining walls will be softened using kinnickinnick plantings on the top of the wall and larger shrubs at the base.

Plantings in this area:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornus nuttallii eddies white wonder</td>
<td>Eddies White Wonder Dogwood</td>
</tr>
<tr>
<td>Pinus contorta</td>
<td>Shore Pine</td>
</tr>
<tr>
<td>Vaccinium ovatum</td>
<td>Evergreen Huckleberry</td>
</tr>
<tr>
<td>Amelanchier alnifolia</td>
<td>Amelanchier alnifolia</td>
</tr>
<tr>
<td>Ribes sanguineum</td>
<td>Red Flowering Currant</td>
</tr>
<tr>
<td>Vaccinium parvifolium</td>
<td>Red Huckleberry</td>
</tr>
<tr>
<td>Polystichum munitum</td>
<td>Sword Fern</td>
</tr>
<tr>
<td>Arctostaphllos uva-ursi</td>
<td>Kinnickinnick</td>
</tr>
</tbody>
</table>

Area 3: 
Transition area:
This area is a transition between the track and the parking area. Clusters of trees and shrubs interspersed between grass areas will allow filtered views of the track and will provide a soft edge to the parking. Any retaining walls in this area will be softened with vines and shrubs. The plantings will provide a secure edge to the parking space.

Plantings in this area:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidamber styraciflua</td>
<td>Sweet gum</td>
</tr>
<tr>
<td>Pinus contorta</td>
<td>Shore Pine</td>
</tr>
<tr>
<td>Pinus flexilus vanderwolf</td>
<td>Vanderwolf Pine</td>
</tr>
<tr>
<td>Vaccinium ovatum</td>
<td>Evergreen Huckleberry</td>
</tr>
<tr>
<td>Ribes sanguineum</td>
<td>Red Flowering Currant</td>
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<tr>
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</tr>
<tr>
<td>Polystichum munitum</td>
<td>Sword Fern</td>
</tr>
<tr>
<td>Arctostaphllos uva-ursi</td>
<td>Kinnickinnick</td>
</tr>
<tr>
<td>Parthenocissus tricuspidata</td>
<td>Boston Ivy</td>
</tr>
<tr>
<td>Lonicera pileata</td>
<td>Box-leaved Honeysuckle</td>
</tr>
</tbody>
</table>
Area 4:
Transition area:
Area 4 continues the transition between the track and the parking area. Clumps of trees, spaced in the grass, will be limbed up to allow views through onto the track. Retaining walls will be softened with vines and shrubs.

Plantings in this area:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidamber styraciflua</td>
<td>Sweet gum</td>
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</tr>
</tbody>
</table>

Area 5:
Transition to building:
This area provides a transition from the general parking to the building and its associated parking. The plantings in this area will form a visual buffer to the building. Viewed from the south the plants in this area and in Area 8 will provide a frame to the building. The soft landscape will be contained by a curb edge, a walkway with light bollards and seating.

Plantings in this area:

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbutus unedo</td>
<td>Strawberry Tree</td>
</tr>
<tr>
<td>Vaccinium ovatum</td>
<td>Evergreen Huckleberry</td>
</tr>
<tr>
<td>Potentilla fruticosa</td>
<td>Shrubby Cinquefoil</td>
</tr>
<tr>
<td>Rosa rugosa</td>
<td>Shrub Rose</td>
</tr>
<tr>
<td>Mahonia nervosa</td>
<td>Dull Oregon Grape</td>
</tr>
<tr>
<td>Festuca idahonensis</td>
<td>Native Blue Fescue</td>
</tr>
<tr>
<td>Helictotrichon sempervirens</td>
<td>Blue Oat Grass</td>
</tr>
<tr>
<td>Panicum virginatum</td>
<td>Switch Grass</td>
</tr>
<tr>
<td>Pennisetum alopecuroides ‘Hamlyn”</td>
<td>Fountain Grass</td>
</tr>
<tr>
<td>Miscanthus sinensis</td>
<td>Maiden Grass</td>
</tr>
</tbody>
</table>

Area 6, 7, and 8
The Building:
The planting scheme will have a mix of low ornamental plants, evergreen shrubs and deciduous trees planted strategically amongst paving and site furnishings (benches and light bollards). The plants, site furnishings and architecture will provide an attractive and inviting entrance for people visiting the facility. The row of trees planted to the east of the building will give a sense of enclosure and direct people to the entrance to the building.
Plantings in this area:

<table>
<thead>
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<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbutus unedo</td>
<td>Strawberry Tree</td>
</tr>
<tr>
<td>Lavandula angustifolia</td>
<td>English lavender</td>
</tr>
<tr>
<td>Mahonia nervosa</td>
<td>Dull Oregon Grape</td>
</tr>
<tr>
<td>Festuca idahonensis</td>
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<td>Switch Grass</td>
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<td>Maiden Grass</td>
</tr>
</tbody>
</table>

Attachments:
1. Landscape Zones Plan, Drawing L1.
2. Landscape Strategy Plan (Entrance, Building and Dynamic Area), Drawing L2
3. Light Bollard detail
4. Bench detail
This is a reinforced cast stone backless bench that gives the illusion of levitating, especially on a pavement where its stainless steel supports seem to disappear into the ground. The resulting impression is one of a heavy slab hovering above the ground plane. Designed by Jaume Agustí.

### COMPLEMENTARY PRODUCTS

- [Silla](http://www.landscapeforms.com/en-us/site-furniture/pages/all-benches.aspx)
- [Grenadier](http://www.landscapeforms.com/en-us/site-furniture/pages/all-benches.aspx)
- [Flor](http://www.landscapeforms.com/en-us/site-furniture/pages/all-benches.aspx)

### PRODUCTS

- Benches [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-benches.aspx)
- Tables [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-tables.aspx)
- Chairs [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-chairs.aspx)
- Lighting [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-lighting.aspx)
- Bike Racks [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-bike-racks.aspx)
- Bollards / Path Lighting [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-bollards.aspx)
- Planters [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-planters.aspx)
- Accessories [link](http://www.landscapeforms.com/en-us/site-furniture/pages/all-accessories.aspx)
**CENTO 900 LED** Specification

A simple beacon is the basis of CENTO’s styling. Translucent acrylic lens creates soft diffused illumination. Housing is precision machined from heavy wall extruded aluminum. Housing and extruded aluminum shaft are finished in finely textured paint. Luminaire is available in three heights. All hardware is stainless steel. Standard color; matte silver grey metallic. Special colors available. Model CN780 features full-length lens. CENTO bollard is also available with three windows for 360° illumination (see CENTO 360).

<table>
<thead>
<tr>
<th>Model</th>
<th>Lamp</th>
<th>Color Temperature</th>
<th>Volt</th>
<th>Mounting</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HP/LED - High output</td>
<td>NW - 4000K</td>
<td></td>
<td></td>
<td>CC - Custom Color</td>
</tr>
</tbody>
</table>

**Ordering Information**

Specifications are subject to change without notification

HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO_/
CENTO 900 LED Specification

HOUSING
Luminaire consists of cylindrical housing, base, and top cap precision machined from 6060 aluminum. Cylindrical housing with 180-degree lens aperture is machined from tubing with nominal wall thickness of 0.60" and mounts over the precision-machined luminaire base with three concealed socket head cap screws. Cylindrical matte acrylic lens mounts to the base inside the housing. Luminaire top cap mounts to the cylindrical housing with three captive socket head caps screws and provides access to luminaire for relamping. Luminaire base and top cap are grooved to accept one-piece silicone gasket to provide weather-tight seal to the lens. Luminaire mounts to 0.197" thick wall extruded aluminum shaft with three concealed socket head cap screws. All hardware is stainless steel.

OPTICS
LED light engine with electrical disconnect is top mounted to the machined aluminum top cap, which acts as a heat sink for thermal management. LED is positioned within the matte acrylic cylindrical lens providing 180-degree distribution through housing aperture.

ELECTRICAL
Input voltage to universal LED driver is 120v through 277v AC, 50/60 Hz. Drive current to LEDs is 350 mA for standard output and 450 mA for high output models.

LED DELIVERED LUMENS / SYSTEM WATTS
Standard Output: 18 watts
3000K: 427 lumens
4000K: 460 lumens

High Output: 28 watts
3000K: 607 lumens
4000K: 756 lumens

BUG RATING: B0-U3-G1 for all models.

NOTE: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of HessAmerica. Consult factory for current technical data.

WEIGHT: 22 lbs

MOUNTING
Bollard mounts to anchor base plate assembly with three M10 x 20mm stainless steel socket head cap screws and washers. Anchor base assembly consists of three 1/2" x 15" x 3" hot-dip galvanized anchor rods secured to a mounting plate and embedded as an assembly in concrete foundation (by others).

FINISH
Housing is cleaned ultrasonically prior to painting. Standard finish is finely textured matte silver grey metallic. Special colors available on request.

WARRANTY
Limited product warranty period including LEDs is five years. Driver shall carry the manufacturer’s limited warranty.

Specifications are subject to change without notification
HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO_
Additional information

Dimensions

Ø 6.3"

Mounting Detail

Specifications are subject to change without notification
HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO_/
May 25, 2015

Chris Erb
SupErb Construction Ltd
2345A Delinea Place
Nanaimo BC, V9T 5L9

Via Email: chris@chriserb.ca

RE: COWICHAN TRACK PHASE I
COWICHAN HIGHWAY, DUNCAN BC
VEGETATION MANAGEMENT PLAN – PERIMETER RESTORATION AREAS

1.0 INTRODUCTION

Aquaparian Environmental Consulting Ltd. (Aquaparian) was retained by SupErb Construction Ltd to provide a Vegetation Management Plan (VMP) for the perimeter areas to be restored around Phase I of the Cowichan Test Track Facility. The objective of the VMP is to restore disturbed areas around the perimeter of the track with native shrub vegetation for long term erosion control.

The proposed remediation includes planting approximately 2000m² around the perimeter of the track with native shrub species. The planting area varies in width around the whole track and is comprised of the disturbance area post construction. Areas in the middle of the site are not included for safety reasons. Figure 1 shows the approximate area to be planted; the actual area of disturbance will be confirmed after the facility is constructed. As the track will be built up with fill material on the outer loops of the track, most of the planting areas are expected to be sloping, exposed to sun and quickly draining. As such, shrub species suitable for sunny, dry conditions are being recommended. Again, for safety reasons, trees are not being recommended this close to the track. The overall planting density is a minimum of 1 shrub per square meter to attain a thick shrub cover within 2-3 years. The species chosen have also been selected to provide bird habitat as well as visual appeal i.e. spring and summer flowering and berry bearing shrubs.
2.0 PLANTING PLAN

The planting area has been estimated at 2000m²; the actual planting area is to be confirmed post construction with the plant numbers adjusted accordingly. The following plant numbers and densities have been estimated to achieve 100% cover within 2-3 years. The tall shrubs are to be spaced apart throughout the site with the low shrubs and ground cover planted in between in clusters of same species to mimic natural growth patterns and promote in-filling by spreading rhizomes and seed disbursal. Figure 2 illustrates the spacing of the tall and low shrub distribution.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species</th>
<th>Spacing</th>
<th>Size</th>
<th>QTY</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tall Shrubs:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tall Oregon grape</td>
<td><em>Mahonia aquifolium</em></td>
<td>1 per 3m²</td>
<td>1 Gal</td>
<td>200</td>
<td>$ 5.50</td>
<td>$ 1,100.00</td>
</tr>
<tr>
<td>Mock orange</td>
<td><em>Philadelphus lewisii</em></td>
<td>1 per 3m²</td>
<td>1 Gal</td>
<td>200</td>
<td>$ 4.75</td>
<td>$ 950.00</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td><em>Sambucus cerulea</em></td>
<td>1 per 3m²</td>
<td>1 Gal</td>
<td>200</td>
<td>$ 4.75</td>
<td>$ 950.00</td>
</tr>
<tr>
<td>Indian plum</td>
<td><em>Oemleria cerasiformis</em></td>
<td>1 per 1m²</td>
<td>1 Gal</td>
<td>600</td>
<td>$ 4.75</td>
<td>$ 2,850.00</td>
</tr>
<tr>
<td>Oceanspray</td>
<td><em>Holodiscus discolor</em></td>
<td>1 per 2m²</td>
<td>1 Gal</td>
<td>200</td>
<td>$ 4.75</td>
<td>$ 950.00</td>
</tr>
<tr>
<td><strong>Low Shrubs:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snowberry</td>
<td><em>Symphoricarpus albus</em></td>
<td>2 per 1m²</td>
<td>1 Gal</td>
<td>1000</td>
<td>$ 4.75</td>
<td>$ 4,750.00</td>
</tr>
<tr>
<td>Nootka rose</td>
<td><em>Rosa nutkana</em></td>
<td>2 per 1m²</td>
<td>1 Gal</td>
<td>1000</td>
<td>$ 4.75</td>
<td>$ 4,750.00</td>
</tr>
<tr>
<td>Thimbleberry</td>
<td><em>Rubus parviflorus</em></td>
<td>2 per 1m²</td>
<td>1 Gal</td>
<td>400</td>
<td>$ 4.75</td>
<td>$ 1,900.00</td>
</tr>
<tr>
<td>Red flowering currant</td>
<td><em>Ribes sanguineum</em></td>
<td>2 per 1m²</td>
<td>1 Gal</td>
<td>100</td>
<td>$ 4.75</td>
<td>$ 475.00</td>
</tr>
<tr>
<td>Saskatoon berry</td>
<td><em>Amelanchier alnifolia</em></td>
<td>2 per 1m²</td>
<td>1 Gal</td>
<td>100</td>
<td>$ 4.75</td>
<td>$ 475.00</td>
</tr>
<tr>
<td><strong>Ground Covers:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salal</td>
<td><em>Gaultheria shallon</em></td>
<td>4 per 1m²</td>
<td>9cm</td>
<td>1000</td>
<td>$ 2.25</td>
<td>$ 2,250.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>5000</td>
<td></td>
<td><strong>$21,400.00</strong></td>
</tr>
</tbody>
</table>

**Planting Recommendations:**

- Aquaparian assumes that the areas to be restored will be comprised of fill material (cobble/gravel). Approximately 12” of topsoil will be required for the planting area to support the new plantings. Ideally the topsoil will be reclaimed from the site construction and have a natural seed bank to add naturally germinating plants.

- Install the plants in the fall or early spring (rainy season). It may be necessary to water with a water truck (or similar) through the first two dry seasons until the plants area well established.

- Mulch is recommended to reduce surface erosion and retain moisture in the soil. Coarse bark mulch is recommended.
• If more than 10% of the plants die off in a given area creating bare patches within the first two years, they should be replaced.

• Removal of invasive species that may germinate from adjacent lands (i.e. scotch broom, Himalayan blackberry) is likely to require annual maintenance.

3.0 PLANT SOURCES

Streamside Native Plants
7455 Island Highway West
Bowser, British Columbia V0R 1G0
Phone/Fax: 250-757-9999
Toll Free: 877-570-3138
http://members.shaw.ca/nativeplants/streamside_home.html
E-mail: Richard@streamsidenativeplants.com
The nursery is located at 7455 Island Highway West (Highway 19A) Bowser B.C.

Nanaimo & Area Land Trust
3145 Frost Road, Cassidy BC
The Natural Abundance Native Plant Nursery
Open 10 am - 4 pm Wednesdays & 11 am - 3 pm Saturdays
250-714-1990 or 250-668-7670.

4.0 BUDGET ESTIMATE

Based on the on-line price list on the Streamside Native Plants website, Happy Soil bark mulch cost estimate and past experience, Aquaparian has provided the following cost estimate. Exact costs may vary from the estimate based on the actual restoration area post construction, chosen source of plants, materials and actual labour cost at the time of planting. The labour cost is based on a general formula equal to the plant material cost. Actual labour cost will vary depending on the contractor installing the plants. Delivery fees for plants and bark mulch are not included in this estimate, nor is the topsoil as the source of these materials is unknown at this time.

<table>
<thead>
<tr>
<th>Item</th>
<th>Rough Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant material</td>
<td>$21,400</td>
</tr>
<tr>
<td>~10% contingency for die-off in first 2 years</td>
<td>$2200</td>
</tr>
<tr>
<td>Labour</td>
<td>$21,400</td>
</tr>
<tr>
<td>1” Thick Bark Mulch ($23/yrd x 60 yards)</td>
<td>$1380</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 46,380</strong></td>
</tr>
</tbody>
</table>
5.0 CLOSURE

This Vegetation Management Plan has been based on a site visit of the property, past project experience and in accordance with generally accepted biological practices. No other warranty is made, either expressed or implied.

Aquaparian trusts this meets your requirements. If you require further information please contact the undersigned.

Sincerely,

AQUAPARIAN ENVIRONMENTAL CONSULTING LTD.

ORIGINAL SIGNED

Principal

Z:\Projects\Projects\N084 Cowichan Hwy\Vegetation Management Plan\Vegetation MANAGEMENT PLAN.DOCX
FIGURE 1

SITE PLAN
COWICHAN TEST TRACK FACILITY - PHASE I
NATIVE SPECIES PLANTING AREA

Native Species Planting Area
Approximately 2000m²
FIGURE 2

PLANTING PLAN ILLUSTRATION
SAMPLE PLANTING PLAN

Legend:

- Tall Shrubs
- Low Shrubs
**CENTO 900 LED**  
**Specification**

A simple beacon is the basis of CENTO's styling. Translucent acrylic lens creates soft diffused illumination. Housing is precision machined from heavy wall extruded aluminum. Housing and extruded aluminum shaft are finished in finely textured paint. Luminaire is available in three heights. All hardware is stainless steel. Standard color; matte silver grey metallic. Special colors available. Model CN780 features full-length lens. CENTO bollard is also available with three windows for 360° illumination (see CENTO 360).

---

<table>
<thead>
<tr>
<th>Model</th>
<th>Lamp</th>
<th>Color Temperature</th>
<th>Volt</th>
<th>Mounting</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HP/LED - High output</td>
<td>NW - 4000K</td>
<td></td>
<td></td>
<td>CC - Custom Color</td>
</tr>
</tbody>
</table>

**Ordering Information**

Specifications are subject to change without notification.

HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO_
CENTO 900 LED Specification

HOUSING
Luminaire consists of cylindrical housing, base, and top cap precision machined from 6060 aluminum. Cylindrical housing with 180-degree lens aperture is machined from tubing with nominal wall thickness of 0.60" and mounts over the precision-machined luminaire base with three concealed socket head cap screws. Cylindrical matte acrylic lens mounts to the base inside the housing. Luminaire top cap mounts to the cylindrical housing with three captive socket head caps screws and provides access to luminaire for relamping. Luminaire base and top cap are grooved to accept one-piece silicone gasket to provide weather-tight seal to the lens. Luminaire mounts to 0.197" thick wall extruded aluminum shaft with three concealed socket head cap screws. All hardware is stainless steel.

OPTICS
LED light engine with electrical disconnect is top mounted to the machined aluminum top cap, which acts as a heat sink for thermal management. LED is positioned within the matte acrylic cylindrical lens providing 180-degree distribution through housing aperture.

ELECTRICAL
Input voltage to universal LED driver is 120v through 277v AC, 50/60 Hz. Drive current to LEDs is 350 mA for standard output and 450 mA for high output models.

LED DELIVERED LUMENS / SYSTEM WATTS
Standard Output: 18 watts
3000K: 427 lumens
4000K: 460 lumens

High Output: 28 watts
3000K: 607 lumens
4000K: 756 lumens

BUG RATING: Bo-U3-G1 for all models.

NOTE: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of HessAmerica. Consult factory for current technical data.

WEIGHT: 22 lbs

MOUNTING
Bollard mounts to anchor base plate assembly with three M10 x 20mm stainless steel socket head cap screws and washers. Anchor base assembly consists of three 1/2" x 15" x 3" hot-dip galvanized anchor rods secured to a mounting plate and embedded as an assembly in concrete foundation (by others).

FINISH
Housing is cleaned ultrasonically prior to painting. Standard finish is finely textured matte silver grey metallic. Special colors available on request.

WARRANTY
Limited product warranty period including LEDs is five years. Driver shall carry the manufacturer's limited warranty.

Specifications are subject to change without notification
HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO
Additional information

Dimensions

Mounting Detail

Specifications are subject to change without notification
HessAmerica > Products > Lighting Products > Illuminating Bollard > CENTO
http://www.hessamerica.com/Products/Lighting/Illuminating_Bollard/CENTO_