London Psychiatric Hospital Lands
Stormwater Servicing
Class Environmental Assessment

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1614-03240

September 14, 2011

FIGURE 1 **A. Master Plan (MP) Requirements Checklist*** **Pg 1**

✓	
✓	Identify preliminary updated land use and planning requirements
✓	Review of all relevant studies and integrate this information appropriately
✓	Identify Subwatershed Study requirements related to Natural Heritage System (NHS), preservation of functions and features of the system (identify deviation and assess impacts)
✓	Identify constraints and opportunities of NHS and Water Resources Management (WRM)
✓	Identify existing erosion and/or flooding complaints/deficiencies
✓	Identify all drainage/subcatchment areas
NA	Identify potential utilization & enhancement of open watercourses
✓	Develop preliminary hydrological evaluation & modeling (app. 80%)
NA	Provide preliminary hydraulic evaluation & modeling (app. 50%)
✓	Develop preliminary fluvial geomorphologic assessment and erosion control modeling (to provide erosion control assessment and the required modeling in relation to open watercourses/tributaries)
✓	Develop preliminary geotechnical assessment (app. 50%)
NA	Develop preliminary aquatic/fishery biology evaluation (app. 50%)
✓	Provide the preliminary Water Balance/baseflow and address the augmentation requirements if applicable
✓	Identify recharge/discharge areas if it is applicable to the subject lands (app. 70%)
✓	Preliminary review of Flood Plains/Lines and watercourse capacity and outlet requirements (app. 70%)

FIGURE 1

	A. Master Plan (MP) Requirements Checklist* **pg 2**
✓	Preliminary review of the terrestrial biology in relation to the integration requirements with WRM/engineering/environmental buffers
✓	Preliminary review of the potential optimization of the performance of WR system (app. 70%)
✓	Developing Conceptual EIS, provide the environmental benefits evaluation and identify potential requirements of mitigation/compensation in relation to NHS & EIS
✓	Provide the required justifications of the integration of the proposed land use/NHS in MP (if applicable)
✓	Identify compliance with all applicable acts, standards, polices and requirements of approval agencies
✓	Review of applicable viable servicing options
✓	Develop rating criteria for these options
✓	Incorporate the most applicable innovative/creative approaches/techniques
✓	Identify minor/major system & BMPs
✓	Select the preferred servicing option and provide all required justification of the recommended option
✓	Provide the preliminary/conceptual design of these components - Location - size - land requirements/landscaping - costs
✓	Identify implementation triggers and financial frame works
✓	Obtain the public consultations and seek the public input in accordance with provincial legislation requirements
✓	Finalize MP with implementation triggers and financial frame works

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APPENDICES

1.0 Introduction

1.1 PROJECT LOCATION

The London Psychiatric Hospital (LPH) site is approximately 78 hectares (195 acres) in size and is situated directly east of Highbury Avenue, south of Oxford Street and north of Dundas Street. The site, as shown on Figure 1.1, is bounded at the southeast corner by the Salvation Army Children's Village and bounded to the east by existing industrial and residential development. The southern portion of the site, fronting Dundas Street, is severed from the remainder of the site by a Canadian Pacific rail corridor.

The majority of the lands are owned by the Ministry of Energy and Infrastructure (Province of Ontario) who are represented through this process by the Ontario Realty Corporation. The remaining lands are owned by the Department of Public Works and Government Services (Government of Canada), the Salvation Army in Canada, the Roman Catholic Episcopal Corporation and Ms. Ann McInnes.

1.2 PREVIOUS STUDIES

The following studies were reviewed to establish the existing site conditions and to identify the possible solution constraints and opportunities within the study area.

Pottersburg Creek and Crumlin Drain Subwatershed Study (Paragon Engineering, 1995) was completed to develop a subwatershed management strategy for the protection of Pottersburg Creek. The study presents SWM control requirements for all new development located in the Pottersburg Creek subwatershed.

Pottersburg Creek Storm Drainage and Channel Remediation Project, Environmental Study Report (Cumming Cockburn Limited, 2003) was completed to identify a stormwater management servicing strategy for commercial and industrial development located near the London International Airport, and to develop a channel remediation strategy for a portion of Pottersburg Creek located upstream of the London Psychiatric Hospital site.

Preliminary Geotechnical Review, Regional Mental Health Care Facility, London, Ontario (Trow Associates, 2010) was prepared to predict the existing site geotechnical conditions.

Opportunities & Constraints Plan: London Psychiatric Hospital Lands Area Plan (MHBC, 2010) summarizes the development opportunities and constraints related to the London Psychiatric Hospital Area Plan lands. The purpose of the plan is to guide the development of alternative land use concepts for the study area based on such planning issues as urban design, traffic, noise impacts, cultural heritage, natural heritage, and servicing.

Phase II Environmental Site Assessment, ORC Property D00014 (Sendex Environmental Consulting Engineers and Scientists, 2006) contains site specific geotechnical and hydrogeological information for the stud area including test pit and borehole logs.

London Psychiatric Hospital Lands Area Plan, Phase 1 Natural Heritage Study Constraints and Opportunities Report (Stantec Consulting Ltd., 2010) provides guidance with respect to natural heritage features located within the study area.

1.3 CLASS EA PROCESS

This project is being conducted as a **Schedule B** activity, as described in *Municipal Class Environmental Assessment* (MEA, 2007) and is being integrated with the ongoing Secondary Plan for the site accordance with Section A.2.9. As shown on Figure 1.2, a Schedule B project requires completion of Phases 1, 2, and 5 of the Class EA process. The specific activities, which were completed to satisfy these phases, are described in detail below.

- Phase 1 – Identify the problem or opportunity and notify stakeholders of the commencement of the project.

  These requirements were completed through the creation of a project problem statement, the announcement of the study commencement presented in the London Free Press on June 5 and June 12, 2010, and the corresponding public meeting on June 29, 2010.

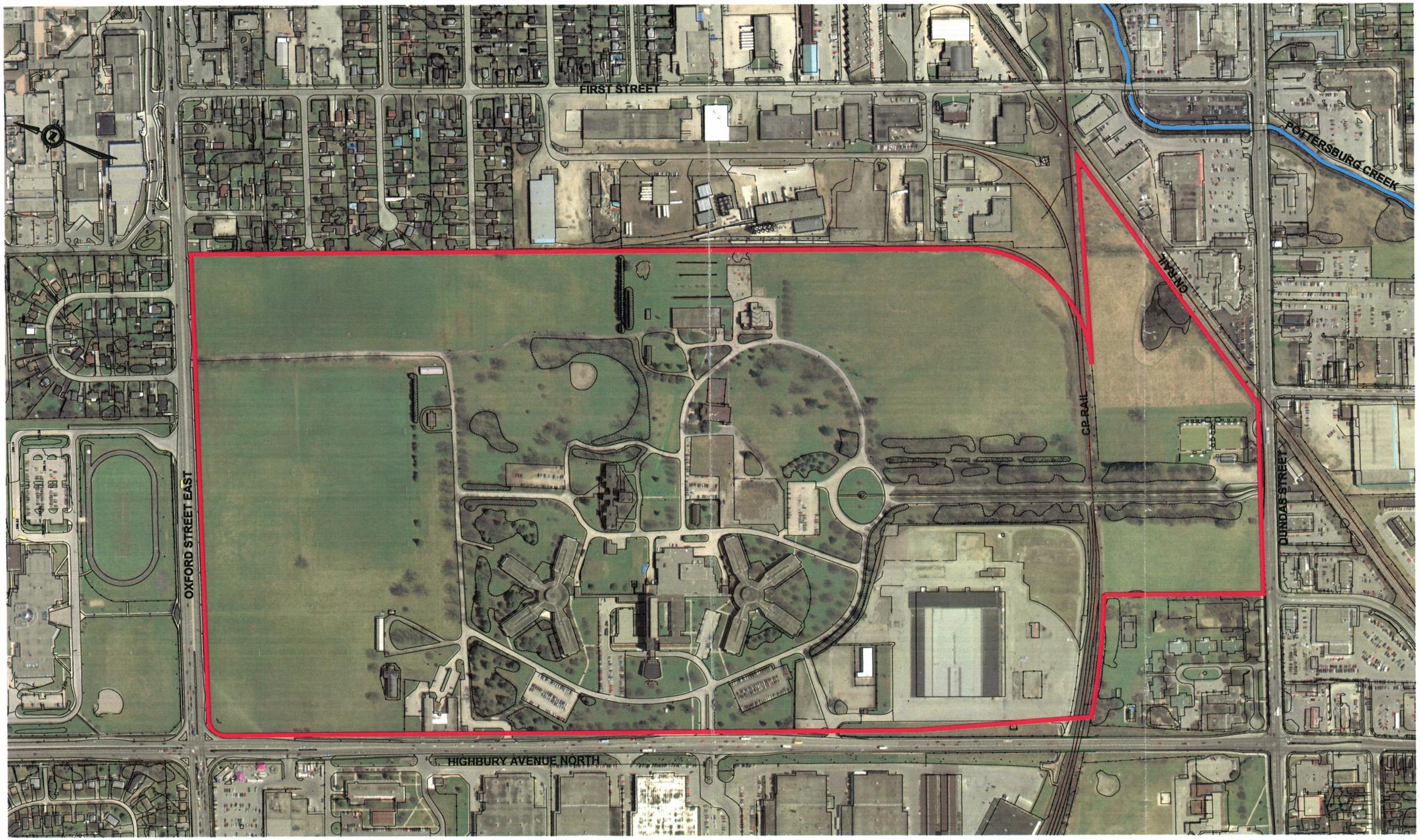
- Phase 2 – Identify alternative solutions, inventory environmental conditions, recommend a solution. Consult with review agencies and the public. Select the preferred alternative solution.

  The alternative solutions, existing environmental conditions, and recommended solution are documented in this report. A second public meeting was conducted on November 18, 2010 to present the recommended preferred alternative and to receive public and agency input. The public meeting announcement was published in the London Free Press on November 6 and November 13, 2010.

- Phase 5 – If environmental clearance is given to the project, complete the contract drawings and tender documents, proceed to construction and operation, and monitor any identified environmental provisions and commitments.

  Phase 5 will be gradually completed as development progresses and the preferred solution is implemented.

The public meeting and published announcement documentation are presented in Appendix A.



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Legend

STUDY AREA

Scale

0 50 150 250m

1:5000

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STORMWATER SERVICING
ENVIRONMENTAL ASSESSMENT

Figure No.
1.1

Title
PROJECT LOCATION

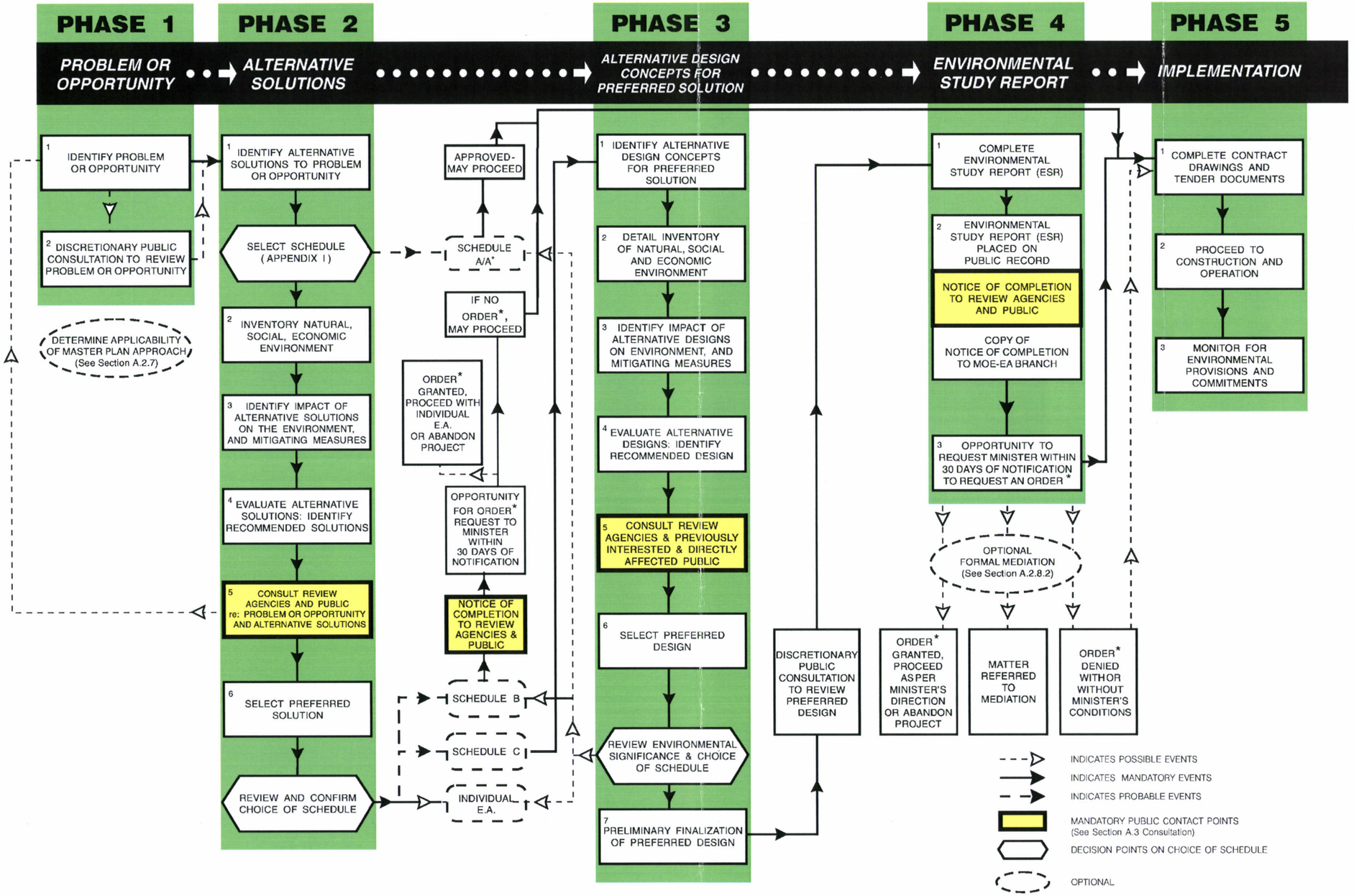

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Figure No.
1.2

Title
Municipal Class EA Process

2.0 Study Need and Justification

2.1 PROBLEM STATEMENT

The proposed development of the London Psychiatric Hospital (LPH) lands will result in significant landuse changes from the current site use. The conversion of the predominantly undeveloped hospital lands to an urban development condition could result in negative impacts on the downstream receiving drainage systems, if not properly mitigated through stormwater management.

Thus, an assessment of various alternative stormwater management strategies is required to select the optimum stormwater management solution for the study area. The preferred alternative strategy is the SWM system that can provide the necessary levels of peak flow control, stormwater quality treatment, and erosion mitigation while balancing all relevant social, cultural, environmental, technical, planning, and economic criteria. The preferred alternative must establish an appropriate SWM strategy that effectively meets the needs of all stakeholders.

2.2 STUDY OBJECTIVES

The objectives of this Environmental Assessment are to:

1. Identify the optimal stormwater management solution for the London Psychiatric Hospital lands, which meets future development needs, satisfies all applicable design constraints, and maintains or improves the condition of Pottersburg Creek,

2. Satisfy the requirements of the Schedule "B" Municipal Class EA Process,

3. Provide recommendations for implementing the preferred solution, and

4. Estimate the cost of the preferred solution to assist the Ontario Realty Corporation and future developers in identifying future budgetary needs.

3.0 Background

3.1 PROPOSED DEVELOPMENT

MHBC developed three landuse concepts for the study area. The proposed concepts were presented at a public meeting for review and comment. Based on feedback received from the public and approval agencies, a final landuse concept was developed for future development of the London Psychiatric Hospital Lands. The proposed blocks are shown on Figure 3.1, and the corresponding landuses and associated areas are presented in the following table.

Table 3.1 – Proposed Landuse Summary

Block	Land Use	Area (ha)
1	High Density - Ground Floor Commercial (HD/C)	1.978
2	High Density (HD)	0.296
3	High Density (HD)	0.303
4	Medium-High Density (MHD)	0.996
5	Medium-High Density (MHD)	0.996
6a	High Density (HD)	0.618
6b	Institutional	1.706
7	Heritage Open Space (HOS)	1.660
8	Medium-High Density (MHD)	0.996
9	Medium-High Density (MHD)	0.996
10	Medium Density (MD)	1.032
11	Medium Density (MD)	1.032
12	Institutional	0.998
13	Institutional	0.659
14a	High Density (HD)	0.951
14b	High Density - Ground Floor Commercial (HD/C)	0.694
15	Medium-High Density (MHD)	0.706
16	Medium-High Density / Live-Work (MHD/LW)	0.536
17	Low Density (LD)	0.997
18	Low Density (LD)	0.997
19	Low Density (LD)	0.925
20	Low Density (LD)	0.925
21A	Medium-High Density (MHD)	0.967
21B	Right-of-way (ROW)	0.243
21C	Open Space (OS)	0.421

Table 3.1 – Proposed Landuse Summary (continued)

Block	Land Use	Area (ha)
22	Medium-Low Density / Live-Work (MLD/LW)	0.870
23	Heritage Open Space (HOS)	1.074
24	Medium-Low Density (MLD)	0.839
25	High Density - Office-Commercial (HD-O/C)	1.096
26	Medium-Low Density / Live-Work (MLD/LW)	1.808
27	Heritage Open Space (HOS)	1.484
28	Heritage Open Space (HOS)	0.668
29	Medium-Low Density (MLD)	1.236
30	Heritage Open Space (HOS)	0.251
31	Heritage Open Space (HOS)	0.247
32	Medium Density (MD)	1.065
33	Medium-Low Density (MLD)	0.484
34	Low Density (LD)	1.007
35	Low Density (LD)	0.830
36	Medium-Low Density (MLD)	0.883
37	Medium-Low Density (MLD)	0.490
38	Medium Density (MD)	1.025
39	Medium-Low Density (MLD)	0.874
40	Low Density (LD)	1.031
41	Low Density (LD)	0.592
42a	Right-of-way (ROW)	0.208
42b	Parkland (P)	2.720
43	Stormwater Management Facility (SWM)	0.350
44	Stormwater Management Facility (SWM)	1.215
45	Parkland (P)	0.541
46	Parkland (P)	0.286
48	Medium Density (MD)	1.726
49	Medium-Low Density (MLD)	1.182
50	Parkland (P)	0.869
51	Open Space (OS)	2.602
52	Heritage Open Space (HOS)	0.477
53	Heritage Open Space (HOS)	2.363
54	Heritage Open Space (HOS)	1.410
55	Open Space (OS)	0.216

Table 3.1 – Proposed Landuse Summary (continued)

Block	Land Use	Area (ha)
56	Open Space (OS)	0.210
57	Open Space (OS)	0.236
58	Open Space (OS)	0.176
	Right-of-ways	17.53
	Total	**74.8**

3.2 NATURAL HERITAGE

The majority of the LPH lands consist of manicured lawns and landscape trees surrounding institutional parking areas, roadways and buildings. The area is surrounded by existing residential, commercial, industrial, and institutional development and is disconnected from the nearest natural heritage feature (Pottersburg Creek) by more than 120 metres of parking lot and commercial buildings.

A Natural Heritage Study for the subject site was prepared by Stantec Consulting Ltd (2010). The study identifies the following natural heritage features that should be accommodated in the future stormwater servicing plan for the LPH lands:

- Locally Significant Wetland – a small wetland in the southeast site corner, which is a small anthopogenic wetland that is separated from Pottersburg Creek by the CN railway track and the adjacent commercial development.

- Pottersburg Creek – stormwater from a portion of the existing LPH lands currently drains to Pottersburg Creek, which contains a tolerant warmwater fish community (Type IV habitat).

These features, and their corresponding requirements with respect to the proposed stormwater management plan are described in further detail below.

3.2.1 Locally Significant Wetland

The small wetland has limited natural heritage value due to its limited size (0.65 ha), anthropogenic nature, low density of species, and isolation from any larger vegetation patches or corridors. Although some restricted uses may be permitted adjacent to this small wetland subject to the completion of an Environmental Impact Study (EIS), both City of London and UTRCA policies encourage the protection of all wetlands. Opportunities to maintain and enhance this feature are encouraged, either as part of the parkland dedication or through naturalization efforts adjacent to the proposed stormwater management facility for this site. The

establishment of appropriate mitigation measures, such as buffers, development setbacks or other protection measures, should be identified and assessed as part of an EIS in support of any future development adjacent to this feature. Any development or interference within, or adjacent to this wetland will require the prior issuance of a permit from the UTRCA.

Based on comments provided by the UTRCA, water input quality, quantity, and timing to the wetland must mimic pre-development conditions.

3.2.2 Pottersburg Creek

Pottersburg Creek supports a tolerant warmwater fish community, which receives drainage from a portion of the LPH lands. While no direct impacts on Pottersburg Creek are anticipated as a result of the proposed redevelopment of the study area, indirect impacts in terms of water quality and quantity may result. As such, any future development should implement the stormwater management recommendations presented in the Pottersburg Creek and Crumlin Drain Subwatershed Study (Paragon, 1995).

3.2.3 Chimney Swifts

Based on the findings of the Natural Heritage Study, some of the existing buildings in the LPH are nesting sites for chimney swifts. The chimney swift is identified as a federally Threatened species according to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is listed under Schedule 1 of the Species at Risk Act. Both Pottersburg Creek and the existing locally significant wetland are possible food sources for the local chimney swift population. Thus, in addition to the reasons presented above, any future stormwater management strategy for future development of the LPH lands should maintain both of these existing features to mitigate the possibility of potential impacts on chimney swifts.

3.3 SITE SOILS

Geotechnical information for the LPH lands was obtained through a preliminary geotechnical review (Trow, 2010), and from the site borehole and test pit logs presented in the Phase II Environmental Site Assessment (Sendex, 2006). A copy of the Trow report and excerpts from the ESA are presented in Appendix E.

The information presented in the Trow report is based on the results a desktop study and borehole logs from a site located east of the study area. The Trow report describes the regional soil conditions in the vicinity of the LPH lands as follows:

> "The site is located in the physiographic region of Southern Ontario known as the Caradoc sand plains and London annex. The soil stratigraphy in this area generally comprises deposits of glaciolacustrine clay which is overlain by silt, fine sand and gravel. The Thames River was cut into the landscape as a clacial spillway for Lake Whittlesey.

> The soils mentioned above were deposited as the water levels in the glacial lake subsided."

Based on the borehole log information from the adjacent site, the Trow report states the following with regard to the soils that are likely present on the London Psychiatric Hospital lands:

> "In general, the predominant natural mineral soil encountered, during the previous investigation, could be described as a compact to dense silty sand/sandy silt and clayey silt till."

This description is generally consistent with the soils investigation that was completed for the environmental site assessment. The purpose of the environmental site assessment was to assess the impacts of fuel and chemical storage on the site soils and to investigate the composition of fill material. As such, the 11 test pits and 30 boreholes are mostly located near existing buildings rather than distributed uniformly throughout the site.

3.4 HYDROGEOLOGY

Groundwater levels were measured as part of the Phase II Environmental Site Assessment (Sendex, 2006). Eight groundwater test wells were installed on January 12 and 13, 2006 and groundwater levels were measured on three dates. The report states that the "[W]ater levels measured on all three occasions were reasonably consistent at each well location." The average water levels at each test well ranged from 0.6 to 4.9 m below the ground surface. Based on the average water levels, the general groundwater flow direction is from north to south.

3.5 POTTERSBURG CREEK

The Pottersburg Creek and Crumlin Drain Subwatershed Study was completed in 1995. The study includes detailed assessments of Pottersburg Creek watershed hydrology and fluvial geomorphology. As such, it is the main source of background information about the creek.

3.5.1 Fluvial Geomorphological Assessment

A fluvial geomorphological assessment was completed as part of the Pottersburg Creek Subwatershed Study (Paragon, 1995). The assessment was performed to:

- Classify the Pottersburg Creek channel using the Rosgen method,
- Document the sediment characteristics of the existing bed and bank materials,
- Identify existing erosion areas located along Pottersburg Creek, and

- Evaluate the channel stability.

Based on the information presented in the subwatershed study, the Pottersburg Creek channel reach from the study area to the confluence with the Thames River can be classified as a Rosgen Type B stream. Ward and D'Ambrosio (2008) describe Type B streams as follows:

> "Type B streams are typically moderately entrenched and less steep than Type A streams. They can be thought of as "babbling brooks" that are found in narrow valleys of rolling hill landforms. The channel bed consists of a series of rapids and cascades with irregular scour pools. The bed and banks are relatively stable, and they are sediment-supply limited systems. If available, large woody debris is an important component to in-stream fish habitat in these systems."

Based on the conclusions of the fluvial geomorphological assessment, the bed and banks of Pottersburg Creek downstream of the LPH stormwater outfall are relatively stable. The assessment identified three existing bank erosion locations downstream of Trafalgar Road, and suggested that this local erosion is due to the presence of a high, steep bank and a lack of streambank vegetation.

3.5.2 Erosion Assessment

An erosion assessment was completed as part of the Pottersburg Creek Subwatershed Study to predict the impact of future development on channel erosion rates and to calculate the erosion control storage volume necessary to mitigate erosive flows from new development (Paragon, 1995). The assessment methodology and results are described below.

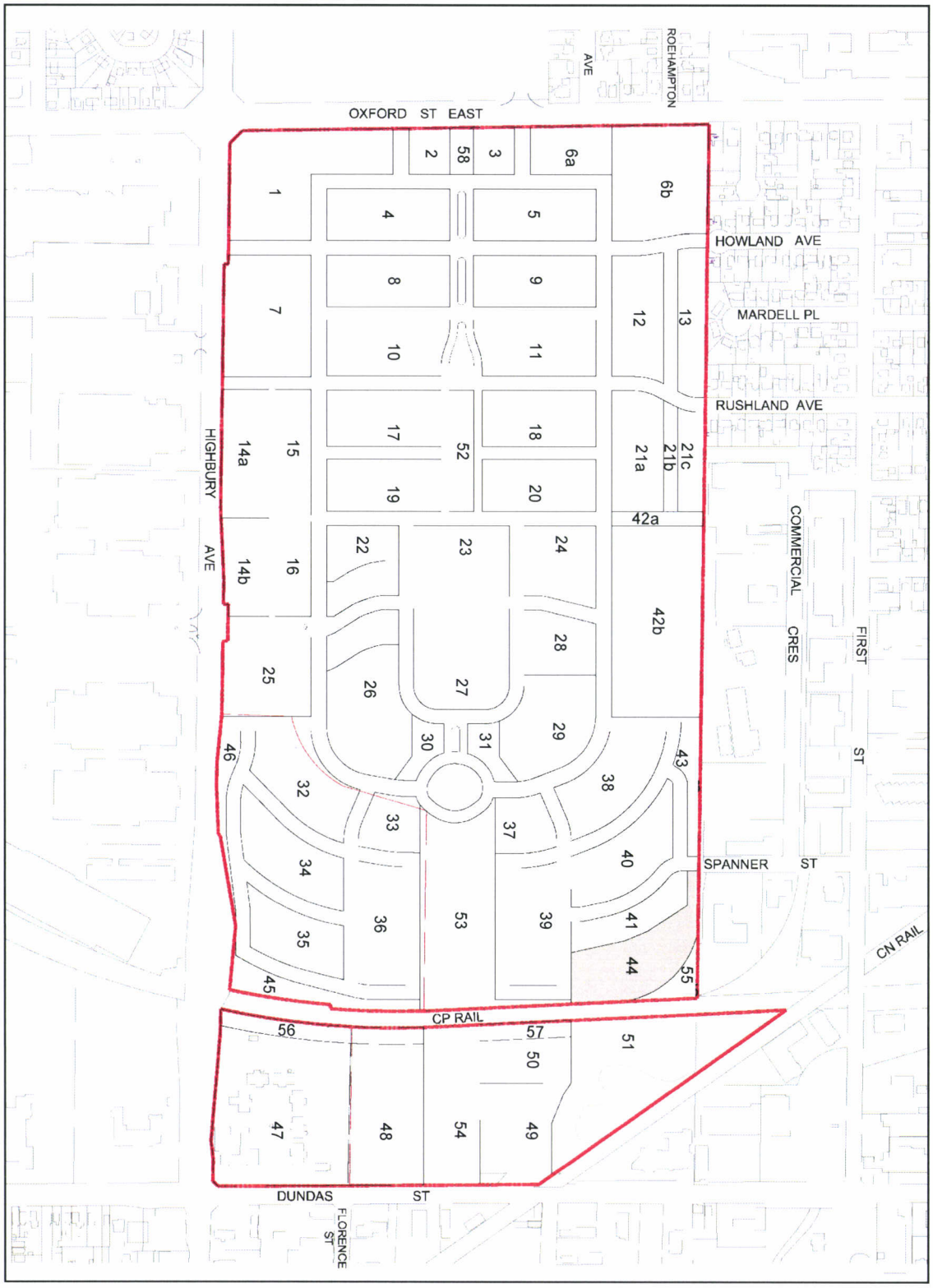
3.5.2.1 Methodology

A continuous simulation hydrologic model was created using QUALHYMO to calculate streamflows in the Pottersburg Creek watershed using 14 years of precipitation data. The calculated streamflows were used to develop existing condition flow-duration curves and erosion index values for Pottersburg Creek upstream of the Thames River confluence.

A second continuous simulation QUALHYMO model was created to calculate the streamflows in Pottersburg Creek once the portion of the watershed located within the City of London limits is fully developed. The calculated streamflows resulted in greater flow durations for each of the design discharges. Furthermore, the erosion index values were greater than the corresponding existing condition values.

3.5.2.2 Results

The assessment results indicated that the potential for future channel erosion can be mitigated by providing sufficient extended detention storage in each future SWM pond to capture the runoff from the 25 mm design storm event and release it over a 24-hour period.



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ENVIRONMENTAL ASSESSMENT

Figure No.
3.1

Title
PROPOSED LAND USE CONCEPT

STUDY AREA

SUBWATERSHED STUDY MONITORING LOCATION

POTTERSBURG CREEK WATERSHED BOUNDARY (FROM 1995 SUBWATERSHED STUDY)

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Legend

- WATERSHED BOUNDARY
- WATER BODY
- WATER COURSE
- STUDY AREA

Scale

1:20000 0 200 600 1000m

Client/Project
Ontario Realty Corporation
Stormwater Servicing
Environmental Assessment

Figure No.
3.2

Title
Pottersburg Creek Watershed

4.0 Alternative Solution Development

The purpose of the environmental assessment process is to identify the design solution that best addresses the problem statement. First, all relevant design constraints that must be met by the alternative solutions are identified. Then, each the alternative solutions are developed with regard to both the design constraints and the problem statement.

4.1 DESIGN CONSTRAINTS

The following stormwater management plan design constraints were identified for the LPH lands:

- The locations and capacities of the existing site stormwater outlets, and
- Established stormwater management control requirements for the receiving watercourses.

4.1.1 Available Stormwater Outlets

The LPH lands are surrounded by existing development and all runoff from the site is conveyed to the receiving watercourses by existing downstream storm sewers and overland flow routes. Consequently, the proposed stormwater management plan must operate in conjunction with the existing downstream drainage infrastructure.

Thus, a review was completed to evaluate the viability of each existing stormwater outlet to convey stormwater from the proposed LPH development. The following factors were considered in the review:

- The relative capacity of each outlet,
- The risks of impacts on downsteam properties, and
- The long term sustainability of each outlet.

The existing site stormwater outlets are described below.

Pottersburg Creek – An existing 1200 mm diameter pipe located near the southeast site corner conveys stormwater to Pottersburg Creek. The capacity of this outlet is limited by the design water surface elevations in the creek at the pipe outfall, which are summarized in the following table.

Table 4.1 – Pottersburg Creek at Existing Outlet

Design Event	Calculated Water Surface Elevation[1] (m)	Calculated EGL Elevation[1] (m)
2-year	257.56	257.68
5-year	258.04	258.25
10-year	258.30	258.54
25-year	258.82	259.05
50-year	258.91	259.19
100-year	259.18	259.47
250-year	259.55	259.63

Notes:
[1] From UTRCA Pottersburg Creek HEC-RAS results for cross section 4.16.

This pipe likely offers the best potential outlet for the proposed site since it discharges to an existing open channel with few intervening connections that could be affected by the proposed site discharges. Furthermore, the existing pipe diameter is relatively large.

Highbury Avenue Storm Sewer – The existing on-site storm sewer that drains the western portion of the LPH property outlets to the Highbury Avenue storm sewer. The storm sewer conveys the flows approximately 4.3 km to the existing outlet to the Thames River South Branch at the downstream side of the Highbury Avenue bridge. While the available City of London flood records do not suggest that there are existing flooding concerns associated with the existing downstream storm sewer, the following concerns with directing a significant portion of the proposed site drainage to this outlet were identified:

- The condition of the approximately 4.3 km of downstream pipe is unknown,
- The pipe diameter at the Highbury Avenue crossing is relatively small (675 mm), compared to the Pottersburg Creek outlet,
- There are a significant number of downstream connections that could be affected if too much water is directed to this outlet.

For these reasons, there was a conscious effort to limit the size of the drainage area that directs runoff to this outlet during the development of the proposed alternative solutions.

Overland Flow Routes Located West of Highbury Avenue - There are existing low points on the Highbury Avenue Road profile located approximately 300 m north of the CP railway lines, and approximately 100 south of Oxford Street. These low points convey major system flows from the existing LPH site to the west side of Highbury Avenue. Based on the available City of London topographic mapping and aerial photography, the stormwater flows westward, across industrial lands, through McCormick Park to the existing Mornington SWM pond.

While there are no known surface flooding complaints associated with these flow routes, future redevelopment of the adjacent private lands could potentially block surface flows. Thus, the proposed alternative solutions should minimize the future peak flows that are conveyed by these routes.

Dundas Street Storm Sewer – Two storm sewers are located near the Dundas Street site entrance. The east storm sewer conveys stormwater eastward and discharges to Pottersburg Creek. Based on the available as-built information, the east storm sewer inverts are relatively high, compared to the adjacent site ground surface elevations. This makes the east storm sewer a relatively poor candidate as a future site outlet.

The west storm sewer conveys stormwater westward to the 4.3 km long trunk storm sewer that discharges to the Thames River South Branch. The available as-built information suggests that the storm sewer invert at the Florence Street intersection is sufficiently low to accommodate a storm connection from the LPH lands. However, only a small portion of the existing LPH site contributes runoff to this drainage system. Consequently, if runoff from a portion of the proposed development is directed to this system, the peak discharges will likely need to be significantly attenuated.

Locally Significant Wetland – The wetland located near the southeast site corner does not have an existing surface water outlet. Thus, all runoff from the LPH lands that enters the wetland leaves this area via evaporation and gradual infiltration. Due to the relatively restrictive requirements that the UTRCA have placed upon this wetland, this is likely not a viable surface water outlet for the runoff from the future LPH development.

4.1.2 Stormwater Management Control Criteria

The stormwater management design criteria for the proposed London Psychiatric Hospital development are discussed below.

4.1.2.1 Pottersburg Creek Drainage Area

Stormwater management design criteria for new development located within the Pottersburg Creek watershed were developed through the Pottersburg Creek and Crumlin Drain Subwatershed Study (Paragon, 1995) and were clarified in the Pottersburg Creek Storm

Drainage and Channel Remediation Environmental Assessment (Cumming Cockburn, 2003). The guidance presented in these previous studies is summarized below:

- **Quantity Control** – Provide sufficient storage to attenuate post-development peak discharges to existing condition magnitudes.
- **Quality Control** – Provide MOE "Normal" level water quality control to remove 70% of suspended solids from stormwater runoff.
- **Erosion Control** – Provide extended storage equivalent to the runoff volume generated by the 25 mm design storm event, and a corresponding extended detention time of 24 hours.

In accordance with comments provided by the UTRCA, a review of the available Potterburg Creek watershed information was completed to evaluate whether MOE "Enhanced" level water quality control should be considered for the proposed LPH lands development. The results of the review suggest that "Enhanced" level water quality control is not warranted for the proposed development for the following reasons:

- Pottersburg Creek supports a tolerant to very tolerant warmwater community (Paragon, 1995). Based on the available MOE guidance, "Normal" level water quality control is appropriate for this condition (MOE, 2003).
- The Pottersburg Creek watershed drainage area is approximately 5021 ha, and approximately 56% of this area is urbanized (Paragon, 1995). The vast majority of this existing development discharges to Pottersburg Creek without providing any stormwater quality treatment. In contrast, the LPH site is located near the downstream limit of the subwatershed, and represents less than 0.5% of the Pottersburg Creek drainage area.
- "Normal" protection level water quality control is consistent with the control levels provided for recent developments located within the Pottersburg Creek watershed (CCL, 2003).

4.1.2.2 Central Thames Drainage Area

The following SWM control criteria were applied to the portion of the site located within the Central Thames drainage area, and are consistent with recent infill developments located in this subwatershed:

- Peak discharge rates from the proposed site should be controlled to magnitudes less than or equal to the existing design peak discharge rates, to mitigate the possibility of downstream flooding.