CASTLEGROVE SUBDIVISION

GANANOQUE ON

PREPARED FOR:

COOMBE CUSTOM HOMES

PRELIMINARY STORMWATER MANAGMENT REPORT

EASTERN ENGINEERING GROUP INC.

APEX BUILDING

100 STROWGER BLVD, SUITE 207

BROCKVILLE, ON

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STORM DESIGN BRIEF

The Castlegrove Subdivision is part of a previously approved subdivision including the currently developed areas of MacDonald Drive, Conner Drive and Arthur Street. The proposed works will be completed in several future phases as dictated by the demand for housing.

The Phase 1 of the Castlegrove Subdivision will be Wilmer Avenue. The stormwater flow from the Phase 1 development will flow through the municipal storm sewer as per the previous MOE Certificate of Approval. The rear yards runoff will be collected in rear yard catch basins and enter the storm mains through side yard easements.

Based on the topography, the existing drainage is overland to the south east towards the St. Lawrence River ultimately. The existing sewer network on MacDonald outlets through Arthur to a long grassed outlet swale as designed and installed during the previous phases of the subdivision.

The site will be developed as an urban subdivision, with storm drainage provided by sewers and catchbasins. There will be a future storm retention basin constructed in the centre of the subdivision in the proposed green space area. This will be an area which is used for quantity and quality control naturally with the use of best management practices, including enchanced swales with low slope and vegetation. The Town will direct the developer on what controls they prefer to use for quality control. The outlet from the park area will be the existing storm sewers on MacDonald.

Servicing Criteria

The following summarizes the stormwater design criteria for the Casltegrove Subdivision as provided by Cataraqui Region Conservation Authority:

- Stormwater quantity control to be provided so that the post-development peak flow during the 1:2 year to the 1:100 year recurrences are limited to those under

pre-development conditions, in accordance with MOECC Stormwater Planning and Design Manual (SMPDM) and Design Guidelines for Sewage Works, herein referred to as the Design Guidelines.

- Quality control to be provided to meet a Ministry of the Environment and Climate Change (MOECC) Normal Level of Protection (i.e., minimum 70% total suspended solids (TSS) removal).
- Runoff coefficients (C-factors) for the development calculated in accordance with the MTO Drainage Management Manual.

Phase 1 of the development (Wilmer Ave) will not have any quantity or quality control added to the original approved design from the existing C of A. The future phases of the subdivision will be designed under a new ECA including stormwater management for the site to meet the Town of Gananoque requirements.

Quantity Control

The future phases of development of stormwater management objective for quantity control will be met by providing on-site storage to limit post-development peak flows to pre-development levels.

This will be designed to have a retention basin in the park area which will have outlet control in place to limit the amount of water leaving the basin to meet pre-development guidelines.

Quality Control

A Normal Level of water quality control will be provided through the use of lot level and conveyance best management practices to provide 70% total suspended solid (TSS) removal.

Various methods for providing stormwater quality control are included in the MOECC Design Manual (2003). Table 4.1 of the manual summarizes the physical characteristics for different stormwater management practices.

From Table 4.1, the stormwater management practices that would be appropriate give the subdivision soil conditions, topography and site area are:

- Grassed swales
- Vegetated filter strips
- Infiltration trench and basin
- Reduced lot grading
- Retention basin

Runoff from the developed areas on the site will be treated through a series of SWM practices.

Train of Best Management Practices

The following train of best management practices (BMP) will be implemented on the Castlegrove Subdivision, and these BMP's are expected to provide the requisite level of water quality control (70% TSS removal)

- Roof leaders will be directed to grass surfaces.
- The grading of each lot will be done so the runoff from the roof leaders and driveways is directed to grassed swales on the lots.
- Swales will be constructed per MOE specifications for water quality treatment. They will be constructed with low slopes to promote infiltration (0.2-1.0%).
- No in or near water works will take place between March 15th and June 30th of the construction year.
- Construction of a dry detention basin in the park area for future phases. The dry pond will be used to store water from the larger storm events that the storm sewers cannot handle. The design of the dry detention basin will allow for water to infiltrate over a longer period (Design Manual 4.6.5 24 hour detention time).

SEDIMENT AND EROSION CONTROL

The following erosion and sediment control measures will be implemented during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987).

- Before proceeding with any area grading the silt fence must be constructed where indicated.
- Silt control fence shall be installed where shown and maintained until the completion of the landscaping.
- Accumulated silt to be removed off site prior to removal of the silt control fence.
- Contractor to clean adjacent roads on a regular basis to the satisfaction of the Town.
- The silt fence must be inspected weekly and immediately after rainfall events for rips or tears, broken stakes, blow outs (structural failure) and accumulation of sediment. The silt fence must be fixed and/or replaced immediately when damaged. Sediment must be removed from silt fence when accumulation reaches 50% of the height of the fence.
- Upon completion of landscaping all sediment and erosion control measures shall be removed.
- No construction activity or machinery shall be beyond the silt fence.

The Contractor shall be responsible for monitoring and maintaining the sediment and erosion control facilities until re-vegetation is complete.

The Sediment and Erosion Control Plan shall be considered a 'living document' that may need to be changed or adjusted during the life of the project to be effective.

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