

November 10, 2020

Kyle Plas  
Department of Community Planning  
City of Burlington  
426 Brant Street,  
Burlington, ON L7R 3Z6

## BY EMAIL

Dear Kyle Plas:

**Re: Draft Plans of Subdivisions, Official Plan Amendment & Zoning By-law Amendment  
Eagle Heights and Taylor Lands  
City of Burlington  
Part of Lots 7, 8 and 9, Concession II and Part of the Unopened Road Allowance  
between Lots 7 and 8 (Eagle Heights Lands)  
Part of Lot 7, Concession I (Taylor Lands)  
Files: 505-12/04, 510-06/04, 520-23/04, 24T-04006B (Eagle Heights Lands)  
Files: 505-13/04, 520-24/04, 510-07/04, 24T-04007B (Taylor Lands)**

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Conservation Halton (CH) has reviewed the above-referenced applications and the associated studies (Appendix I). Comments are provided below and in the attached appendices (Appendix II and Appendix III).

CH's last formal correspondence on the above-referenced applications was provided to the City in a letter dated September 27, 2013. Since that time, CH has conducted numerous site visits to review and/or stake CH regulated features on the subject lands, as well staff has participated in meetings with the applicant, City and Region. The comments in this letter reflect those site visits/meetings, as well as CH's review of the most recent submission (items listed in Appendix I). This letter outlines CH's position on issues that remain outstanding and supersedes the comments in CH's previous letter.

### **General Comments (Ontario Regulation 162/06)**

1. Pursuant to Ontario 162/06, CH regulates all watercourses, valleylands, wetlands, Lake Ontario and Hamilton Harbour shoreline and hazardous lands, as well as lands adjacent to these features. The subject lands are traversed by Grindstone Creek and contain the flooding and erosion hazards associated with that watercourse. The lands also contain a wetland less than 2 hectares in size. CH regulates 15 metres from the greater of the limit of the flooding or erosion hazard and 30 metres from the limit of the wetland for these particular sites. Permission is required from CH prior to undertaking any development within CH's regulated area. No new development is permitted within CH's regulated area unless it can meet CH's *Policies and Guidelines for the Administration of Ontario Regulation 162/06* (<https://conservationhalton.ca/policies-and-guidelines>).
2. CH cannot support the conclusions of the flood plain analysis, slope stability assessment (SSA), geomorphic assessment or Environment Impact Analysis (EIA) until the comments in

Appendix II and Appendix III are satisfactorily addressed. Below is a general overview of CH's key concerns in this regard.

- a. CH's regulatory limits are not depicted accurately or not shown at all on some of the submitted plans and study figures/maps. The constraints mapping and other supporting documents currently show a 7.5 metre development setback from natural hazards and wetlands, which does not comply with CH's current regulatory requirements (refer to comment 1 above). Furthermore, constraint mapping has not been completed for confined valley systems (e.g., Main Grindstone Creek, Tributaries 5, 6, portions of Tributary 4) and unconfined valley systems (e.g., portions of Tributary 4, unnamed watercourse on the Taylor property, if deemed regulated).
  - b. The Hydrological Assessment does not demonstrate the proposed development will not exacerbate downstream flooding or erosion.
  - c. The SSA does not accurately depict the stable top of bank limits in all locations and there are areas where further assessment is required.
  - d. Although CH staff has completed stakings of most valley features and wetlands on the subject lands, there are a few areas that require staking by CH staff to determine/refine the limits of all regulated features in the study area, including:
    - Section of corridor within the Taylor lands east of Road X (Tributary 4-Reach 4-4)
    - Section of corridor east of Flatts Road extension (Tributary 5 West-Reach 5-5)
    - The lands within Niagara Escarpment Plan (NEP) Area, including the provincially owned hydro Right-of-Way (Main Grindstone Creek)
3. Once the comments above have been addressed, the constraint mapping/plans will need to be updated to include the following: topographic information; staked top of slope (including dates and agency that conducted staking); stable top of slope (as determined through an updated slope stability assessment); meander belt (as determined through an updated geomorphic assessment); and, regulatory flood plain (as determined through updated hydraulic analyses). The drawings should also be signed and stamped by an Ontario Land Surveyor (OLS) to confirm that the limits reflect those staked by the various agencies. Direction on specific updates to these plans is included in Appendix II and III.
  4. Once the constraint mapping is deemed satisfactory by all agencies, the submitted draft plans and other supporting documents will need to be revised to demonstrate that all natural hazards, natural heritage features and associated regulatory allowances, vegetation protection zones (VPZ) or buffers are contained within a publicly owned block and designated/zoned appropriately.
  5. There are inconsistencies among some of the technical reports that need to be rectified. For example, the SSA and Geomorphic Assessment employ a different approach for identifying the toe erosion allowance.

#### **Technical Advisory Comments (Region of Halton & CH MOU)**

6. The EIA needs to be updated to report to reflect current Provincial and Regional policy direction and standards, as natural heritage features and associated VPZ/buffers were not delineated using these standards.
7. A comprehensive natural heritage monitoring and management plan should be included for the subject development proposal to ensure that natural features and functions are protected/maintained.

## **Additional Comments**

6. CH has also reviewed a related NEC Development Permit application (H/R/2018-2019/239) and the technical studies submitted as part of that application are the same as those submitted as part of the above-referenced Planning Act applications. The comments in this letter are consistent with those provided on the NEC Development Permit application.
7. In accordance with CH's Fee Schedule, these applications are subject to a review fee of \$210,023.80 [2020 Fee Schedule; Eagle Heights property review \$148,185.80 & Taylor property review \$61,838.00 for a total fee of \$ \$210,023.80]. Any review fees previously submitted to CH may be deducted from this amount.

We trust that the above is of assistance. Should you have any questions, please contact the undersigned at extension 2228.

Yours truly,

A handwritten signature in black ink that reads "Kellie McCormack". The signature is written in a cursive, flowing style.

Kellie McCormack, MA, MCIP, RPP  
Associate Director, Planning & Regulations  
Planning & Watershed Management

Encl. Appendix I: Materials/Technical Reports Reviewed  
Appendix II: Reach Specific Comments  
Appendix III: Report Specific Technical Comments

C.C. Adam Huycke, Region of Halton  
Konstantine Stavrakos, O'Connor MacLeod Hanna  
Nancy Mott, Niagara Escarpment Commission

**Appendix I: Materials/Technical Reports Reviewed:**

- Figures 1 through 11: 2007 Eagle Heights Draft Plan with 2015 Dripline and Top of Bank as Staked Out: prepared by Metropolitan Consulting; dated July 2016, received by CH on August 12, 2016
- Slope Stability Assessment - Proposed Residential Development Eagle Heights Waterdown Road; prepared by Soil-Mat Engineers Ltd.; dated: March 2018, received by CH October 10, 2018
- Eagle Height Geomorphic Assessment; prepared by Matrix Solutions Inc.; dated August 2018; received by CH on October 10, 2018
- Environmental Impact Assessment – Eagle Heights Burlington; prepared by Savanta; dated August 2018; received by CH October 10, 2018
- Wetland Water Balance Addendum to EIA; prepared by Metropolitan Consulting; dated December 17, 2018; received by March 5, 2019
- Eagle Heights Property - Functional Servicing Report (Book 1 and 2); prepared by Metropolitan Consulting; dated August 2018; received by CH March 5, 2019
- Eagle Heights Property – Hydrologic Study and SWM Report; prepared by Metropolitan Consulting; dated August 2018; received by CH October 10, 2018
- Hydrogeologic Assessment; prepared by Terra-Dynamics; dated October 25, 2018; received by CH March 5, 2019
- Planning Justification Report; prepared by Metropolitan Consulting; dated August 2018; received by CH October 10, 2018
- Eagle Heights Draft Plan of Subdivision – 24T-04006/B; revised date August 2018; received by CH on March 5, 2019
- Taylor Lands Draft Plan of Subdivision – 24T-04007/B; revised date August 2018; received by CH on March 5, 2019

## Appendix II: Report Specific Technical Comments

**NOTE: The technical studies submitted as part of the Planning Act applications are the same studies submitted as part of NEC Development Permit application H/R/2018-2019/239. As such, the comments in this letter are consistent with the comments provided on the NEC Development Permit application and cover areas within and outside of the NEP Area. The technical studies will need to be updated comprehensively and satisfactorily before CH can accept the findings of the reports.**

### Hydrological Study and Stormwater Management Report

**1. Figure 8 (Page 24):** The proposed SWM Strategy should be revised to align with the Waterdown Road EA that was prepared for this drainage area (Waterdown Road Class Environmental Assessment, prepared by Delcan, December 2012).

**2. Section 7.3 - Modelling Results and Application for Post Development (Page 104-111):**

- a) While CH supports the use of Low Impact Development (LID) / Best Management Practices (BMP) and lot level controls to achieve quality control for the development, these facilities can only be credited if they are located within the City's right of way.
- b) The proposal relies on privately-owned SWM facilities for quality and quantity control. Confirm with the City if this approach and proposed location of the SWM facility is acceptable.

**3. Section 7.3 - Modelling Results and Application for Post Development (Page 104-111):**

In the absence of an updated Subwatershed Study; the hydrologic analysis must be extended to the downstream confluence of Tributaries 4, 5 and 6 with the Main Grindstone Creek and include:

- a) Drainage Area Balance - The total drainage area contributing to each proposed outlet compared to existing conditions. All reasonable efforts should be made to maintain existing conditions drainage divides, balancing contributing drainage areas at each outlet (pre to post development).
- b) Peak Flow Rate Assessment - An assessment of interim and ultimate hydrologic impacts at each outlet compared to existing conditions. This assessment should evaluate proposed conditions without stormwater management as well as proposed conditions with stormwater management in place.
- c) Erosion Control Assessment - An evaluation of the potential erosional impacts downstream of the proposed development. The assessment should extend to, at minimum, the downstream confluence of Tributaries 4, 5 and 6 with the Main Grindstone Creek

**4. Figure 36 (Page 107):** Subdivide channel routing elements in the proposed conditions model schematic to accommodate the drainage modifications under proposed conditions (i.e., breaks at proposed outfalls, etc.).

**5. Section 5.0 - Stormwater Management (Page 26):** CH supports the LIDs proposed in the design. However, the attribution of 'full' storage volumes calculated for the proposed bio-retention swales to the quantity control volumes cannot be supported, as bio-retention swales are not considered storage features.

6. **Table 14 - Summary of Proposed SWM Facilities and Storage Volumes (page 29):** As the super pipes and bio retention facilities are sloped, storage volumes may be overestimated. Consider the slope when sizing and modeling (where applicable) these features.
7. **Section 5.0 - Stormwater Management (Page 31-54):** -There are several discrepancies between the Draft Plan and the impervious coverage calculations included within Tables 15 to 32. For example, Table 15 identifies twenty-eight (28) single detached units of 60m<sup>2</sup> footprint for Subcatchment 406; however, there are no single detached units with a 60m<sup>2</sup> footprint within this subcatchment on the Draft Plan. Revise calculations and hydrologic modelling to reflect the proposed Draft Plan.
8. **Section 5.0 - Stormwater Management – Figure 12 (page 46):** SWM facilities must be located outside of CH's regulation limits. Revise Figure 12 to identify CH's regulation limits and relocate SWM facilities to an area outside these limits.
9. **Section 6.3 - Model Calibration/Validation:** Efforts taken to calibrate/validate the hydrologic modelling are commendable. However, additional analysis to quantify the accuracy of the modelling is required. Specifically, an analysis of peak flow rates (modelled versus observed) as well as total runoff (modelled versus observed) must be provided for each of the simulated/observed rainfall events to assess whether the model's calibration/validation is acceptable.
10. **Section 8.0 - Water Balance Assessments, Table 49:** Water balance results are inconsistent with documented onsite soils and groundwater conditions (e.g., the results show that the least amount of baseflow (mm of precipitation) is within Tributary 6 catchment). This is inconsistent with 1) the Terra-Dynamics Consulting Inc. Hydrogeological Assessment report which identified groundwater discharges in Tributaries 5 and 6, and 2) Figure 6 of the SWM report, which shows silty sand deposits at surface covering most of Tributary 6 catchment as opposed to other catchments. The model calibration figures for Tributary 6 (Figure 22 and Figure 28) suggest that the model under predicts the amount of infiltration. The GAWSER model used for water balance and erosion assessment needs to be checked and simulated runoff and baseflow needs to accurately represent site conditions.
11. **Section 8.0 - Water Balance Assessments, Table 50:** A pre- to post-development reduction of 47% (92mm vs 49mm) in baseflow within Tributary 6 has been documented without any clarification. To maintain pre-development baseflow in Tributary 6 and avoid negative impacts on the aquatic habitat, coordination is needed among the technical reports. The assessment should quantify how LID measures will offset any reductions in infiltration resulting from the proposed works. The pre to post-development water balance results can be used to estimate infiltration reduction within the catchment and then used as a target volume for the design of LID measures (refer to comments under Section 11, Low Impact Development). Infiltration targets should be set for each catchment and LID measures designed to meet these targets.
12. **Section 9.0 - Erosion Assessment (Pages 116-122):** An assessment of cumulative effective work (pre to post) in the erosion analysis is needed.
  - a) **General Comment:** Identify which hydrologic node was used for determining results in the erosion assessment (Table 52).
  - b) **Reach Assessment** - Include an assessment of Tributary 5 East (Reach 5-6), and Tributary 5 South (Reach 5-2) in Table 5 to confirm erosion risks have been addressed.
  - c) **Section 9.1: Erosion Assessment: Table 52 (page 118):** An increase in erosion risk for Tributary 4 at Flat Road (Reach 4-4) or Tributary 4 at Panin Road (Reach 4-1a) is not

supported. Revise the SWM strategy to meet the erosion control objectives for ALL reaches.

- d) **Section 9.2: Erosion Assessment in Event Based Modelling (page 119):** The bio-retention cells' storage should be included within the hydrologic modelling but not their infiltration benefits. Clarify the report to indicate that the GAWSER model applies this approach.
- e) **9.2 Erosion Assessment in Event Based Modelling (page 118):** Figures 37, 38, 39 and 40 identify a notable difference in hydrograph shape post development (compared to pre). Specifically, post development hydrographs indicate a prolonged duration of erosional flows and increased peak flow rates. Refine the SWM strategy to eliminate these differences.

### **13. Section 10.0 - Flood Inundation Mapping (Page 123)**

- a) Reference the source of topographic data used for model creation (e.g. Topographic Survey, SWOOP 2002, etc.) on the drawings, as well as the data's vertical datum (e.g. 1928 or 2013). Use consistent information for both hydrologic and hydraulic modelling.
- b) Revise cross section alignment within the model and on the figures in accordance with standard modelling techniques (ref. HEC-RAS User Manual).
- c) Revise the methodology used to define bridges, bank stations and the Manning's roughness coefficient in accordance with standard modelling techniques (ref. HEC-RAS User Manual).
- d) Use the Regulatory flow rate (i.e. greater of 1:100 Year or Regional Storm) to define the regulatory floodplain limits. Only Regional Storm Control Ponds, designed to the satisfaction of CH, can be included within the Regulatory Hydrologic Model.

### **Hydrogeologic Assessment**

- 1. **Section 8.1 - MAS2-1 Pond:** The wetland is characterized as mainly surface water fed with a minimum groundwater contribution. Include a discussion of pre to post conditions and impacts to wetland functions and appropriate mitigation measures, as necessary.
- 2. **Section 8.3 - MAM2-10(b) and Figure 8:** Figure 8 shows groundwater flow towards the MW2-10(b) wetland. Groundwater level response to precipitation in monitoring well MW 5 and MW6 suggests that there is recharge in the area. Provide mitigation measures to maintain local recharge and groundwater flow toward the wetland. While LID measures are proposed within the catchment, it is not clearly demonstrated that they are sufficient for the protecting the wetlands or that they are consistent with the SWM report.

### **Eagle Heights Property City of Burlington Functional Servicing Report**

- 1. **Drawings - Figure 1-2 and Figure 1-3:** Update to reflect all approved constraint limits.
- 2. **Drawings - Preliminary Grading:** Add proposed grading limits and regulation limits to the proposed grading drawings (ref. Figures: 4-1, 4-2, 4-3, 4-4, 4-5, 4-6 and 4-7). Clearly identify grade changes within Conservation Halton's regulation limit.
- 3. **Drawings - Grading (General Comment):** Permit(s) will be required to undertake proposed grade alterations within Conservation Halton's regulation limits.
- 4. **Section 2.7.1 - Safe Conveyance Analysis (Page 20):** Access and egress must be re-visited once all outstanding hydrologic and hydraulic modeling issues have been resolved.

5. **Section 2.7.2 - Flat Road Tributary Crossings (Pages 20-22):** Identify whether the watercourse is to remain in its current location or if realignment is proposed.
6. **Section 2.7.3 - Flat Road Tributary Crossings (Pages 20-22):** Incorporate culvert type, size and design recommendations provided by the Fluvial Geomorphologist and as discussed in the EIA. For example, a 750 mm diameter concrete Pipe is proposed for the Flatt Road Crossing at Tributary 4, whereas a 3.9-metre wide culvert was recommended by the Fluvial Geomorphologist.
7. **Section 2.7.3 - Flat Road Tributary Crossings (Pages 20-22):** A 900 mm and 1050 mm culvert has been proposed for the Flatt Road Crossing at Tributary 5 West and Tributary 5 east respectively; however, Figure 2-4 identifies culvert sizes are still to be determined. The reporting and drawings must be consistent.
8. **Section 3.2 - Stormwater Management (Page 28):** An additional subsection to the report identifying CH and City requirements and considerations for stormwater management facility outlets is requested. An update to Sections 3.2.2 through 3.2.8 to include a discussion outlining how each Sub-Area's outlet meets the requirements/considerations is also requested.
9. **Section 3.2.5 - Sub-Area 6 (Page 48):** Include a discussion of the requirements for the Sub-Area 6 wet pond and that Figure 3-10 or Figure 12 be modified to demonstrate the proposed pond block can meet these requirements (e.g. not within CH's Regulatory Limits).

### **Slope Stability Assessment Proposed Residential Development Eagle Heights**

1. **General Comment:** As presented, the assessment's findings are not supported. A revised submission addressing the following comments is required:
  - a) The Slope Stability Assessment needs to be extended to include the following confined valley systems:
    - The western limit of reach 4-4 to the east of Road X
    - The western limits of reach 5-5 adjacent to lot 105
    - Reach 6-3 through Block 1
    - The eastern side of the Main Grindstone Creek, west of Horning Road and the proposed Horning Road extension
  - b) Include all borehole information utilized to interpret soil stratigraphy in the report.
2. **Section 5 - Top of Stable Slope (page 7):** This report and the Geomorphic Assessment (Matrix, August 2018), identify a different approach for the toe erosion allowance(s). These reports must be coordinated and revised, such that a consistent approach is applied.
3. **Drawings No. 1 and 2:**
  - a) Define slope sections at the slopes' critical sections (steepest). Staff are unable to confirm critical sections have been used based on the drawings provided. Drawings at an appropriate scale (e.g. 1: 2 000) are required. It is recommended that these drawings follow a similar format to the figures contained within the Functional Servicing Report (Metropolitan, August 2018) e.g. Figure 4-2.
  - b) Drawings must be sealed by a qualified professional (e.g. Professional Engineer or Geoscientist).
  - c) These drawings must identify:



- Borehole Locations
- Drawing Scale
- Contours
- Parcels
- Watercourses and watercourse features
- Physical Top of Bank (as staked by CH)
- Calculated Stable Top of Bank Limits

4. **Section 4 - Slope Conditions and Stability Assessment (Page 6):** The minimum factor of safety identified for Profile Y-Y was 1.35 for typical groundwater conditions. Conservation Halton requires a minimum safety factor of 1.5 for an active land use application under normal groundwater conditions; a minimum safety factor of 1.3 is acceptable for short term conditions (e.g. elevated groundwater).
5. **Section 4 - Slope Conditions and Stability Assessment (Page 5):** The 1.4 m to 1 m (H:V) stable slope inclination identified for shale embankments can be supported. It is understood that slope failures within rock embankments occur on irregularly shaped failure planes and the analyses provided in the report (circular slip surfaces) are not applicable in these circumstances. Additional discussion regarding the failure modes for rock/shale embankments within the revised report to support the analysis provided is requested.
6. **Section 5 - Top of Stable Slope (Page 9):** Where an existing slope is stable (as identified via a SSA) the physical top of slope is the stable top of slope. Modify the last sentence of this section - the top of stable slope cannot be taken from anywhere along the slope.
7. **General Comment - Slope Profiles:** For several slope profiles, the source of the soil stratigraphy used is unclear as no boreholes were identified within a reasonable proximity. The slope stability report must discuss recommendations from the Ontario Ministry of Natural Resources (OMNR) Principles for Stable Slopes (Terraprobe, June 1998) concerning maximum spacing for boreholes along slope crests. The report must discuss the number and location of boreholes provided and justify there are enough boreholes for the purposes of this analysis.

### **Eagle Heights Geomorphic Assessment**

1. **Rapid Geomorphic Assessment (Page 5):**
  - a) Provide field sheets and/or calculations used to determine the RGA Index scores.
  - b) Provide drawings identifying locations of the relevant reach cross-sections.
2. **Section 3 - Toe Erosion Allowance (pages 7-8):** The toe erosion allowance included within this assessment is not supported.
  - a) Toe erosion allowances are not influenced by adjacent land uses. Revise 'Table B'.
  - b) The Technical Guidelines – River and Stream Systems: Erosion Hazard Limit (MNR, 2002) identify different criteria when a stream is undergoing active erosion. Discuss and consider when recommending toe erosion allowances.
  - c) Recommendations from the Grindstone Creek Subwatershed Study (Cosburn Patterson Wardman Ltd, 1995) with regards to toe erosion allowance must be discussed within this assessment. Justify deviations from the recommended approach.

- d) This report's toe erosion assessment is not consistent with that defined by the SSA (Soil-Mat, March 2018) and must be consistent approach among the reports.
3. **Section 5 - Reach 4-6 Conceptual Channel Realignment (page 11):** Update the report to include details about how hydraulic roughness was determined for each reach.
  4. **Section 8.1 - Methodology and Results (Pages 12-14):** Include data sheets and analyses to support the D<sub>50</sub> Soil particle size defined for each reach. Critical shear stress calculations should be included within the report.
  5. **Section 8.1 - Methodology and Results (Pages 12-14):** Identify the recommended approach for assessing erosion within the subject reaches. The selected methodology (e.g. duration of exceedance, cumulative effect of work, etc.) should determine targets for the erosion assessment.
  6. **Section 8.1 - Erosion Threshold Assessment (Page 12):** Undertake a broader assessment of the downstream reaches to support the proposed development.
  7. **Section 9 - Watercourse Crossings (Page 14):**
    - a) Except for Crossing 5, the geomorphological recommendations are acceptable. A reassessment of Crossing 5 is requested considering the potential for daylighting of the downstream watercourse (i.e. assume the current piping is not permanent).
    - b) Additional justification is required to support a deviation from recommended geomorphic sizing criteria.
    - c) Watercourse crossing recommendations should align with those in the EIA and FSR.
  8. **Meander Belt Assessment:** Extend the meander belt assessment to include the unconfined portions of reach 4-2 behind Lots 31,32, and Block L (Taylor Draft Plan, 2018). CH's regulatory policies define unconfined system as "where the watercourse is not located within a valley corridor with discernable slopes, but relatively flat to gently rolling plains and is not confined by valley wall. The watercourse can contain perennial, intermittent or ephemeral flows and may range in channel configuration, from seepage and natural springs to detectable channels. Within Conservation Halton's watershed, all valleys less than 2 metres in height are consider unconfined systems."
  9. **Appendix A – Various Photographs (Pages 1- 13):** Pertinent natural features are not identifiable within the photographs provided due to snow/ice cover. A revised photographic inventory is requested.

### **Eagle Heights Environmental Impact Assessment**

1. The EIA needs to be updated to report to reflect current Provincial and Regional policy direction and standards. Further, natural hazards, natural heritage features and associated regulatory allowances, vegetation protection zones (VPZ) and/or buffers must be delineated using current policy standards. The limits of the NHS (or future publicly owned creek block) must be based on the greater of the 30m from key natural heritage features or 15m from the flooding or erosion hazard limit from all Grindstone Creek tributaries.
2. The EIA needs to consider the findings and recommendations from the other submitted technical reports (e.g., wetland water balance assessment, the hydrogeological assessment, the fluvial geomorphology assessment). Impact assessments and mitigation measures

presented in other technical studies should be assessed to identify any potential ecological impacts.

**3. Section 3: Environmental Settings and Characteristics:** Data is missing. The EIA should be revised to ensure that the site is appropriately characterized as follows:

- a) Include a table with all the species data from all of the years surveyed. This can be in an appendix but it should be accessible so that so that it is clear how decisions on significance were determined.
- b) Update the discussion and Figure 12 to indicate all the habitat that may be used by Eastern Wood Pewee and Wood Thrush. Currently it is limited to only a small location on the subject lands, whereas the Grindstone Creek valley is continuous and would provide suitable habitat for these species.
- c) Complete bat surveys in non-agricultural areas associated with polygons 13 and 14. Table 16 of the appendix indicates that these cavity density surveys at these locations were undertaken in non-suitable habitat (i.e., agricultural lands).
- d) Provide methodology for Bat Point Counts and location selection sites.
- e) Revise the discussion on tributaries 4 and 5 to note their presence on the Taylor Lands.
- f) Revise the HDF characterization and assessment to remove all regulated watercourses from the assessment.
- g) Revise the SWM for Amphibian Breeding (Woodland) on Figure 12 to reflect the direction of the SWH Ecoregion Criteria Schedule.
- h) Include a discussion of the potential groundwater seepage identified in the TerraDynamics report as it pertains to Significant Wildlife Habitat.
- i) Include results of discussions with MECP regarding Species at Risk and their associated habitat. We defer comment on surveys and results to MECP.
- j) Include all SWH potentially present on the site identified in the appendix, in the SWH section and in the summary of ecological components.

**14. Section 5 - Proposed Development (page 52):** As noted above, the limits of the NHS need to reflect the greater of the 30m from key natural heritage features or 15m from the flooding or erosion hazard limit from all Grindstone Creek tributaries. Revise this section and ensure that no development is proposed in this block.

**4. Section 6 - Impact Assessment, Avoidance and Mitigation Measures (page 59):** The impact assessment did not consider all potential impacts of this proposed development. The following is needed to determine the limits of development.

- a) Discuss potential impacts to Significant Wildlife Habitat as it relates to Eastern Wood Pewee and Wood Thrush and the proposed removal of 6.68ha of woodland.
- b) Update the EIA to reflect new information obtained after the EIA was last revised as some relevant information has not been considered in the document. For example, the findings of the wetland water balance assessment and functional servicing report were not included in the EIA. Develop mitigation measures, where appropriate.
- c) Update the species at risk (SAR) section with any direction provided by the MECP on the ESA requirements.

- d) Provide alternative mitigation measures for the proposed woodland removals. The vegetation protection zones of the Greenbelt Plan NHS should be planted with self sustaining vegetation, as per the direction of that Plan and is not considered as compensation for the proposed woodland removals.
  - e) Discuss the impact of road profile changes along Flatt Road and include additional mitigation measures for the valleys. The FSR indicates that in some areas the profile will increase by 2m, which should be addressed in the EIA.
  - f) Discuss servicing in further detail, such as the potential impacts of the servicing easement originating on the church property, impacts to regulated features and the associated NHS.
  - g) Provide an impact assessment and any relevant mitigation measures of the adjacent lands of significant features, in order to maintain their ecological form and function of those features.
  - h) Include mitigation measures for restricting work during sensitive wildlife life stages such as breeding and migration.
5. **Section 7 - Predicted Net Effects and Monitoring (page 72):** Provide a comprehensive monitoring and adaptive management plan for the proposed development and associated LIDs. Adaptive management will be critical for this site, should the LIDs not function as designed.
6. **Phasing:** Provide a discussion on the phasing of the development. The FSR provides two phases but only details two of the sub-areas. The EIA does not address phasing.

#### **Wetland Water Balance Addendum to EIA**

1. Revise the EIA and wetland water balance for the wetland on the Taylor Lands. Details on the pre, interim and post development conditions and associated mitigation measures need to be established in order to determine the development areas and any required mitigation.
2. The EIA refers to a potential split in the flows of a drainage swale to the wetland on the Taylor lands. However, this split is not discussed in the wetland water balance document or within the FSR. Revise the reports to ensure a comprehensive and consistent approach and provide details regarding the drainage swale and any other required mitigation.
3. The information presented in this Addendum does not accurately reflect features that are considered regulated by CH, pursuant to Ontario Regulation 162/06. For example, some regulated watercourses are shown as unregulated headwater drainage features (HDFs). Regulated features should be contained within a municipally owned creek block and not combined with parks and/or other amenities.

### Appendix III: Reach Specific Comments

**NOTE:** The technical studies submitted as part of the Planning Act applications are the same studies submitted as part of NEC Development Permit application H/R/2018-2019/239. As such, the comments in this letter are consistent with the comments provided on the NEC Development Permit application and cover areas within and outside of the NEP Area. The technical studies will need to be updated comprehensively and satisfactorily before CH can accept the findings of the reports.

The following table provides a summary of the status of features, including outstanding comments regarding the establishment of limits of regulated features. The naming convention outlined in the Matrix Solutions report (August 2018) was used to identify each feature except for the wetland located on the Taylor Lands. The wetland feature is included in the Tributary 4 section.

<b>Tributary</b>	<b>Reach</b>	<b>CH regulated feature</b>	<b>Constraints Plan Requirements</b> (i.e., items that must be revised and shown on plans)	<b>Comments</b>
Tributary 4	Reach 4-2	Regulated watercourse / confined valley, with exception of portion of reach behind Lot 31, 32 and Block L, which is unconfined	<ul style="list-style-type: none"> <li>• Update meander belt limits based on assessment</li> <li>• Update physical top of slope line based on CH staking in 2015</li> <li>• Update stable top of slope limits based on Slope Stability Assessment (SSA)</li> <li>• Update regulatory flood hazard limits based on updated modelling</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	A meander belt assessment is required for the unconfined portions of this reach; specifically, east of Lots 31, 32 and Block L.
	Reach 4-4	Regulated watercourse / potential confined valley	<ul style="list-style-type: none"> <li>• Update physical top of slope line based on future CH staking (as necessary)</li> <li>• Update meander belt limits based on assessment</li> <li>• Update stable top of slope limits based on SSA</li> <li>• Update regulatory flood hazard limits based on updated modelling</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	Based on a review of the information provided this reach may be confined. A site visit is required to evaluate and potentially stake this feature as there may be implications with the alignment of Road X. Additionally, a slope stability assessment may be required where the valley's embankments are steeper than 3:1 (H:V). This will be confirmed following the site visit.
	Reach 4-5	Regulated watercourse /	<ul style="list-style-type: none"> <li>• Update meander belt limits based on</li> </ul>	A separate creek block independent from the park block (Block TT) should be

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		unconfined valley	assessment <ul style="list-style-type: none"> <li>• Update regulatory flood hazard limits based on updated modelling</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	established to include the regulated watercourse, associated hazards and allowances.
	Wetland	Regulated wetland/ less than 2 ha in size	<ul style="list-style-type: none"> <li>• Update limits of wetland based on CH staking in 2014</li> <li>• Depict 30m regulatory setback from the identified wetland</li> </ul>	
Tributary 5 East	Reach 5-6 (north of Flatts Road)	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>• Update physical top of slope based on CH staking in 2015</li> <li>• Update stable top of slope limits based on SSA</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	
Tributary 5 West	Reach 5-4	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>• Physical top of slope based on CH staking in 2015</li> <li>• Update stable top of slope limits based on SSA</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	
	Reach 5-5 (Upstream of Flatt Road to Street C)	Regulated watercourse / confined and unconfined valley	<ul style="list-style-type: none"> <li>• Update meander belt limits based on assessment</li> <li>• Update regulatory flood hazard limits based on updated modelling</li> <li>• Update physical top of slope line confirmed through future site visit by CH</li> <li>• Update stable top of slope limits based on SSA</li> <li>• Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	<ul style="list-style-type: none"> <li>• The physical top of slope was staked along this reach in 2015. Based on a site visit in the fall of 2017 and additional information provided in the geomorphic assessment, it is acknowledged that this reach varies between a confined and unconfined system. As such, CH staff is willing to revisit the site to confirm the extent of the confined system. Prior to the site visit a scaled topographic plan needs</li> </ul>

Tributary	Reach	CH regulated feature	Constraints Plan Requirements (i.e., items that must be revised and shown on plans)	Comments
				<p>to be provided, which includes the previously staked top of slope, the limits of the meander belt, and regulatory flood hazards. The previously staked top of slope must be identified in the field and an OLS needs to be present.</p> <ul style="list-style-type: none"> <li>The EIS identifies a portion of this reach (T5A1) as a headwater drainage feature. This classification must be changed, as this is a regulated watercourse.</li> </ul>
	Reach 5-5 (Block S and Upstream)	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>Update physical top of slope based on CH staking in 2015</li> <li>Update stable top of slope limits based on SSA</li> <li>Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	The SSA has not evaluated any slope sections for this reach. A slope section should be provided in the vicinity of lot 105. A SSA will be required where the valley's embankments are steeper than 3:1 (H:V).
Tributary 6 East	Reach 6-3	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>Full extent of the physical top of slope based on CH staking in 2015</li> <li>Update stable top of slope limits based on SSA</li> <li>Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	<ul style="list-style-type: none"> <li>The EIS identifies a portion of this reach (T6A1) as a headwater drainage feature. This classification should be changed, as this is a regulated watercourse.</li> <li>The physical top of slope along the east side of Block I was staked with CH in 2015 and should be included on the drawings.</li> <li>The SSA has not evaluated any slope sections from this reach. A slope stability assessment will be required where the valley's embankments are steeper than 3:1 (H:V).</li> </ul>

Tributary	Reach	CH regulated feature	Constraints Plan Requirements (i.e., items that must be revised and shown on plans)	Comments
				<ul style="list-style-type: none"> <li>Block I is considered valley lands and should be identified as such on the draft plan.</li> </ul>
Tributary 6 West	Reach 6-4	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>Modify extent of the physical top of slope</li> <li>Update stable top of slope limits based on SSA</li> <li>Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	<p>The physical top of slope was staked in 2015. However, there is a discrepancy between the constraints plan and the staked limits from the surveys prepared by Metropolitan Consulting; dated July 2016; provided to CH on August 12, 2016 (Figure 10 – Sub-area 7). Specifically, the valley limits at the southernmost point of Block E should extend further west on the constraints plan.</p>
Main Grindstone Creek	Lands west of Street A and west of Horning Rd outside NEP	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>Update physical top of slope line based on CH staking in 2015</li> <li>Update stable top of slope limits based on SSA</li> <li>Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	
	Lands within the NEP (hydro corridor north)	Regulated watercourse / confined valley	<ul style="list-style-type: none"> <li>Update physical top of slope line based on a CH staking</li> <li>Update stable top of slope limits based on SSA</li> <li>Depict 15m regulatory allowance from greatest identified natural hazards</li> </ul>	<ul style="list-style-type: none"> <li>The physical top of slope has not been staked by CH staff for this area. A site visit is required to stake the features within this area.</li> <li>The SSA has not evaluated any slope sections from this reach. A slope stability assessment will be required where the valley's embankments are steeper than 3:1 (H:V).</li> </ul>