6.4 Impacts and Mitigation

6.4.1 Summary Table

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
Site Preparation: Vegetation clearing	Natural vegetation (No significant species or woodlands or habitat known to occur at site)	Loss of natural vegetation	Ensure tree removal complies with City requirement for timing re. nesting	Removal of non-native and invasive species – to be replaced with native species
Removal and Reconstruction of embankment	Part of Rideau River greenway corridor	Removal of unstable slope; Temporary loss of continuity of corridor for wildlife	Erosion and sediment control to prevent spillage into river; Timing of works to minimize disruption to fish habitat	New slope will be geotechnically stabilized, and new vegetation will enhance greenway corridor function, ecologically and visually from the river
Reinforcement of shoreline	Rideau River fish habitat	Short term disruption to small section of habitat at shoreline	Timing of works to minimize disruption to habitat;	Some species may be negatively impacted while others will see improvement in habitat (Packman) – overall net positive
Construction and Operation: Construction of apartment building	Building is within Official Plan setback of Rideau River	Typical construction project will generate noise; More residents close to slope	City standards and bylaws to be followed for construction; Access to back of building (at river) will be restricted	The slope and landscaped area east of the proposed building will have minimal access (for maintenance only) and vegetation will be allowed to naturalize

6.4.2 Assessing impacts

6.4.2.1 Slope Stability

The impact of the proposed development on the slope has been evaluated in the Golder report (Appendix 1). Initially, the physical geometry of the proposed slope was analyzed to determine stability. This analysis concluded that the slope would still be unstable unless measures were taken to stabilize the slope.

Four options are explored in the Golder report, and the recommended approach is as follows: *Therefore, based on the current understanding of the risk/hazard, the objectives of the project, and the costs involved, the option of excavating and re-constructing the slope with a geogrid reinforced Mechanically Stabilized Earth (MSE) system is the preferred method to achieve an adequate Factor of Safety (greater than 1.5 for static loading and greater than 1.1 for seismic loading) for the proposed development condition.*

The other options include regrading or flattening of the slope, but the factors of safety would not be achieved, and the filling would have a negative impact of the aquatic habitat. Staff from the Rideau Valley Conservation authority has stressed that placement of fill in the Rideau River would not be supported due to environmental and flood control implications.

Reinforcing the slope with drilled anchors is an option, but "*it is unlikely to be cost effective in comparison to an MSE system, particularly considering the difficult access conditions for a drill rig*".

The fourth option would replace the slope with a retaining wall. However, this method is undesirable as it would result in a wall with little opportunity to achieve a natural appearance or sustain adequate vegetation. Examples of this austere approach are evident to the north of the site, and, at the pre-consultation with Rideau Valley Conservation Authority, staff advised that an unvegetated approach was not a preferred option.

The Golder report describes the criteria that must be considered in the design of a MSE system and concludes:

The construction of an MSE system, if properly designed, will result in a stable geometry (i.e. factor of safety greater than 1.5 for static loading and 1.1 for seismic loading). The arrangement will therefore be an improvement over the current unstable slope condition.

6.4.2.2 Fish Habitat

Packman's report (Appendix 2) investigates the sensitivity of the fish and fish habitat and assesses the impact of the proposed development.

It is expected that the slope stabilization project will affect fish habitat extending up to 2m into the Rideau River along the 17.3 m width of the property. This would result in the change and potential displacement of up to 34.6 sq.m of fish habitat.

Overall sensitivity of the habitat affected by the project is considered to be very low. The species documented in the relevant reach of the Rideau River are relatively common species that are evidently habituated and/or adapted to completing their lifecycle within a river that exists within an urban context. These species are for the most part relatively tolerant of the types of changes associated with the proposed project. Some species may be displaced to a limited extent while others will take advantage of the new opportunities provided by the habitat structure, interstices and hard substrate for aquatic invertebrates and forage fish that support the food chain.

The habitat currently present at the site is a granular mix of fine particle substrate and gravel, and the gravel is fairly embedded. The existing bank is considered erosional and the slope is unstable. Placement of rip-rap is intended to correct this ongoing source of habitat alteration. The habitat change resulting from the project represents a very small proportion of habitat along this section of the Rideau River. It is not apparent that the relevant habitat contributes in any unique or critical manner to the productive capacity of species found in this section of the Rideau River. The relevant habitat is not considered rare. Species at risk were not identified in this section of the Rideau River.

Overall, the proposed project will change only a small amount of habitat in relation to the existing habitat along the relevant section of the Rideau River. This change will benefit some individuals and has the potential to displace others. Net negative effects are not anticipated and overall habitat improvement is planned. Overall sensitivity is considered to be very low.

6.4.2.3 Wildlife and Vegetation

In the report by James Lennox, the new buffer that will be created with the reconstructed and re-vegetated slope is discussed in a letter included as Appendix 3.

Width of setback is based on a site specific basis including geotechnical assessment, ecological buffer and additional setback for extraneous activities such as access. In our case the geotechnical assessment requires only a 10m geotechnical space. There is perhaps reduced requirement for an ecological buffer given the existing width of the "green linkage" along the river in this area. Based on Golder's report we are proposing a 10 m Geotechnical allowance which will also have plants and form an ecological buffer.

Due to the great differences in site specific requirements for setbacks and buffers a standardized approach for determining setback distances is not recommended in the City of Ottawa. As such there are several site specific reasons that the proposed buffer in this area could be reduced to 10 m as proposed: a) the existing sloped area needs to be stabilized; b) Access to the ecological buffer and the Rideau River will be restricted through the use of a fence; c) There will be no off-

trail trampling; d) Slope stabilization will prevent erosion; e) There should be less nutrient, pesticide and sediment input of fertilizers if the plants proposed are of a native species and provenance; f)Invasive species of plant material will removed; and g) Domestic animals, their feces and their predation on wildlife will be removed by the installation of a fence.

Other factors that support the proposed 10 m width of buffer is the sensitivity or character of a natural heritage feature. There are several aspects of our site that are of the lowest sensitivity: a) It is a north and east facing edge; b) The slope is eroding and requires reconstruction: c) The area or lot is not either a recharge or discharge area; d) Vegetation is made up of edge species and exotics e) The site will have fenced lot lines; f) The site is on a leeward edge; and g) Best management practices will be employed when dealing with infiltration and mitigating potential impacts.

With respect to existing wildlife, the proposed works will remove existing trees which may provide shelter for birds and squirrels. The adjacent properties may provide shelter that is temporarily lost, although the ability of species to travel across the ground from adjacent properties would be interrupted by the construction activities, and would resume upon completion of the works.

6.4.2.4 Species at Risk

Muncaster Environmental Planning was retained to assess the species at risk component of this EIS, and the following information is provided:

Species at Risk Assessment

The Ontario Ministry of Natural Resources' biodiversity explorer website was reviewed (http://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/main.jsp). This site allows for a search of Threatened and Endangered species covered by the 2008 *Endangered Species Act*, as well as other species of interest. Searches were conducted on the 1 km squares including the site and adjacent lands (18VR43_61 and 71). Twelve species of interest were identified for the 1 km squares, including one Species at Risk, lake sturgeon. This Endangered Species is known from the Ottawa River, about 1.75 kilometres to the northeast of the site. The other potential species of interest are provincially rare and are predominantly found in aquatic and/or wetland habitats. Greater redhorse is found in the Ottawa and Rideau Rivers, utilizing clear, relatively fast-moving shallow sections of the rivers, including spawning areas of fine gravel sections (CMN, 2003, McAllister and Coad, 1974). CMN (2003) lists greater redhorse among the fish species present in Rideau River reach extending from Hogs Back to Rideau Falls, which includes the site. Arrowhead spiketail, cattail sedge, Greene's rush, lurking leskea, a moss (*Brachythecium calcareum*) and southern twayblade are found in mainly in wetland habitats. Greene's rush and southern twayblade are known from Mer Bleue in the east part of Ottawa. Cattail sedge is in the Britannia Conservation Area in the west portion of the urban area (Muncaster and Brunton, 2005). Eastern pipistrelle is a bat species that utilizes the edges of forests, streams and areas of open water for hunting. Caves are important winter hibernation habitat for this species. Other provincially rare species

reported in the regional landscape include woodland pinedrops, known from the Green's Creek Conservation Area well to the east of the site, limestone oak fern, known from the Albion area, and pitch pine, which lives in a variety of habitats from dry, acidic sandy uplands to swampy lowlands and can survive in very poor conditions.

The potential Species at Risk reported for the overall City of Ottawa were also reviewed. The habitat requirements of these species were reviewed and presented in the Table below. (OBBA - Ontario Breeding Bird Atlas)

Probability of Species at Risk Presence on 101 Wurtemburg Street

Species Name	**Status under Ontario *Endangered Species Act, 2007***	**Status under federal *Species at Risk Act* (SARA)**	**Distribution in Ottawa**	**Comments**
Birds				
Least Bittern	Threatened (reconfirmed Sept. 2009)	Threatened (Schedule 1)	One confirmed nest, three probable and four possible nests reported in recent OBBA	Found in marshes and swamps, usually near cattails. Not listed in OBBA 10km square including the site
Bald Eagle	Special Concern (Sept. 2009)	None (not at risk nationally)	One possible nest reported in recent OBBA.	Bald eagles are most often reported during spring and fall migration. The huge stick nests of this species are very conspicuous. Not listed in OBBA 10km square including the site
Golden Eagle	Endangered – previously regulated under old ESA	None (not at risk nationally)	No reported nests.	Golden eagles are rarely reported even during migration, but are most often seen in the fall. Not listed in OBBA 10km square including the site
Red-shouldered Hawk	None – delisted by COSSARO[4] in March 2007	Special Concern (Schedule 3); delisted by COSEWIC[5] in April 2006	One confirmed nest, seven probable and three possible during recent OBBA.	Known nesting site at Morris Island Conservation Area. Prefers large deciduous or mixed woodlands near wetlands for hunting. Not listed in OBBA 10km square including the site
Peregrine Falcon	Threatened. Habitat	Threatened (Schedule 1);	One confirmed nest in recent	Nesting site on Crowne Plaza hotel and related habitual

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
	regulations issued.	downlisted by COSEWIC to Special Concern in April 2007 ("non-active" in 2009)	OBBA.	perches, etc., in downtown Ottawa. Not listed in OBBA 10km square including the site
Yellow Rail	Special Concern (reconfirmed March 2010)	Special Concern (Schedule 1) – status confirmed by COSEWIC in November 2009	One probable nest reported in recent OBBA.	Rarely reported; most often seen in spring migration. Nests in extensive sedge meadows and marshes. Not listed in OBBA 10km square including the site
Red Knot	Endangered	None – listed as Endangered by COSEWIC in 2007	Ottawa River shores, area lagoons during migration only.	Nests in far north. Not listed in OBBA 10km square including the site
Black Tern	Special Concern	None (not at risk nationally)	Four confirmed nests in recent OBBA.	Breeds in loose colonies in marshes. Not listed in OBBA 10km square including the site
Short-eared Owl	Special Concern (reconfirmed Sept. 2009)	Special Concern (Schedule 3)	One confirmed nest, two probable and two possible nests reported during recent OBBA.	Ground-nester; prefers open habitats such as fields and marshes. Not listed in OBBA 10km square including the site
Common Nighthawk	Special Concern (Sept. 2009)	Threatened (Schedule 1) as of March 17, 2010	Six probable and five possible nests reported in recent OBBA.	Nests in wide variety of open sites, including beaches, fields and gravel rooftops. Listed in OBBA 10km square including the site
Whip-poor-will	Threatened	None – listed as Threatened by COSEWIC in	Seven probable and 10 possible nests reported in	Nests on the ground in open deciduous or mixed woodlands with little underbrush, habitat

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
	(Sept. 2009)	2009	recent OBBA.	not present on or adjacent to the site. Not listed in OBBA 10km square including the site
Chimney Swift	Threatened (Sept. 2009)	Threatened (Schedule 1)	Three confirmed nests, two probable and 11 possible reported in recent OBBA.	Nests in traditional-style open brick chimneys (and rarely in hollow trees). Listed in OBBA 10km square including the site
Red-headed Woodpecker	Special Concern	Threatened (Schedule 1)	One confirmed nest, one probable and two possible during recent OBBA.	Nesting pair reported from Village of Constance Bay in recent years. Prefers open deciduous woodlands, habitat not present on or adjacent to the site. Not listed in OBBA 10km square including the site
Olive-sided Flycatcher	Special Concern (Sept. 2009)	Threatened (Schedule 1) as of March 17, 2010	One probable and one possible nest reported in recent OBBA.	Forest edge species; forages in open areas from high vantage points in trees. Not listed in OBBA 10km square including the site
Loggerhead Shrike	Endangered – previously regulated under old ESA	Endangered (Schedule 1)	One possible nest reported in recent OBBA.	The MNR has had no confirmed nests reported since 2002, and therefore does not consider Ottawa to include any significant habitat for this species at this time. It prefers grazed pastures with short grass and scattered shrubs, especially hawthorn
Golden-winged Warbler	Special Concern	Threatened (Schedule 1)	One confirmed nest, one probable nest reported during recent OBBA	Ground-nesting edge species. Not listed in OBBA 10km square including the site
Cerulean	Special	Special Concern	No nests reported during	SARO and SARA range maps both include parts of Ottawa.

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
Warbler	Concern	(Schedule 1)	recent OBBA.	Prefers mature deciduous forests, habitat not present on or adjacent to the site. Not listed in OBBA 10km square including the site
Canada Warbler	Special Concern (Sept. 2009)	Threatened (Schedule 1) as of March 17, 2010	One confirmed nest, two probable and six possible reported in recent OBBA.	Prefers wet forests with dense shrub layers, habitat not present on or adjacent to the site. Not listed in OBBA 10km square including the site
Henslow's Sparrow	Endangered – previously regulated under old ESA	Endangered (Schedule 1) – status under review by COSEWIC (report coming late 2010)	No nests reported during recent OBBA.	Rarely reported from this area. Prefers open tallgrass fields, habitat not present on or adjacent to the site. Not listed in OBBA 10km square including the site
Bobolink	Threatened (Sept. 2010)	None – listed as threatened by COSEWIC in April 2010	28 confirmed, 11 possible nests during recent OBBA.	Declining grassland species in North America. Listed in OBBA 10km square including the site
Fish				
Northern Brook Lamprey	Special Concern	Special Concern (Schedule 1) for Great Lakes-Upper St. Lawrence population	Ottawa River only	
River Redhorse	Special Concern	Special Concern (Schedule 1)	Ottawa and Mississippi Rivers only	
Lake Sturgeon	Threatened (Sept. 2009)	None – listed as threatened by COSEWIC in November 2006	Ottawa River	

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
American Eel	Endangered	May be added to Schedule 1; listed as special concern by COSEWIC	Ottawa, Mississippi and Rideau Rivers	
Bridle Shiner	Special Concern	Special Concern (Schedule 1)	Rideau River	Captured by City WEP staff between Hwy 416 and Stevens Creek, Sept. 2009.
Mammals				
Southern Flying Squirrel	None – delisted by COSSARO in March 2007	Special Concern (Schedule 3); delisted by COSEWIC in April 2006	Scarce	
Eastern Cougar	Endangered – previously regulated under old ESA	None – data deficient	Occasional reports	Southern Ontario cougar sightings are typically misidentified animals or escaped captives.
Grey Fox	Threatened	Threatened (Schedule 1)	One post-1980 record in northwestern Ottawa (2002 COSEWIC status report).	SARA range map shows entire City as potential grey fox territory; SARO mapping only includes southern half of City. Very poor habitat potential due to disturbances in the general area of site.
Eastern Wolf	Special Concern	Special Concern (Schedule 1)	Occasional reports	Not known to occur here, although range includes much of Renfrew County. Reports likely involve large coyotes or hybrids.
Amphibians				
Western Chorus Frog	Not at Risk (2009)	Threatened (Schedule 1) as of March 17,	Scattered throughout	Requires vernal (non-permanent) pools for breeding. Short-lived and highly sensitive

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
		2010 Protected on federal lands only at this time.		to habitat loss.
Reptiles				
Blanding's Turtle	Threatened	Threatened (Schedule 1)	Scattered throughout, with numerous sites in western half of City	
Northern Map Turtle	Special Concern	Special Concern (Schedule 1)	Few locations; all along Ottawa River	Highly aquatic species.
Snapping Turtle	Special Concern (Sept. 2009)	None – listed as Special Concern by COSEWIC in 2008	Widespread and abundant	Highly aquatic species, found in small lakes, ponds, and slow streams and rivers. Nesting occurs in sandy soils along rivers and lakes
Spiny Softshell	Threatened	Threatened (Schedule 1)	Few reported	Highly aquatic species.
Spotted Turtle	Endangered	Endangered (Schedule 1)	Few reported; mostly in east end (Mer Bleue area)	Secretive species. Requires mats within bogs and fens. No suitable habitat on or adjacent to site
Eastern Musk Turtle	Threatened	Threatened (Schedule 1)	Scattered	Secretive species; highly aquatic preferring shallow, still water with muddy bottom.
Wood Turtle	Endangered	Threatened (Schedule 1) as	Few historical records in NHIC,	Primarily terrestrial species.

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
		of March 17, 2010	NESS (may have been extirpated locally).	
Eastern Ribbonsnake	Special Concern	Special Concern (Schedule 1)	Few reported; mostly from Morris Island area	No meadow marsh habitat with basking sites available. Livebearer.
Milksnake	Special Concern	Special Concern (Schedule 1)	Scattered throughout the northern half of the City	Secretive species with a wide range of habitat.
Plants				
Eastern Prairie Fringed-orchid	Endangered. Habitat regulations issued.	Endangered (Schedule 1)	Richmond Fen (2 locations)	Richmond Fen sites, one of approximately 20 colonies in Ontario protected by ESA habitat regulations.
American Ginseng	Endangered	Endangered (Schedule 1)	Various (locations confidential)	Several sites reported previously but some have disappeared (likely due to illegal harvesting).
Butternut	Endangered	Endangered (Schedule 1)	Widespread	Endangered in long term due to fungal disease. Habitat not a limiting factor.
Lichens				
Flooded Jellyskin	Threatened	Threatened (Schedule 1)	Stony Swamp	Found below high-water mark on deciduous trees within swamps, habitat not present on or adjacent to the site.
Insects				
Bogbean Buckmoth	Endangered (Sept. 2010)	None – listed as Endangered by COSEWIC in November 2009	Known to occur in Richmond Fen	

Species Name	Status under Ontario *Endangered Species Act, 2007*	Status under federal *Species at Risk Act* (SARA)	Distribution in Ottawa	Comments
Monarch butterfly	Special Concern (reconfirmed March 2010)	Special Concern (Schedule 1)	Widespread	Widespread in meadows, especially with abundant milkweed, habitat not present on or adjacent to the site.
West Virginia White butterfly	Special Concern	None	Unknown; no records in NESS or NHIC	SARO range mapping includes Ottawa. Requires mature moist deciduous woods with larval host plant toothwort (*Dentaria* sp.), habitat not present on or adjacent to the site. .
Rapids Clubtail	Endangered (Sept. 2009)	Endangered (Schedule 1) – as of March 17, 2010	None known	Occurs along Mississippi River in Blakeney/Pakenham area upstream of City. One of two extant populations in Ontario (and Canada). Requires medium to large clear, cool rivers with alternating pools and riffles
Rusty-patched Bumble Bee	Endangered (Sept. 2010)	None – listed as Endangered by COSEWIC in April 2010	Historic records only from scattered sites in Ottawa and Gatineau.	Habitat generalist; usually nests underground. Only known extant location in Canada is Pinery Provincial Park near Sarnia.

Correspondence from the Ontario Ministry of Natural Resources Kemptville District Office dated February 8th, 2011 (see Appendix A) identified no Provincially Significant Wetlands or Areas of Natural and Scientific Interest (ANSI) within the area. The MNR correspondence did note a small woodland area along the Rideau River. The endangered American eel and butternut, and threatened peregrine falcon, chimney swift and eastern musk turtle were Species at Risk identified in the MNR correspondence as potentially occurring in the general area, along with milksnake, a species of concern.

Habitat is not present on the site for the three bird species, common nighthawk, chimney swift and bobolink, reported in the Ontario Breeding Bird Atlas (OBBA) for the 10 km square 18VR43 that includes the site and adjacent lands. Common nighthawk is a ground nester of open sites while chimney swift nests predominantly in open chimneys and sometimes in tree hollows and bobolink utilizes large

grassland areas including hay fields. No butternut was reported by Lennox (2010). Milksnake is usually found in more open areas associated with rock outcrops or agricultural activity, including open woodlands, clearings and around farmhouses where it hunts its major prey item, mice. American eel may be found in the Rideau River and is well known from the Ottawa River system to the north of the site. Peregrine falcon is known to nest in downtown Ottawa, about 2.5 kilometres to the southwest of the site. Eastern musk turtle is found in shallow moving water such as in the Rideau River corridor.

Please see Appendix 4 for the full report by Muncaster Environmental Planning on the Species At Risk.

6.4.2.5 Identifying cumulative impacts

When considering and comparing the pre-development condition (existing) with a post-development condition of the site, there is an overall net positive impact on the local environment.

The existing slope is problematic in that it is structurally unstable, with a loose surface that allows erosion and sedimentation into the river. Although the existing trees provide some canopy for birds or squirrels, the trees themselves are leaning over, with many having fallen. The benefit of the existing tree cover will be reinstated with the new vegetated slope. The new reconstructed slope will be stable and have vegetation at ground level, as well as taller specimens, to provide both shade and shelter, and also minimize soil erosion. (Claridge Homes completed a similar slope reconstruction project at its development at 520 Queen Elizabeth Driveway, with a vegetated slope on a north facing side. The photo below shows the view from the top of the slope.)

Although the amount of fish habitat impacted by the site is very small, the analysis by Packman concludes that there will be an overall positive impact on the fish habitat adjacent to the site.

Overall, the re-vegetated and stabilized slope will contribute to the preservation of the greenway corridor and habitat of the Rideau River, with the added benefit of erosion and sediment control.

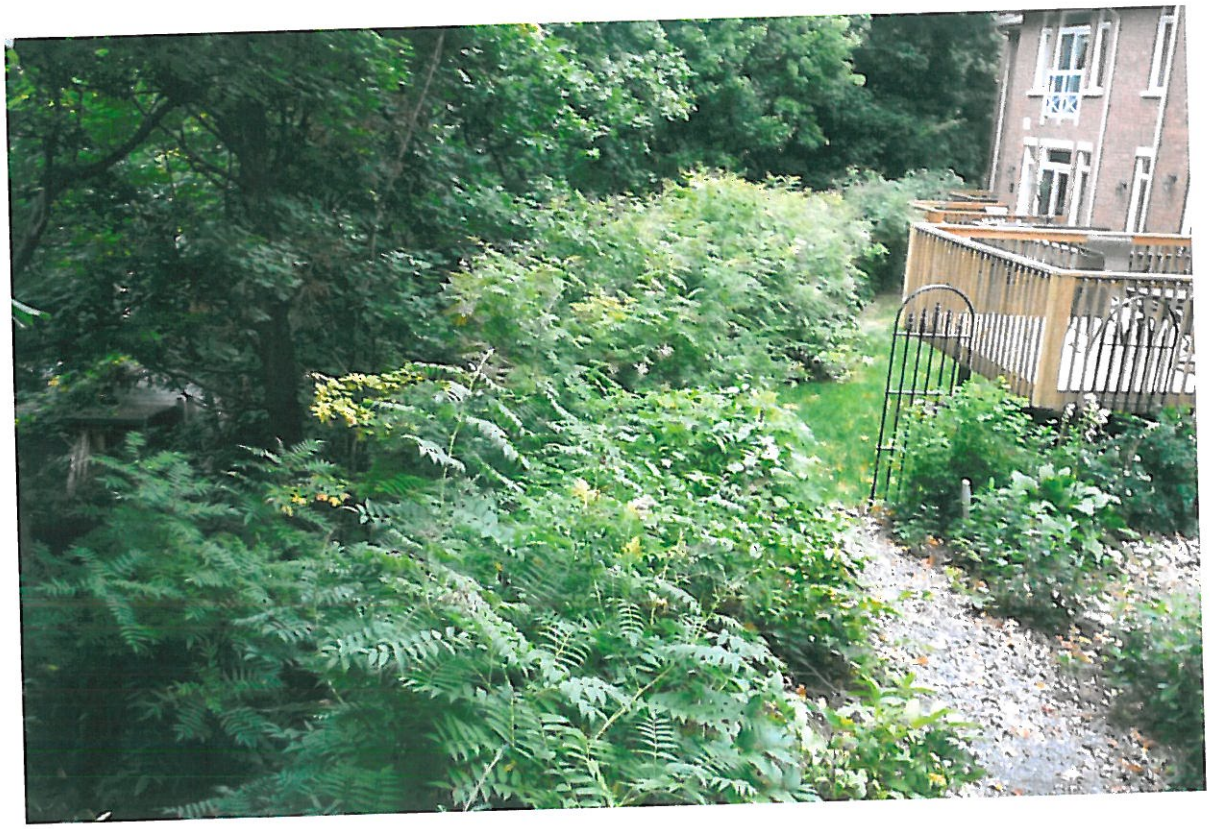

Photo of steep reinforced slope that was reconstructed at Claridge's 520 Queen Elizabeth Driveway project.

6.4.2.6 Mitigation

Certain mitigation measures will be required during the construction of the proposed project in order to protect adjacent properties, and the Rideau River shoreline environment:

- During the excavation of the subject site, shoring will be installed to support adjacent properties and prevent the undermining of foundations and landscaping.
- The demolition of the existing house will be done in accordance with standard industry practice. Normal protocols will be followed with respect to disconnection of services and disposal of debris.
- Erosion control measures will be installed and maintained near the toe of the slope, just above the water level, to protect the Rideau River from debris and runoff from the site.
- Removal of existing trees will be done in accordance with City of Ottawa EIS guidelines, Tree Conservation Bylaw, and Tree Conservation Report (Appendix 5) as it pertains to appropriate timelines in consideration of nesting season. In order to protect against the possible loss of nests, eggs, and/or young due to tree cutting or clearing of

vegetation, no clearing of vegetation will be done between April 15 and July 31 unless a qualified biologist has determined that no nesting is occurring within 5 days prior to the clearing.

- To protect against the loss of native biodiversity due to an ioncreased presence of non-native invasive species after development, the landscaping for the project will use locally appropriate native species to re-establish native vegetation along the disturbed edge (i.e. reconstructed slope) adjacent to the river.

- Planting of the new slope will be done immediately to encourage the early growth (and minimize erosion) and to provide shade at the shoreline as soon as possible.

- Any development within and in immediate proximity to the Rideau River such as shoreline stabilized work must include mitigation measures including timing of in-water work, effective sediment and erosion control, and searches of the site for potential turtles and snakes during appropriate weather conditions prior to any site alterations. This is especially important during the snapping turtle nesting season in June and early July. (Muncaster)

These measures will mitigate the effects of the site redevelopment on the existing built and natural environments.

6.4.3 Monitoring

Monitoring in the form of inspection and supervision will be required for the construction of the new slope to ensure that all work is done in accordance with the detailed engineering specifications and recommendations of the geotechnical engineer. This monitoring is expected to be done by Golder & Associates Ltd., with contributions from the proprietary company providing the engineered slope system.

The planting will be monitored periodically to ensure that the material is growing successfully. As part of the City's Site Plan process, the planting will be warranted, and replaced if required.

The erosion control measures at the toe of the slope (i.e. along the water's edge) will be monitored by Mr. Packman to ensure that the measures are working as designed. The measures will not be removed until the re-vegetation has been deemed to be successful, and there is no evidence of erosion occurring.

6.5 EIS Conclusion

This report has been prepared in support of an application to construct a building with a reduced setback to a watercourse, in accordance with the criteria set out in the City of Ottawa Official Plan and Zoning Bylaw, and to assess the impacts of the proposal on the natural environment.

In order to address the "Slope of the bank and geotechnical considerations related to unstable slopes, as addressed in Council's Slope Stability Guidelines for Development Applications in the City of Ottawa 2004", Golder & Associates Ltd. was retained, given their considerable expertise and experience in this matter. The conclusion of their assessment is that the existing steep slope is unstable, resulting in a Limit of Hazard Lands that extends close to Wurtemburg Street. The subsequent analysis of the proposed reinforced Mechanically Stabilized Earth system concludes that the slope would be stabilized, with adequate factors of safety being achieved. The proposed building setback from the water's edge to the basement of the building is minimum 10 metres.

In addressing "The nature of the abutting water body, including the presence of a floodplain" and "The need to demonstrate that there will be no negative impacts on adjacent fish habitat", the highly specialized consultant G.A. Packman & Associates was retained. The assessment of the fish and fish habitat concludes that the species that are present adjacent to the site, and in the main Rideau River channel, are common species that are well adapted to the river in its urban context. No species at risk are identified. The proposed redevelopment of the site may have some impacts that would vary according to the species, but an overall positive impact on the habitat is anticipated.

James B. Lennox & Associates Ltd. was retained to address the "Natural vegetation and the ecological function of the setback area". The assessment concludes that the existing buffer area on the subject site is a very small component of a much larger buffer system that abuts the Rideau River, however, that portion on the subject site is a low quality environment with invasive species inhabiting an unstable slope that allows erosion and sedimentation due to the complete lack of ground cover. The proposed redevelopment will support the larger ecological buffer along the Rideau River by stabilizing the slope, preventing erosion (into the river) with suitable ground cover and planting, fortifying the toe of the slope to prevent shoreline erosion, placing appropriate indigenous planting that is non-invasive that provide shelter and shade for wildlife. Planting near the shore will provide shade for the aquatic habitat and the rip-rap at the toe of the slope will provide opportunities for certain aquatic species that are important to the food chain. The redevelopment will restrict access to the slope and the shore to ensure that the re-vegetation and revitalized buffer are not compromised.

In accordance with the pre-requisite policy criteria, the subject site at 101 Wurtemburg Street is an existing lot in an established urban context; and redevelopment of the site, which is appropriate in the broad policy framework of the official Plan, would not otherwise be possible if the prescribed setbacks are not reduced.

The analysis of the proposed setback reduction to a minimum of 10 metres to the water's edge, in the context of the site plan application for a 18 storey building and reinforced MSE system, concludes that the setback is appropriate, and that the project can provide a net positive benefit to this part of the Rideau River edge.

This report recommends that the Conditions of Site Plan Approval provide that the setback be reduced as discussed herein, and that the existing unstable slope be reconstructed as a reinforced Mechanically Stabilized Earth system in accordance with geotechnical recommendations and detailed specification that will be developed upon further geotechnical consultation.

Overall, the conclusion of this Environmental Impact Statement is that all proposed impacts to the Natural Heritage System, the Rideau River and its greenway corridor function and the species at risk, can be mitigated to have no negative effect on the System. In addition, the proposed reconstruction of the sloped embankment of the river at 101 Wurtemburg should have a net positive impact on the System with the increased stability of the slope, the reinstatement of natural vegetation (and removal of the invasive species), the reduction in the amount of erosion by vegetating the new slope, and an improvement in the fish habitat along the shore immediately adjacent to the toe of the slope.

6.6 EIS Declaration

Report Prepared by:

Claridge Residential Inc.

James Burghout, B.Env. St., B. Arch, OAA, MRAIC

With significant contributions from:

Golder & Associates Ltd. (Mike Cunningham); Slope Stability Analysis and Geotechnical Analysis

G. A. Packman & Associates (Glen Packman); Fish Habitat and Rideau River biology

James B. Lennox & Associates Ltd (Jim Lennox); Landscape Architecture and ecological assessment of existing greenway corridor, and Tree Conservation Report

Muncaster Environmental Planning (Bernie Muncaster); Species at Risk assessment

I hereby certify that the information contained within this EIS is accurate and complete, to the best of my knowledge.

James Burghout, Claridge Homes

Appendices

Appendix 1: Slope Stability Report, by Golder Associates Ltd.

Appendix 2: Fish Habitat Analysis, By G. A. Packman & Associates

Appendix 3: Ecological / landscape assessment, by James B. Lennox & Associates Ltd.

Appendix 4: EIS: Species at Risk Assessment, by Muncaster Environmental Planning

Appendix 5: Tree Conservation Report, by James B. Lennox & Associates Ltd.