Agenda – Executive Policy Committee – March 21, 2007

REPORTS

Item No. 1 **Waverley West Development Status Update – Ground Source Heat Pump Geothermal Installations**
File EP-1.2

ADMINISTRATIVE RECOMMENDATION:

That this report be received as information.

RE: STATUS UPDATE ON THE WAVERLEY WEST DEVELOPMENT

FOR SUBMISSION TO: Executive Policy Committee

ORIGINAL REPORT SIGNED BY: A/Director of Planning, Property & Development

REPORT DATE: March 12, 2007

RECOMMENDATION: That this report be received as information.

Report Summary

Key Issues:

Manitoba Housing and Renewal Corporation (MHRC) are proceeding with plans to develop the Northeast neighbourhood of Waverley West. The Province of Manitoba and Manitoba Hydro have proposed large-scale Ground Source Heat Pump (GSHP) Geothermal installations in this first neighbourhood.

The City supports the initiative of installing GSHP systems as one of the Guiding Principles of the Waverley West Northeast Neighbourhood Plan for “Greater Use of Alternative Energy Sources”.

City Staff have established parameters for GSHP installations intended to ensure a measure of protection for the City and private interests within the neighbourhood.

Manitoba Hydro, the City and the MHRC are working cooperatively to ensure that geothermal installations can proceed in a timely manner.

Implications of the Recommendation(s):

General Implications

(X) None

( ) For the organization overall and/or for other departments

( ) For the community and/or organizations external to the City

( ) Involves a multi-year contract

Comment(s):

Policy Implications

(X) No

( ) Yes

Comment(s):

Regulatory Implications

(X) None

( ) Eliminates or reduces regulatory impact

( ) Proposes regulatory impact

Comment(s):

Environmental Implications

(X) No

( ) Yes

Comment(s):

Human Resources Implications

(X) No

( ) Yes

Comment(s):

Financial Implications

(X) Within approved current and/or capital budget

( ) Current and/or capital budget adjustment required

Comment(s):

Report

REASON FOR THE REPORT:

The Administration is providing a status report on the Waverly West development.

HISTORY:

On April 27, 2005 City Council passed By-law 50/2004 amending Plan Winnipeg to permit residential development in the Waverley West neighbourhood. The subject land and major ownerships are shown on Appendix “A”.

On July 26, 2006 City Council passed By-law 10/2006 – The Waverley West Neighbourhood Secondary Plan.

On December 6, 2006 City Council passed By-law 210/2006 – Waverley West Northeast Neighbourhood Area Structure Plan.

On December 6, 2006 City Council approved development Application DASZ 1/2006 to permit the northeast neighbourhood to develop.

On February 27, 2007 The Standing Policy Committee on Property and Development recommended that Development Application DASZ 1/2007 proceed to Council. The site plan showing both applications is attached as Appendix “B”.

On March 2, 2007 the City, in a letter to Manitoba Hydro supported “Greater use of Alternative Energy Sources” (Geothermal) in the Waverley West development. See Appendix “C”.

DISCUSSION:

Planning Status

Manitoba Housing and Renewal Corporation (MHRC)’s development plans for the Waverley West northeast neighbourhood are well advanced.

Secondary Plan preparations have begun for Ladco Company’s first southerly neighbourhood in Waverley West.

Construction Status

Development Application DASZ 1/2006, adopted by Council on December 6, 2006 authorized MHRC (the Developer) to proceed to develop the Waverley West Northeast neighbourhood. To date;

- City Administration and the Developer are finalizing terms and conditions of the Development Agreement.
- The Developer has submitted construction drawings to the City for Phase 1A earthwork, grading and installation of services.
- The Developer has publicly tendered the work in the same timeframe.
- The Developer is preparing to make lots available to builders in the coming months
- The Construction schedule in the coming months is anticipated approximately as follows;
    - Stormwater retention basin excavation to begin immediately.
    - Installation of sewer and water underground services in April / May.
    - Pavement construction to begin in June.
    - Stormwater retention basin naturalization and green space development in June.

Development Application DASZ 1/2007 is in process. This is an Addendum to Application DASZ 1/2006 and is commonly known as Phase 1C of the Waverley West Northeast neighbourhood.

The Developer will be able to proceed with detailed engineering design and plan approval for Phase 1C after its adoption by Council expected on March 21, 2007.

Geothermal Status

The City administration supports the Province of Manitoba and Manitoba Hydro in their efforts to bring Ground Source Heat Pump (GSHP) technology to Waverley West. Manitoba Hydro, the City and the Developer are working cooperatively to ensure that geothermal installations can proceed in a timely manner.

The City is proceeding cautiously but optimistically by defining a set of parameters intended to ensure a measure of protection for the City and private interests within the neighbourhood. Challenges include;

- Environmental concerns (saline water discharge) during deep well borehole construction;
- Encroachment onto public land in proximity to storm water retention basins and natural forested areas with shallow-bury systems;

- Uncertain long-term impact on City infrastructure in the linear park/drainage system.

Parameters to help Manitoba Hydro, the City and the Developer address these challenges are as follows;

1. Boreholes shall be located no closer than 3.5 meters distance away from the normal water level of the stormwater retention basin.
   The impacts on land drainage performance and vegetation from shallow borehole geothermal systems installed adjacent to, and underneath, Normal Water Levels (NWL) of the proposed Stormwater Retention Basin (SRB) are not clear. The proponents have not satisfactorily addressed this item yet.

2. Boreholes for deep wells that will cause a surface discharge of groundwater during construction will only be undertaken if:
   a. a plan is approved by the City for the appropriate disposal of this groundwater discharge;
   b. it is confirmed that the Federal Department of Fisheries and Oceans is satisfied that the groundwater discharge into City systems will not in turn result in the City inappropriately discharging into DFO-regulated systems under their jurisdiction; and
   c. the discharge will be in compliance with the City's Sewer By-law.

   Manitoba Hydro has committed to a mitigation plan as necessary to address this.

3. The methods for borehole installation within or adjacent to natural forest lands will be reviewed and approved by the City to ensure minimal impact on those natural lands.
   The City Naturalist has been consulted on this. Additional research is needed to understand the potential long term effects of geothermal installations beneath the natural forest lands.

4. A GSHP system that encroaches onto public land will be designed in a way that does not preclude the future installation of a GSHP system on an adjacent lot.
   Deep borehole alternatives are available albeit at greater cost.

5. The City and Manitoba Hydro will agree to terms and conditions of any easements required to accommodate GSHP systems prior to any installation on public lands.
   The City's Legal Services Division has been consulted on this. There is a workable solution.

6. Manitoba Hydro will design a monitoring program, to be reviewed and acceptable by the City, to monitor:

a. the long term impacts of ground source heat system infrastructure on public lands, including ground temperatures, land drainage systems and public recreation areas; and
b. any deleterious substances discharged into the City land drainage system identified by the Federal Department of Fisheries and Oceans as a potential concern.

Manitoba Hydro agrees to a monitoring program.

7. Ground Source Heat Pump system installation timing and methods will not unreasonably delay the construction of housing in this neighbourhood.
Both the City and Manitoba Hydro are committed to not unreasonably delay the issuance of Building Permits.

Financial Impact Statement Date: March 12, 2007

Project Name:

APPLYING GROUND SOURCE HEAT PUMP TECHNOLOGY IN THE WAVERLEY WEST NORTHEAST NEIGHBOURHOOD

COMMENTS:

The recommendation in this report is that it be received as information only. As such, there are no financial implications associated with this report.

"Original Signed By"
Mike McGinn, CA
Manager of Finance

IN PREPARING THIS REPORT THERE WAS:

Internal Consultation With and Concurrence By:

Water and Waste Department – Engineering Division

External Consultation With:

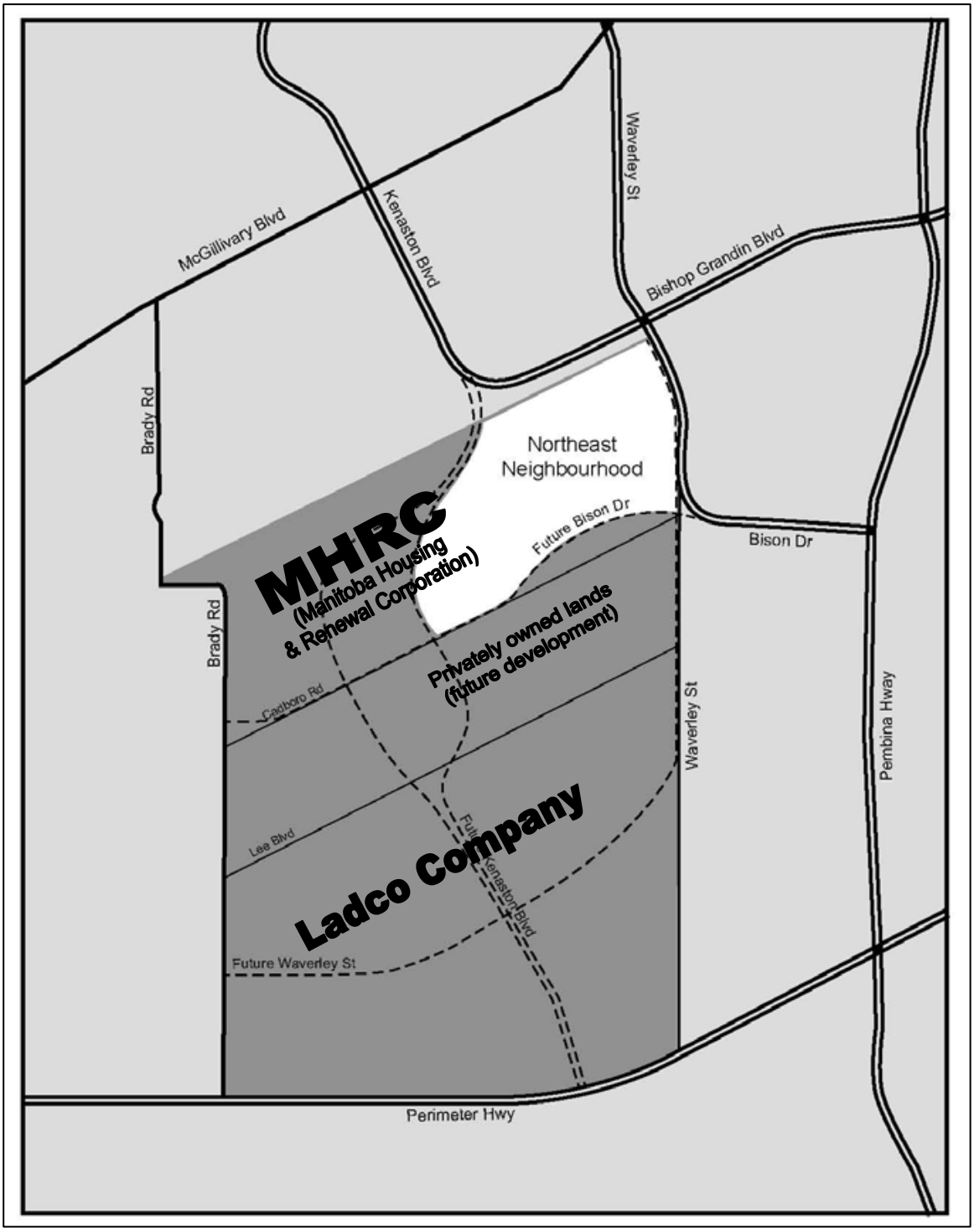
N/A

THIS REPORT SUBMITTED BY:

Department: Planning, Property and Development
Division: Development and Inspections
Prepared by: Kim Raban, P. Eng. Land Development Administrator
File No. DASZ 1/2006 & 1/2007

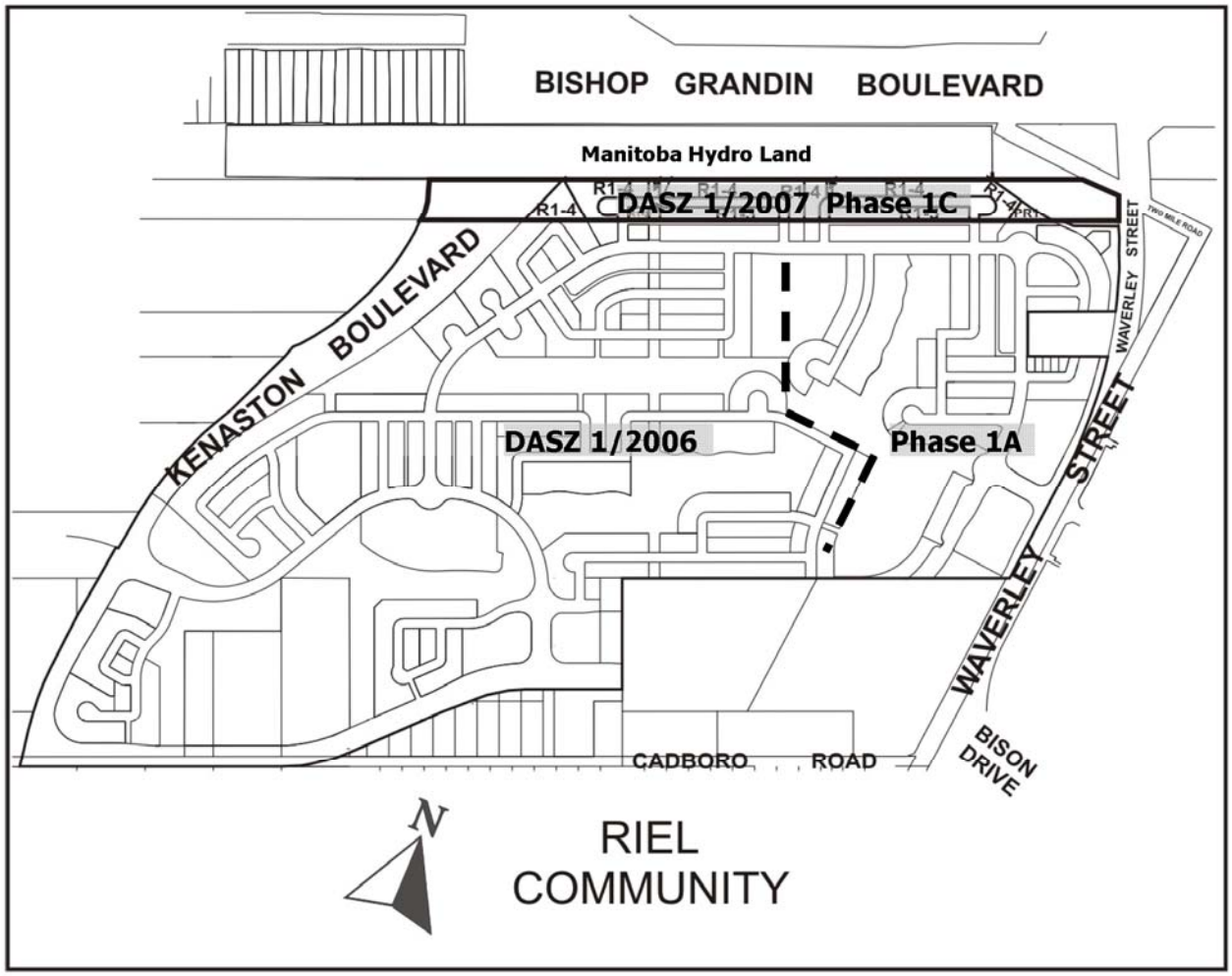
Filename:O:\Reports Directive\Development and Inspections\Land Development\GeothermalReport.doc

APPENDIX "A"



The Waverley West Development Area

APPENDIX "B"



The Waverley West Northeast Neighbourhood - MHRC

APPENDIX "C"

Winnipeg

Planning, Property & Development Department • Service de l'urbanisme, des biens et de l'aménagement

Development and Inspections Division• Division de l'aménagement et des inspections
Land Development Branch • Direction de l'aménagement du terrain

In reply please refer to / Référence à rappeler :

K.T. Raban
(204) 986-3945
Fax / Téléc. : (204) 942-3820

March 2, 2007

Manitoba Hydro
820 Taylor Avenue
Winnipeg, Manitoba
R3M 3T1

ATTENTION: L. Kuczek, P.Eng. MBA

Dear Sir:

RE: APPLYING GROUND SOURCE HEAT PUMP TECHNOLOGY IN THE WAVERLEY WEST NORTHEAST NEIGHBOURHOOD
FILE: AG 1/2006 & 1/2007 (PLEASE QUOTE WHEN REPLYING)

One of the guiding principles of the Waverley West Northeast Neighbourhood Plan, adopted by Council in December of 2006, is: "Greater use of alternative energy sources". Government's proposal to install ground source heat pump (GSHP) systems in the Waverley West Northeast Neighbourhood is an initiative that appears to be consistent with this guiding principle.

At present there is no extensive experience to draw upon with respect to GSHP systems in the Winnipeg environment. The City therefore has established parameters intended to ensure a measure of protection for the City and private interests within this neighbourhood. The enclosed parameters are intended to guide the establishment of GSHP systems throughout the Waverley West Northeast neighbourhood.

Yours truly,

[Original Signed by]

K.T. Raban, P.Eng.
Land Development Administrator

KTR/hp
Enclosure(s)
cc: J. Gallagher, M.H.R.C.
T. Josephson, Water & Waste
J. McNairney, PP & D
File: V:\Kim\07dasz01-Hydro GSHP.doc

March 2, 2007

Parameters for Ground Source Heat Pump Installation in the Waverley West Northeast Neighbourhood

1. Boreholes shall be located no closer than 3.5 meters distance away from the normal water level of the stormwater retention basin.

2. Boreholes for deep wells that will cause a surface discharge of groundwater during construction will only be undertaken if:

   a) a plan is approved by the City for the appropriate disposal of this groundwater discharge;

   b) it is confirmed that the Federal Department of Fisheries and Oceans is satisfied that the groundwater discharge into City systems will not in turn result in the City inappropriately discharging into DFO-regulated systems under their jurisdiction; and

   c) the discharge will be in compliance with the City's Sewer By-law.

3. The methods for borehole installation within or adjacent to natural forest lands will be reviewed and approved by the City to ensure minimal impact on those natural lands.

4. A GSHP system that encroaches onto public land will be designed in a way that does not preclude the future installation of a GSHP system on an adjacent lot.

5. The City and Manitoba Hydro will agree to terms and conditions of any easements required to accommodate a GSHP systems prior to any installation on public lands.

6. Manitoba Hydro will design a monitoring program, to be reviewed and acceptable by the City, to monitor:

   a) the long term impacts of ground source heat system infrastructure on public lands, including ground temperatures, land drainage systems and public recreation areas; and

   b) any deleterious substances discharged into the City land drainage system identified by the Federal Department of Fisheries and Oceans as a potential concern.

7. Ground Source Heat Pump system installation timing and methods will not unreasonably delay the construction of housing in this neighbourhood.

The City of Winnipeg
Planning, Property and Development Department
Development & Inspections Division
Prepared by: K.T. Raban, P. Eng., Land Development Administrator