Selection of the site of the wastewater treatment plant

At its meeting of March 14th 2011, the Chelsea Municipal Council selected site N° 2 of Hydro-Québec on Mill Road to construct the future wastewater treatment plant.

We are aware that this is not a unanimous choice of the residents. However, the Mill Road site offers geographical, technical and budgetary advantages compared to the Hudson Road site. According to the analyses carried out, this is the best choice to meet the needs of the community and is in keeping with the budgetary plan. Furthermore, we will ensure that the installation will emit no strong odours, that noise and lighting controls will be in place, that the architecture of the building will be appropriate and that the landscaping of the site will respect the environment.

The Council reiterates its sincere undertaking to work closely with the residents of the Mill sector in order to fully integrate this new infrastructure within the area.

How did we evaluate the sites?

We established a number of criteria for the geographic, environmental, socio-economic and technical evaluation. Following a detailed analysis of eight possible sites, the Council selected two sites that were the subject of a more in-depth analysis, namely, N° 2B of Hydro-Québec on Mill Road and a private property at the end of Hudson Road.

To better understand the choice of criteria upon which the Municipal Council based its decision, you will find listed below the sites that were analyzed, the evaluation criteria of the sites and a comparative chart of both sites that were subjected to a more in-depth analysis.

If you have any questions, we invite you to communicate with the office of the Municipality at 819-827-6223 or write to us at m.proulx@chelsea.ca.
Criteria for the selection of the site for wastewater treatment

1. Proximity to an important river
   - as close as possible
   - treated water must be adequately diluted

2. Situated near the zones to be served
   - allows the economic regrouping of the water sewers in order to reduce the construction costs of the planned sewers

3. Access to the site by an existing road
   - as close as possible to avoid the construction costs of an access road

4. Presence of housing or protected forest
   - avoid zones to be protected

5. A river in close proximity to the site
   - avoid affecting a river

6. Proximity of wetlands
   - as far as possible to protect wetlands

7. Site outside a flooding zone
   - avoid flooding that may affect water treatment

8. Zoning
   - respect existing municipal zoning

9. Land acquisition
   - economic impact

10. Proximity to residences
    - respect the standards of the Ministry of Sustainable Development, Environment and Parks (MSDEP) – 100 m from aerated lagoons
    - the Ministry does not require distancing of a biological reactor fluidized support

11. Control of odours, noise and lighting
    - respect of the standards for a biological reactor fluidized support (type of treatment chosen)
      - without odour since the treatment is effected inside
      - minimum noise since the treatment is effected inside
      - lighting along a residential street – minimal impact

12. Architecture
    - respect for the architectural surroundings
    - integrate and harmonize with the existing architecture

13. Traffic and dust pollution
    - minimize traffic in the area

14. Construction of conduits, collectors and outlets
    - the shortest possible distance in order to reduce costs

15. Area of the site
    - area required for aerated lagoons = 120 m X 320 m
    - area required for biological reactor = 16 m X 16 m
16. Topography of the site
   - must be relatively flat to facilitate construction

17. Type of soil
   - lends itself to the construction of a treatment plant at a reasonable cost.

18. Geotechnical stability of the site
   - soil must be stable

19. Landscape layout of the site
   - integrate into the surroundings and harmonize with local architecture
Chart for the selection criteria of the site for wastewater treatment.

(See previous text for more details on the criteria)
√ indicates an advantage
= indicates equality

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Site 2B Hydro-Québec</th>
<th>Site at end of Hudson Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proximity to an important river</td>
<td>✓ at 530 m from the Gatineau River</td>
<td>at 900 m from the Gatineau River</td>
</tr>
<tr>
<td>2. Situated in relation to the affected zones</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>3. Access to the site on an existing road</td>
<td>✓ Mill Road paved</td>
<td>Ch. Hudson not paved; build a road to cross the railway; necessary to pave the road</td>
</tr>
<tr>
<td>4. Presence of housing or of a forest to be protected</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>5. River on the site</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>6. Proximity of wetlands</td>
<td></td>
<td>✓ Small wetland below a hill</td>
</tr>
<tr>
<td>7. Site outside of flooding zone</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>8. Zoning</td>
<td>✓ adequate</td>
<td>To be changed</td>
</tr>
<tr>
<td>9. Land acquisition</td>
<td>✓ Hydro-Québec favourable, market price</td>
<td>Purchase of land to be negotiated or expropriation; possibility of having to participate in the cost of land stabilization as well as protection from erosion of a small adjacent ravine</td>
</tr>
<tr>
<td>10. Proximity to residences: no requirement from the Ministry of Sustainable Development, Environment and Parks (MSDEP)</td>
<td>1 house at 25 m; others are at 50 m or more</td>
<td>✓ Houses are at 80 m</td>
</tr>
<tr>
<td>11. Control of odours, noise and lighting</td>
<td>=</td>
<td>=</td>
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</tr>
<tr>
<td>12. Architecture</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>13. Traffic and dust pollution</td>
<td>✓</td>
<td>Paved road exists</td>
</tr>
<tr>
<td>14. Construction of conduits, collectors and outlets</td>
<td>✓</td>
<td>Possibility of utilizing the existing infrastructure of the Mill sector as outlet</td>
</tr>
<tr>
<td>15. Area of the site</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>16. Topography of the site</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>17. Type of soil</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>18. Geotechnical stability of the site</td>
<td>✓</td>
<td>Unstable soil</td>
</tr>
<tr>
<td>19. Landscape layout of the site</td>
<td>✓</td>
<td>Existing trees; need for landscaping only on the south and west sides</td>
</tr>
<tr>
<td><strong>Remarks</strong> concerning the existing treatment plant for the Mill sector</td>
<td>✓</td>
<td>Regrouping treatment for the Mill sector is economically feasible</td>
</tr>
</tbody>
</table>
List of the sites analyzed and type of wastewater treatment

1. 2B property of Hydro-Québec (Biological reactor fluidized support)
2. Hudson Road, private property (Biological reactor fluidized support)
3. Chelsea Creek/effluent towards river (Biological reactor fluidized support)
4. Chelsea Creek/effluent towards creek (Treatment of membranes)
5. Property of Hydro-Québec near the river (aerated lagoons)
6. At the end of Hudson Road (aerated lagoons)
7. Property of Hydro-Québec – sites 1A, 1B and 2 (Biological reactor fluidized support)
8. Old Chelsea Road, facing Douglas Road (Biological reactor fluidized support)

Based on the criteria utilized to evaluate the sites, sites 3 to 8 inclusively have been rejected. See chart below for explanations.

<table>
<thead>
<tr>
<th>Sites rejected</th>
<th>Explanations</th>
</tr>
</thead>
</table>
| 3. Chelsea Creek/effluent towards river (Biological reactor fluidized support) | - does not allow the elimination of the reed filters treatment, therefore, two treatment systems to manage and operate  
- pumping of all required sewers  
- higher construction costs for outlet  
- effluent into the stream |
| 4. Chelsea Creek/effluent towards creek (Treatment of membranes) | - does not allow the elimination of the reed filters treatment, therefore, two treatment systems to manage and operate  
- Treatment more expensive and more difficult to operate  
- higher construction costs  
- effluent into a stream/zone to be protected, negative environmental impact  
- effluent into the stream |
| 5. Property of Hydro-Québec near the river (aerated lagoons)     | Hydro-Québec refuses to sell this property                                                     |
| 6. At the end of Hudson Road (aerated lagoons)                  | - does not allow the elimination of the reed filters treatment, therefore, two treatment systems to manage and operate  
- land is larger  
- mass movement and zoning problems  
- zoning change necessary |
| 7. Property of Hydro-Québec – sites 1A, 1B and 2 (Biological reactor fluidized support) | Hydro-Québec refuses to sell this property                                                     |
| 8. Old Chelsea Road, facing Douglas Road (Biological reactor fluidized support) | - conduit discharge would be longer  
- higher construction costs for outlet  
- possible soil contamination: requires study  
- zoning change necessary |