TOWN OF KINGSVILLE DEVELOPMENT MANUAL




Please note that amendments to the Development Manual are common. Accordingly, all information contained herein should be confirmed with the Municipality.

Consolidated: January 2024

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The Corporation of the Town of Kingsville
Development Standards Manual

FOREWORD

This manual is a dynamic document which recognizes the Municipality's desire to implement innovative design within the built environment based on the principles of the "Healthy Places, Healthy People" mandate of the IMPCC (Inter-Municipal Planning Consultation Committee). The Municipality encourages all those interested in shaping the physical, visual, environmental and social elements of the community to read the mandate in its entirety as provided in Appendix A to this document.

"Healthy Places, Healthy People" is a Statement of Principles supporting an improved quality of life within the Windsor -Essex County Region through better design of the natural and built environment. The principles call for improved design standards which can contribute towards healthier lifestyles, compact built form, mixed use development and energy efficiency within the community.

The inclusion of the statement within the Development Standards Manual is an indication of Council's recognition of the importance of the following elements within the Town of Kingsville:

- Energy efficient development and design
- Balanced transportation systems which provided equally for auto, pedestrian, active transportation and transit friendly environments
- Protection and enhancement of natural features
- Human Scale environments
- Local Architecture and Cultural Significance
- Importance of public places and a sense of community
- Liveable Neighbourhoods
- Provision of a range of housing and employment opportunities.

Council's responsibility to the community is stated within the Municipality's Mission Statement to be "…We value our heritage and are committed to growth and renewal in a way which will ensure our small-town, friendly atmosphere while enhancing our environmental sustainability" and is reflected in its support of the "Healthy Places, Healthy People" mandate of the IMPCC.

It is hoped that the development community will acknowledge the unique character of the Town of Kingsville and find this a useful document in contributing positively to improving the built environment in which they are investing.

REVISIONS

The following table summarizes the revisions to this manual since its adoption on February 17, 2003. Please ensure your manual is up-to-date and you have all revisions. If you are uncertain, call the Clerk's Department of the Municipality.

REVISIONS (DATE/NO.)	**DESCRIPTION**	**PAGE NUMBERS REFERENCE**
June 21, 2004 C93-2004	4.1.4 – Sidewalks	25
June 21, 2004 C93-2004	4.6 – Recreational/Park Sites	31
Administrative change	4.1.10 – Tree Planting	27
Administrative change	4.1.4. – Sidewalks	25
Administrative change	4.7.8 - Parking and Access Area Req't	33
August 31, 2004	Development Charges By-law 64-2004	Appendix D
April 23, 2007 Res. 277-2007	4.1.4 – Sidewalks	25
May 12, 2008 Res. 431-2008	2008 Consolidated Development Standards Manual	-
October 01, 2008	A "Standby" Municipal Letter of Credit.	Appendix G
November 2010	2010 Consolidated Development Standards Manual	-
April 2011	Standard Detail Updates	Appendix E
July 2020	Per Council Motion, removed any reference to allow developers to delay sidewalk construction. Also included scenarios in which	Various Pages

	sidewalks could be removed from new development in Section 4.1.4.	
January 2024	Per Council Motion, added new Section 5.8.1 – Lighting Guidelines for Site Plan Applications. Standard Details S4 and S12 also updated.	Various Pages

1.0 INTRODUCTION

This Development Standards Manual affects all lands within the Town of Kingsville and is intended to guide new development, as well as re-development of the existing built form.

The Development Standards Manual was produced to clearly establish the standards by which all development, including residential, commercial, industrial, institutional and recreational land uses will proceed and to streamline the development process for all involved. Development within the Town of Kingsville must comply with the specifications provided within the text and appendices of the manual, however the municipality will consider alternatives for unique situations upon being reviewed for its own merits and approved by Council.

The Development Standards Manual should be read in conjunction with the policies of the Official Plan and the regulations contained within the Zoning By-laws and other applicable municipal by-laws. It is anticipated that more specific design guidelines may be derived in the future to assist the Town in creating a desirable and sustainable environment.

This Development Manual refers to Ontario Provincial Standard Drawings (OPSD) and Specifications (OPSS). Unless noted otherwise in the revision Section of this manual, the latest editions of these documents apply. Nothing in this manual shall supersede the requirements of senior levels of government (Provincial, Federal) or intended to conflict with the requirements of other agencies including the Essex Region Conservation Authority (ERCA), Ontario Hydro, Union Gas, Cable Networks and Bell Canada. Kindly report any conflicts to the Municipality.

Throughout the remainder of this document, the *Corporation of the Town of Kingsville* will be referred to as the Municipality.

Any suggestions on improving this document should be forwarded to the Municipality to the attention of the Director of Municipal Services.

2.0 DEVELOPMENT REQUIREMENTS PRIOR TO CONSTRUCTION

2.1 DEVELOPMENT AGREEMENTS

All developments must be designed and constructed in accordance with the requirements of this Development Manual and the corresponding Development Agreement.

The Development Agreement will set out specific requirements for each development. Where in conflict, the Development Agreement will supersede the requirements of this manual.

The Development Agreement will be prepared by the Municipality.

No work can proceed in the development until the agreement is executed by both parties and all financial securities and insurances are provided.

Flow charts illustrating the steps in the development process for zoning by-law amendments, official plan amendments and plan of subdivision are included in Appendix B.

A typical Development Agreement is included in Appendix C. This typical Development Agreement should be used for format only. Specific details of each Development Agreement will be set out as part of the process as outlined in this manual.

2.2 APPROVALS

Developers are required to obtain all necessary approvals. Typically, multi-lot creation will proceed under the Plan of Subdivision process for applications where four or more new lots will be created. In limited cases, multi-lot creation may proceed by severance where lot frontages for new lots currently exist on a public road and if approved by Council.

The following is a partial list of approvals that are required. Developers should contact the various approving authorities to ascertain permit fee, approval fees and required time periods to obtain these approvals. The development cannot proceed until these approvals are received and copies of the approvals have been filed with the Municipality.

PARTIAL LIST OF APPROVALS	APPROVING AGENCY
Draft Plan of Subdivision	Corporation of the County of Essex
Final Plan of Subdivision	Corporation of the County of Essex
Fish Habitat	Federal (Administered by ERCA)
Shorelines, Fill and Floodlines	ERCA (Essex Region Conservation Authority)
Storm Water Management	Province, MOE; ERCA
Storm and Sanitary Sewers	Province, MOE

Watermains	Corporation of the Town of Kingsville
County Road Connections	County Engineer
Provincial Road Connections	Province, MTO
Watermain & Water Use	Union Water System

2.3 PLANS

All draft plans shall be neatly drawn to scale. The boundaries of the development shall be staked and certified by an Ontario Land Surveyor. A reproducible copy of the plan shall be submitted, as well as an electronic copy. The draft plan shall also show sufficient ground elevations, referenced to geodetic elevations, to identify the drainage patterns. Physical features of the site and abutting lots should be shown. These physical features include drainage ditches, swales, municipal drains, trees, poles, roads, shorelines, buildings, etc.

The requirements for design and servicing drawings are described in the following subsection.

2.4 DESIGN DRAWINGS

All development documents shall include design and servicing drawings.
Drawings shall be prepared in accordance with the guidelines entitled "Guidelines, Professional Engineers Providing Land Development/Redevelopment Engineering Services, 1994".
In general, the drawings shall be on "C" size paper (550mm x 850mm), shall be signed and sealed by a Professional Engineer licensed in Ontario, and shall include the following:

i. Benchmark Location and Description (referred to geodetic elevations)
ii. Key Plan
iii. Legend and Index
iv. Existing Conditions and Removals
v. Road Alignment, Road Elevations, Pavement Widths
vi. Plan and Profile Sheets
vii. (showing road grades, sewer grades, watermain grades, manhole locations)
viii. Utility Cross Subsections
ix. Grading Plans (including lot grading)
x. Power Distribution and Road Lighting Plans
xi. Miscellaneous Details (including bedding and backfill)

The drawings shall refer to Ontario Provincial Standard Drawings wherever applicable, except as amended or extended by the Municipality's requirements.

2.5 SPECIFICATIONS AND CONTRACT DOCUMENTS

All development documents shall include specifications and contract documents prepared in accordance with the "Guidelines, Professional Engineer Providing Land Development / Redevelopment Engineering Services, 1994".

Specifications and contract documents shall be prepared on 8½ x 11 paper, single or double sided printing, neatly bound with a cover clearly describing the particulars of the development. The first sheet shall include the date, name and telephone number of the Consulting Engineering firm who prepared the documents.

The specifications and contract documents shall include the following:

i. Information to Tenderers
ii. Form of Tender
iii. Form of Agreement
iv. Special Provisions
v. Technical Specifications
vi. General Conditions

The specifications and contract documents shall refer to the Ontario Provincial Standard Specifications wherever applicable, except as amended or extended by the Municipality's requirements.

2.6 STUDIES AND REPORTS

Specific developments may require the completion of special studies and reports prior to the Municipality granting approval for the development. Special studies and reports may also be a requirement of the approving authorities such as the Province or Conservation Authority.

The costs of these studies shall be borne by the Developer.

Partial lists of studies that have been required in the past include:

- Traffic Impact Studies
- Storm Water Management Studies (including quality control)
- Noise and Vibration Studies
- Archaeological Studies
- Fill and Floodline Studies
- Environmental Site Assessments
- Fish Habitat Mitigation Studies
- Geotechnical Reports

Developers are also advised that certain proposed works to be undertaken by Developers may be subject to the requirements of the Environmental Assessment Act. Contact the Ministry of the Environment for further details.

2.7 CONSULTING ENGINEER

All Developers shall retain a Consulting Engineer (consultant) who shall design all services and provide full-time, on-site inspection during the installation of the services.

The consulting engineering firm shall be so designated by the Association of Professional Engineers of Ontario and have a minimum of five years of land development experience. All reports, drawings and specifications shall be signed, sealed and dated by a Professional Engineer licensed in the Province of Ontario and employed by the consulting engineering firm or personally designated as a Consulting Engineer.

The Consulting Engineer must carry Errors and Omissions Insurance in the minimum amount of $2,000,000. The Consulting Engineer must indicate, in writing, to the Municipality, that they intend to renew their insurance policy on an annual basis.

The Consulting Engineer shall be responsible to carry out the design of all services including the:

- preparation of design drawings
- preparation of specifications and contract documents
- preparation of studies and reports
- assistance in obtaining approvals
- full-time, on-site inspection during service installation
- preparation of field records
- chairing and preparing minutes of pre-construction meetings and regular job meetings
- co-ordination of the installation of other utilities (gas, bell, cable tv)
- preparation of revised drawings
- preparation of lot grading sheets
- attendance at the final inspection meeting

2.8 INSURANCE AND INDEMNIFICATION

Developers shall provide liability insurance to protect the Municipality. Developers shall ensure that their consultant, sub-consultants, and general contractors also carry liability insurance.

The liability insurance shall:

- be provided in a form satisfactory to the Municipality
- be for a minimum amount of $2,000,000
- name the Municipality as an additional insured
- name the Municipality's consultants as additional insured
- have a termination date extending 90 days beyond the anticipated completion date (substantial and final completion)
- have an automatic notification to the Municipality by the Insurer, advising the Municipality that the insurance will end in 90 days

Notwithstanding the limits of the insurance, the Developer shall indemnify the Municipality

against all or any claims or losses arising out of this development.

The Municipality may consider accepting the general contractor's insurance in fulfilment of this requirement provided the Developer is named as an additional insured.

2.9 SURETIES

2.9.1 PERFORMANCE

To ensure due and proper performance of the work, Developers are required to provide cash, an irrevocable Letter of Credit or a Subdivision Bond, each of which must be in a form satisfactory to the Municipality, in an amount equal to 50% of the value of the works.

The value of the securities to be provided shall be based upon the full amount of construction costs including storm-water management facilities, street lighting, any off site servicing and other commitments under the development agreement (landscaping, fencing, etc.) all including taxes. If there is no tender, the Consulting Engineer shall provide an estimate of the value of the work. The Municipality reserves the right to verify the value of the work and amend the Consulting Engineer's estimate accordingly. The Consulting Engineer's estimate as amended by the Municipality shall be used for establishing the amount of the securities.

The securities held by the municipality will not be reduced until a written request to the Director of Municipal Services is submitted by the Developer and all deficiencies for any phase of development have been addressed to the satisfaction of the Municipality.

2.9.2 MAINTENANCE

Start of maintenance period to be determined by the Municipality after inspection of completed works and completion of all outstanding works and deficiencies noted at the inspection (See Section 3.5). Separate maintenance periods for parts of the works may be considered by the Municipality if the remainder of the works cannot be completed in a timely manner due to reasons beyond the Developer's control.

Unless otherwise noted in the development agreement, Developers are required to provide security in the form of cash or an irrevocable Letter of Credit or a Subdivision Bond or a combination of the aforementioned, each of which must be in a form satisfactory to the Municipality, in an amount equal to 25% of the value of the works. The maintenance period shall be one year after the final completion of all services.

The securities held by the municipality will not be reduced until:

1) all deficiencies for any phase of development have been addressed to the satisfaction of the Municipality,
2) 75% build out of the development has been achieved, and
3) a written request to the Director of Municipal Services is submitted by the Developer's Consulting Engineer.

2.9.3 OTHER

Developers shall note that if the Municipality agrees and/ or requests that some of the work be delayed (i.e., surface asphalt), performance securities for 100% of the outstanding works will be retained, in addition to a 10% maintenance security. The value of the maintenance security can be reduced to cover only the outstanding value of the delayed work once the maintenance period for the work that was not delayed has expired.

2.10 EASEMENTS AND RIGHT-OF-WAYS

Developers shall provide all easements to the Municipality as the Municipality deems necessary. The Developer shall retain the services of an Ontario Land Surveyor to prepare all reference plans.

No permanent structures including trees, fences and shrubs but excluding driveways, shall be placed on right-of-ways or easements. Exceptions may be made for fences on side and rear lot lines where there are no restrictions for storm water management or other servicing easements with the written approval of the Director of Municipal Services. The Municipality will not be responsible to restore any permanent structure located on easements, except for driveways. Any trees, shrubs or landscaping structures will not be restored.

Developers shall submit to the Municipality a copy of all signed purchase/sale agreements for the lots which clearly states the conditions being encumbered on the easements on the purchased lot and the Municipality's unrestricted rights to enter upon the easements to maintain, repair or replace municipal services.

2.11 OVERSIZING AND OFF-SITE COSTS

In order to ensure that development in the Municipality proceeds in an orderly and cost effective manner, Developers may be required to oversize municipal services to accommodate future developments. Oversizing includes larger pipe diameter and increased depths, increased road widths and sidewalk widths, power distribution and other services.

As well, Developers may be required to complete off-site works in order to facilitate development. Typical off-site works include trunk sewers to a suitable outlet, watermain connections to a suitable feeder, road widening, intersection improvements, traffic signal installation and downstream drainage works.

The Developer's Consulting Engineer will provide an estimate of the oversizing and off-site costs. The Municipality will establish the cost sharing method to be used in attributing oversizing and off-site costs.

2.12 DEVELOPMENT CHARGES

In order to finance the construction of trunk municipal services, the Municipality will assess development charges to each buildable lot or unit. These development charges are payable at the time building permits are issued.

Development charges are amended from time to time and are approved by Council. Developers should contact the Municipality for information regarding the current development charge amounts.

2.13 PARK FEES

Developers will be required to pay park fees in accordance with the Municipality's Official Plan and Park Fee Policy. Developers should contact the Municipality for information regarding the current Fees By-law and Park Fee Policy.

The park fee, when taken in lieu of land, for multi-lot development created through the consent process will be required prior to the stamping of the deeds. Park fees for lots created through a registered Plan of Subdivision will be payable as defined in the development agreement.

2.14 PHASING

The Municipality acknowledges that developments may proceed in phases. Prior to the commencement of construction, the Developer shall submit, for municipal approval, a phasing plan. The Municipality's approval of the phasing plan will be based on the following criteria:

- Fire fighting protection (All dead-end streets shall have turn-arounds and shall meet the requirements of the OPSD. Temporary dead-ends shall not exceed 250m in length measured to the end of the cul-de-sac.)
- Extending trunk facilities to adjacent developments in a timely manner.
- Minimizing the municipal maintenance costs such as snow ploughing.
- Completing the municipal road network.
- Deficiencies for each phase must be completed to the satisfaction of the Municipality, prior to proceeding with the next phase in the development.

2.15 PRE-CONSTRUCTION MEETING

No later than seven days before construction is to commence, the Developer's Consulting Engineer shall call and chair a pre-construction meeting. The Consulting Engineer, general contractor and municipal representatives must attend.

It is also desirable to have the Developer and the Consulting Engineer's site inspector and representatives from the various utility companies in attendance. The meeting shall

include but not be limited to the following items:

- status of contract documents
- submission of insurance certificates, irrevocable Letter of Credit, Bonds and Work Place Safety Insurance Board clearance
- Ministry of Labour notification
- supervisory staff
- emergency telephone numbers and home telephone numbers
- construction access routes
- schedule
- noise and dust control
- municipal inspection notification
- suppliers and subcontractors
- specific project items
- preconstruction survey/ photos
- traffic control/ detouring
- schedule of site meetings

The Consulting Engineer will provide minutes of meetings to all municipal representatives in attendance within one week from the meeting date.

All contractors performing work within the municipal right-of-way are required to acknowledge their responsibilities under the Municipal Drinking Water Licence (MDWL) and the Drinking Water Works Permit (DWWP). During the pre-construction meeting, a copy of the MDWL and DWWP will be provided to the developer and general contractor. Both documents must be readily accessible on-site at all times. Please refer to Appendix P for the “Municipal Drinking Water Licence and Drinking Water Works Permit”.

3.0 GENERAL REQUIREMENTS DURING AND IMMEDIATELY AFTER CONSTRUCTION

3.1 PUBLIC AND AGENCY NOTIFICATION

Prior to the start of construction the Consulting Engineer shall arrange to notify all public agencies and emergency response agencies of the impending start date and completion date of the project. As well, the Consulting Engineer shall notify all abutting property Owners of the impending construction. The following information shall be included in the notification:

- brief description of project
- construction start date
- scheduled completion date
- temporary road closures
- contact people from the Contractor and Consulting Engineer, including their phone numbers

The following is a partial list of agencies that should be notified (See Appendix M):

- Fire Department
- Ambulance Service
- Police Department
- School Boards (Bussing)
- Essex Region Conservation Authority
- Ministry of Labour
- Sewage Treatment Plant Operators
- Water Treatment Plant Operators
- County Engineer (re County roads)
- Ministry of Transportation (re Provincial roads)
- Canadian Coast Guard (re: Navigable Waters)

3.2 JOB MEETINGS

The Consulting Engineer shall chair and prepare minutes of construction site job meetings. Meetings are to be held at two-week intervals unless the Municipality agrees that a longer interval is acceptable.

The Consulting Engineer's project manager or project engineer and the site inspector along with the contractor's project manager and job superintendent (or foreman) shall attend the job meetings. Minutes shall be distributed within one week of the meeting date.

3.3 CONSULTANTS INSPECTION AND QUALITY ASSURANCE TESTING SERVICES

The Consulting Engineer shall provide full-time on-site inspection services during the construction activity. The Inspector's skills shall be suitable for the inspection tasks to be undertaken. The Municipality reserves the right to request a change to the consultant's inspector if the Municipality believes the inspector is not qualified.

The Consulting Engineer's site inspector shall ensure that the work is constructed in accordance with the contract documents and shall keep adequate records of the work.

As a minimum, the following documents are to be prepared by the site inspector:

- diary indicating daily progress of work, labour and equipment on site
- measurement of pay items
- discussions with general public and agency representatives
- accidents
- as-built records

The Consulting Engineer shall arrange for quality assurance testing by an independent testing firm. Tests shall include:

- granular material sieve analysis
- engineered fill
- asphalt extraction
- compaction tests, granular, asphalt
- concrete, compressive, air content, and slump tests
- sewer pipe tests for storm and sanitary, shall be as follows:
  Sewer Testing
  Sanitary - all sanitary sewer pipe to air tested to OPSS 410.
  Storm - all plastic pipe 900 mm or less in diameter to be air tested
  - all concrete pipe larger than 900 mm will visually inspected from the inside (video's acceptable).
- videos taken at time of completion or final inspection. A second video is to be taken at the time of acceptance.
- sewer camera inspections including private drain connections
- watermain pressure testing as follows:
  Watermain Testing
  - all watermains to be pressure tested in accordance with OPSS 701.07.22. Test pressure shall be 1035 kPa (150 psi) maintained continuously for a period of 2 hours. Water must be added as required to maintain the test pressure for the entire 2 hours. Allowable loss in the test section for any test regardless of length of pipe tested is the calculated allowable loss for the largest section between any 2 mainline valves only. (The intent of this is so that a test is not conducted on all of the pipe in an entire development with associated large allowable loss. The entire development can still be tested, but the allowable loss is restricted to what is allowed from

one section of pipe only).

Watermain Swabbing and Disinfection

- The watermain must be swabbed and disinfected prior to pressure testing. If the pressure test fails, the swabbing and disinfection must be repeated. Swabbing and chlorination must be carried out in accordance with current M.O.E. requirements.

- deflection testing (plastic sewer pipe) (pig test) to OPSS 410
- hi-pot tests of electrical distribution system
- other tests called for in the contract documents

Two copies of all test certificates shall be neatly bound, indexed and provided to the Municipality at the time the as-built drawings are submitted.

3.4 MUNICIPAL INSPECTION

The Municipality will carry out its own independent inspection as deemed necessary. As a minimum, the Municipality will inspect the subgrade excavation, granular base prior to placing curbs, granular base prior to asphalt paving, and testing of watermains and sewers. The Consulting Engineer will give the Municipality 48 hours notice prior to these inspections. Should sufficient notice not be given, and the Contractor proceeds with the work, the Municipality will not accept the services without further testing, which may include total or partial removal of pavement or curbs, etc. This additional testing will be at the Contractor's expense. It is therefore imperative that the Contractor's schedule be made available to the Municipality at the job meetings, and the Municipality be promptly advised of any changes to this schedule.

3.5 MUNICIPAL ACCEPTANCE OF SERVICES AND ASSUMPTION OF DEVELOPMENT

Once completed, the Developer will be required to transfer Ownership of the services to the Municipality. This is a two step process as outlined below.

Once the services are installed, the Consulting Engineer will request in writing to the Director of Municipal Services, to have the development placed on the one year maintenance period. The Director of Municipal Services or delegated municipal manager will inspect the development. The start of the maintenance period is to be determined after all deficiencies are corrected and the Director of Municipal Services endorses "initial acceptance of the services" and that the maintenance period may begin. The maintenance period shall extend a minimum of one year from the date of the Municipality's letter confirming initial acceptance of the services.

During the maintenance period, it will be the Developer's sole responsibility to maintain all the services including clearing catchbasins, maintaining settlements and plowing snow.

Within 30 days prior to the expiration of the maintenance period, the Consulting Engineer is to arrange for a field inspection by the Municipality, Contractor and Consulting Engineer. All sewers shall be flushed clean and video inspected. Catchbasins shall be cleaned and

all settlements repaired prior to the municipal inspection. Provided there are no outstanding deficiencies and all development agreement requirements have been satisfied, including payment of all accounts and the receipt of a statutory declaration that all accounts have been paid, the Director of Municipal Services endorses the assumption the development. The Director of Municipal Services will notify the Planning Department that the Municipality is in a position to assume the development and Planning will prepare a by-law to transfer ownership of the road and services to the Municipality. Upon final reading of the By-Law the Developer is no longer obligated to maintain or repair the services.

From time to time, the Developer or the Municipality may request that not all services be installed prior to requesting "acceptance of services" by the Municipality. For example, surface asphalt is normally delayed to minimize damage during house construction. Should some of the services be delayed, the acceptance and assumption of these services will be based on the completion of these particular services and the expiration of the maintenance period for these particular services. In this case, there will be more than one acceptance date of the services and more than one assumption date of that portion of the development. Financial securities will require time extensions to not less than 90 days beyond the anticipated date of the Director of Municipal Services' assumption of the development.

3.6 MAINTENANCE PERIOD

The maintenance period shall be one year from the date of the Municipality's notification confirming initial acceptance of the services by Council resolution, or until all deficiencies have been repaired to the satisfaction of the Municipality, whichever is longer. In the case of a major deficiency such as excessive road settlement, an additional one year maintenance period may be required.

Installation of surface asphalt may be delayed for one year or longer to allow for settlement of the road base. Surface asphalt is to be placed at the end of the maintenance period.

At the end of the one year maintenance period subject to all deficiencies being resolved, the Municipality may assume the underground services, sidewalk, and curb and gutter prior to the construction of the surface asphalt. The base asphalt will not be accepted until the surface asphalt is placed. Any repairs required to the base asphalt prior to placing the surface asphalt are the responsibility of the Developer.

Sufficient securities are to remain in place to cover the cost of the surface asphalt until it is constructed and surface asphalt will have a separate one year maintenance period.

The maintenance security and liability insurance must remain in force for the duration of all maintenance periods, but may be reduced as parts of the project are assumed by the Municipality.

The Developer is obligated to perform all maintenance and repairs to the services during

the maintenance period including snow removal and street cleaning of mud and debris. In the event the Municipality is required to carry out snow removal or street cleaning the cost will be charged against the security deposit.

3.7 CLEAN-UP

The Developer shall maintain the construction site in a neat and tidy manner including during the maintenance period. Dust shall be controlled by wetting or establishing vegetative ground cover. Debris blown off the site shall be cleaned up on a daily basis. All mud and dirt tracked off-site shall be cleaned frequently and at least once a day.

The decision of the Municipality regarding clean up shall be considered final. Should the Developer and his Contractor not clean-up in a timely manner, the Municipality will arrange to have the work done by others, or its own forces, and will invoice the Developer for its costs.

3.8 LOT SERVICING SHEETS/ REGISTERED LOT CREATION DRAWINGS

The Consulting Engineer shall provide copies of lot servicing sheets and registered lot creation drawings (i.e. m-plans, r-plans). Two paper copies of each (lot servicing and registered lot creation drawings) neatly bound, shall be submitted to the Director of Municipal Services, Chief Building Official, and one electronic copy on CD, as per the requirements in Section 7.0. The lot servicing sheets shall show final lot grades, referenced to a local benchmark (for example top of curb fronting the lot), and the location and elevation of lot services (storm, sanitary, water). If available, the municipal address should also be included. All grades shall be geodetic.

Lot Servicing Sheets must be submitted within 60 days from the date of Council's "acceptance of the services".

The form of the lot servicing sheets is included in Appendix E. Blank copies are available from the Municipality.

3.9 CONSTRUCTION RECORD DRAWINGS

Construction Record Drawings shall be prepared by the Consulting Engineer showing the as-constructed location of all services. Wherever possible, underground utilities located relative to property lines shall also be located relative to surface features. The Construction Record Drawings drawings shall be dated and noted “Construction Record” or “As Constructed”.

Two sets of prints and one copy in electronic format (CD/DVD Disk) shall be provided to the Director of Municipal Services. Construction Record Drawings must be submitted within 60 days from the date of Council's "acceptance of the services".

3.10 BUILDING PERMIT ISSUANCE

In accordance with the requirements of the Ontario Building Code, construction cannot commence on any buildings until a building permit is issued. This is Provincial legislation administered by the Chief Building Official. The Municipality does not have the authority to waive this Provincial legislative requirement. Building permits will not be issued until such time as Council has endorsed "initial acceptance of services" as outlined in Subsection 3.5.

In order to issue building permits for other than model homes, the Municipality's Chief Building Official must have a complete set of documents and be assured that the buildings have full municipal services (including base asphalt, fire fighting access, potable water, heat, power, and streetlights) which have been accepted under maintenance, as per the requirements of Section 3.5.

Developers are cautioned that the Chief Building Official will not be in a position to advise that building permits are available until:

- lot servicing sheets have been submitted.
- registered lot creation plans have been submitted.
- Council has concurred with "initial acceptance of services".

If Construction Record drawings have not been submitted within 60 days from the date of Council's "initial acceptance of services", the Chief Building Official will not continue to issue building permits.

3.10.1 PLANS AND SPECIFICATIONS

Sufficient information shall be submitted with each application for a permit to enable the Chief Building Official to determine whether or not the proposed construction, demolition or change of use will conform with the Ontario Building Code Act, The Ontario Building Code and any other applicable law. Each application unless otherwise specified by the Chief Building Official, must be accompanied by two complete sets of plans and specifications required under this law. Plans shall be drawn to scale on paper, cloth or other durable materials, shall be legible and, without limiting the generality of the foregoing, shall include such working drawings as set out in of the Municipality's Building By-law, unless otherwise specified by the Chief Building Official.

3.11 MODEL HOMES

The Chief Building Official may issue building permits in advance of the completion of all required works for the greater of either not more than four dwellings or ten percent of the total dwelling units in any particular phase of a development provided:

a) the base coat of asphalt has been installed, to the satisfaction of the Director of Municipal Services (or designate), in the road allowance in front of and abutting the lot for which the building permit is being sought; and
b) it is determined from a review of the approved plans by the Director of Municipal Services (or designate) that there is no conflict between the activity

that would result from the building permit being issued and the installation of various utilities in the utility corridor; and

c) confirmation from all available utilities requiring plant within the right of way of intent to service the subject development; and
d) a surveyor's certificate has been received by the Municipality pertaining to the lot for which the building permit is being sought; and
e) the requirements of Section 3.8 must be met with respect to model home lots.
f) it is clearly noted on the building permit that occupancy of the dwelling unit will not be permitted until the Developer has completed all required works, except the top coat of asphalt, to the satisfaction of the Director of Municipal Services (or designate) and that all Agreements to Purchase affecting the subject property will provide a notice regarding the restriction pertaining to occupancy. Such notice will be required on all Agreements to Purchase until such time as the required works, excluding the top coat of asphalt, are completed to the satisfaction of the Director of Municipal Services (or designate); and
g) a letter is received from the Developer confirming support for the building permit issuance.

4.0 SPECIFIC SITE DEVELOPMENT REQUIREMENTS

4.1 GENERAL

Unless noted otherwise in the Schedule "C" of the Development Agreement, the Municipality will require full municipal services for all developments. These services on the right-of-way or within easements shall include:

- Asphalt paved roads
- sidewalks
- concrete curb and gutter
- precast concrete catchbasins with cast iron frame and grates
- road subdrains
- concrete or PVC pipe storm sewers
- PVC pipe sanitary sewers
- precast concrete manholes with cast iron frames and covers, safety landing and aluminium ladder rungs
- PVC pipe watermains with cast iron fittings and/or plastic fittings, valves and fire hydrants with Storz couplings
- private service connections including storm and sanitary PDC's, and copper water services
- underground power distribution with pad mounted transformers
- street lighting poles and fixtures as approved
- all other available services requiring plant within the right of way including telephone, cable TV and gas
- proposals shall include details for water metering as required.

4.1.1 RIGHTS-OF-WAY

Rights-of-way shall be 20 metres wide. The Municipality may accept 15 metre wide rights-of-way with 2.5 metre easements on each side for utilities on cul-de-sac streets and "P Loop" streets.

Cul-de-sacs, P Loops and other single access roadways shall be permitted when they are 150 metres or less in length measuring from the intersecting right of way to the end of the cul-de-sac or the farthest extent of the single access road. Cul-de-sacs in Industrial areas will be assessed on the site specific criteria (i.e. road length, emergency access, servicing etc..).

Multi-residential development (semi-detached dwellings, townhouses) will not be encouraged on cul-de-sacs.

For collector roads, right-of-way widths shall be increased to a minimum width of 22 metres.

For arterial roads, contact the Municipality.

Active transportation elements are to be incorporated into right-of-ways where possible and as deemed appropriate by the Director of Municipal Services.

4.1.2 PAVEMENT WIDTHS

The road width for local urban roads shall be 8.6 metres (measured between face of curbs).
The road width for semi-urban roads shall be 8.5 metres (measured edge of pavement to edge of pavement).

The private road widths for condominium type developments shall be 8.6 metres (measured between face of curbs). For collector roads, the road width shall be 8.6 metres. For arterial roads, contact the Municipality. Face of curb is at location shown on OPSD-600.040 (see Appendix E).

The basic street pattern including street widths, number of access locations, turning lanes and intersection signalization shall be identified through a traffic study carried out by the Developer's Consulting Engineer or a subconsultant experienced in traffic engineering.

Developers are encouraged to contact the Municipality early in the process to determine whether a traffic study is required pursuant to the Transportation Impact Study Guidelines in Appendix K.

4.1.3 MINIMUM TURNING RADIUS

Unless specifically noted otherwise and approved by the Municipality, all intersection streets shall have a minimum radius of 9 metres at the edge of pavement. Cul-de-sacs on local residential streets shall have a minimum radius of 12.0 metres at the edge of pavement. P-loops on local residential streets shall have a minimum radius of 12.0 metres measured at internal edge of pavement.

4.1.4 SIDEWALKS

The Municipality requires that sidewalks be located on both sides of all arterial roads, collector roads and local roads, including cul-de-sacs, “P” loops, and crescents. Sidewalks shall be 1.5 metres wide (1.8 metres wide if they abut the curb). All sidewalks shall have a brushed finish complete with tooled edges and joints, dummy joints at a maximum of 1.8 m and a full expansion joints at a maximum of 18.0 metres or 10 sections of sidewalk.

Sidewalks may be removed from cul-de-sacs pending the cul-de-sac is less than 150 meters in length measured from the nearest intersection to the outer limits of the cul-de-sac bulb. Cash-in-lieu of any removed sidewalk will be paid to the Town.

Sidewalks may be removed from new developments pending there are no connections to existing sidewalks in adjacent developments. Further, this removal will only be considered if extreme conditions would prevent the Town from installing connecting sidewalks in the adjacent development. Examples of these conditions include:

- A narrow boulevard with no curb and gutter.

- An abundance of mature trees requiring removal.
- Major conflicts with utilities or storm water management systems.
- Major fluctuation in lot grading.
- Right of Way to narrow to accommodate sidewalk.

The Developer shall install all sidewalks at the time of the acceptance of the maintenance period for underground services and road construction (up to base asphalt). Developers will be responsible to maintain and repair damaged sidewalks, regardless of who caused the damage, for two years from the Municipality's acceptance of services or until 75% of the homes are completed in that phase of the subdivision, whichever occurs first.

The developer shall post and maintain signage on all streets, indicating the location of the sidewalks, prior to the Municipality's acceptance of services. One sign shall be required for every 25 lots. The developer shall also include sidewalks on the lot grading sheets submitted to the Municipality, prior to the issuance of building permits.

The developer shall also be required to construct a portion of sidewalk at each intersection which clearly indicates that sidewalks will ultimately be constructed.

Any other requirements for sidewalks will be noted in the Development Agreement.

4.1.5 DRIVEWAYS

Only one driveway per lot will be permitted for single unit dwellings and only one driveway per unit will be permitted for two unit townhouse style and multi-unit development. Driveways will not be permitted within site visibility triangles. The home owner/ builder will be required to hard surface the driveway apron (the area between the paved portion of the street and the front lot line). However, driveway aprons shall not be constructed sooner than one (1) year after completion of underground works located beneath the driveway. If there is a sidewalk proposed to run through the driveway, the home owner is required to only hard surface that area between the paved portion of the street and the limit of the sidewalk (partial apron). If the entire driveway is to be hard surfaced in advance of the sidewalk being installed by the Developer, the hard surfacing material can be brick pavers or concrete. If the driveway is to be asphalt, the concrete sidewalk must be constructed across the driveway and the paving must not occur until the sidewalk has been completed. If the driveway is to be hard surfaced with material other than brick pavers, the hard surfacing installation must not occur until the sidewalk has been completed.

A driveway for a residential unit shall have a minimum width of 3.0 metres and a maximum width of 7.3 metres. (See drawing S4 in Appendix E).

A driveway for a commercial, light industrial or greenhouse uses use shall have a maximum width of 7.5 metres for a one way driveway or 12.0 metres for a two way driveway. (See drawing S3 in Appendix E).

A driveway for heavy industrial uses use shall have a maximum width of 9.0 metres for a one way driveway or 15.0 metres for a two way driveway. (See drawing S3 in Appendix

E).

A driveway for any other use shall have a minimum width of 3.0 metres and a maximum width of 9.0 metres.

Refund of the required indemnity deposit submitted at the time of the building permit issuance will also be subject to the satisfactory completion of the hard surfacing of the driveway apron. The policy shall apply to all residential lots in registered plans of subdivision and other subdivision type development for which development agreements are required.

4.1.6 FIRE HYDRANT SPACING

Fire hydrant locations and spacing shall be approved by the Municipality. Generally, fire hydrants shall be located at intersections, watermain dead ends (end of cul-de-sacs), and shall have a maximum spacing of 150 metres. Fire Hydrants for fire protection of buildings shall be placed in accordance with the Ontario Building Code in Consultation with the Municipality's Chief Building Official.

4.1.7 Storm Drainage SYSTEMS MAINTAINED UNDER THE DRAINAGE ACT

Storm drainage systems are installed in all developments at the Developer's expense. These systems can include sewer pipes, pumping stations and stormwater management systems.

The Municipality recognizes that storm sewer systems provide benefit only to those properties in the sewer service area for each system. Therefore, where a development is proposed on any lands currently assessed to a municipal drain, the development's storm drainage system will be incorporated into said municipal drain or a new municipal drain will be created through a drainage report under the requirements of the Drainage Act at the Developer's expense, for assessment of future maintenance and operating costs.

Where a development is proposed on lands in a part of the Municipality that drains to an existing municipal sewer system that is not assessed for maintenance costs under the Drainage Act, it may be designated (at the discretion of the Municipality) as part of the municipal sewer system and maintained through general property taxes.

All storm drainage systems, whether they are designated as municipal drains or not, must receive Ministry of Environment approval.

There must be adequate language in all Purchase/Sale Agreements of the lots (where applicable); that the purchaser acknowledges that the storm drainage system is part of a municipal drain and the purchaser will not object to any costs assessed to the property under the requirements of the Drainage Act.

4.1.8 MULTI LOT CREATION BY CONSENT

Should the Municipality, in consultation with the County, agree to permit multi lot creation by the consent process rather than by the plan of subdivision process, all of the requirements noted herein shall apply including the preparation and approval of a Development Agreement and Stormwater Management Plan. The installation of available services will be required as a condition of consent and must be completed to the satisfaction of the Municipality prior to the stamping of the deeds. A security deposit, in an amount deemed appropriate by the Director of Municipal Services (or designate), for the completion of the required servicing will be required upon execution of the development agreement.

4.1.9 WATER METERING/ BACKFLOW PREVENTORS

The Municipality, at its sole discretion, may require water meters and backflow preventors. These works may be required at the property line subject to the building's occupancy type.

These appurtenances shall be maintained at the Owner's expense according to the requirement of the Municipality's cross connection by-law. All water meters require remote reading capability. See Drawing S-11 - Internal Water Meter in this report for typical details.

4.1.10 WASTE COLLECTION

The Developer shall refer to the current by-law for specific information regarding waste collection. See Appendix "H" for By-law 25-2001. Waste collection services will not be provided until services have been assumed by the Municipality as per Section 3.5.

4.1.11 WATER SAMPLING STATION

The Municipality requires installation of a Water Sampling Station in all new developments. One station will be required for developments up to 100 lots in size and an additional sampling station will required per additional 100 lots or less. Sampling Station will be "KUPFERLE" Model Eclipse No. 88, c/w pedestal suitable for freezing climates or equivalent. The location of the sampling station to be approved by the Municipality.

4.1.12 CATCH BASIN INSERT FOR SEDIMENT CONTROL DURING MAINTENANCE PERIOD

The Developer will be required to install a catch basin filter bag (Streamguard or equivalent) in each catch basin on the day the maintenance period starts. They will remain in place during the entire maintenance period or until house construction is complete. Filter cloth is not acceptable.

The Developer will be responsible for regular inspection and maintenance and cleaning of the filter bags as required while they are required to be in place. The Developer will be required to keep a log indicating dates of inspection and action taken. The log shall be available for viewing by the Municipality, ERCA and M.O.E.

The Developer will be required to submit a deposit to the Municipality of $200.00 per catch basin for the duration of the maintenance period or until the filter bags can be removed (as determined by the Municipality). The Municipality may draw on the deposit for maintenance and/or cleaning if the Developer neglects to carry out the work. The deposit will be returned without interest (less any amounts the Municipality may have required) when the bags are permitted to be removed.

4.1.13 CATCH BASIN BOX-OUT DURING MAINTENANCE PERIOD

For all developments with concrete curb and gutter, the concrete box-out at catch basins will be constructed at the time base asphalt is placed.

4.1.14 CANADA POST MAILBOX LOCATIONS

The Developer is required to contact Canada Post early in the design process to establish the preferred locations for mailboxes. The Developer is responsible for construction of the pad to the satisfaction of Canada Post and the Municipality in accordance with Drawing S-26-1 and S-26-2. The locations selected are subject to approval by the Municipality in order to verify they will not interfere with other municipal services. For "super mailbox' locations, a car bay shall be included as detailed in Drawing S-26.

4.1.15 TRAFFIC IMPACT STUDY

A Traffic Impact Study will be required to be submitted to the municipality and any appropriate approval authorities prior to consideration of development or redevelopment proposals. The T.I.S. will be prepared in accordance with the guidelines established in the "Transportation Impact Study Guidelines, County of Essex (December 2006) attached as Appendix "K".

4.2 RESIDENTIAL SITES

4.2.1 GENERAL

The general requirements of Subsection 4.1 shall apply and govern except as amended or extended herein.

4.2.2 SEMI-URBAN DEVELOPMENTS

Notwithstanding that it is the policy of the Municipality to require curb and gutter on all new and existing streets, the Municipality may consider reducing the municipal standard for new developments abutting existing developments that have been developed to semi-urban standards (no curb and gutter).

This special relief will require a Council resolution and Developers are encouraged to obtain Council approval early in the development process. As a guide to Developers, Council will consider the following factors in granting this exemption:

Specific locations designated in the Official Plan to permit Residential Development in non-urban settings.

- The relative size of the proposed development and other adjacent lands that are designated for residential development in the Official Plan. The smaller the new development is in comparison to the neighbourhood, the more likely semi-urban development will be permitted.
- The size of the lots. Generally, estate size lots (frontages of 30 metres or more) are candidates for semi-urban development.
- The adequacy of downstream storm sewer outlets. Less than desirable storm sewer outlets support semi-urban construction.
- The absence of sanitary sewers.

4.2.3 ROAD CLASSIFICATION

Arterial streets are defined by the Municipality as part of the Official Plan. Contact the Municipality for details.

Collector residential streets will be defined in the Development Agreement and are streets that provide the major access and egress point to the development in the area. These streets will be the major access route for fire fighting and emergency service vehicles to the

development and will generally indirectly service more than 200 residential units. The estimated minimum annual average annual daily traffic (AADT) when the site and surrounding area is developed would be 1000.

Collector roads may have restricted and/or controlled access.

All other residential streets are classified as local residential streets.

4.2.4 DRIVEWAYS

All residential driveways shall be hard surfaced from the curb and gutter or pavement edge (except for semi-urban developments), to the property line or easement line, whichever is furthest from the street. Acceptable driveway materials are concrete and paving stones. (Also see Subsection 4.1.5 of this manual). Driveway construction shall be delayed for one year from the date of substantial completion of the services.

Developers shall advise purchasers of lots in the Purchase/Sale Agreement, that should it be necessary for the Municipality to repair or replace municipal services and private driveways are damaged, the Municipality will restore the driveway with concrete, regardless of the existing driveway type unless the property Owner pays for the additional costs to restore special driveways including stamped or coloured concrete or paving stones.

4.2.5 TREE PLANTING

The Developer agrees to plant trees equal to the amount of one tree per residential unit in accordance with the Town's Reforestation Policy meeting the species and size requirements contained therein. The Developer shall plant said trees prior to the Town's final assumption of the services installed for the development.

4.2.6 CONDOMINIUMS

In Condominium type development where the Municipality will not assume the roadway and other services, the development standards shall be established in the Development or Site Plan Agreement. (Also see Subsection 4.1.2 of this manual).

4.3 COMMERCIAL SITES

4.3.1 GENERAL

The general requirements of Subsection 4.1 shall apply and govern except as may be extended or amended herein. Through site plan control agreements, all new development shall be responsible for the collection and disposal of collectible garbage or waste generated by the new development.

4.3.2 PARKING AND ACCESS AREAS

Parking areas and access areas shall be paved with asphalt, concrete or paving stones to control dust and provide adequate drainage. The hard surfacing shall be applicable to all

areas forward of the main face of the building or as approved by the Director of Municipal Services. Plans shall clearly show the required parking spots.

4.3.3 STORMWATER MANAGEMENT FACILITIES

Stormwater management reports and plans will be required evaluating the quantity and quality of the post-development runoff rate as compared to the pre-development runoff rate.

Should Developers use the parking areas as temporary ponds to store storm water, the maximum depth of ponding shall be limited to 150mm and the maximum duration of storage shall be 1 hour for a 1:2 year rainfall event, unless it can be shown that deeper depths or a longer duration will not adversely affect parking lot operations.

4.3.4 FAÇADE AND STREETSCAPE INITIATIVES

Developers shall consider streetscape and façade improvements to reinforce the Town of Kingsville's established architectural themes and beautification initiatives.
Building facades shall be clearly detailed through building elevations and detailed landscaping designs shall be submitted for review and approval of the Town.

4.4 INDUSTRIAL SITES

4.4.1 GENERAL

The general requirements of Subsection 4.1 shall apply and govern except as may be extended or amended herein. Through site plan control agreements, all new development shall be responsible for the collection and disposal of collectible garbage or waste generated by the new development.

4.4.2 ROADS

The minimum road width shall be 8.6 metres measured between face of curb. A geotechnical investigation defining the pavement cross section parameters is mandatory.

Intersection turning radius shall be 15 metres. Cul-de-sac radius, if allowed, shall be a maximum of 15 metres.

4.4.3 PARKING AND ACCESS AREAS

All parking areas and access areas shall be paved with asphalt, concrete or paving stones to control dust and shall be adequately drained.

4.4.4 STORMWATER MANAGEMENT FACILITIES

Stormwater management reports and plans will be required evaluating the quantity and quality of the post-development runoff rate as compared to the pre-development runoff rate.

Should Developers use the parking areas as temporary ponds to store storm water, the maximum depth of ponding shall be 200mm and the maximum duration shall be 2 hours for a 1:2 year rainfall event, unless it can be shown that deeper depths or a longer duration will not adversely affect the parking lot operations.

4.4.5 FAÇADE AND STREETSCAPE INITIATIVES

Developers shall consider streetscape and façade improvements to reinforce the Town of Kingsville's established architectural themes and beautification initiatives.
Building facades shall be clearly detailed through building elevations and detailed landscaping designs shall be submitted for review and approval of the Town.

4.5 INSTITUTIONAL SITES

4.5.1 GENERAL

The general requirements of Subsection 4.1 shall apply and govern except as may be extended or amended herein.

4.5.2 PARKING AND ACCESS AREA

All parking areas and access areas shall be paved with asphalt, concrete or paving stones to control dust and shall be adequately drained.

4.5.3 STORMWATER MANAGEMENT FACILITIES

Stormwater management reports and plans will be required evaluating the quantity and quality of the post-development runoff rate as compared to the pre-development runoff rate.

Should Developers use the parking areas as temporary ponds to store storm water, the maximum depth of ponding shall be 150mm and the maximum duration shall be 1 hour for a 1:5 year rainfall event, unless it can be shown that deeper depths or a longer duration will not adversely affect parking lot operations.

4.5.4 FAÇADE AND STREETSCAPE INITIATIVES

Developers shall consider streetscape and façade improvements to reinforce the Town of Kingsville's established architectural themes and beautification initiatives.
Building facades shall be clearly detailed through building elevations and detailed landscaping designs shall be submitted for review and approval of the Town.

4.6 RECREATIONAL/PARK SITES

4.6.1 GENERAL

The general requirements of Subsection 4.1 shall apply and govern except as may be extended or amended herein. Developer is to ensure that prior to the assumption of the dedicated park lands by the Municipality; the property is in a condition satisfactory to the

Municipality. Those lands designated as park lands shall be graded with topsoil, sodded or seeded as specified in the development agreement and free of all refuse. At no time will those lands designated as park lands within a subdivision be used for dumping, storage or stockpiling of contractor's material or refuse.

The Developer shall be required to post and maintain signage at all recreational/park locations indicating that the site shall be a future park and that it may have playground equipment installed. This requirement will be implemented upon the start of maintenance of the road and underground services up to, but not including base asphalt and/or the commencement of issuance of building permits.

4.6.2 PARKING AND ACCESS AREAS

All parking areas and access areas shall be paved with asphalt to control dust.

4.6.3 STORMWATER MANAGEMENT FACILITIES

All play areas or passive areas used for storm water management facilities shall be designed so that the maximum depth of storage is 600mm for a duration of 4 hours, for a 1:5 year rainfall event or less. Parking lots shall not be used for storm water storage.

4.7 GREENHOUSE DEVELOPMENTS

4.7.1 GENERAL

Greenhouse construction is permitted in the Agricultural (A1) Zone. Copies of the applicable Zoning By-law are available at the municipal office.

4.7.2 SITE PLAN

In addition to the general site plan requirements shown on S23 of this manual, site plans for greenhouses must show the dimensions of the property, the location and size of all buildings (existing and proposed), external doors and accesses, entrances, driveways, parking areas, loading and truck movement areas, outdoor storage areas, central storage and collection areas for waste materials under the *Environmental Protection Act* (if permitted), outdoor lighting, signage, supplementary housing facilities, landscaping, MTO corridor restrictions (if any), any underground services, storm water management plan and waste water management plan (septic systems).

The setback from property line to the top of the bank of any swale for maintenance access purposes shall be 2.0 m or as otherwise approved by the Director of Municipal Services.

4.7.3 STORM WATER MANAGEMENT

The Town of Kingsville Zoning By-law regulating greenhouse construction states that prior to the issuance of a building permit for any structure greater than 7430 square metres (1.8 acres) in the Agricultural (A1) zone, a report prepared by a qualified Engineer addressing water management issues must be submitted to the Director of Municipal Services and the

Chief Building Official. This report must include a design based on the 1:2 year AES (pre-development) and the 1:100 year AES (post development).

Two copies of storm water management plans showing existing drainage patterns along with proposed storage ponds and stamped by a Professional Engineer registered with PEO must accompany the above mentioned report.

It should be noted that the roof of any building or structure shall not be constructed until the approved stormwater management system is installed, completed in accordance with the plans and specifications of the required report as approved by the Director of Municipal Services and Chief Building Official. Confirmation that the storm water management system complies with the design, shall be made in writing by a Professional Engineer to the Director of Municipal Services and Chief Building Official.

The Municipality's Municipal Services Department will provide periodic inspections where the storm water management outlets to a municipal drain.

4.7.4 WATER SPECIFICATIONS

See the information booklet and guide entitled, "Municipal Water Supply for Area Greenhouse Facilities" attached as Appendix F

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4.7.5 SEPTIC SYSTEMS

Where a private sewage system with a daily design flow of less than 10,000 l/day is required an application for a permit must be obtained from the Building Department and design shall be as required by the Ontario Building Code. Private sewage systems exceeding the daily design flow of 10,000 l/day require a Certificate of Approval from the Ministry of the Environment.

4.7.6 CONSTRUCTION PLANS

Greenhouses are classified as Part 4 structures under the Ontario Building Code and as such are required to be designed by a Professional Engineer. Structural plans, showing the design of footings and the greenhouse structure, stamped by a Professional Engineer, must be submitted along with the Permit application.

4.7.7 INSPECTION REQUIREMENTS

The Owner's Engineer shall conduct reviews of each stage of construction as specified at the time of Building Permit Issuance. Copies of the reports arising from these reviews must be submitted to the Building Department within 24 hours of the Engineers visit to the site.

The Director of Municipal Services (or delegate) will provide periodic inspections where the storm water management outlets to a municipal drain.

4.7.8. PARKING AND ACCESS AREA REQUIREMENTS

The portion of the entrance that is within the municipal right-of-way shall be hard surfaced to the satisfaction of the Director of Municipal Services (or delegate) prior to the commencement of construction.

Parking areas and access areas shall be paved with asphalt, concrete, paving stones or tar and chip surface treatment to control dust and shall be adequately drained as follows:

- Any areas between the right of way and the corresponding face of the structures
- Any areas with adjacent residential or commercial buildings
- or as otherwise approved by the Director of Municipal Services.

The location of the driveways, parking areas and the extent of the hard surfacing required will be addressed in the Site Plan.

4.7.9. SUPPLEMENTARY HOUSING FOR GREENHOUSE OPERATIONS

On site accommodations for workers must comply with Ontario Building Code, Zoning By-law and The Town of Kingsville Property Standards By-law.

4.8 SURVEYS

4.8.1 GENERAL

A building survey will be required for all developments within a plan of subdivision.

A registered land surveyor, professional engineer or survey company that carries Professional Liability Insurance is required to prepare a certificate to verify setbacks and elevations of the building prior to placing the footings.

A site survey will also be required indicating compliance with final lot grades, including rear yard drain elevations, within 6 months of occupancy.

4.9 INDEMNITY DEPOSITS

4.9.1 GENERAL

Developers shall either pay for or arrange to have the lot purchaser deposit indemnity fees at the time building permits are issued. These fees are to ensure that:

- agreed to work is completed, including rear yard drainage
- any damage to the municipal infrastructure is repaired at the purchaser's expense
- all streets are kept cleaned
- dust from the site is controlled
- hard-surfaced driveways are constructed
- copy of lot grade certificate submitted to Building Department.

Contact the Municipality for the value of the current indemnity deposit. The indemnity deposit will be returned at the time that all the conditions are satisfied and an occupancy permit is issued.

5.0 DESIGN CRITERIA

The following design criteria shall apply as minimum requirements unless specifically noted otherwise in the Development Agreement or as may be determined based on the results of a geotechnical investigation.

5.1 ROADS

Pavement structures shall consist of the following minimum material thicknesses:

Local Roads:

Granular 'A' Base	- 300mm
HL4 Base Asphalt	- 50mm
HL3 Surface Asphalt	- 40mm

Collector Roads and Industrial Roads:

Granular 'A' Base	- 450mm
HL4 Base Asphalt	- 60mm
HL3 Surface Asphalt	- 40mm

Unless otherwise determined based on the results of a geotechnical investigation.

Granular 'A' materials shall meet the minimum requirements of OPSS 1010 and shall be compacted to a minimum 100 percent of the Standard Proctor maximum dry density.

Recycled material shall not be used for granular road base.

Asphalt materials shall consist of asphalt cement having a penetration grade of 85-100 and shall conform to OPSS 1101. A qualified materials testing company shall be retained by the Contractor to design the asphalt mixes, which will be submitted to the Municipality for review. The use of recycled asphalt in the final product shall not exceed 15 percent without the approval of the Director of Municipal Services.

Pavements shall be designed to provide adequate drainage of stormwater runoff as well as drainage of the granular road base. Accordingly, the following minimum standards shall apply:

- Subdrains
  - 150mm diameter heavy-duty perforated Big 'O' for local roads only if installed using laser levelling equipment;
  - otherwise 150mm diameter heavy-duty perforated Big 'O' for all roads constructed continuous along the back of curbs at a gradient equal to the longitudinal pavement slope (or minimum *0.30* percent) and connected to roadway catchbasins or other appropriate outlet. Refer to standard detail in Subsection 7.4.

- Catchbasins to be placed at intersections as required for proper drainage and spaced for road drainage at no more than 90m per catchbasin per lane.
- Longitudinal Grade
  - Desirable minimum 0.5%
  - Absolute minimum 0.3%
  - Maximum 5%
  - Minimum around curb returns and cul de sacs 0.5%

- Crossfall
  - Desirable 3%
  - Minimum Concrete 2%
    Asphalt 3%
  - In intersection areas and cul-de-sacs, desirable minimum 1% with absolute minimum being 0.6%.

- Concrete Curbs and Gutters
  - OPSD 600.04

5.2 SIDEWALKS

Concrete sidewalks shall be constructed in accordance with OPSD 310.01.
Sidewalk widths shall be:

- Residential - 1.5 m wide, increased to 1.8 m wide when constructed adjacent to curb and gutter and a minimum of 115 mm thick.
- Commercial - 1.8 m wide and a minimum of 150 mm thick.

Sidewalks shall be constructed through asphalt or granular driveways and shall be a minimum of 150mm thick. All sidewalks are have a brushed finished complete with tooled edges and joints, dummy joints at a maximum of 1.8 m and a full expansion joints at a maximum of 18.0 metres or 10 sections of sidewalk.

5.3 SANITARY SEWERS

Sanitary sewers and appurtenances shall be constructed in accordance with the approved contract documents prepared by the Consulting Engineer. The minimum design criteria are noted below:

Population Density	Residential	3.5 persons per unit
	Dry Industrial	35 persons per hectare
	Commercial	Based on anticipated use

Average Domestic Flow	450 litres per capita per day
Peaking Factor	Harmon formula applied to average domestic flow $1 + \frac{14}{4+P^{0.5}}$ P - population in thousands
Extraneous Flow	0.21 litres per hectare per second
Minimum velocity for pipe flowing full	0.6 metres per second
Manning's coefficient of roughness	0.013 (Smooth Wall Pipe)
Minimum pipe size	200mm diameter
Maximum manhole spacing	107 metres
Drop MH Structure	a drop structure is required where the entering pipe is more than 0.6 metres higher than the lowest pipe. Where a drop is not required, a channel must be constructed in the benching from the invert of the higher pipe to the lower pipe. (If the drop is close to 0.6 metres, the grade of the incoming pipe can be increased as required, subject to velocity.)
Manhole Frame and Cover	Rexus 600 mm diameter manholes by Certainteed indicating “SANITARY”
Minimum service connection size	single – 125mm diameter (double connection not permitted)
Pipe material	PVC DR35 - sanitary sewer PVC DR28 - sanitary private services Concrete - reinforced for sewers 450mm dia. or larger

The Consulting Engineer shall confirm the availability and location of an appropriate outlet with the Municipality, shall complete the final design and obtain a Certificate of Approval from the Ministry of the Environment (MOE) prior to construction. Work on private property shall conform to the Ontario Building Code.

5.4 STORM SEWERS

Storm sewers and appurtenances shall be constructed in accordance with the approved contract documents prepared by the Consulting Engineer. The minimum design criteria are noted below:

Design Method	Rational Formula
Design Frequency	1 in 5 years Windsor AES (Atmospheric Environment Services)
Run-off Co-efficient	To be verified based on the proposed development plan but not less than 0.4 for sewers to be assumed by the Municipality.
Minimum Velocity for Pipes Flowing Full	0.76 metres per second
Maximum Velocity	3.0 metres per second
Manning's Roughness Co-efficient for Storm Sewers	0.013 (Smooth Wall Pipe)
Minimum Cover	1.07 metres
Maximum Manhole Spacing	
- Less than 900mm dia.	120 metres
- 900mm dia. or greater	150 metres
Minimum Service Connection Size	single - 150mm diameter (double connection not permitted)
Manhole sumps	a 300 mm sump (below lowest pipe opening)is required in storm manholes.
Manhole Frame and Cover	Rexus 600 mm diameter manholes by Certainteed indicating “STORM”
Catchbasin Frame and Cover	Rexus frame and grating by Certainteed
Pipe Material:	
Main lines	
-450mm or less	PVC DR35 (PVC Ultra Rib is not an approved material)
-greater than 450mm	PVC DR35 or Reinforced Concrete
Services	PVC DR28

Pipe class to be confirmed by the Consulting Engineer based on trench transition widths.

Development in the Municipality shall not have downspouts connected to the storm sewer systems. Eaves troughs and downspouts shall be splash padded except where padding could create safety concerns (driveways, sidewalks).

The Consulting Engineer shall confirm the availability and location of an appropriate outlet with the Municipality, complete the final design and obtain a Certificate of Approval from the

Ministry of Environment (MOE) prior to construction. Work on private property shall conform to the Ontario Building Code.

5.5 WATERMAINS

Watermains and appurtenances shall be constructed in accordance with the approved contract documents prepared by the Consulting Engineer. Design and installation shall be to the satisfaction of the local water and fire departments. The minimum design criteria are noted below:

Minimum Pipe Size	150mm diameter
Minimum Cover	1.5 metres
Maximum Hydrant Spacing	Urban - At intersections and spaced at maximum 150 m
Maximum Hydrant Spacing	Rural – At intersections and spaced at maximum 300 m
Maximum Valve Spacing	At intersections and spaced at maximum 250 metres
Lot Connections	Minimum 19mm Maximum 25mm

MATERIAL SPECIFICATIONS

• Watermains	PVC DR18, Class 150 AWWA C900, C905 or C909
• Fittings	MJ Ductile Iron, cement or epoxy lined, Class 250 or PVC Class 150, DR18
• Fasteners	All fasteners to include Duratron sacrificial bolt caps
• Gate Valves	Ductile iron, epoxy lined gate valves, minimum 8 mil thickness resilient seat, bronze non-rising stem with 316 stainless steel bolts. Black top (opening counter-clockwise) AWWA C-509 and C-550
• Valve Box	Cast Iron, screw type Bibbi VB 3000 or approved equivalent
• Hydrants	To AWWA C502, Canada Valve (Mueller) Century or McAvity (Clow) M67 Brigadier or Mueller Super Centurion 250 with two standard hose connections and one pumper connection with Ontario Standard threads, opening left and painted yellow. Drain holes are to be plugged. Pumper connection to include Storz coupling.
• Restraining devices	Restraining Devices by Uni-Flange Series 1300, 1350, 1360 or 1390 for PVC pipe or approved equivalent less than 30mm diameter. Fasteners must be 316 stainless steel. Concrete thrusts not permitted.
• Tracer Wire	Tracer wire (10 AWG conductor, solid white, TWU flame

seal) brought up at all mainline & fire hydrant secondary valves, outside of valve box with a 300mm loop of wire inserted into upper section of box under the cap. Fire hydrants shall be non-draining.

Tracer wire shall be installed on all non-ductile iron watermains, hydrant laterals and water services except where such water service pipe is of copper material. The wire shall be installed in such a manner as to be able to properly trace all watermains, hydrant laterals and water services without loss or deterioration of signal or without the transmitted signal migrating off the tracer wire.

Tracing wire shall be RWU90, number ten gauge (AWG), single or seven strand insulated copper wire with 60 mil of black, cross-linked polyethylene (XLPE) insulation specifically manufactured for direct burial applications.

All tracer wire welds onto existing cast or ductile iron pipe shall be completely sealed with the use of an approved mastic type sealer specifically manufactured for underground uses. The mastic shall be T.C. Mastic (Tapecoat of Canada) or approved equivalent and shall be applied in a thick coat of 12 mm thick and shall be protected from contamination by the backfill material with the use of a plastic membrane. As an alternative, Royston Handy Cap prefabricated assemblies used in conjunction with Royston Roybond Primer 747 may be used. In all cases, the pipe is to be properly cleaned and material applications shall be according to the manufacturer's instructions.

All spliced or repaired connections in the tracer wire system shall be made using a Model Number 454, Catalogue Number 30-454, Wing Nut Wire Connector (for two to four number ten wires), or approved equivalent, and made waterproof using an approved buried service closure service wire closure. The buried service wire closure shall be either a Klik-It Number C8816 Buried Service Wire Closure or Raychem GHFC-2-90 Frame Gel Closure or approved equivalent.

- Tape Corrosion Protection — All buried steel valves, all flexible couplings including flanged coupling adaptors, all mechanical restraints to harness devices, steel fittings, steel joints, saddles,

fasteners, etc. shall e wrapped including steel pipe flanges and steel pipe ends wherever they occur. Tape protection is generally not required over epoxy finishes unless specified.

- Private services shall be Type "K" copper 19mm and 25mm.
- Service saddles to be wide band double bolt stainless steel
- All fittings to be brass, compression type.
- Curb stops to be Full Port non-draining
- All elbows, tees, valves, hydrants to be mechanically restrained.
- All fittings to be mechanical joint type or push on type.
- Curb boxes to be Mueller A-726 or approved equivalent with A-800cover, Ferguson #7 with stainless steel rod
- All valves 100 mm or larger to be installed with operating rod extensions to within 158mm of top of the valve box.
- Chlorination procedure and de-chlorination
- Flushing, swabbing and disinfection to be carried out in accordance with OPSS 701.

The Consulting Engineer shall submit an application for approval to the Town of Kingsville on the prescribed form prior to construction. See Appendix L.

Work on private property shall conform to the Ontario Building Code.

5.6 STORM WATER MANAGEMENT FACILITIES

Storm water management facilities shall be constructed in accordance with the approved contract documents as well as the approved Storm Water Management Plan prepared by the Consulting Engineer. The minimum design criteria are noted below:

- The Storm Water Management Plan shall be prepared to address the specific Municipal, regional (ERCA) and Provincial (MOE and MNR) requirements to control stormwater quantity and quality.

- In all cases, stormwater quality measures shall be incorporated to address Provincial water quality guidelines, including short term measures to control soil erosion during construction of site services.

- Where stormwater quantity controls are required, runoff must be limited to the predevelopment peak flow condition for the 1:5 year to 1:100 year AES rainfall events with a duration of 24 hours. Surface storage in roadways will not be permitted for the 1:5 year rainfall event and must be limited to 300mm above the catchbasin for the 1:100 year event.

- The stormwater management facility shall be designed to current Best Management Practices and subject to the approval of the Municipality, MOE and ERCA.
- On-site measures to control stormwater quantity for industrial and commercial developments will be permitted, including temporary parking lot and roof top storage. Storage depths in parking lots shall be limited to the depths noted in Subsection 4 and 300mm for the 1:100 year rainfall event, unless otherwise approved by the Municipality.
- The storm sewer pipe system must be empty within 24 hours after a storm event, either by gravity or pump system.

The Consulting Engineer shall obtain a Certificate of Approval from the MOE as well as approval from the Essex Region Conservation Authority (ERCA) prior to commencing with construction.

5.7 PUMPING STATIONS

Storm and sanitary pumping stations shall be designed and constructed in accordance with approved drawings and specifications prepared by a licensed professional engineer in Ontario.
Drawings and specifications shall meet the following minimum design criteria. (Please note the Municipality shall reserve the right to amend or impose additional requirements noted herein at any time):

1. Site Selection

    a. The site shall be accessible from a municipal street and sized to provide for the parking of vehicles used for inspecting and maintaining the station. Access must be provided for a standby electrical generating system where required. Access shall also be provided for the storage or removal of snow. All access roads shall be paved.

    b. Minimum lot size shall be primarily based on being able remove and replace entire station without encroaching on adjacent private property and shall take into consideration a minimum 1:1 soil slope during excavation while meeting the objectives in Section 1 (a).

    c. Site shall be graded to ensure proper surface drainage. Site shall be landscaped to be compatible with the surrounding neighbourhood. Landscaping design shall be submitted and approved by the Town for any areas adjacent to road right of ways.

d. Any associated buildings shall be designed to be permanent, durable and aesthetically pleasing and should be compatible with other buildings in the area.

2. Station Design

a. Stations shall be designed in accordance with Ministry of Environment (MOE) Guidelines.

b. Wet well submersible stations shall also be designed in accordance Ministry of Environment Specification No. 3 – Standard Specification for Submersible Sewage Pumps – Issue No. 2 - March 1984.

c. Permanent emergency standby electrical power shall be provided in cases where flooding and backup of sewage into private buildings can occur.

Emergency standby electrical power is not required where a satisfactory gravity overflow is available. However, provisions must be included for connection of mobile emergency standby generators. Also, the sewage retention period shall be adequate to allow for transportation time.

The need and type of emergency standby power shall be reviewed with the Municipality and Ministry of Environment Regional Staff early in the design stage.

One or more pumps capable of pumping the design flow with an additional stand-by pump (this is known as firm capacity).

System head calculations based on Hazen-Williams coefficient, C=120 for the low water level condition and C=140 for the high water level condition.

Minimum forcemain velocity of 0.76 metres per second.

Minimum pump cycling time of 10 minutes.

a. Only Flygt pumps shall be used in the Municipality. The use of alternative manufacturers shall be approved by the Municipality on a case by case basis to suit specific circumstances.

b. Circular pumping stations shall be of precast or cast in place reinforced concrete (Type 20 cement) have a minimum diameter of 3.0 meters and shall include (at a minimum) the following items (to be detailed in the design drawings):

- Access hatches shall be minimum 30-inch x 36-inch, hinged, lockable and of aluminum construction (Bilco, MSU or approved equal)
- Equipment hatches shall be minimum semi-circular, hinged, lockable and of aluminum construction to allow complete removal and replacement of pumps (Bilco, MSU or approved equal)
- Ladders (20-inch wide) and/or solid rungs with safety access handles
- Platforms shall be all aluminum construction (T-6061) with aluminum serrated grating complete with stainless steel fasteners and hold down clips. All holes cut through grating shall be banded.
- Handrail complete with kick plates, self closing gates and stainless steel hardware for access to lower level to meet Ministry of Health and Safety requirements
- Vent pipes for lower and upper levels with gooseneck fitted with bird and insect screens of minimum hot dipped galvanized steel or stainless steel
- Pump rails, intermediate and top guide bar holders and pump lift chains shall be minimum hot dip galvanized steel.
- Safety socket minimum hot dip galvanized with stainless steel anchors to suit Municipality owned safety davits
- All fasteners within the chamber to be minimum Type 304L stainless steel
- All ductile iron pump discharge piping shall be finished with a suitable epoxy finish
- All thrust restraint and pipe support brackets shall be of aluminum or stainless steel construction.
- Levels sensors shall be of the ultrasonic type such as manufactured by Milltronics
- In addition to a high level alarm float, provide a float for emergency pump shut off in case of loss of ultrasonic sensor.

c. All pumping stations shall be fitted with stainless steel electrical and control panels mounted a suitable distance away from the station to avoid a Class 1 Div 1 or 2 rating as follows:

    i. Supply and installation of electrical works shall meet the minimum requirements of the electrical safety code. Engineered drawings shall be prepared for all electrical installations and they shall be stamped and sealed by a professional engineer in Ontario competent in this type of

work. The design shall include procurement of power supply from a supply authority.

ii. Provisions shall be included for connecting a portable emergency generator in a manner suitable to the Municipality for installations where a permanent standby generator is not provided.

iii. Panels shall be fitted with automatic dialers or SCADA equipment to relay alarms to the Municipality's operating authority. The exact requirements shall be reviewed with the Municipality early in the design stage.

During the maintenance period, the Developer is responsible for providing a qualified and licensed contact who can be authorized to maintain the pumping station and is acceptable to the Municipality who will be notified by Security One (or equivalent) in the event of a problem with the pump station. (The contact may be OCWA in the case of a sanitary pumping station). In the event of a lack of response or slow response, the Developer will be responsible for all costs incurred by the Municipality in the event they have to respond to the problem.

3. Regulatory Requirements & Submittals

a. The Consulting Engineer shall make all applications and submissions necessary to obtain a certified Certificate of Approval from the Ministry of Environment for all works proposed prior to commencing any work on-site.

b. Upon completion of the works, the Municipality shall be provided with a complete Operating and Maintenance manual of all components used in the station bound in a suitable D-ring binder.

c. All spare parts shall be turned over to the Municipality or its operating authority.

5.8 STREET LIGHTING AND POWER DISTRIBUTION

The minimum design criteria for the design of street lighting and power distribution are noted below:

Underground Primary	concrete-encased rigid PVC conduits (or direct buried)
Underground Secondary	direct buried
Transformers	low-profile, pad-mounted

Street Lighting	- Spacing and height design to Illumination Engineering Society standards for roadway, lighting intensity and uniformity - Lighting levels to comply with Provincial Minimum Lighting Standards.
Standard Street Lighting	- 30 foot, Class A, round, grey concrete pole - Standard elliptical traffic arm (6 foot typical) - 150 W High Pressure Sodium, Full Cut off, Flat Glass fixture - Review acceptable poles and fixtures with the Municipality prior to ordering
Decorative Street Lighting	- Decorative street lighting is permitted subject to approval from the Municipality - Stresscrete Washington Fluted Round Concrete Pole in Eclipse Black, 14 feet tall above ground Order No. KWC-14-G-E11 c/w 140-35/35 BA&DR (**or approved equivalent**) - King Luminaire Washington Pole Top Light Order No. K18-EAR-II-150(MOG)-HPS-120-K18 (**or approved equivalent**)

The Developer shall obtain the approval of the appropriate utility supplier prior to construction. The Developer is required to supply one extra street light pole and fixture for future replacement.

All fixtures must be designed to full cut off lighting standards.

5.8.1 LIGHTING GUIDELINES FOR SITE PLAN APPLICATIONS

The purpose of these guidelines is to provide a set of effective standards designed to limit the impacts of excess and unnecessary external lighting.

Refer to Appendix O for the “Lighting Guidelines for Site Plan Applications”.

5.9 BACKFILL AND COMPACTION

Trench backfill and compaction shall generally be in conformance with the minimum requirements outlined in the Trench Backfill Details included in Subsection 7.4. Based on site specific soil conditions, geotechnical recommendations for alternative degrees of native backfill compaction should be confirmed by the Developer's engineer.

5.10 RESTORATION AND LANDSCAPING

Restoration of all boulevard areas disturbed as a result of the construction of site services shall be completed to match the existing conditions and in compliance with the Municipal

Topsoil Specifications – attached as Appendix I. In existing grassed areas provide 100mm topsoil and nursery sod for maintained lawn areas and seed and futerra erosion control/revegetation blankets or approved equivalent in other areas.

The Developer will also make an effort to salvage any existing landscaping located within the public right-of-way and in the interest of public relations, wherever practical, offer to transplant and/or replace plantings to the abutting Owners.

5.11 RECYCLED MATERIALS

Only recycled material approved by the Province and the Municipality may be used. Developers shall contact the Municipality for the current list of approved material.

The Municipality reserves the right to request engineered and environmental reports on the acceptability of the recycled material for specific intended uses at the Developer's expense.

5.12 OTHER UTILITIES

The Consulting Engineer will be responsible to co-ordinate the efforts of other public utilities as a result of conflicts with proposed services and/or upgrading to accommodate development.

6.0 SPECIFICATIONS

6.1 GENERAL

The Consulting Engineer shall make reference to the latest Ontario Provincial Standard Specifications and Municipal Specifications in the Contract Documents for construction of site services, including any amendments and extensions outlined herein. In case of a conflict between OPSS and Municipal Specifications, Municipal Specifications shall govern.

6.2 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS

Amendments or extensions to the OPSS occur from time to time and the most current OPSS is to apply.

6.3 MUNICIPAL SPECIFICATIONS

There are currently no municipal specifications.

7.0 DRAWINGS

7.1 GENERAL

The Consulting Engineer shall complete contract drawings for site services in metric units and in electronic format for review by the Municipality. Drawings shall generally include the minimum level of detail outlined in Subsection 2.4 and be prepared in a format as generally outlined in the subsequent Subsection.

7.2 ELECTRONIC DRAWING REQUIREMENTS

All Record Drawings are to be submitted to the Town in PDF format and shall include an Engineer's Stamp and Engineer's Signature.

The following are minimum requirements for the submission of electronic drawing files to the Municipality.

7.2.1 AUTOCAD VERSION

Drawing files should be submitted in AutoCAD 2000 or later.

7.2.2 LETTERING SIZES

Minimum size for existing features should be L60.

Minimum size for new construction features should be L80 with L100 used for notes.

Where non-standard text fonts are used, these font files must be provided with the drawings.

7.2.3 PEN WEIGHT

A ctb file should be provided with the Drawing Set, in order to maintain consistency with pen weights.

7.2.4 LAYERS

In general, all different object types should be on separate layers.

Nothing should be drawn on layer 0.

The following is a suggested layering method:

- Property lines, right-of-way lines, SIB's, IB's, etc., should be on their own layers (eg. right-of-way lines should be on layer PL, SIB's and IB's should be on layer SIB).

Existing features and utilities should be on layers with prefix X so that they may be

manipulated easily (eg. existing Bell should be on layer XBELL and existing edge of pavement should be on layer XEP).

New utilities should be on layers with the prefix U (new sanitary sewer on USAN, new storm sewer on USTORM, etc.).

New road features (ditches, edge of pavement, sidewalks, etc.) should be on layers with the suffix RN (RNDITCH, RNEP, RNWS).

All profile layers should have the prefix P.

7.2.5 MULTIPLE DRAWINGS

Where multiple drawings are used to develop a final drawing, all individual drawings should be co-ordinated about insertion point 0,0,0 and where possible be co-ordinated in the World Co-ordinate System.
Individual drawings should be inserted intact on layer 0 and not need to be scaled, rotated or manipulated in any way.

When the size of drawings dictates, hatch should be done on separate drawings using the same layering method as stated above.

7.2.6 FILE TRANSFER

All files should be transferred on a CD as .dwg files that can be viewed from the CD. In addition, Record Drawings shall also be submitted as PDF files.

7.3 ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD)

The latest OPSD shall be referenced as part of the contract documents and shall include any amendments or extensions as outlined herein. In case of a conflict between OPSD and Municipal Standard Drawings (MSD), the MSD shall govern.
There are currently no amendments or extensions to the OPSD.

7.4 MUNICIPAL STANDARD DRAWINGS

The current Municipal Standard Drawings are included in the Appendix E.

8.0 MISCELLANEOUS

8.1 SIGNS

The Municipality will be responsible for the installation of all new regulatory, warning, share the road and street name signing in accordance with the Manual of Uniform Traffic Control Devices, after initial acceptance of the services with all costs to be paid by the Developer.

The Developer shall be responsible to maintain all existing roadway signing as well as temporary signing required as a result of the construction. No existing signs are to be removed without the written approval of the Municipality.

8.2 BARRIERS AND GUIDE RAILS

Dead end barriers shall be constructed at all temporary cul-de-sacs and/or ends of roadways, which are to be extended in subsequent phases. Dead end barricades to include reflective strips.

8.3 PAVEMENT MARKINGS

The following pavement markings shall be provided by the Developer within 5 days of asphalt placement:

- Stop Bars
- Yellow centreline marking to a 30m distance from stop bars on local roads
- Yellow centreline marking continuous on all collector roads
- White edgeline painting, as approved on engineering drawings
- Crosswalk marking, where specified in the Development Agreement
- Auxiliary lane markings including arrows, where specified in the Development Agreement

Temporary pavement markings on the base course of asphalt shall be organic solvent-based paint including reflectorizing glass beads in accordance with OPSS 1712 and 1750.

Permanent pavement markings on the surface course of asphalt shall be field reacted polymeric pavement marking materials in accordance with OPSS 1714, such as Lafrentz "System 400" having a minimum marking thickness of 2.0mm.

9.0 TRANSITION POLICY

The policies and requirements in this manual shall take effect as of the date of the manual. For any current development agreements the requirements of those conditions of the development agreement at the time of signing shall apply. For any future phases, the requirements of this manual shall apply unless superseded by a new development agreement.

APPENDICES

APPENDIX A - "HEALTHY PLACES, HEALTHY PEOPLE" IMPCC 2006
APPENDIX B - TYPICAL DEVELOPMENT FLOW CHART
APPENDIX C - TYPICAL DEVELOPMENT AGREEMENT
APPENDIX D - DEVELOPMENT CHARGES BY-LAW
APPENDIX E - DRAWINGS
APPENDIX F - MUNICIPAL WATER SUPPLY FOR GREENHOUSE FACILITIES
APPENDIX G - SAMPLE SUBDIVISION BOND
APPENDIX H - GARBAGE BY-LAW
APPENDIX I - MUNICIPAL TOPSOIL SPECIFICATIONS
APPENDIX J - WATER DISTRIBUTION INSTALLATION SPECIFICATIONS
APPENDIX K - TRANSPORTATION IMPACT STUDY GUIDELINES
APPENDIX L - WATERMAIN & APPURTENANCES AUTHORIZATION FORMS
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APPENDIX A
"HEALTHY PLACES, HEALTHY PEOPLE"
IMPCC 2006

Healthy Places, Healthy People

Smart Choices for the Windsor-Essex Region of Ontario

Community planning professionals from across this region have come together to prepare and sign the following statement of principles to guide public policy, to stimulate informed public debate, and to build a coalition of like-minded professionals in all sectors of the community including the engineering, architecture, health care, education and public administrative disciplines, to improve the quality of life for inhabitants of our region and for future generations:

The region, city, towns, villages and the countryside

1. The health and well being of the inhabitants of the Windsor-Essex Region of Ontario requires a fundamental change in the way decision-making is currently taking place pertaining to land use, transportation, infrastructure, growth management, natural heritage, social, economic and environmental planning.

2. The Windsor-Essex Region of Ontario, comprising the city, together with the towns, villages and the surrounding countryside, rivers and lakes, represents an important economic, social and ecological unit that must plan, formulate public policy, develop and implement strategies, and make decisions in a coordinated and comprehensive manner that will improve the health and well being of all citizens of this region.

3. Economic vitality, healthy environments and community stability requires: a re-investment in our existing urban centres; the reconfiguration of sprawling suburbs into neighbourhoods and town centres where walking, cycling and transit become viable transportation and active/healthy lifestyle options; the preservation, conservation, and enhancement of our natural and built heritage features as cornerstones of all future decision-making; and a regional/watershed approach to improving the quality of out air and our ground and surface water resources.

4. We have a responsibility to our children and grandchildren to take a lead role in working with decision-makers, community leaders, and a broad range of stakeholders, to significantly reduce greenhouse gas emissions and energy consumption in our region, by promoting settlement patterns, built forms, and transportation systems that create more sustainable, efficient, healthy and livable communities.

5. Financial resources and revenues need to be shared more cooperatively amongst the municipalities of this region to avoid the destructive competition for property taxation and the corresponding decisions that leads to wasteful and unsustainable development patterns, loss of natural features and productive agricultural lands. To efficiently utilize available resources and to effectively compete with other economic regions, a cooperative governance model is required to advance economic development objectives that benefit all inhabitants of the Windsor-Essex Region.

Neighbourhoods, city and town centres, employment districts, corridors and streets

6. Mixed use, compact, pedestrian-oriented neighbourhoods and city and town centres designed for people, are the building blocks of healthy, active and vibrant communities. Parks, schools, places of worship, compact pedestrian-scaled shopping and entertainment districts and employment opportunities situated closer to where people live, should be easily accessible by foot, bicycle, transit and the automobile.

7. Neighbourhoods should be diverse in land use and population, with a broad range of housing choices being available for residents from all cultural, social and economic backgrounds.

8. Public places that foster a sense of community pride and well-being and create a sense of place should be maintained within all neighbourhoods. Schools are important public places that should be sized and located within neighbourhoods to enable children to safely and conveniently cycle and walk to and from home.

9. Neighbourhoods, city and town centres and employment districts should be provided with a highly interconnected road network and a balanced transportation system that is designed and built for pedestrians, cyclists, transit, and automobiles.

10. Shorter block lengths, a finer grain of block sizes, sidewalks, trails, bikeways and five-minute walking distances to neighbourhood activity centres and to transit stops should be provided to encourage healthy active lifestyles, to reduce energy use and to provide greater independence for those who cannot or chose not to drive automobiles.

11. Appropriate residential densities and land uses should be located near transit stops, enabling public transit to become a more viable option for mobility within our region.

12. Within each community in our region; clearly defined, compact, pedestrian and transit friendly city and town centres need to be maintained, created and enhanced. These city and town centres are intended to serve as focal points for civic, commercial, entertainment, and cultural activities. A broad range of employment, housing, civic, shopping and leisure activities should be available in a compact, attractive, pedestrian-scale, safe and welcoming environment.

13. Public investments need to be made in these city and town centres to support private sector investment and to create and maintain the public realm, streetscape and amenities that will cater to and attract ongoing patronage from residents, business clientele and visitors.

14. Natural lands should be protected, enhanced, and incorporated within planned "greenway" systems, and given prominence for the benefit of all inhabitants in the surrounding neighbourhood and in the broader region. The essence of a "greenway" is linkages, connecting wildlife habitat areas to each other, human settlements to other human settlements, urban to rural areas, waterfront to inland areas, and people to nature.

15. Employment districts should be located within the region to take advantage of and make full use of all forms of transportation including rail and multi-modal facilities. These districts should be designed and sited within the region along major transportation corridors, in such a manner as to be effectively serviced by all modes of transportation including public transit.

16. Transportation corridors need to provide viable choices and options that equally accommodate automobile, transit, cycling and pedestrian infrastructure.

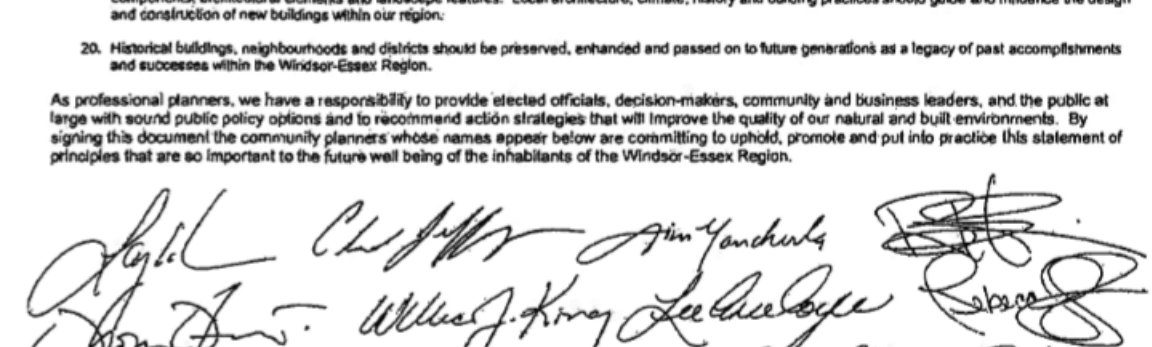
17. The design of a community's street system, as well as the configuration of lots and the siting of buildings, is an essential part of a community's character. Highly interconnected street systems within our city, towns and villages, incorporating sidewalks, trails, bikeways, street trees, landscaped boulevards, appropriate illumination and signage, should be designed and built to create and maintain safe, livable, and healthy places.

18. Streetscapes should be designed to encourage walking, neighbourhood interaction and community safety.

19. Buildings should be designed in the context of the street and block on which they are situated, and they should incorporate appropriate energy efficient components, architectural elements and landscape features. Local architecture, climate, history and building practices should guide and influence the design and construction of new buildings within our region.

20. Historical buildings, neighbourhoods and districts should be preserved, enhanced and passed on to future generations as a legacy of past accomplishments and successes within the Windsor-Essex Region.

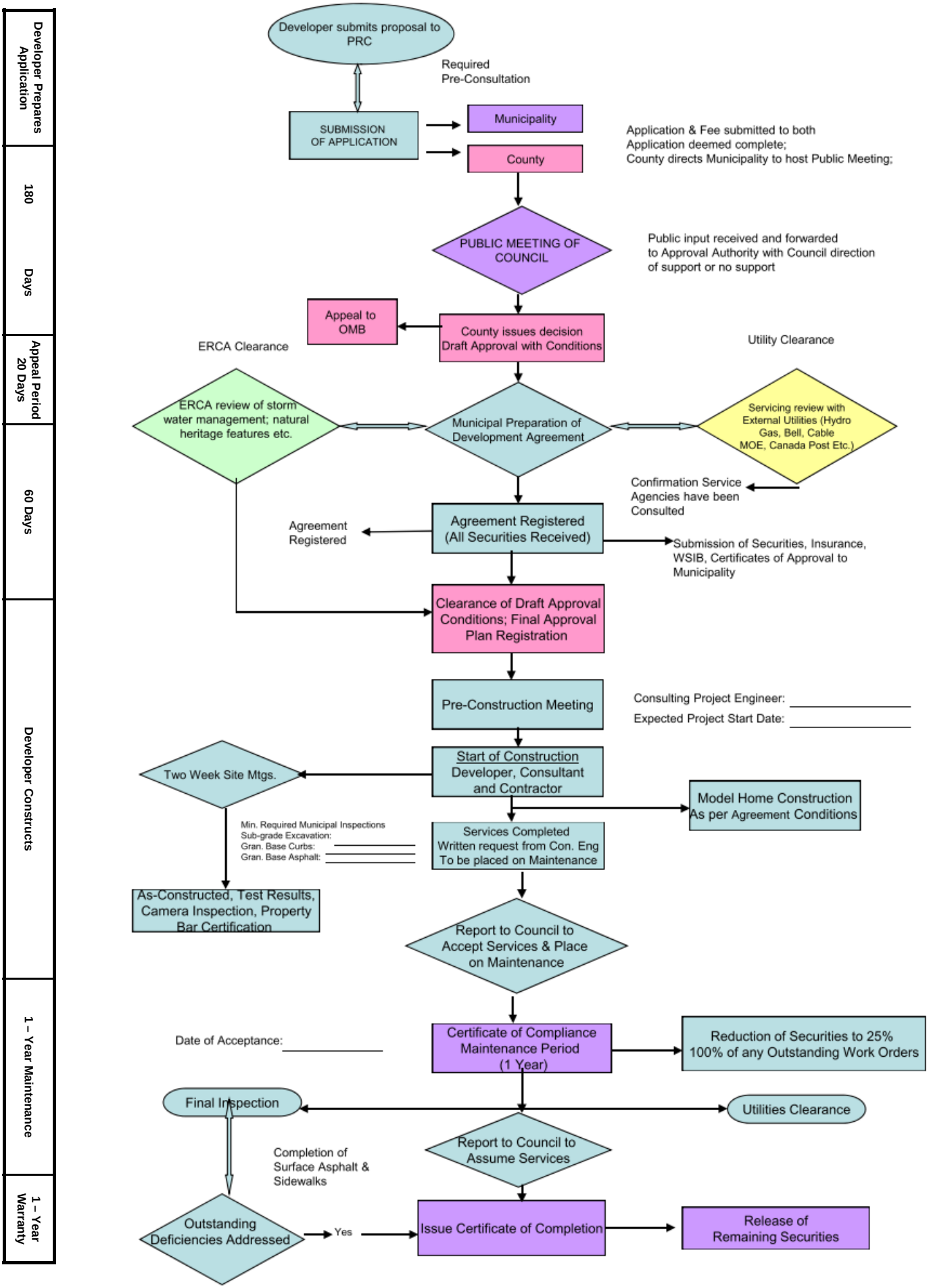
As professional planners, we have a responsibility to provide elected officials, decision-makers, community and business leaders, and the public at large with sound public policy options and to recommend action strategies that will improve the quality of our natural and built environments. By signing this document the community planners whose names appear below are committing to uphold, promote and put into practice this statement of principles that are so important to the future well being of the inhabitants of the Windsor-Essex Region.



Sept 8/2006

APPENDIX B
TYPICAL DEVELOPMENT FLOW CHART

Residential Subdivision Development



APPENDIX C
TYPICAL DEVELOPMENT AGREEMENT

DEVELOPMENT AGREEMENT
(**)

THIS AGREEMENT made (in triplicate) this **th day of **, 2005.

BETWEEN:

THE CORPORATION OF THE TOWN OF KINGSVILLE,

hereinafter called the "Town",

OF THE FIRST PART

-and-

**************************.,**

hereinafter called the "Owner",

OF THE SECOND PART

WHEREAS the Owner has received approval from the Ministry of Municipal Affairs for a plan of subdivision with File Number 37-T-** on Part of Lot *, Concession *, Western/Eastern Division, Geographic Township of Gosfield ** now in the Town of Kingsville, County of Essex, Ontario and hereinafter referred to as the "subject lands";

AND WHEREAS the subject lands are more particularly described in the legal description contained within Schedule "A" attached hereto and forming part of this Agreement;

AND WHEREAS the development consists of ** single unit detached residential lots and ** multi unit lots in the manner shown on the Conceptual Lotting Plan hereinafter referred to as "the Plan" as depicted on Schedule "B" attached hereto and forming part of this Agreement;

AND WHEREAS one of the conditions of the consent approval is to enter into this Agreement regarding the provision of services for the proposed development;

AND WHEREAS the Owner agrees and covenants that all development of the subject lands shall be in accordance with the Plan and the terms of this Agreement;

AND WHEREAS the Town has certain design criteria which the Owner's construction and installation of services must comply with or exceed, which design criteria are contained in the Town's Development Standards' Manual, this Agreement and the approved engineering drawings;

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT in consideration of the aforesaid premises and in consideration of the sum of Five ($5.00) Dollars now paid by the Owner to the Town, the receipt whereof is hereby expressly acknowledged, the parties hereto covenant and agree one with the other as follows:

1. CONSULTING ENGINEER

The Owner shall employ, at the Owner's expense, a consulting engineer registered by the Association of Professional Engineers of Ontario to, and in accordance with the Town's Development Standards' Manual as amended to the date of the signing of this Agreement:

a) design and submit to the Town, engineering drawings of all services required under this Agreement;

b) prepare any contracts necessary for the construction of all services required under this Agreement;

c) forward requisite documentation to obtain from municipal, provincial and federal authorities any approvals necessary for all services required under this Agreement;

d) submit to the Town, prior to the commencement of any construction, a report showing existing elevations and the proposed method of drainage of the lands served by all services required under this Agreement;

e) arrange for all survey and layout work required for the construction for all services required under this Agreement;

f) maintain for his client's purposes all records of construction of all services required under this Agreement;

g) submit to the Town all required record drawings of all details, elevations and drawing of all services required under this Agreement;

h) be responsible for the coordination of all services required under this Agreement; and

i) visit the site of the said works as requested by the Town for any reasons related to all services required under this Agreement.

2. TOWN'S REVIEW AND INSPECTION SERVICES

The Town, at its option, may retain a professional engineer in the Province of Ontario for the purpose of:

a) reviewing all plans, specifications, engineering documents, contracts, records, details, elevations and other relevant information; and

b) supervising the installation of the works required by this Agreement.

The fees, expenses and charges of such professional engineer and/or inspector shall be payable by the Owner to the Town upon demand. The engineer's charges with respect to the services provided shall be in accordance with the hourly rate normally applicable in the engineering profession for like work.

3. REQUIRED SERVICES AND FACILITIES

The Owner shall, at its expense and to the Town's satisfaction, supply, construct and install all services and facilities required for this development including but not limited to storm sewers, sanitary sewers, sanitary sewage treatment facilities, lot grading, driveway approaches, road boulevards, roadways, sidewalks, storm water management, hydro services, watermains and street lighting in accordance with the manner, location and design shown in the engineering drawings specific to this development, approved by the Town and in accordance with the terms of this Agreement, including any specific detailed requirements contained within Schedule "C" of this Agreement and the Town's Development Standards' Manual. Any upgrades to existing services required as a result of this development shall be paid for by the Owner. No work shall be commenced until the engineering drawings have been approved by all requisite government authorities and the Town. Before the Town will issue its approval, it requires the filing of all required government approvals. Services shall be designed and installed in accordance with:

a) sound engineering practices;

b) the Town's standards as described in its Development Standards' Manual;

c) the criteria established by any governmental authorities having jurisdiction, including but not limited to E.L.K. Energy, Hydro One, the Ministry of the Environment, the County of Essex, the Ministry of Environment, the criteria established in this Agreement.

4. SANITARY SEWAGE TREATMENT AND POTABLE WATER

The Town agrees to provide potable water and sanitary sewage treatment capacity for the ** residential units. The Owner acknowledges that the Town may withdraw potable water capacity and sanitary sewage treatment capacity allocation for the subject lands and redirect the allocations at its sole discretion if the Owner fails to install the services required by this Agreement by MM/dd/20** in accordance with the terms and conditions of this Agreement.

5. CONSERVATION AUTHORITY REQUIREMENTS

The Owner agrees that no construction or placing of fill on the site shall take place prior to obtaining a permit from the Essex Region Conservation Authority where the subject property is within an area regulated by the Authority. The Owner shall flood proof the lands to a minimum elevation satisfactory to the Essex Region Conservation Authority. Specific details regarding the flood proofing required for the subject property are contained in Schedule "C" attached hereto and forming part of this Agreement.

6. CONVEYANCES AND CONTRIBUTIONS

6.1 The Owner shall dedicate as public highways all road allowances shown on the Plan and shall name all road allowances in a manner satisfactory to the Town. Dedication shall be gratuitous.

6.2 The Owner agrees to sign local improvement petitions for and agrees not to oppose any municipal works proposed by the Town to be constructed pursuant to the provisions of the Local Improvement Act.

6.3 The Owner shall convey to the Town, or the appropriate authority, upon demand, without cost and free of encumbrance, any and all easements as may be required by the Town, the applicable hydro authority, Bell Canada including an easement for switching equipment, Cable T.V., Union Gas and/or any other applicable utility. Such easements may be through, over or under the lands in the proposed subdivision/development internal thereto and may be required for drainage purposes, sewers, hydro, water mains, telephone or any other purpose as deemed necessary. The Owner acknowledges all existing utility easements and agrees not to interfere with same. In the event that the Plan requires relocation or revisions to existing utility easements or facilities, these shall be made at the option of the applicable utility, and at the expense of the Owner.

7. PARKLAND DEDICATION

The Owner agrees to pay cash-in-lieu of parkland in accordance with the Town's parkland dedication policy in effect and subject to any revisions and/or amendments thereto.

8. DEVELOPMENT CHARGES

8.1 The Owner is required to pay Development Charges in accordance with the Town's Development Charges By-law. It is agreed that the Owner will insert in all offers of sale and purchase the following clause:

"NOTE: The Corporation of the Town of Kingsville has entered into a Development Agreement regarding the subject lands whereby the Owner of the subject land is required to pay the applicable Development Charges in accordance with By-law No. 3-2008, the Town's Development Charges By-law, as amended or replaced, and such charges are required to be calculated and paid at the time of building permit issuance."

8.2 The Owner or any other person, upon making application to the Town for a building permit for the erection of a building or buildings on any of the lands shown on the said plans should pay to the Town such development charges in accordance with the by-laws and policies in force at the time of submitting the building permit application.

8.3 The Owner undertakes and agrees to provide that all Offers of Purchase and Sale include information that satisfies subsection 59(4) of the Development Charges Act which requires that a Development Charge:

a) adjusted to the date of payment, with respect to water supply services, sanitary sewer services, storm drainage services, transportation services and electrical power or energy services shall be calculated and payable at the time of building permit issuance;

b) adjusted to the date of payment, with respect to general government services, fire protection services, police protection services, parks and recreation services, library services and health services, shall be collected prior to the issuance of a building permit based on the type of dwelling unit described in the building permit application;

c) in force at the time, for Education or Upper Tier purposes, shall be collected by the Town, at the rate of the day, upon the issuance of a building permit and forwarded to the appropriate body.

9. PLANNING DOCUMENTS

The Owner agrees to conform to and comply with all requirements of the Official Plan and Zoning By-law that pertain to the subject lands.

10. TENDERS

In the event that the Owner shall call for tenders for any of the work herein required, such tenders shall be called on the basis of the specifications prescribed in this Agreement and the Town's Development Standards' Manual. The Owner shall provide the Town with a copy of the accepted tender and an executed copy of the contract let to each successful tenderer for any such work upon request. The amounts of the accepted tenders will be used as the basis to determine the required securities. When construction is to be completed by the Owner, the cost shall be estimated by the Owner's engineer and shall be approved by the Town.

11. PERFORMANCE SECURITIES

11.1 So as to assure the performance by the Owner of the terms and provisions of this Agreement, the Owner shall deposit with the Town securities in accordance with the Town's Development Standards' Manual and to the satisfaction of the Town.

11.2 It is the intent herein that if the Owner shall fail in the performance of the terms and conditions of this Agreement, the Town shall be entitled to realize on the securities that have been deposited with respect to this Agreement in order to fulfill those terms and conditions in respect of which the Owner is in default.

11.3 It is also the intent herein that if the Owner fails in the performance of any of the terms and conditions of this Agreement, the Town at its option, may refuse to grant to the Owner any permissions, certificates, approvals, building permits or authorities of any kind or nature which the Owner, had the Owner otherwise complied with the Town requirements and this Agreement, may have been entitled to receive. The Town may continue to refuse to grant any permissions, certificates, approvals, building permits or authorities until the Town is satisfied that any default in question shall have been remedied.

11.4 No performance security will be released until the Owner has filed a maintenance security in accordance with the Town's Development Standards' Manual and this Agreement.

12. INDEMNITY AND INSURANCE

Until the Owner receives final acceptance of the works from the Town, the Owner agrees to indemnify and save the Town harmless from and against all actions, claims loss, damage and liability connected with the installation and maintenance of said works. The Owner shall also maintain insurance in accordance with the requirements established in the Town's Development Standards' Manual.

13. ACCEPTANCE OF WORK

The Town will accept the works required by this Agreement in the manner prescribed in the Town's Development Standards' Manual.

14. MAINTENANCE SECURITIES

The Owner agrees to deposit Maintenance Securities in the manner prescribed in the Town's Development Standards' Manual.

15. BUILDING PERMITS

The Owner acknowledges that building permits for the construction of dwelling units shall not be issued until such time as the requirements for issuing building permits established in the Town's Development Standards' Manual are satisfied.

16. MODEL HOMES

The Town agrees to allow the construction of not more than 10 percent (rounded) of the number of units in any phase as model homes (**units for entire development) in accordance with the requirements pertaining to model home construction contained in the Town's Development Standards' Manual.

17. COSTS

The Owner shall pay to the Town all costs for engineering, planning and legal services incurred by the Town with respect to services in connection with the proposed development and/or the preparation and administration of this agreement within thirty (30) days of notification thereof by the Town.

18. TREE PLANTING

The Owner agrees to landscape the boulevard next to ** to the satisfaction of the Town. The Owner agrees to pay cash-in-lieu of tree planting in amount of $**.00 in accordance with the Town's Development Standards Manual. The Town will determine the species and location of trees within the development.

19. APPLICABLE LAWS

(a) Notwithstanding the issuance of a building permit, the Owner shall continue to be responsible for complying with all statutes, laws, by-laws, regulations, ordinances, orders and requirements of governmental or other public authorities having jurisdiction at any time from time to time in force. Without limiting the foregoing, the Owner agrees to comply with, and cause to be complied with, the provisions of the Occupational Health and Safety Act, the Environmental Protection Act and the Ontario Water Resources Act and any regulations, policies and guidelines relating thereto, including all obligations of the constructor and employer under the Occupational Health and Safety Act and Regulations as applicable, and any obligation to obtain any approval, permit, or clearance required under the Environmental Protection Act or the Ontario Water Resources Act or any regulations, policies and guidelines relating thereto. The Owner further agrees to handle and dispose of all materials in accordance with the foregoing legislation.

(b) The Owner shall do, cause to be done or refrain from doing any act or thing as directed by the Town if at any time, the Town considers that any situation or condition is unsafe, damaging to the environment or contrary to the provisions of any applicable laws as set out above. If the Owner fails to comply with such direction, the Town may take action to remedy the situation at the expense of the Owner and in this regard, the Town also shall be entitled to draw upon any security filed by the Owner under this Agreement.

(c) The Owner covenants and agrees to indemnify and save completely harmless the Town and its agents, contractors and employees from all actions, causes of action, suits, claims and demands whatsoever which may arise directly or indirectly by reason of the Owner's failure to comply with the foregoing statutes, laws, by-laws, regulations, ordinances, orders, policies and requirements.

20. POSTPONEMENT AND SUBORDINATION

The Owner covenants and agrees, at its own expense, to obtain and register such documentation from its mortgagees or encumbrancers as may be deemed necessary by the Town to postpone and subordinate their interest in the subject lands to the interest of the Town to the extent that this Agreement shall take effect and have priority as if it had been executed and registered before the execution and registration of the document or documents giving to the mortgagees and/or encumbrancers their interest in the subject lands.

21. ENFORCEMENT

The Owner acknowledges that the Town, in addition to any other remedy it may have at law, shall also be entitled to enforce this Agreement in accordance with Section 444 of the Municipal Act, S.O. 2001, c.25 as amended.

22. GENERAL

22.1 The Owner shall be responsible for coordinating the installation of all services, in conjunction with the Town's Engineer and Staff.

22.2 The Owner shall repair forthwith, at its own expense, any damage done by its servants, agents, contractors or subcontractors to any land, roadways or property of the Town resulting from faulty materials or poor quality workmanship, up to and including the final acceptance of the works by the Town.

22.3 The Owner shall forthwith pay to the Town all tax arrears and current taxes due and unpaid charged against the subject lands up to the date hereof and the execution of this Agreement. In addition, the Owner shall pay to the Town all current taxes due at any time hereafter while the subject property is in development and the Owner is the owner of the lands or any part thereof. The Town shall be entitled to refuse any building permits in the event that there are any arrears in taxes with respect to any of the building lots in the development at the time of application for any building permit.

22.4 The Owner shall keep the lands in a state of good repair (including snow ploughing up to the conclusion of the maintenance period) and upon written notice from the Town, shall correct deficiencies in the state of repair arising from poor quality workmanship or materials within ten (10) days thereof. The Town, at its option, reserves the right to enter the subject lands and correct any deficiencies at the Owner's expense.

22.5 This Agreement shall be registered against the Owner's lands described herein. It is understood and agreed that the Town, at the request of the Owner, may release specific lots from the conditions of this Agreement if the Owner or its assignee has fulfilled all obligations hereunder with respect to such lots.

22.6 Any topsoil removed from the subject lands during grading operations shall be stockpiled on the subject lands in areas compatible for the reception of same and the Owner covenants and agrees that it will not remove or permit any other person to remove such topsoil from the boundaries of the subject lands up to the end of the maintenance period without the approval of the Town.

22.7 The Owner shall request from the Town allocation of municipal street numbers and hereby agrees to inform any purchaser of a lot from the Owner of the correct municipal street number as so allocated. The Owner further covenants and agrees to inform, in writing, any purchaser of a serviced lot of the obligation of such purchaser to obtain allocation of a municipal street number as aforesaid.

22.8 In the event of any testing of services to determine their acceptability to the Town, a certificate of any registered professional engineer designated by the Town as to the sufficiency of such test shall be deemed satisfactory to warrant acceptance thereof by the Town. The Municipal Council at its sole discretion may, however, rely upon the like certificate by the Owner's engineer.

22.9 This Agreement shall enure to the benefit of and be binding upon the Town and the Owner, their respective successors and permitted assigns.

22.10 In the event that the owner fails to observe, perform or fulfil any of the terms and conditions of this Agreement or neglects to proceed with the construction of the works or services required for the subject lands within two years of the date of execution of this Agreement, or in the event that the work and services are not constructed or located in the manner provided for in the engineering drawings and other drawings or in accordance with the specifications approved by the Town, then upon the Municipal Clerk giving fourteen (14) days notice by prepaid registered mail to the Owner with respect thereto, the Town may, but need not, without further notice enter upon the subject lands and proceed to supply all materials and do all necessary works (including the repair or reconstruction of faulty work and the replacement of defective materials not in accordance with the specifications or the drawings) and to charge the cost thereof together with the requisite fees for any engineering and administration to the Owner who shall forthwith pay the same on demand. If the Owner shall fail to pay the cost thereof within fifteen (15) days of demand, the Town shall be at liberty to recoup its costs by recovering the same by realizing on the Performance Securities deposited by the Owner without requiring the consent of the Owner before taking action in that connection. Any entry upon the subject lands by the Town for this purpose shall not be deemed for any purpose of this Agreement or for any purpose whatsoever as an acceptance of or an assumption of the service or works by the Town. The rights set forth herein are in addition to any other rights the Town may have in pursuance of this Agreement or at law or in equity.

22.11 Any notice to be given by the Town to the Owner, or by the Owner to the Town, shall be sufficiently given if made in writing and delivered personally or addressed in accordance with the addresses listed below and forwarded by means of telegraphic, telefacsimile, or Telex communication or by prepaid registered mail and in the event that such communication is forwarded by telex or telegraph, it shall be deemed to have been received on the day next following the transmission of such communication by a telecommunications carrier and in the event of registered mail, upon the fifth day next following the date of deposit of such notice in a government post office.

Town	**Owner**
CLERK,	**,
TOWN OF KINGSVILLE,	**********,
2021 DIVISION ROAD NORTH,	**
KINGSVILLE, ONTARIO	**, ONTARIO
N9Y 2Y9	**
Phone:(519) 733-2305	Phone:(519) ***-****
Fax: (519) 733-8108	Fax: (519) ***-****

22.12 Notwithstanding the requirements of subsection 20.10 of this Agreement, the period for compliance with subsection 20.10 shall be extended in the event of third party proceedings, strikes, walkouts or delays in the provision of services or materials or other acts beyond the reasonable control of the Owner, by an amount of time equal to such delay.

22.13 The Owner shall immediately advise the Town and the Ministry of the Environment should waste materials or contaminants be discovered during the development of the subject lands. If waste materials or contaminants are discovered, the Owner shall obtain any necessary approval pursuant to the Environmental Protection Act, as amended from time to time, if required by the Minister of the Environment.

22.14 Time shall be of the essence in respect of this Agreement. No default shall be deemed to have occurred in the event that the Owner is not able to meet its obligations hereunder due to war, riot, hurricanes, tornadoes or other acts of God, strikes and work interruptions, or civil disobedience, provided that the Owner continues to meet its obligations hereunder as soon as possible after the cessation of such event.

22.15 The Owner and the Town agree that all covenants and conditions contained in this Agreement shall be severable, and that should any covenant or condition in this Agreement be declared invalid or unenforceable by a court of competent jurisdiction, the remaining covenants and conditions and the remainder of the Agreement, shall remain valid and not terminate thereby.

IN WITNESS WHEREOF the Owner and the Town have respectively hereunto affixed their corporate seals duly attested by the hands of their proper signing officers in that behalf this ****th** day of ****, 2005**.

SIGNED, SEALED & DELIVERED)

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THE CORPORATION OF THE TOWN OF KINGSVILLE

_____

NELSON SANTOS, MAYOR

_____

LINDA BURLING, CLERK

*******************.**

_____

***** **********

I have authority to bind the Corporation.

SCHEDULE "A"
LEGAL DESCRIPTION

The subject property consists of Part of Lot *, Concession **, Western/Easter Division, Geographic Township of Gosfield ** now in the Town of Kingsville, County of Essex, Ontario.

SCHEDULE "B"
CONCEPTUAL LOTTING PLAN

SCHEDULE "C"

DETAILS REGARDING SPECIFIC REQUIREMENTS

SAMPLES

C.1 Storm Water Management Requirements

The Owner agrees to provide the storm water management works including the detailed erosion control and maintenance plan in accordance with the report entitled "Millbrook Subdivision, Phase 2, Town of Kingsville, Conceptual Storm Water Management Report" prepared by Hanna, Ghobrial and Spencer Ltd. and dated July, 2003.

C.2 School Board Issues

The Owner agrees to:

a) consult with, and locate school bus pick-up zones and sidewalks to the satisfaction of the local school boards;

b) include the following clause in all offers to purchase, agreements of sale and purchase or lease:

"Purchasers/Lessees of this lot are advised that students may not be able to attend the closest elementary or secondary school and could be bused to a distant school with available capacity and that the present existence of such a school is not a guarantee of its future availability."

C.3 Traffic Study

The Owner agrees to front end finance the road improvements recommended in the traffic study prepared by F. R. Berry & Associates, entitled "Millbrook Subdivision Phase 3 Division Road at Con. Road 2, Kingsville Traffic Impact Study" and dated April, 2004 to a maximum cost of $350,000. More specifically, the Owner agrees to provide the required northbound and southbound left turn lanes on County Road 29 at Concession Road 2 and to provide the traffic signalization at the intersection of County Road 29 at Concession Road 2. All such works shall be to the satisfaction of the Town and the County of Essex. As the Town collects Development Charges, 100 percent of the cost of the works undertaken by the Owner shall be reimbursed by the Town and the County. The cost of the works shall require the approval of the Town. The Town will fully reimbursed the Owner for the total cost no later than three years from the date of completion of the works.

C.4 Construction Traffic

The Owner agrees that all construction traffic will use Concession Road 2 and not the internal streets from the southerly residential development.

C.5 Blocks for Future Road Connection

The Owner agrees that Parts 5 and 40 will be held in reserve by the Town for the purpose of providing future road connections, one to the east and one to the west. If the abutting lands develop without the need for such road connections, the Parts will be returned to the Owner and allowed to develop residentially in accordance with the terms of this agreement.

DRIVEWAYS

The Owner agrees to construct driveways as shown below, as approved by the municipality. The driveway for each unit shall abut the driveway of the adjacent unit and be located on the lot in a manner that each driveway can be conveyed with each dwelling unit should they be severed in the future.

d) DRIVEWAY ACCESS

The Owner further covenants and agrees to obtain municipal entrance permits for driveway access, in locations approved by the Town for Parts 1, 2, 3 and 4, Plan 12R-21937 fronting on McCain Sideroad.

c.1 County of essex – daylight corner

The owner agrees to convey at no cost to the County of Essex a 50 foot by 50 foot daylight corner at the southwest portion of the intersection of Conservation Boulevard and County Road 20 West for the purpose of future road improvements.

C.2 SERVICING EASEMENT

Further to Section 6.3 of the Agreement, the Owner shall convey to the Town on demand without cost, free of all prior liens, charges, claims or encumbrances, a twenty foot servicing easement for Municipal services including, but not limited to, storm, water and sewer. The easement shall commence at the southwest corner of Conservation Boulevard a distance of 388.78 feet more or less to the northeast corner of Part 5, on Plan 12R-21455; Thence westerly along the northerly limit of said Part 5 a distance of 20 feet; Thence southerly parallel to the westerly limit of Conservation Boulevard to a point on Part 1, Plan 12R-21455 where it intersects with Essex County Road 20 a distance of 20 feet from the southwest corner of Conservation Boulevard; Thence easterly a distance of 20 feet parallel with the northerly limit of Essex County Road 20 and the southerly limit on Part 1, Plan 12R-21455 to the point of commencement

a) SEPTIC WORK REQUIRED

The Owner covenants and agrees to carry out the work necessary for the separation and upgrade of the sewage disposal systems for both houses located on Part 5, Plan 12R-21937 to the standards and specifications required by the Town under the direction and supervision of the Town's Chief Building Official who will certify completion of the work to the satisfaction of the Town.

b) WATER SERVICE

The Owner covenants and agrees to carry out the work necessary to provide separate water services to each of the houses located on Part 5, Plan 12R-21937 under the direction and supervision of the Chief Building Official who will certify the completion of the work to the satisfaction of the Town.

c) COUNTY – ENTRANCE PERMIT

The Owner covenants and agrees to obtain an entrance permit from the County of Essex for a new driveway to provide access for the two homes located on Part 5, Plan 12R-21937 to County Road 20 which is to be located completely separate from the driveway providing access to the abutting retained farm property (Part Lot 16, Con. 1 W.D.) to County Road 20. The new driveway shall be completed to the standards and specifications of the Town under the supervision and direction of the Public Works Manager and shall be subject to the approval of both the Town and The Corporation of the County of Essex.

e) FINANCIAL SECURITY

Upon execution of this Agreement, the Owner will have provided Performance Securities by cash or certified cheque in the amount of Ten Thousand ($10,000.00) Dollars to be held by the Town. Once all of the works required by this Agreement are completed to the satisfaction of the Town and all fees, expenses and charges payable by the Owner to the Town have been paid in full, the Ten Thousand ($10,000.00) Dollars shall be returned, without interest, upon request of the Owner.

f) PROPERTY CLEAN UP

The Owner covenants and agrees to clean up the entire subject lands together with the abutting retained farm property under the direction and supervision of the Town's Chief Building Official who will certify completion of the clean-up to the satisfaction of the Town.

g) ENVIRONMENTAL AUDIT

The Owner covenants and agrees to provide to the satisfaction of the Town's Engineer or consultant, an environmental audit clearing unconditionally Parts 1, 2, 3 and 4, Plan 12R-21937 as suitable for residential development.

h) RELINQUISH NON-CONFORMING USE

The Owner covenants and agrees that once a severance for any of the part/lots covered by this agreement is granted, the Owner's right, if any, to the non-conforming salvage yard operation is relinquished and abandoned for the entire subject lands as well as the abutting retained farm property described as Part Lot 16, Con. 1 W.D.

i) REZONE

The Town covenants and agrees to include a provision in its new Comprehensive Zoning By-law to permit two homes for single family residential use on Part 5, 12R-21937.

APPENDIX D
DEVELOPMENT CHARGES BY-LAW

THE CORPORATION OF THE TOWN OF KINGSVILLE

BY-LAW NUMBER 64 -2004

(Development Charges By-law)

Being a By-law to establish
Development Charges in the Town of Kingsville

WHEREAS the Development Charges Act, 1997, (hereinafter called the "Act") provides that the Council of a municipality may pass by-laws for the establishment of a development
charge where the development increases the need for services;

AND WHEREAS the Council of the Corporation of the Town of Kingsville held public meetings in accordance with the requirements of the Act;

AND WHEREAS a Background Report was prepared in advance of the preparation and adoption of this By-law establishing the maximum allowable charge in accordance with the Act;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWN OF KINGSVILLE ENACTS AS FOLLOWS:

DEFINITIONS

1. In this By-law, the following definitions shall apply:

a) "**Accessory**" shall mean a building that is normally incidental, subordinate and exclusively devoted to a main building and that is located on the same lot therewith and includes a private garage that is not attached to the main building in any way and does not include a fence or a sign.

b) "**Act**" shall mean the Development Charges Act, 1997, S.O. 1997, c, 27;

c) "**Agreement**" shall mean a contract between the municipality and an owner of land and any amendment thereto;

d) "**Agricultural Use**" shall mean the cultivation ofland, the production of crops and the selling of such product on the premises, and the breeding and care of livestock and the selling of such livestock or the product of such livestock raised on the premises, and without limiting the generality of the foregoing includes aviaries, apiaries, fish farming, animal husbandry, and the raising and harvesting of field, bush, or tree crops, market gardening, nurseries and greenhouses. However, "agricultural use" does not include facilities for the permanent or temporary housing of persons employed on the lot."

e) "**Capital Cost**" shall mean costs incurred or proposed to be incurred by the municipality, or a local board thereof, directly or under an agreement, required for the provision of services designated in this By-law within or outside of the municipality:

i) to acquire land or an interest in land, including a leasehold interest;

ii) to improve land;

iii) to acquire, lease, construct or improve buildings and structures;

iv) to acquire, lease, construct or improve facilities including rolling stock with an estimated life of seven years or more and furniture and equipment, other than computer equipment; and

v) to undertake studies in connection with any matter under the Act and any of the matters in clauses i) to iv) above;

vi) to prepare the Development Charges Background Study required before the enactment of this By-law; and

vii) for interest on money borrowed to pay for the costs described in clauses i) to iv) above;

f) "**Council**" shall mean the Council of the Corporation of the Town of Kingsville;

g) "**Development**" shall mean the construction, erection or placing of one or more buildings or structures on land or the making of an addition or alteration to a building or structure that has the effect of increasing the size;

h) "**Development Charge**" shall mean a charge imposed against land in the municipality
under this By-law;

i) "**Dwelling Unit**" shall mean one or more habitable rooms occupied or designed to be occupied by an individual or group of individuals as an independent and separate housekeeping establishment in which separate kitchen and sanitary facilities are provided for the use of such individual or group of individuals with a private entrance from outside the building or from a common hallway or stairway inside the building;

j) "**Engineering Services**" shall mean water supply services, sanitary sewer services, storm drainage and treatment services, transportation services and electrical power or energy servIces;

k) "**Existing**" shall mean in existence as ofthe date of the application for a building permit to expand or construct;

l) "**Gross Floor Area**" shall mean the total space on all storeys of a building measured from the outside dimensions of the outside walls and when there is a shared common wall, the measurement shall be from the midpoint of the common wall;

m) "**Local Board**" shall have the meaning attributed to in the Development Charges Act;

n) "**Local Services**" shall have the meaning attributed to them in the Development Charges Act;

0) "**Mixed Use Building**" shall mean a building that is used and/or designed to be used for both residential and non-residential purposes;

p) "**Municipality**" shall mean the Town of Kingsville;

q) "**Net Capital Cost**" shall mean the capital cost, less capital grants, subsidies and other contributions made to the municipality or that the Council anticipates will be made, including conveyances or payments under Sections 42,51 and 53 of the Planning Act, in respect of the capital cost;

r) "**Non-residential Building**" shall mean a building used and/or designed to be used for other than a residential purpose;

s) "**Residential Building**" shall mean a building that is used and/or designed to be used for a residential purpose.

SCHEDULE OF DEVELOPMENT CHARGES

2.

a) Council hereby determines that the development of residential, non-residential and mixed use buildings will require the provision, enlargement, expansion or improvement to the services outlined in Schedule "A" of this By-law.

b) Subject to the provisions of this By-law, Development Charges shall be imposed, calculated and collected upon the issuance of building permits for the development of buildings and for such services as are listed in Schedule "A" of this By-law in the amounts and for the services specified in Schedule "B".

c) The Development Charges imposed by this By-law are comprised of various components. The components for each Development Charge in each area set out are shown in Schedule "B". When determining the amount of the Development Charge payable, only those components of the charge to which the development has access will be included in the determination of the charge.

d) The Development Charge with respect to a mixed use building shall be

calculated by adding the residential development charge payable under this By-law for the residential portion of the development to the non-residential development charge payable under this By-law for the non-residential portion of the development.

APPLICABLE LANDS

3. This By-law applies to the construction of all buildings within the Town of Kingsville with the exception of the following:

    i) those buildings specifically exempt by the Act being lands, buildings or structures within the municipality that are owned by and used for the purposes of:

        a) a board as defined by subsection 1(1) of the Education Act;

        b) the municipality or any local board thereof;

        c) the Corporation of the County of Essex or any local board thereof;

        d) any area municipality within the Corporation of the County of Essex;

    ii) the enlargement of the gross floor area of an existing dwelling unit or the creation of up to two additional dwelling units in an existing residential building as set out in regulations under the Act;

    iii) residential development within registered plans of subdivision for which there is already a subdivision agreement establishing the payment of a specified Development Charge amount;

    iv) existing residential lots for which there had previously been paid a Development Charge and such lot has not been developed prior to this By-law coming into effect. The burden of proof of payment lies with the applicant;

    v) non-residential development for which a development agreement is in effect that establishes a specified lot levy amount;

    vi) the enlargement of an existing industrial building if the gross floor area is enlarged by 50 percent or less; and

    vii) a partial exemption where the enlargement of an existing industrial building is more than 50 percent of the existing gross floor area. In such instances, the Development Charge is only applied to the amount of the expansion that exceeds 50 percent of the existing floor area. To determine this amount, the amount of the charge that would otherwise be payable on the entire expansion (the per square footage charge multiplied by the square footage of the total expansion) is multiplied by the fraction that results from placing the

amount by which the enlargement exceeds 50 percent of the gross floor area before the enlargement over the amount of the total enlargement.

APPLICABLE DEVELOPMENT CHARGES

4. A Development Charge shall apply to and shall be calculated and collected in accordance with the provisions of this By-law on buildings to be developed for residential, non-residential and mixed use purposes where the development requires the issuance of a permit under the Building Code Act, S.O. 1992, c. 23 in relation to a building or structure.

5. The components of the Development Charges imposed by this By-law do not include:

   i) local services installed or paid for by an owner related to a plan of subdivision or within the area to which the subdivision relates as a condition of approval under Section 51 of the Planning Act, R.S.O. 1990, c. P. 13, as amended; or

   ii) local services installed or paid for by an owner as a condition of approval under Section 53 of the Planning Act, R.S.O. 1990, c. P. 13, as amended;

   iii) local connections to watermains, sanitary sewers and storm facilities installed at the expense of the owner including amounts imposed by by-law passed under Section 219 of the Municipal Act, R.S.O. 1990, c. M. 45, as amended.

6. The Development Charge shall not apply to:

   i) any construction of buildings to be used for accessory purposes if a service connection already exists for the lot. If a water or sewage connection is not existing at the time of permit application and the lands are within the respective service areas, a Development Charge may be imposed;

   ii) the renovation of an existing building which does not alter, if a residential use, the number of units, or if a non-residential use, the net gross floor area thereof; or

   iii) any construction of buildings used for agricultural purposes, other than residential dwelling units associated with an agricultural use. Notwithstanding the foregoing sentence, the construction of any building intended to be used in conjunction with any nursery, wholesale and retail floral shop or landscaping business will be required to pay a Development Charge notwithstanding the fact that it is a permitted use in an agricultural area. Also, the construction of any building intended to house an agricultural home occupation shall be required to pay a Development Charge. The construction of any building intended to house any use that requires a defined area in the municipality's zoning by-law in order to be a permitted use in the agricultural area shall also pay the required Development Charge.

LOCAL SERVICES AND LOCAL CONNECTIONS

7. Nothing in this By-law prevents Council from requiring, as a condition of an agreement under Sections 51 or 53 of the Planning Act, R.S.O. 1990, c. P. 13, as amended, that the owner, at his or her own expense, shall install such local services related to or within a plan of subdivision, as Council may require, or that the owner pay for local connections to watermains, sanitary sewers and/or storm drainage facilities installed at the owner's expense, or administrative, processing or inspection fees.

DEVELOPMENT CHARGE CREDIT

8. Notwithstanding the payments required by this By-law, Council may by agreement, give a person a credit towards a Development Charge in exchange for work that relates to a service for which a Development Charge is imposed under this By-law. Such agreement shall specify that where the municipality agrees to allow the performance of work that relates to a service, the municipality shall give to the person performing the work a credit, equal to the reasonable cost of doing the work, against the Development Charge otherwise applicable to the development. Such credit shall be without interest unless specifically authorized by Council. Such credit shall not exceed the total Development Charge payable by an owner to the municipality and no credit shall be given for any part of the cost of services that relates to an increase in the level of service above the average level of service described in paragraph 5 (1) 4 of the Act.

REDUCTION OF CHARGES FOR REDEVELOPMENT

9. Notwithstanding any other provisions of this By-law, where as a result of the redevelopment of land, a building or structure existing on the land within 3 years prior to the date of payment of Development Charges in regard to such redevelopment was, or is to be demolished in whole or in part, or converted from one principal use to another, in order to facilitate the redevelopment shall be reduced by the following amounts:

    i) in the case of a residential building or residential uses in a mixed-use building, an amount calculated by multiplying the applicable Development Charge under this By-law by the number of dwelling units that have been or will be demolished or converted to another principle use; and

    ii) in the case of a non-residential building or non-residential uses in the mixed-use building, an amount calculated by multiplying the applicable Development Charge under this By-law by the gross floor area that has been or will be demolished or converted to another principle use;

    provided that such amounts shall not exceed, in total, the amount of the Development Charge otherwise payable with respect to redevelopment.

TIMING AND CALCULATION OF PAYMENTS

10. A development charge for each building shall be calculated and payable in full on the date of building permit issuance in relation to such building to which a Development Charge applies. Despite the foregoing sentence, in those instances where the developer requests permission to pay Development Charges in advance of building permit issuance, the municipality may consider and act in accordance with the request.

    Where Development Charges apply to land in relation to which a building permit is required, the Chief Building Official shall not issue a building permit in respect of such development until the Development Charge is paid in full.

RESERVE FUNDS

11. Money received from payment of a Development Charge shall be maintained in a separate reserve fund or funds for each service to which the Development Charge applies and shall be spent for capital costs determined in accordance with the Act. Any income received from investment of the Development Charge reserve funds shall be credited to the Development Charge reserve fund in which the investment income applies.

12. Where any Development Charge remains unpaid after the due date, the amount unpaid shall be added to the tax roll and shall be collected in the same manner as taxes. Where any unpaid Development Charges are collected as taxes, the money collected shall be credited to the appropriate Development Charge reserve fund.

13. The Treasurer of the municipality shall, in each year on or before April 1, furnish to Council a statement in respect of the reserve funds established hereunder for the prior year which statement shall contain the prescribed information.

BY-LAW AMENDMENT OR REPEAL

14. If this By-law or any Development Charge prescribed thereunder is amended or repealed either by order of the Ontario Municipal Board or by Council, the Treasurer shall calculate forthwith the amount of any overpayment to be refunded as a result of said amendment or repeal and make such payment in accordance with the provisions of the Act.

    Refunds that are required to be paid shall be paid with interest to be calculated as follows:

    i) interest shall be calculated quarterly in accordance with the established rate from the date on which the overpayment was collected to the date on which the refund is paid;

ii) the established rate shall be determined by using the Bank of Canada interest rate in effect on the date of enactment of this By-law and adjusted on the first business day of January, April, July and October in each year to the rate established on the date of adjustment.

FRONT END FINANCING

15. Where an owner develops or applies for approval to develop lands within the municipality, the municipality and local boards may require developers to participate in front-end financing arrangements under Part III of the Act as a condition of development. A credit against Development Charges otherwise payable will be provided where installation of services or front end payments under Part III of the Act replaces the need for specific services normally provided by Development Charges. The credit will apply to the particular service component of the Development Charge, the need for which has been replaced by the installation of services or front end payments. The amount of the credit cannot be greater than the amount of a Development Charge service component to which it is to be applied, so that the amount of a Development Charge service component cannot be negative. Arrangements for such credits against development charges otherwise payable must be specified in a front ending agreement to which the municipality is a party for the credit to be subsequently allowed by the municipality.

REGISTRATION

16. A certified copy of this By-law may be registered on title to any land to which this By-law applies.

INDEXING

17. The Development Charge amounts established in Schedule "B" shall be adjusted annually, without an amendment to this By-law, commencing after the enactment of the By-law on the first day of each year while this By-law is in force, in accordance with the most recent change in the Statistics Canada Quarterly, Construction Price Statistics, subject to Council's absolute discretion to waive, reduce or otherwise modify the indexing adjustment.

BY-LAW ADMINISTRATION

18. The Treasurer of the municipality shall administer this By-law and the Chief Building Official shall collect the fees.

SCHEDULES TO THE BY-LAW

19. The following Schedules to this By-law form an integral part of this By-law:

Schedule "A" - Designated Municipal Services

Schedule "B" - Schedule of Development Charges Including Components

Schedule "C"- Map Illustrating the Areas Subject to the Various Charges.

EFFECTIVE DATE

20. This By-law shall come into force and effect on the day of its enactment.

DATE BY-LAW EXPIRES

21. This By-law shall continue in force and effect for a term of five years from its effective date unless it is repealed at an earlier date.

INTERPRETATION

22. Nothing in this By-law shall be construed to commit or require the municipality to authorize or proceed with any specific capital project at any specific time. Each of the provisions of this By-law are severable and if any provision hereof should for any reason be declared invalid by the Ontario Municipal Board or a court of competent jurisdiction, the remaining provisions shall remain in full force and effect.

REPEAL

23. All other development charges by-laws are hereby repealed.

SHORT TITLE

24. This By-law may be cited as "the Town of Kingsville Development Charges By-law".

READ A FIRST, SECOND AND THIRD TIME AND FINALLY PASSED, THIS 31st DAY OF AUGUST, 2004.

_____

MAYOR

_____

CLERK

SCHEDULE "A"

DESIGNATED MUNICIPAL SERVICES

Engineering Services

Sanitary Sewage	Including all related treatment, storage and transmission facilities and related studies.
Water	Including all related treatment, storage and transmission facilities and related studies.
Storm Drainage	Including all related pumping, storage and transmission facilities and related studies.
Roads	Including all related intersection, signalization and right-of-way improvements and related studies.
Electrical	Including all related facilities.

Non-Engineering Services

Administrative Facilities	Including all public works buildings, vehicle and equipment requirements, building department vehicle and equipment requirements and the preparation of the Development Charges Study.

SCHEDULE "B"

SCHEDULE OF DEVELOPMENT CHARGES INCLUDING COMPONENTS

1. The Development Charges set out in this Schedule will be adjusted in accordance with an inflation factor established in the Statistics Canada Quarterly, Construction Price Statistics to be implemented, without amendment to this By-law, on the first day of each year.

2. The following table depicts the Development Charge for Residential Development on a per unit basis and broken out by component in various areas of the Town of Kingsville as highlighted on Schedule "C". Only those components to which the development has access are to be included in the determination of the amount of the charge.

Development Charge for Residential Development
Per Residential Unit
All Areas

Type of Service	No Sewer Area	Lakeshore West Sewer Area	Kingsville Sewer Area	Cottam Sewer Area
Sanitary Sewers	None	$2,950	$2,950	$7,900
Water	None	None	None	None
Storm	$123	$123	$123	$123
Roads	$1,714	$1,714	$1,714	$1,714
Electricity	None	None	None	None
Administrative Facilities	$873	$873	$873	$873
Total	**$2,710**	**$5,660**	**$5,660**	**$10,610**

3. The following table depicts the Development Charge for Non-Residential Development on a per square foot basis and broken out by component in various areas of the Town of Kingsville as highlighted on Schedule "C". Only those components to which the development has access are to be included in the determination of the amount of the charge.

Development Charge for Non-Residential Development
Per Square Foot of Gross Floor Area
All Areas

Type of Service	No Sewer Area	Lakeshore West Sewer Area	Kingsville Sewer Area	Cottam Sewer Area
Sanitary Sewers	None	$0.29	$0.29	$0.52
Water	None	None	None	None
Storm	$0.02	$0.02	$0.02	$0.02
Roads	$0.17	$0.17	$0.17	$0.17
Electricity	None	None	None	None
Administrative Facilities	$0.09	$0.09	$0.09	$0.09
Total	**$0.28**	**$0.57**	**$0.57**	**$0.88**

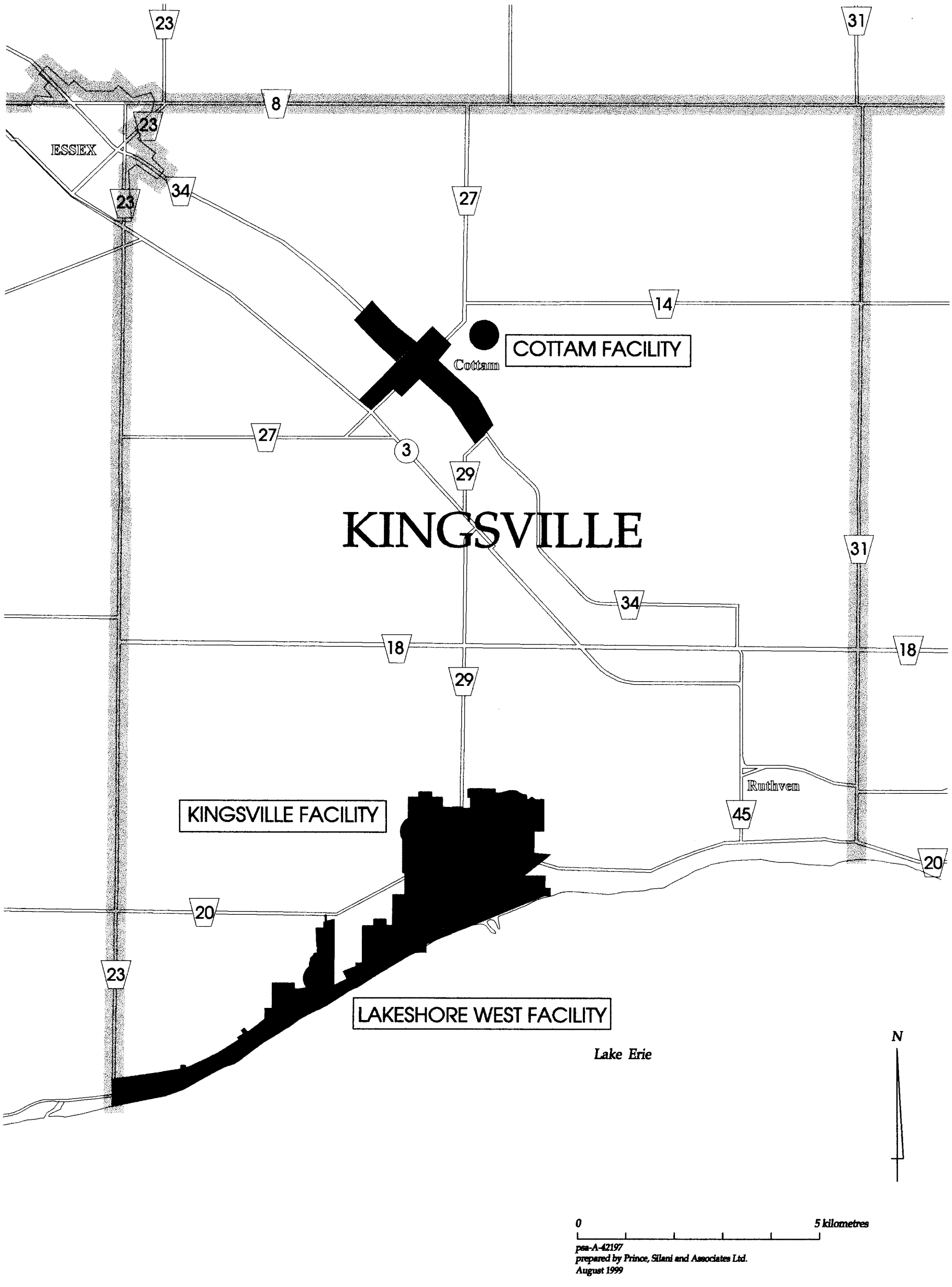
No Sewer Area

Lakeshore West Service Area

Kingsville Service Area

Cottam Service Area

SCHEDULE "C"
TOWN OF KINGSVILLE
DEVELOPMENT CHARGES



psa-A-42197
prepared by Prince, Silani and Associates Ltd.
August 1999

Table 5.5
Development Charge
Per Residential Unit
All Areas
Effective March 1, 2007

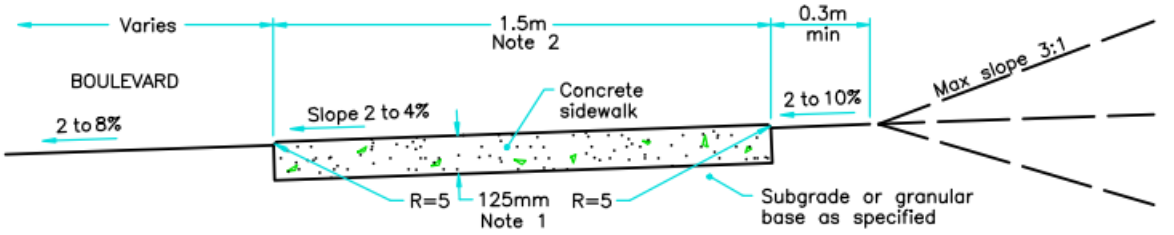
Type of Service	No Sewer Area	Lakeshore West Sewer Area	Kingsville Sewer Area	Cottam Sewer Area
Sanitary Sewers	None	$3,318	$3,318	$8,887
Water	None	None	None	None
Storm	$138	$138	$138	$138
Roads	$1,928	$1,928	$1,928	$1,928
Electricity	None	None	None	None
Administrative Facilities	$981	$981	$981	$981
Total	**$3,047**	**$6,365**	**$6,365**	**$11,934**

Table 5.6
Development Charge
Per Square Foot of Non-Residential Floor Area
All Areas
Effective March 1, 2007

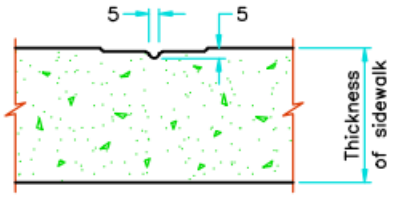
Type of Service	No Sewer Area	Lakeshore West Sewer Area	Kingsville Sewer Area	Cottam Sewer Area
Sanitary Sewers	None	$0.33	$0.33	$0.59
Water	None	None	None	None
Storm	$0.02	$0.02	$0.02	$0.02
Roads	$0.20	$0.20	$0.20	$0.20
Electricity	None	None	None	None
Administrative Facilities	$0.09	$0.09	$0.09	$0.09
Total	**$0.31**	**$0.64**	**$0.64**	**$0.90**

2007 Inflation Adjustment (CCI - Composite Annual Average)
1.036

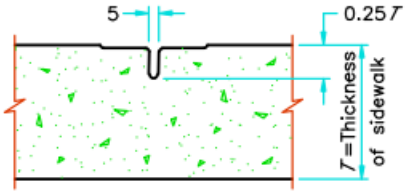
APPENDIX E
DRAWINGS



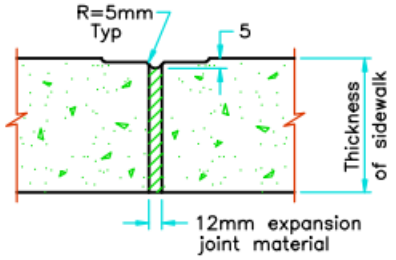
TYPICAL SECTION



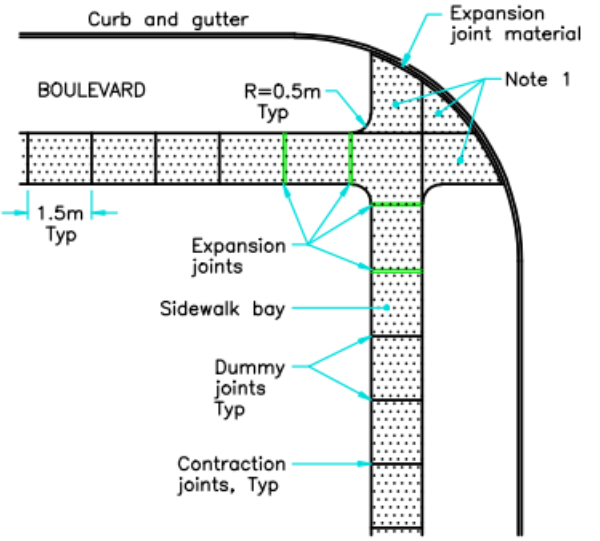
DUMMY JOINT



CONTRACTION JOINT



EXPANSION JOINT



JOINT LAYOUT

NOTES:

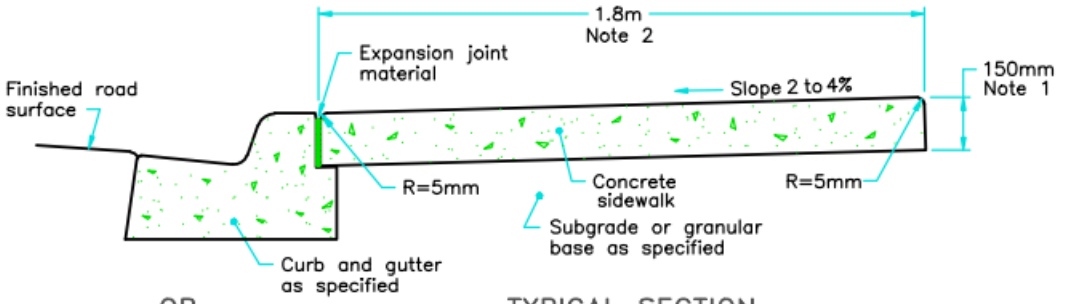
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.

2 Sidewalk width shall be increased to 2.4m at schools, bus stops, and other high pedestrian areas.

A All dimensions are in millimetres unless otherwise shown.

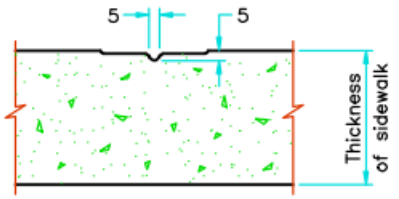
B Concrete sidewalk ramps at intersections to OPSD-310.030

	TOWN OF KINGSVILLE	**Date:** April 1, 2011
		Last Revision:
	CONCRETE SIDEWALK	**Drawing No:**



TYPICAL SECTION

OR



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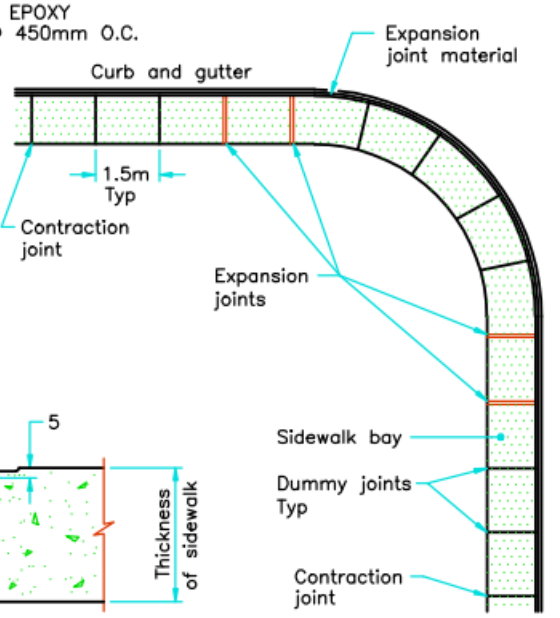
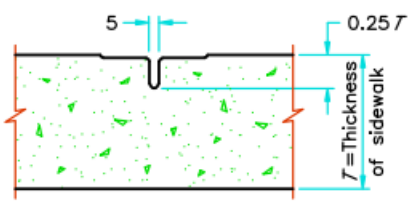
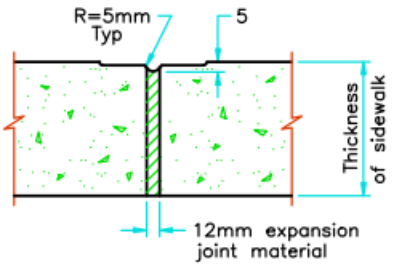




CONTRACTION JOINT



EXPANSION JOINT

JOINT LAYOUT

NOTES:

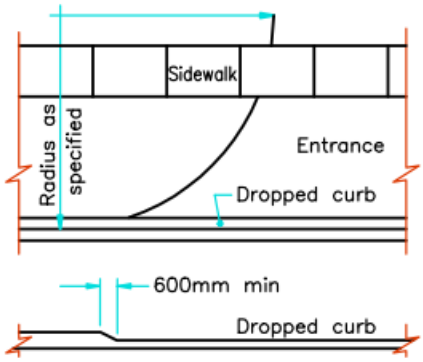
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm.
At commercial and industrial driveways, the thickness shall be 200mm.

2 Sidewalk width shall be increased to:
- 1.8m when adjacent to curb on major roadways
- 2.4m at schools, bus stops, and other high pedestrian areas.

A All dimensions are in millimetres unless otherwise shown.

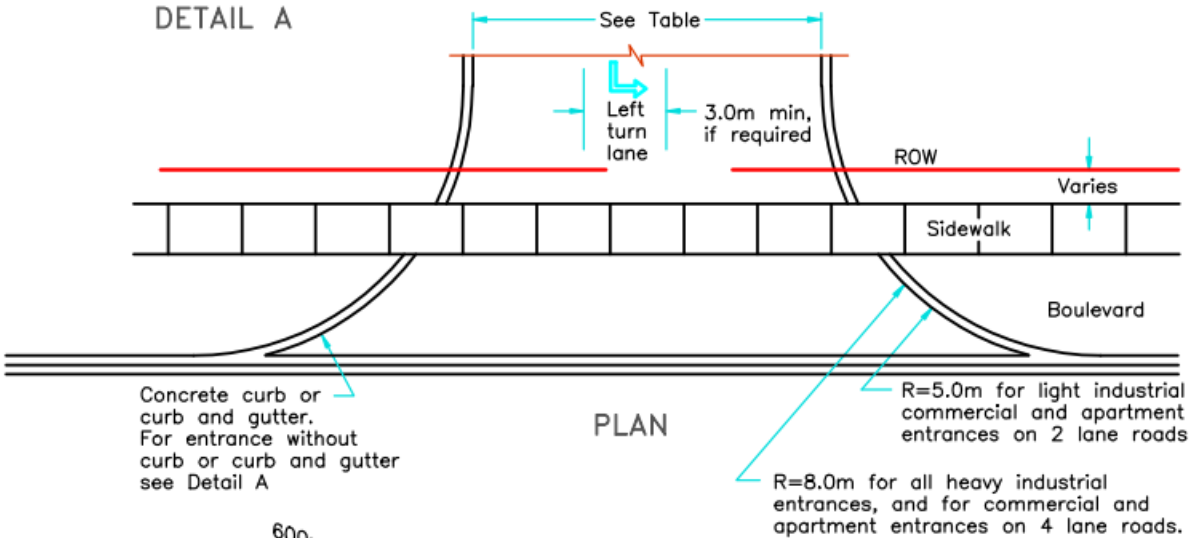
B Concrete sidewalk ramps at intersections to OPSD-310.030

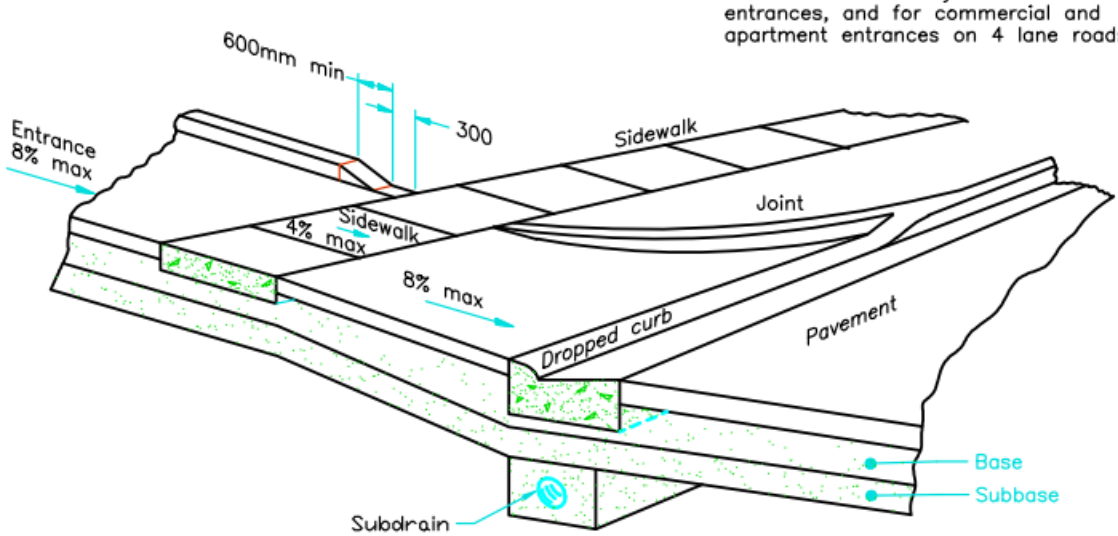
	TOWN OF KINGSVILLE	**Date:** April 1, 2011
	CONCRETE SIDEWALK	**Last Revision:**
		Drawing No:



DRIVEWAY DIMENSIONS						
LAND USE	WIDTH m				RADIUS m	
	One–Way		Two–Way			
	min	max	min	max	min	max
Light Industrial Commercial and Apartment	4.5	7.5	7.2	12.0	4.5	12.0
Heavy Industrial	5.0	9.0	9.0	15.0	4.5	15.0

DETAIL A

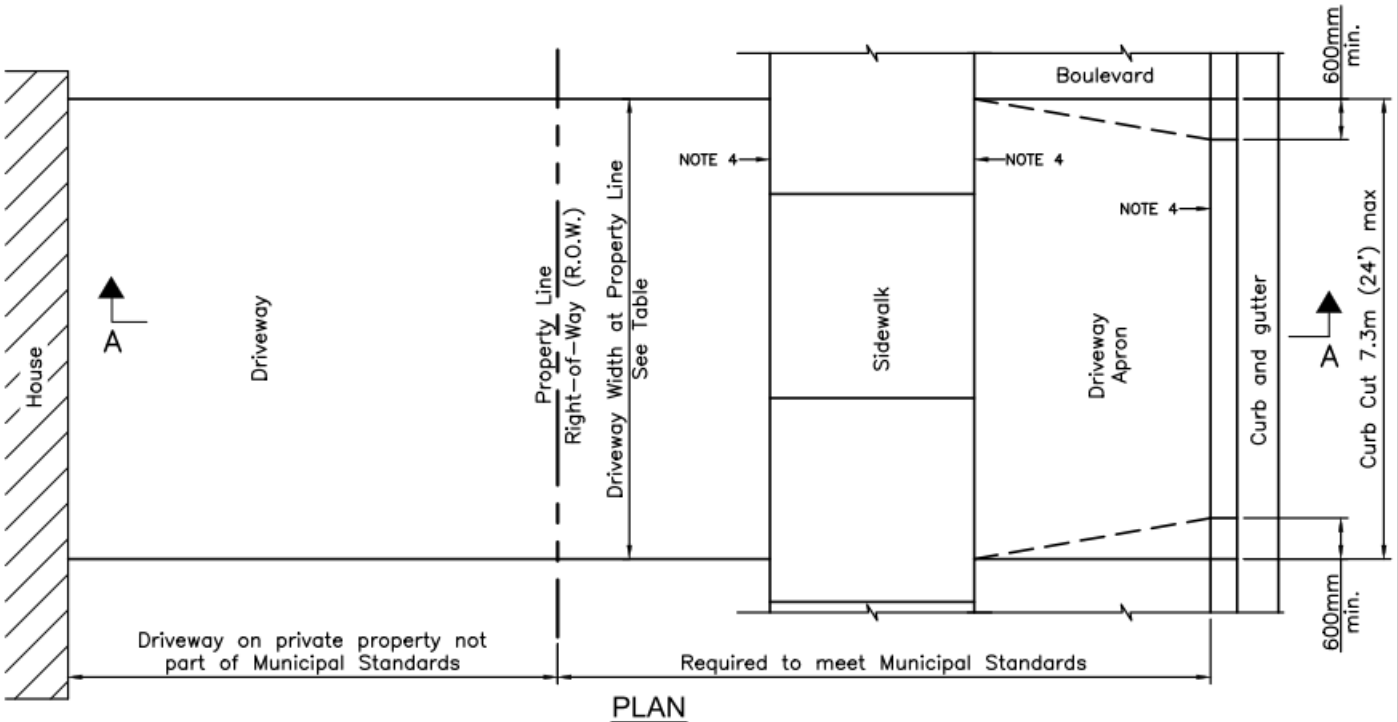




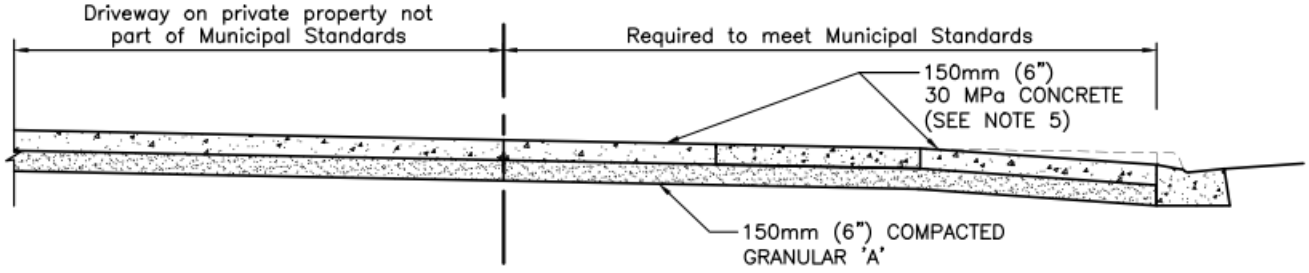
NOTES:

A All dimensions are in millimetres unless otherwise shown.

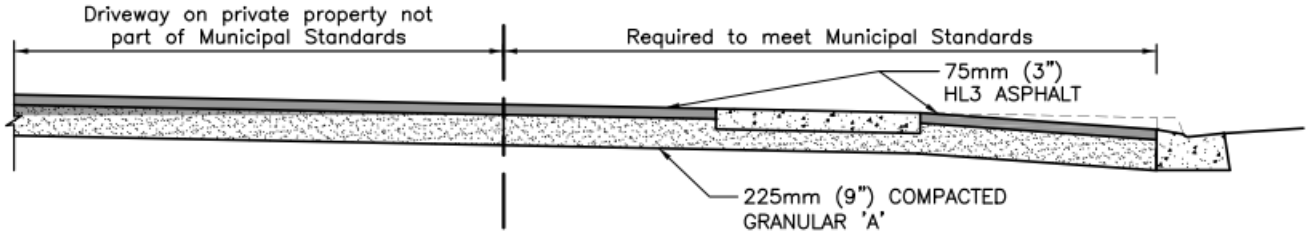
TOWN OF KINGSVILLE	Date: April 1, 2011	
INDUSTRIAL, COMMERCIAL AND APARTMENT	Last Revision:	
	Drawing No:	



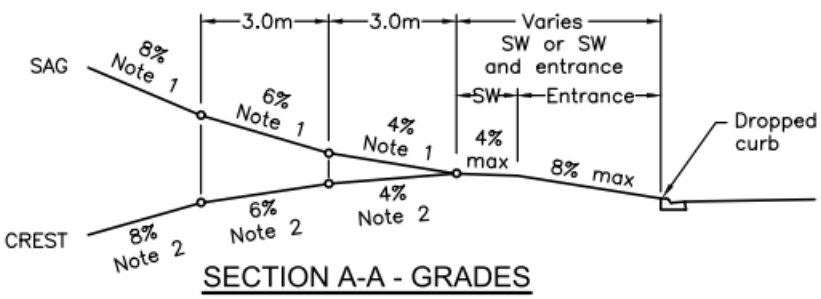
PLAN



SECTION A-A - CONCRETE



SECTION A-A - ASPHALT



SECTION A-A - GRADES

DRIVEWAY DIMENSIONS				
LAND USE	WIDTH (m)			
	Single		Double	
	min	max	min	max
Residential	3.0	4.3	6.0	7.3

NOTES:
1. MAXIMUM UPGRADE SHALL BE 10%.
2. MAXIMUM DOWNGRADE SHALL BE 8%.
3. RURAL AND SEMI-URBAN DRIVEWAY REQUIREMENTS ARE DETERMINED BY THE TOWN ON A CASE BY CASE BASIS.
4. 12mm (½") THICK FULL DEPTH PRE-MOLDED JOINT FILLER AS PER OPSS 1308 OR SAW CUT TO DELINEATE SIDEWALK.
5. NO WIRE MESH WITHIN MUNICIPAL RIGHT OF WAY

Kingsville ONTARIO

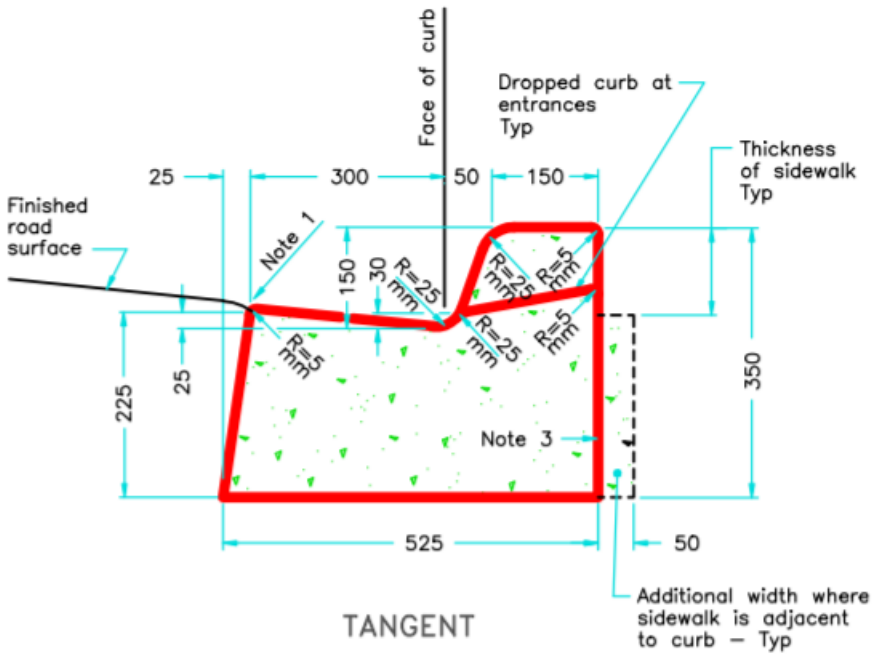
TOWN OF KINGSVILLE

URBAN RESIDENTIAL ENTRANCE

Date: JUN 1, 2007

Revised: NOV 27, 2023

Drawing No: S4



TANGENT

SUPERELEVATED

NOTES:

1 Flexible pavement shall be 5mm above the adjacent edge of gutter.
2 Where sidewalk is continuously adjacent, reduce the dropped curb at entrances to 75mm.
3 For slipforming procedure, a 5% batter is acceptable.
A Treatment at entrances shall conform with OPSD–351.010.
B Outlet treatment shall conform with OPSD–610 Series.
C The length of transition from one curb type to another shall be 3.0m, except in conjunction with guide rail, it shall conform to OPSD–900 Series.
D All dimensions are in millimetres unless otherwise shown.

LEGEND:

S – Rate of pavement superelevation in percent, %.

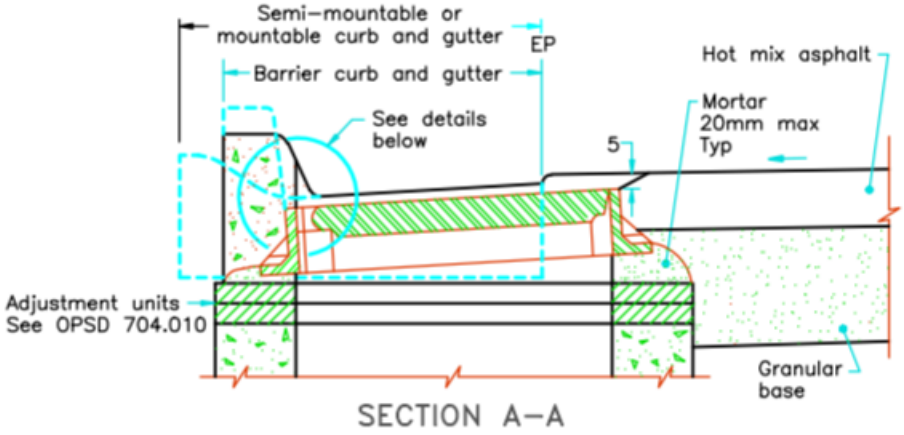
TOWN OF KINGSVILLE

CONCRETE BARRIER CURB WITH STANDARD GUTTER FOR FLEXIBLE PAVEMENT

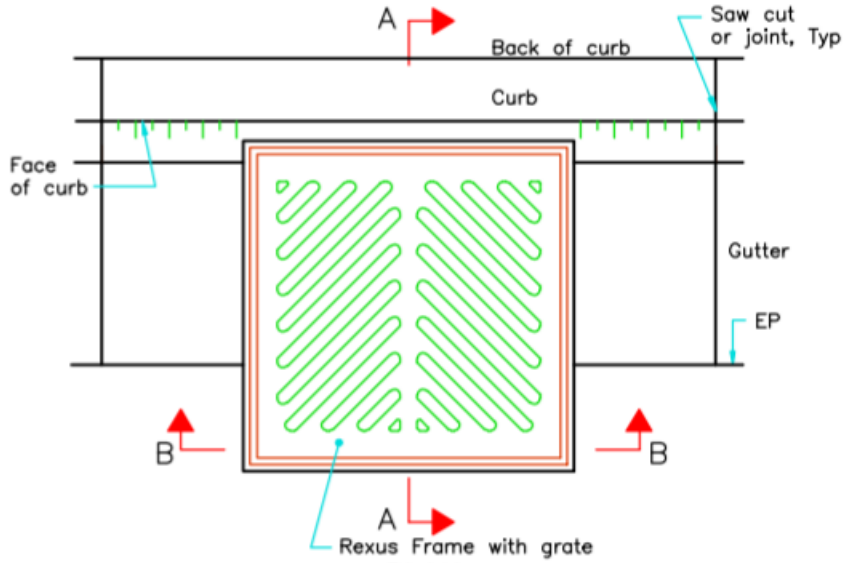
Date: April 1, 2011

Last Revision:

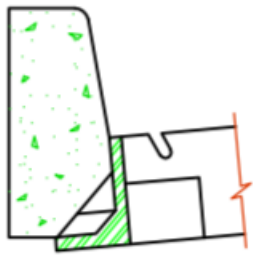
Drawing No: S5



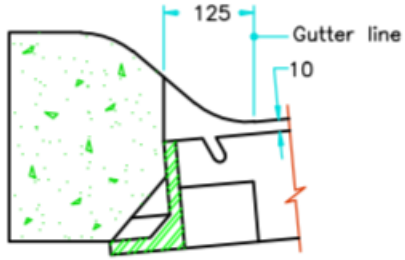
SECTION A–A



PLAN

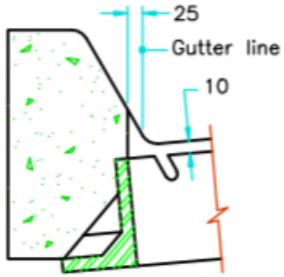


BARRIER CURB

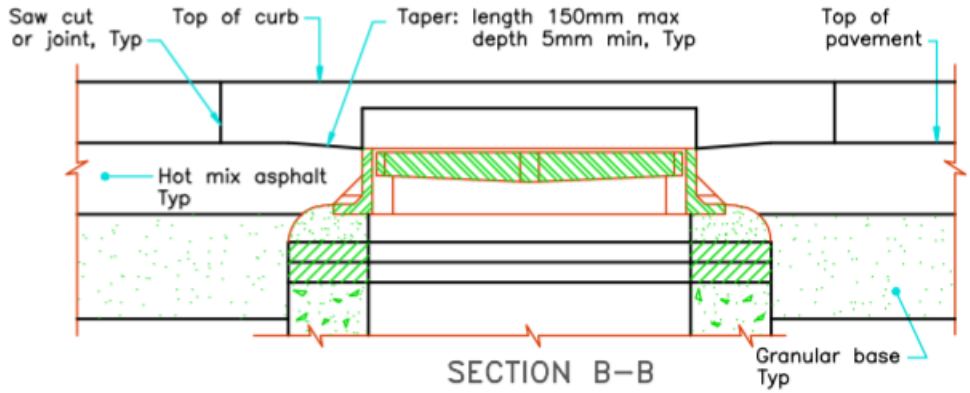


SEMI–MOUNTABLE or MOUNTABLE
CURB AND GUTTER

DETAILS



BARRIER
CURB AND GUTTER



SECTION B–B

NOTE:

A All dimensions are in millimetres unless otherwise shown.

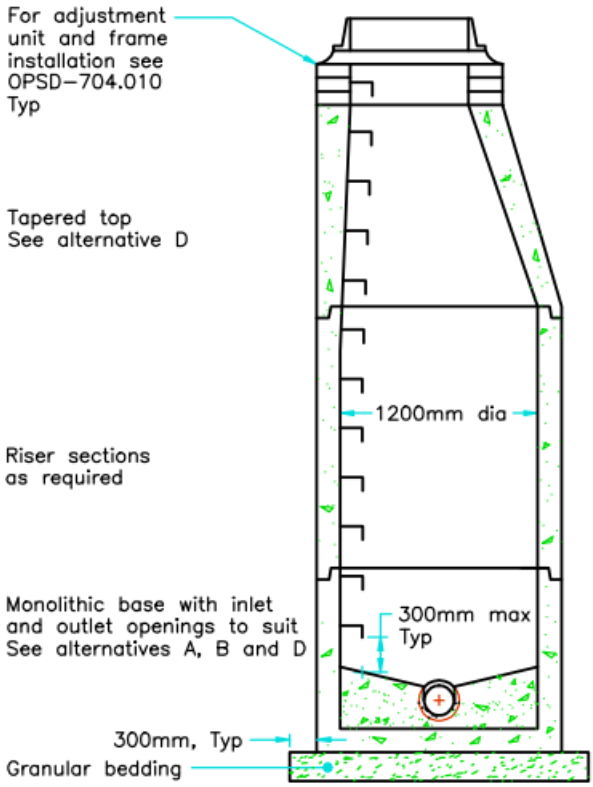
TOWN OF KINGSVILLE

CATCH BASIN FRAME WITH GRATE INSTALLATION AT CURB AND GUTTER

Date: April 1, 2011

Last Revision:

Drawing No: S6



NOTES:

1 The sump is measured from the lowest invert.

A Granular backfill to be placed to a minimum thickness of 300mm all around the maintenance hole.

B Precast concrete components according to OPSD–701.030.

C Structure exceeding 5.0m in depth to include safety platform according to OPSD–404.020.

D Pipe support according to OPSD–708.020.

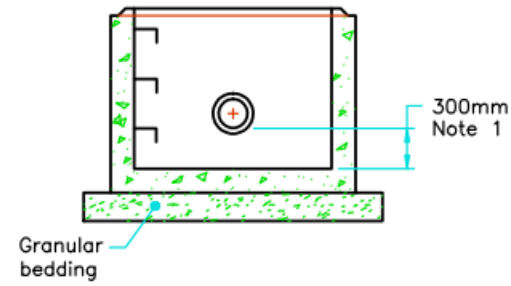
E For benching details, maximum pipe hole diameters and flow configurations, see OPSD–701.021.

F All dimensions are nominal.

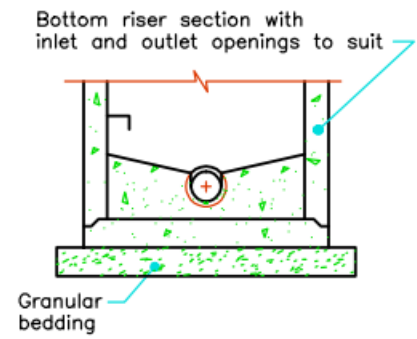
G All dimensions are in millimetres unless otherwise shown.

ALTERNATIVES

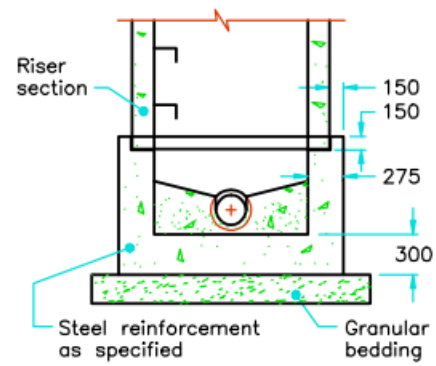
A SUMP FOR STORM SEWER MAINTENANCE HOLE



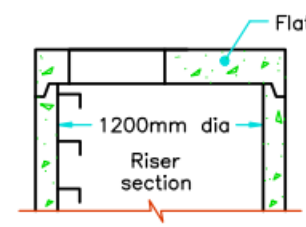
B PRECAST SLAB BASE



C CAST–IN–PLACE BASE



D PRECAST FLAT CAP



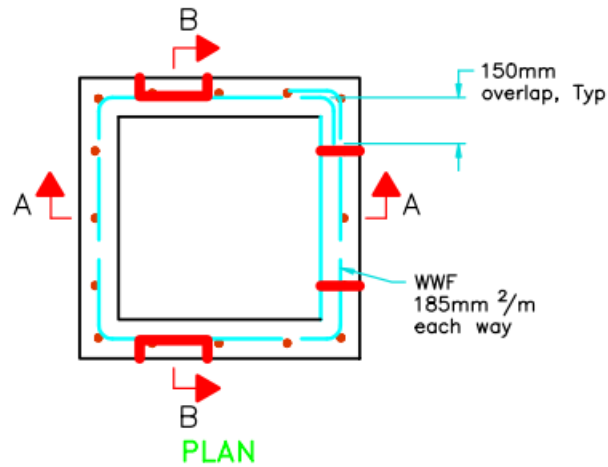
TOWN OF KINGSVILLE

MAINTENANCE HOLE

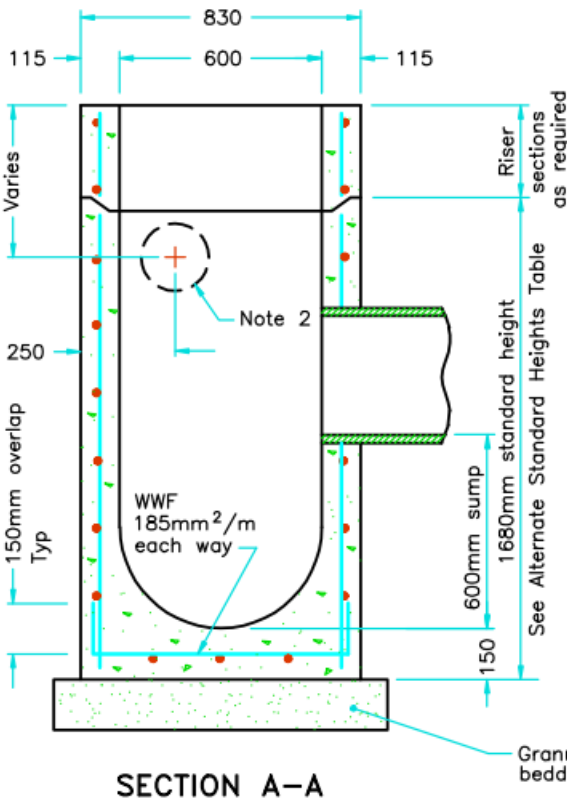
Date: April 1, 2011

Last Revision:

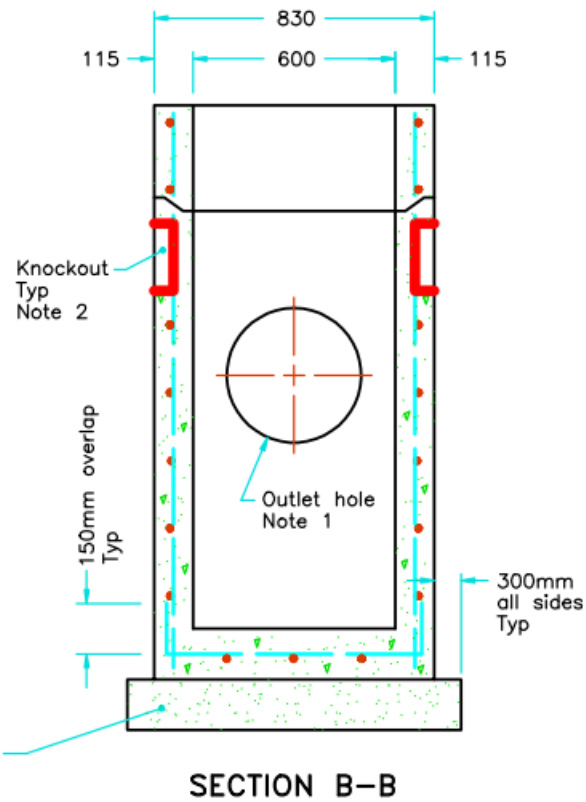
Drawing No:



ALTERNATE STANDARD HEIGHTS	
A	1980
B	1830
C	1520



SECTION A–A



SECTION B–B

NOTES:

1 Outlet hole size 525mm diameter maximum, location as required.

2 200mm diameter knockout to accommodate subdrain. Knockout to be 60mm deep.

A All reinforcing steel shall have 25mm minimum cover.

B Granular backfill to be placed to a minimum thickness of 300mm all around the catch basin.

C Frame, grate, and adjustment units shall be installed according to OPSD–704.010.

D Pipe support according to OPSD–708.020.

E All dimensions are nominal.

F All dimensions are in millimetres unless otherwise shown.

G Rexus frame and grate by Certainteed or approved equivalent.

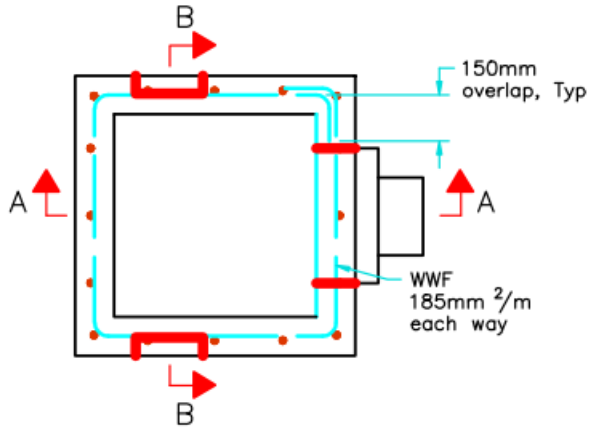
TOWN OF KINGSVILLE

PRECAST CONCRETE

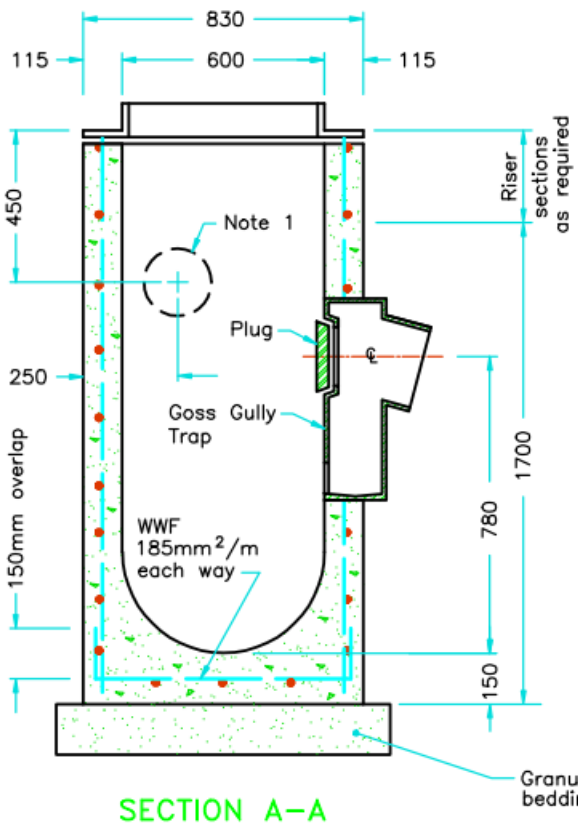
Date: April 1, 2011

Last Revision:

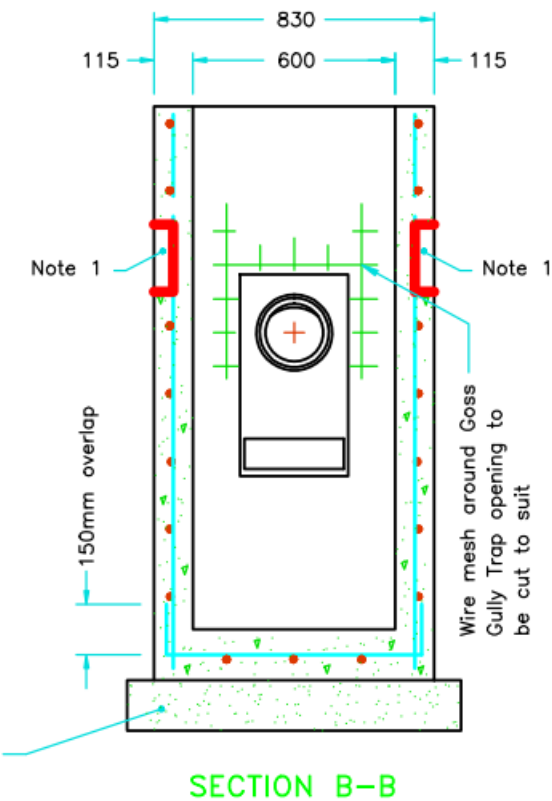
Drawing No:



PLAN



SECTION A–A



SECTION B–B

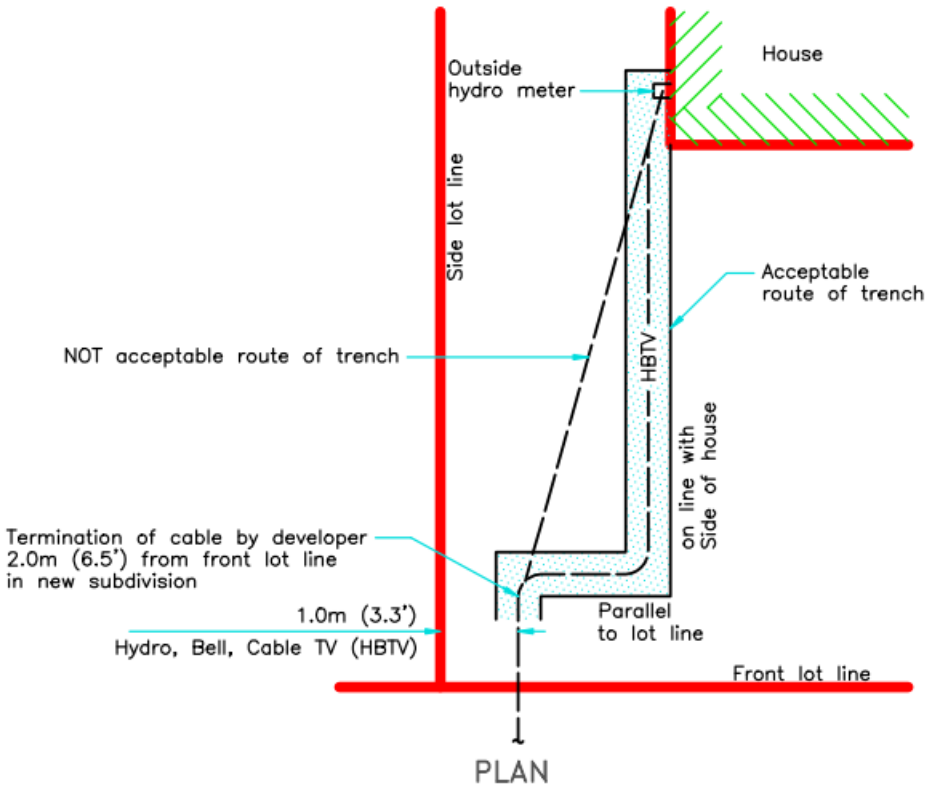
NOTES:

1 200mm dia knockout to accommodate subdrain. Knockout to be half wall thickness from the outside.
2 Outlet hole size 254mm dia, location as required.
A All reinforcing steel shall have 25mm cover.
B Granular backfill to be placed to a minimum thickness of 300mm all around.
C Frame, grate, and adjustment units shall be installed according to OPSD–704.010.
D All dimensions are in millimetres unless otherwise shown.
E Wire mesh to have 50mm minumum cover.
F Rexus frame and grate by Certainteed or approved equivalent.

TOWN OF KINGSVILLE

PRECAST CONCRETE CATCH BASIN

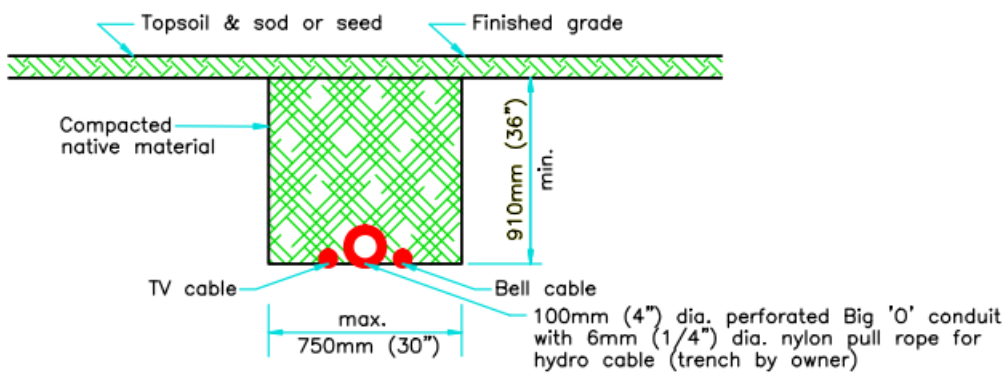
Date:	April 1, 2011
Last Revision:	
Drawing No:	



NOTES:

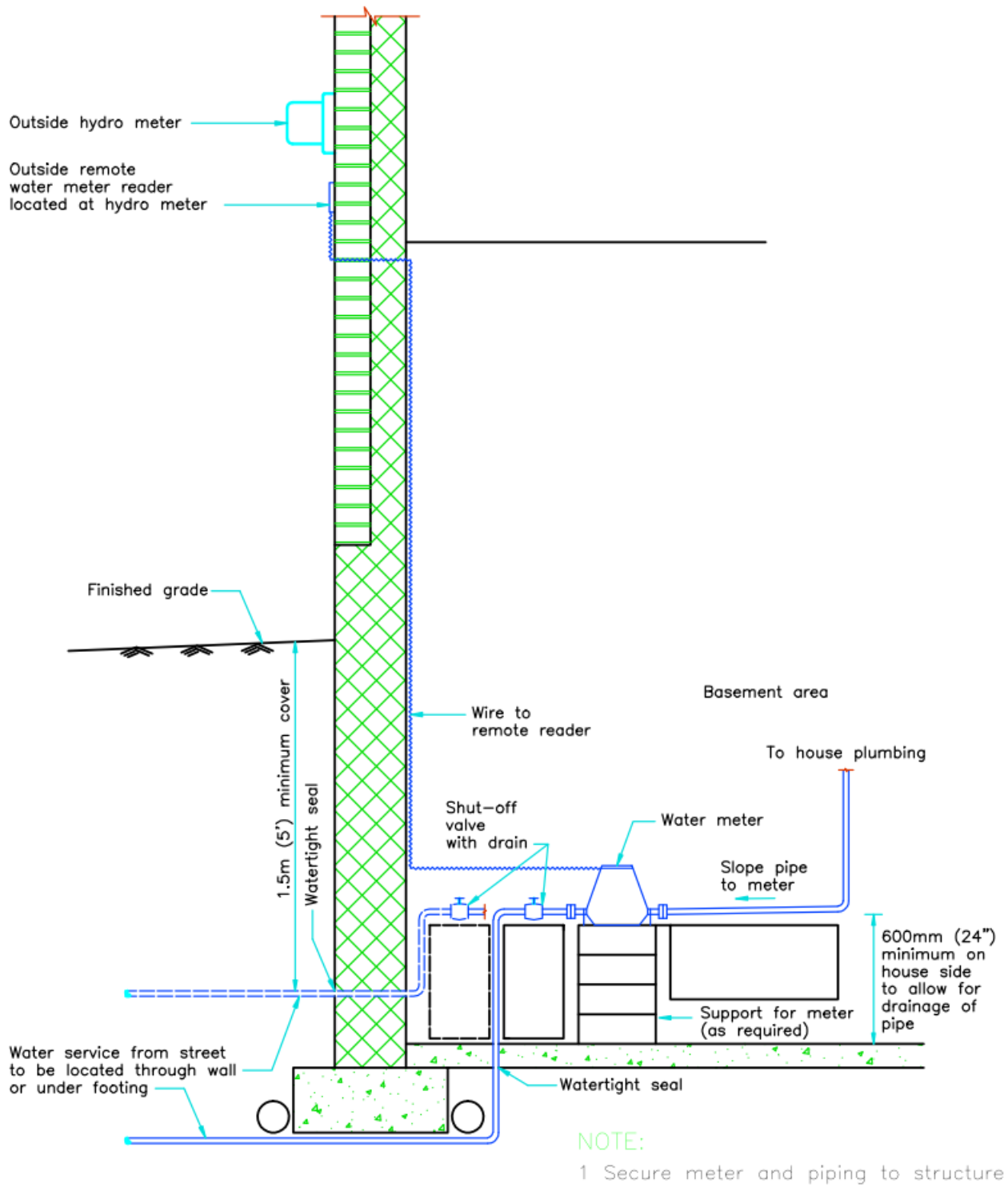
1 Obtain approval from the Town of Kingsville for meter location on house.

2 Do not bury Big 'O' conduit until after Hydro cable installation and after inspection by Hydro Authority



SECTION THROUGH TRENCH

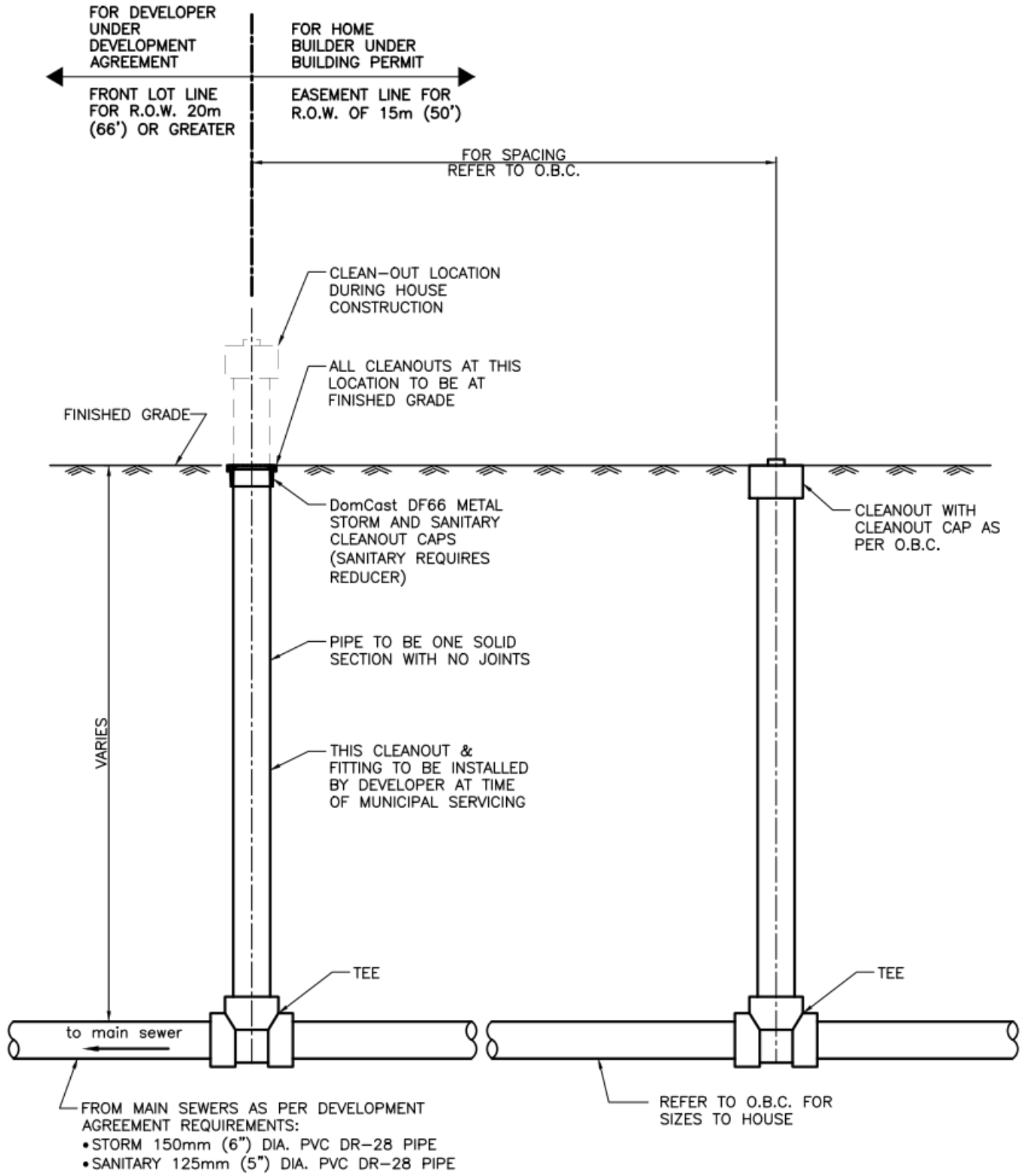
	TOWN OF KINGSVILLE	**Date:** April 1, 2011
	TRENCH FOR HYDRO, BELL	**Last Revision:**
		Drawing No:



TOWN OF KINGSVILLE

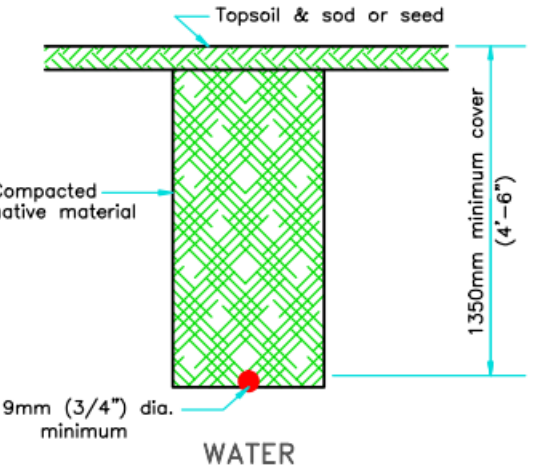
Date:	April 1, 2011
Last Revision:	
Drawing No:	

INTERNAL WATER METER

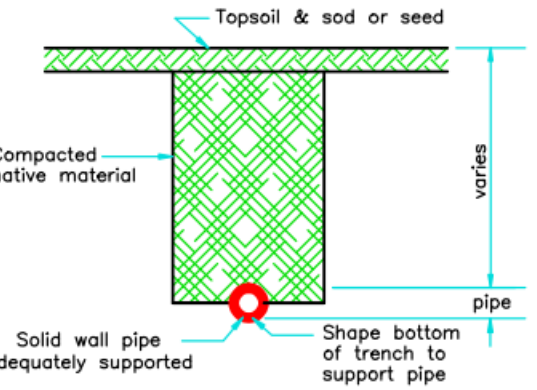


NOTES:
1. ALL MATERIALS TO BE IN COMPLIANCE WITH O.B.C. AND INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.
2. ALL CLEANOUTS TO BE VISIBLE FOR INSPECTION. DO NOT BURY.

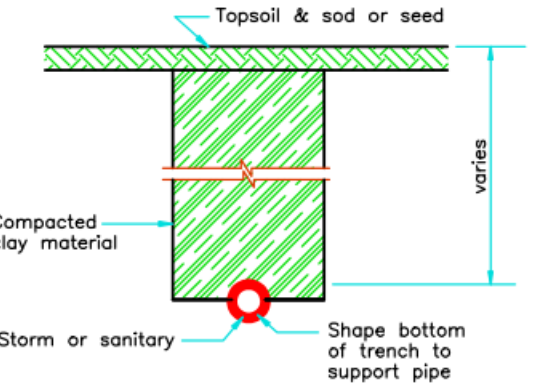
Kingsville ONTARIO	TOWN OF KINGSVILLE	Date: JUN 1, 2007
	SANITARY AND STORM CLEANOUTS	Revised: DEC 11, 2023
		Drawing No: S12



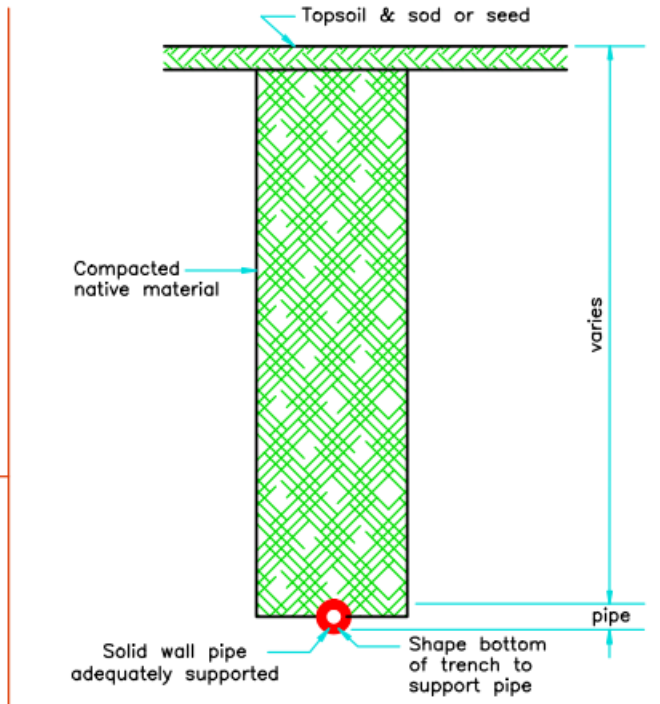
WATER



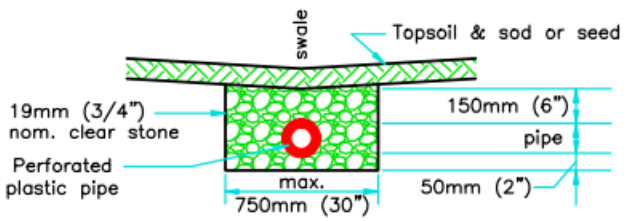
STORM DRAIN
OM 3.0m (10') BACK OF HOUSE TO FRONT LOT LINE



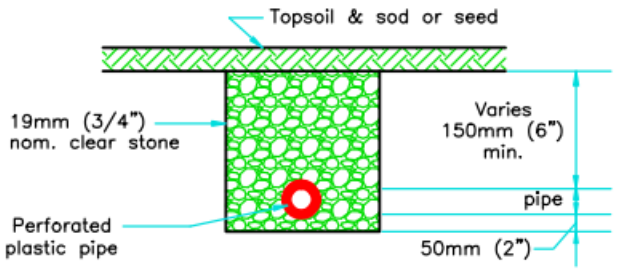
CLAY PLUG
TO EXTEND 1m (3') ALONG TRENCH



SANITARY DRAIN



REAR YARD DRAIN
ACROSS BACK OF LOT

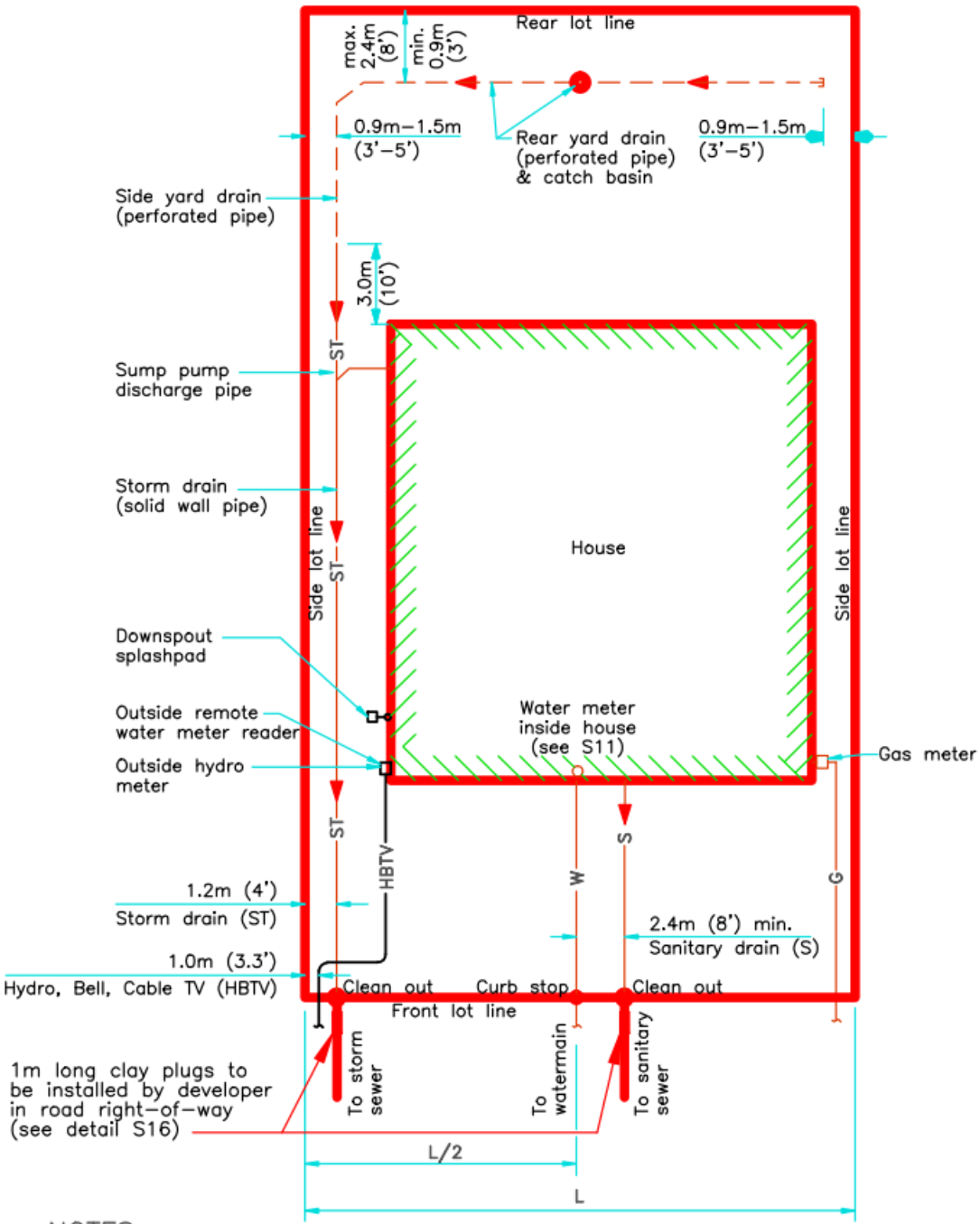


SIDE YARD DRAIN
FROM REAR YARD DRAIN TO 3.0m (10') BACK OF HOUSE

TOWN OF KINGSVILLE

PRIVATE SERVICE CONNECTIONS - BEDDING

Date:	April 1, 2011
Last Revision:	
Drawing No:	



NOTES:

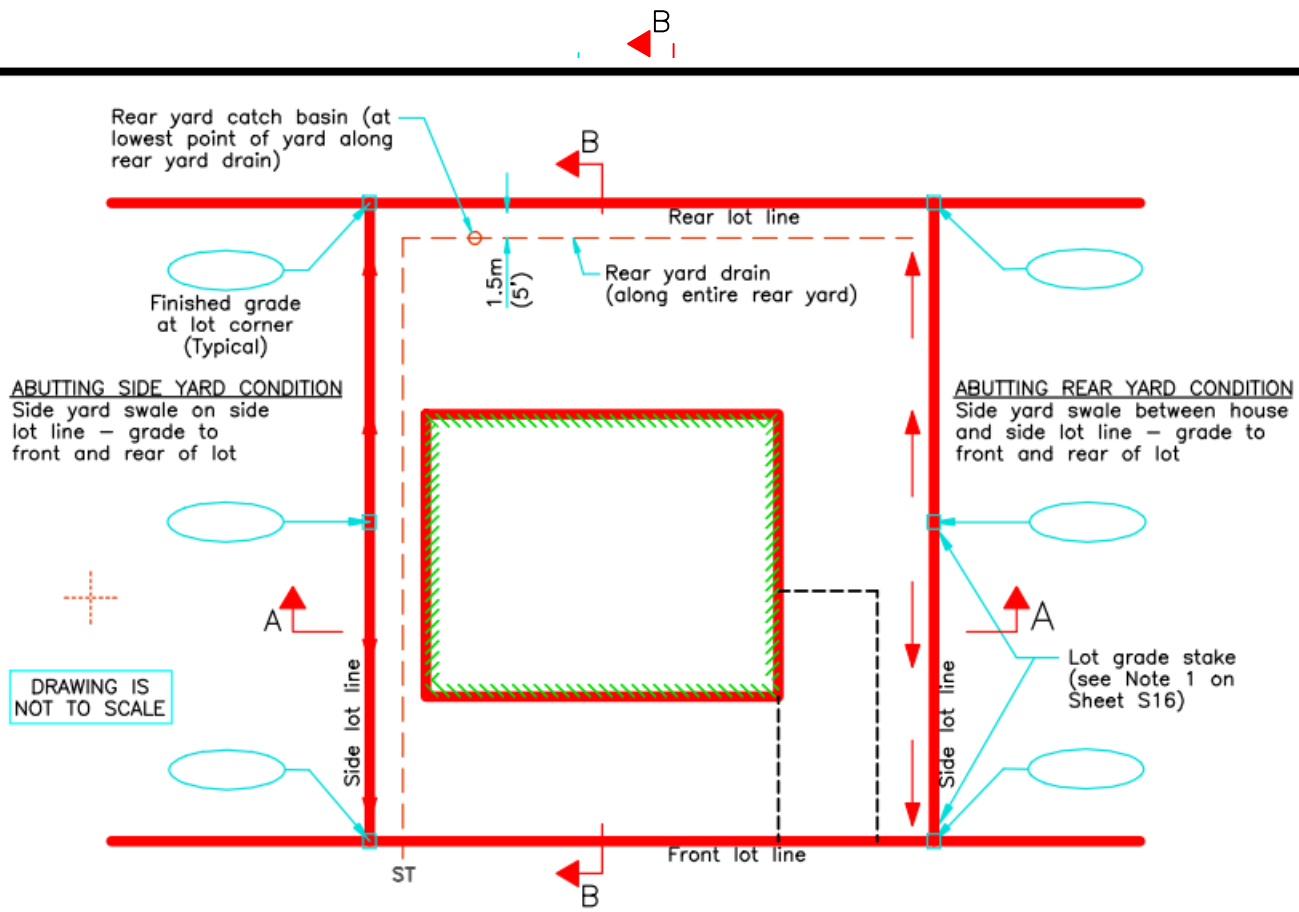
1 Offsets shown are typical, they may vary based on servicing drawings.
2 See O.B.C. for cleanout spacing.
3 Rear yard catch basin location to be approved by Town.

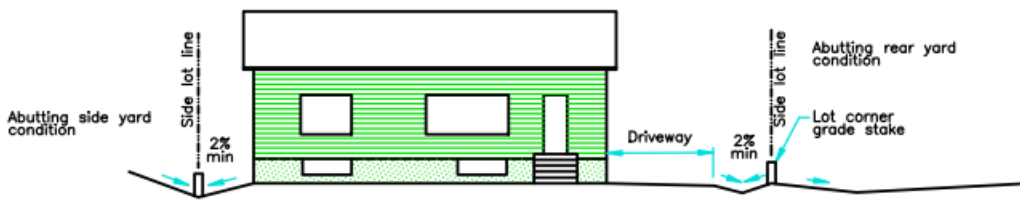
TOWN OF KINGSVILLE

Date: April 1, 2011

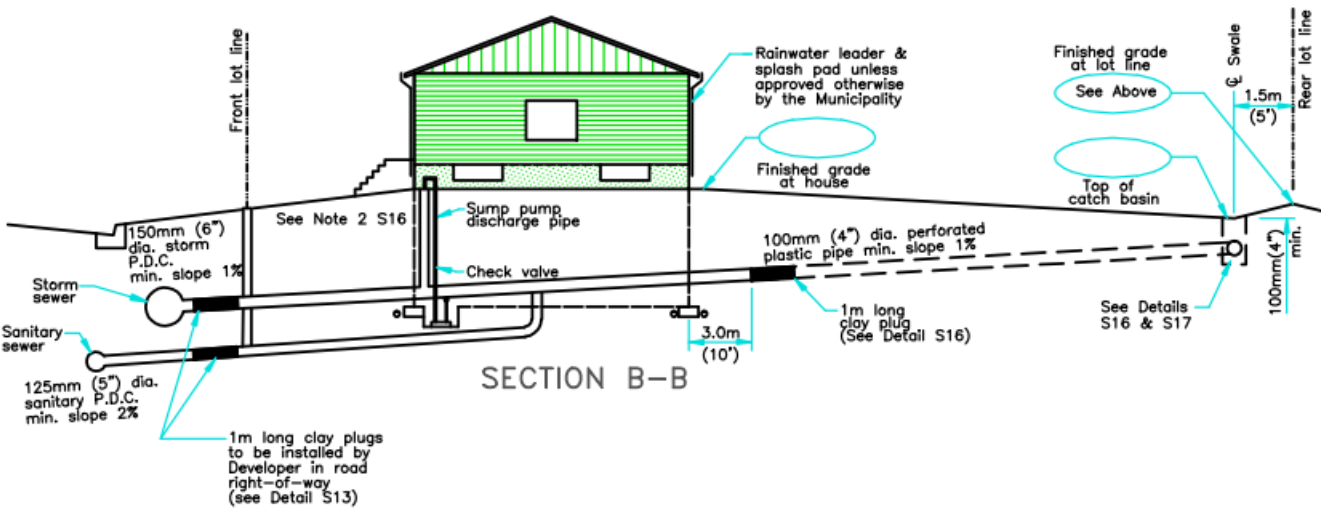
Last Revision:

Drawing No:





SECTION A–A



SECTION B–B

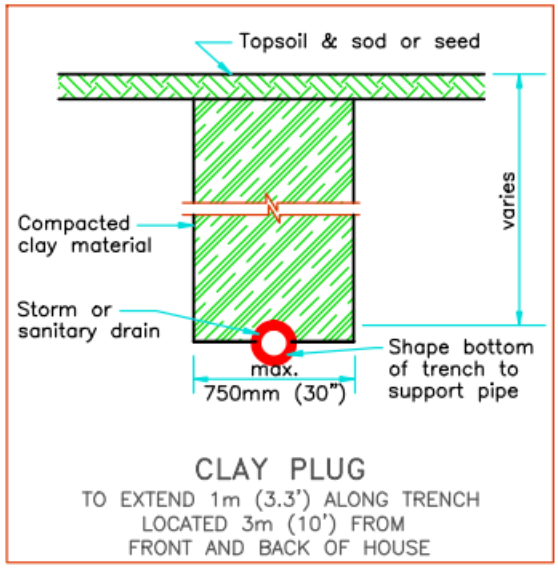
TOWN OF KINGSVILLE

SWALE GRADING AND LOT

Date: April 1, 2011

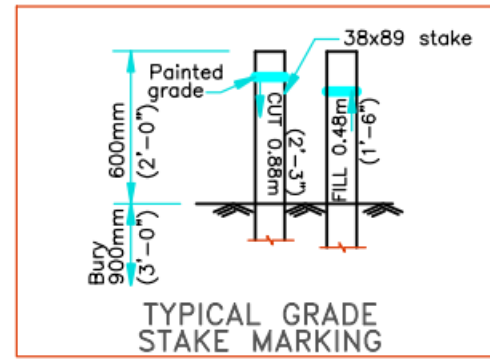
Last Revision:

Drawing No:

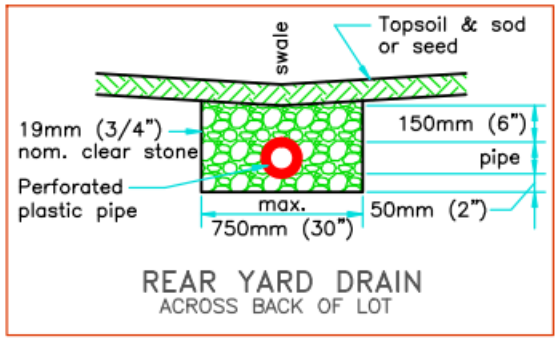


CLAY PLUG

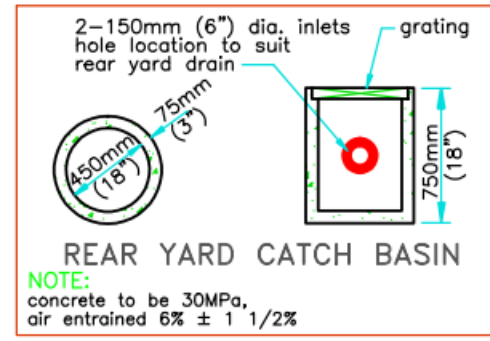
TO EXTEND 1m (3.3') ALONG TRENCH
LOCATED 3m (10') FROM
FRONT AND BACK OF HOUSE



TYPICAL GRADE
STAKE MARKING



REAR YARD DRAIN
ACROSS BACK OF LOT



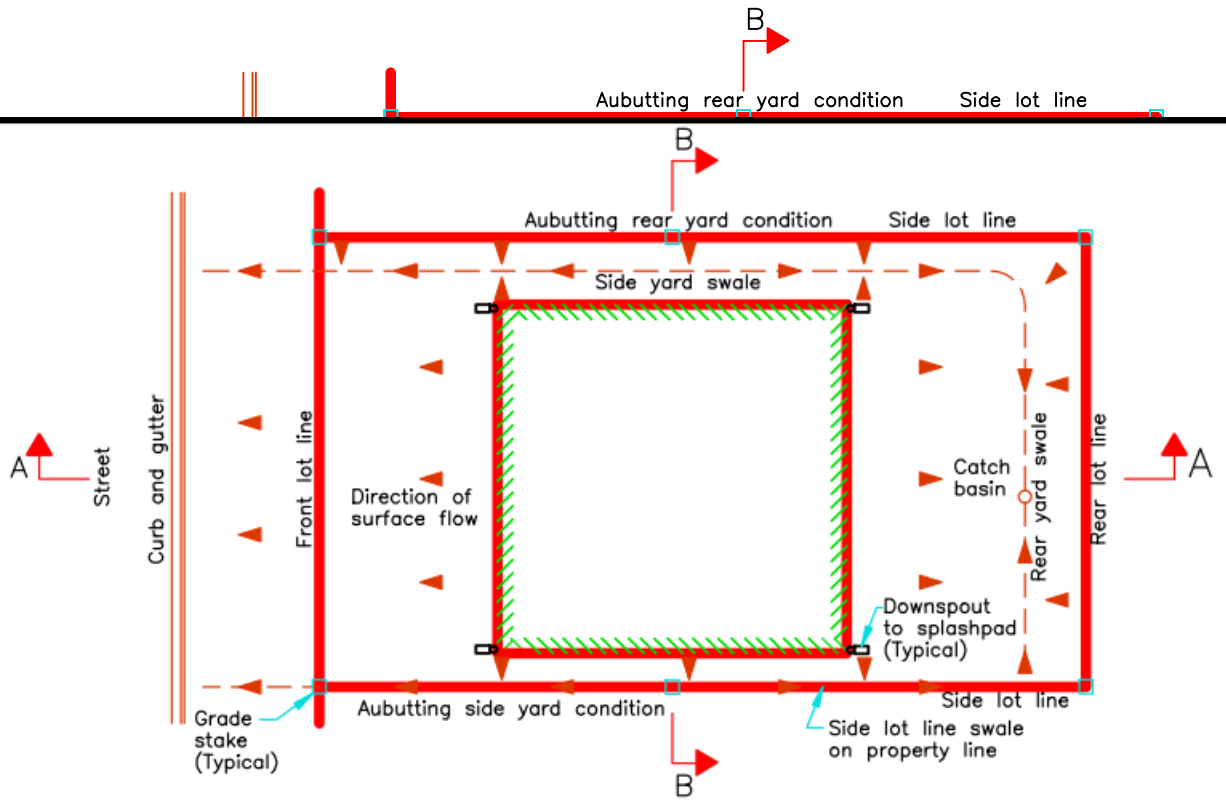
REAR YARD CATCH BASIN

NOTE:
concrete to be 30MPa,
air entrained 6% ± 1 1/2%

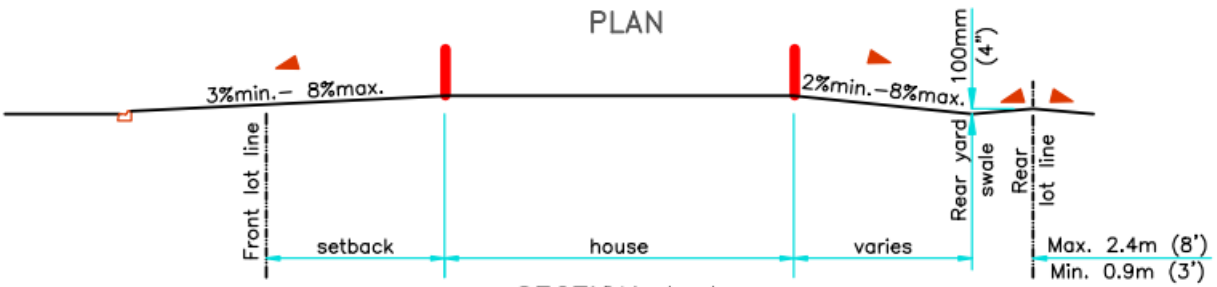
NOTES:

1 Place a 50x100x1500mm long (2"x4"x5') wood stake at each lot corner and at side yards adjacent to house. Mark the cut or fill to finished grade from top of stake on each stake. All stakes to remain in place until Chief Building Official approves final lot grading.
2 Sump pump discharge pipe shall be connected to the private storm service at an elevation not less than 300mm (12") above finished grade at house.
3 Reference elevation – Refer to site grading plan by engineer.

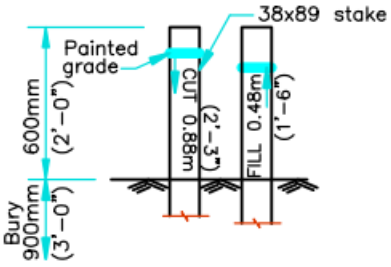
	TOWN OF KINGSVILLE	**Date:** April 1, 2011
		Last Revision:
	REAR YARD DRAINAGE	**Drawing No:**



PLAN

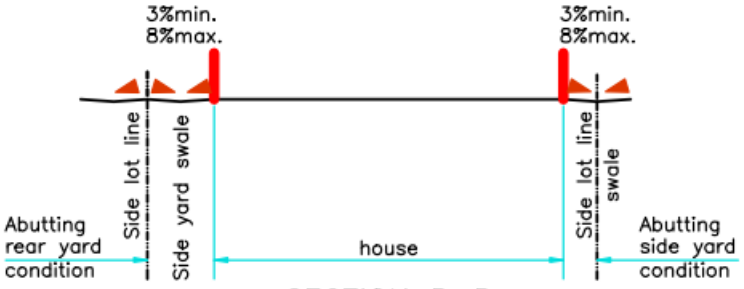


SECTION A–A



Place a 38x89x1500mm long (2"x4"x5') wood stake at each lot corner and at side yards adjacent to house.
Mark the cut or fill to finished grade from top of the stake on each stake.

GRADE STAKE DETAILS



SECTION B–B

NOTE:

1 Where the difference in the finished grade elevation of adjacent house is more than 250mm, special considerations will be required including a retaining wall or raised ranch house designs.

RETAINING WALL DETAIL

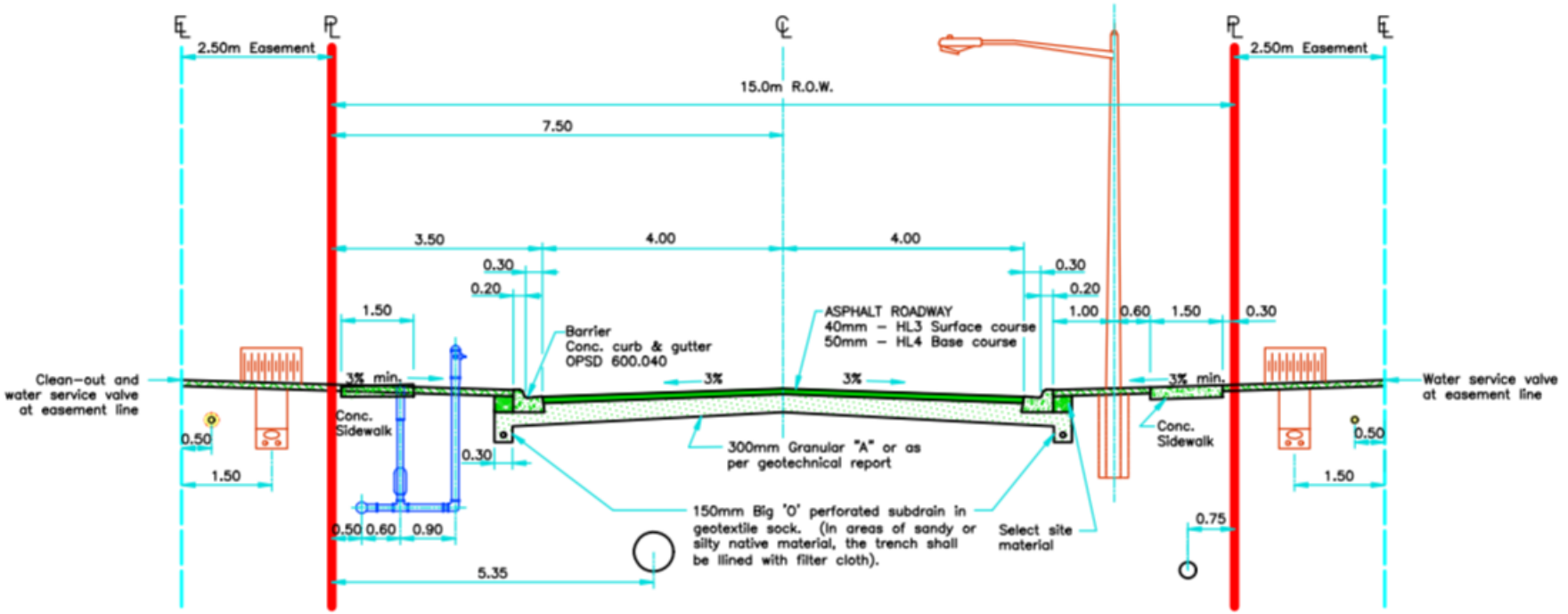
TOWN OF KINGSVILLE

Date: April 1, 2011

Last Revision:

Drawing No:

LOT GRADING AND



NOTE:
Final location of utilities may vary depending on utility company and on–site specific requirements.

NOTES:

1 Minimum turning radii to be 9.0m to edge of pavement.
2 Cul–de–sac radii is 12.0m to edge of pavement.
3 Sidewalk construction is required.
4 Hydrant spacing at 150m maximum.
5 Sanitary sewer 200mm minimum.
6 Watermain 150mm minimum.
7 Storm sewers designed to 2 year storm (300mm minimum).
  – catch basin leads 200mm minimum.
  – All storm sewers to drain to stormwater management system (100 year storm).
8. Edgeline painting typical.

TOWN OF KINGSVILLE

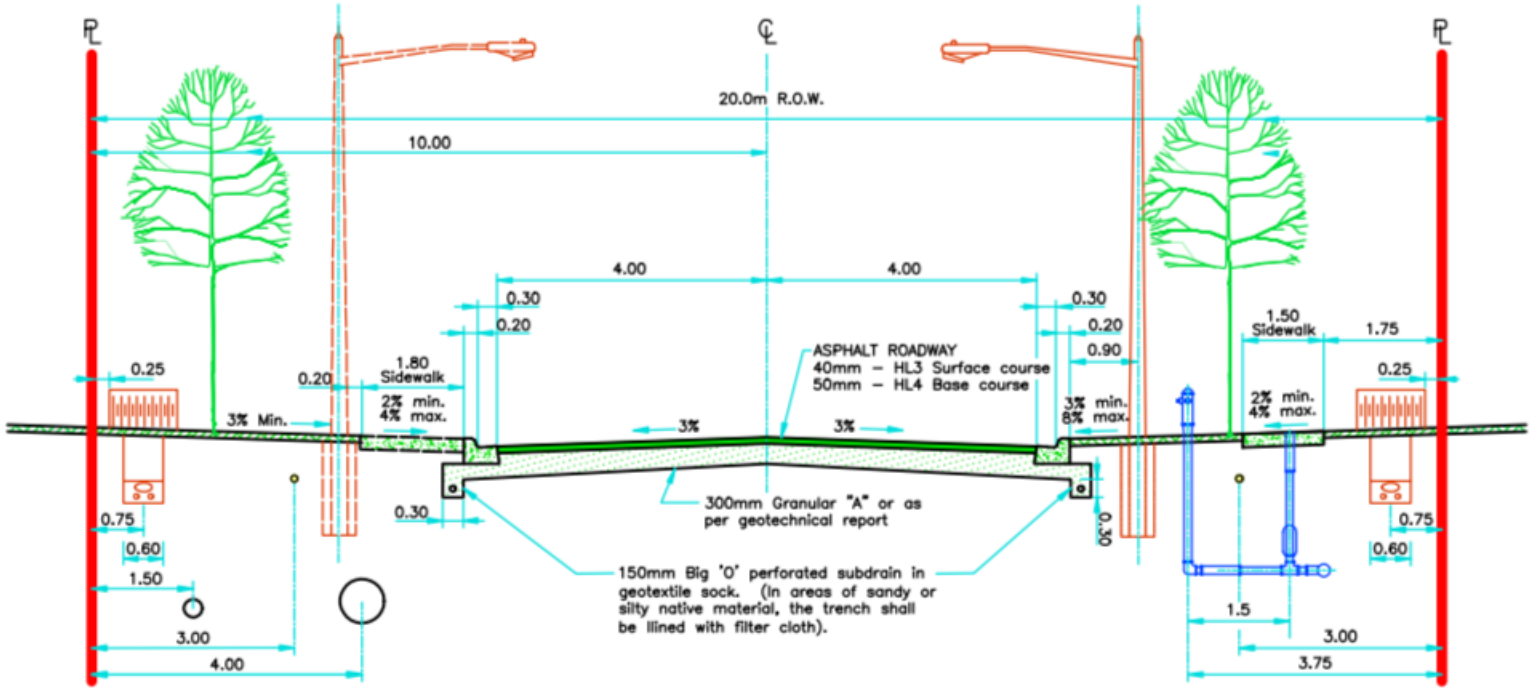
TYPICAL ROAD CROSS–SECTION OF 15m R.O.W.

MINOR LOCAL ROAD

Date: April 1, 2011

Last Revision:

Drawing No: S18



NOTE:
Final location of utilities may vary depending on utility company and on-site specific requirements.

NOTES:

1 Minimum turning radii to be 9.0m to edge of pavement.
2 Cul-de-sac radii is 12.0m to edge of pavement.
3 Sidewalk construction is required.
4 Hydrant spacing at 150m maximum.
5 Sanitary sewer 200mm minimum.
6 Watermain 150mm minimum.
7 Storm sewers designed to 2 year storm (300mm minimum).
  – catch basin leads 200mm minimum.
  – All storm sewers to drain to stormwater management system (100 year storm).
8. Edgeline painting typical.

TOWN OF KINGSVILLE

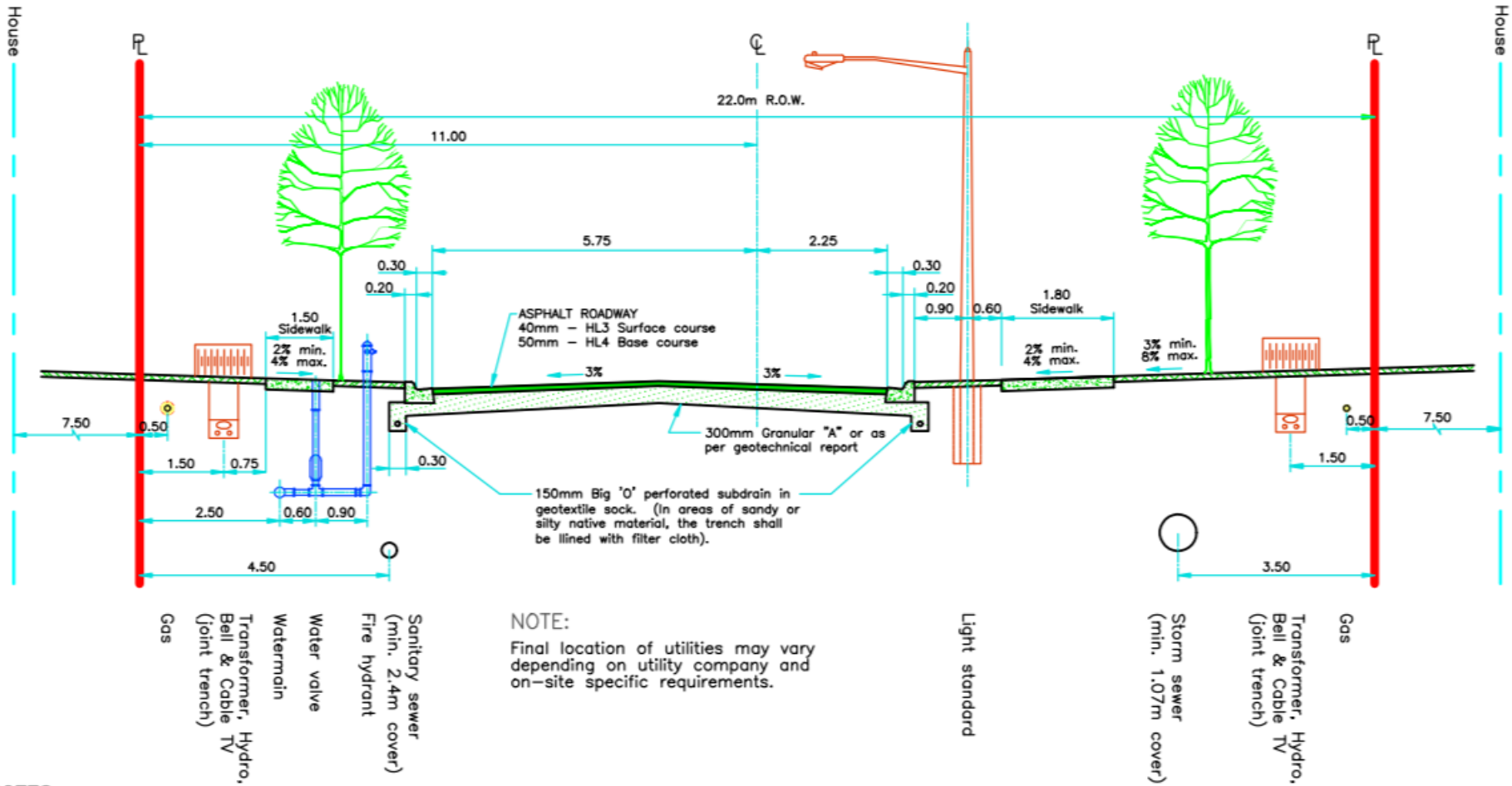
TYPICAL ROAD CROSS-SECTION OF 20m R.O.W.

LOCAL ROAD

Date: April 1, 2011

Last Revision:

Drawing No: S19



NOTE:

Final location of utilities may vary depending on utility company and on–site specific requirements.

NOTES:

1 Minimum turning radii to be 9.0m to edge of pavement.
2 Cul–de–sac radii is 12.0m to edge of pavement.
3 Sidewalk construction is required.
4 Hydrant spacing at 150m maximum.
5 Sanitary sewer 200mm minimum.
6 Watermain 150mm minimum.
7 Storm sewers designed to 2 year storm (300mm minimum).
  – catch basin leads 200mm minimum.
  – All storm sewers to drain to stormwater management system (100 year storm).
8. Edgeline painting typical.

TOWN OF KINGSVILLE

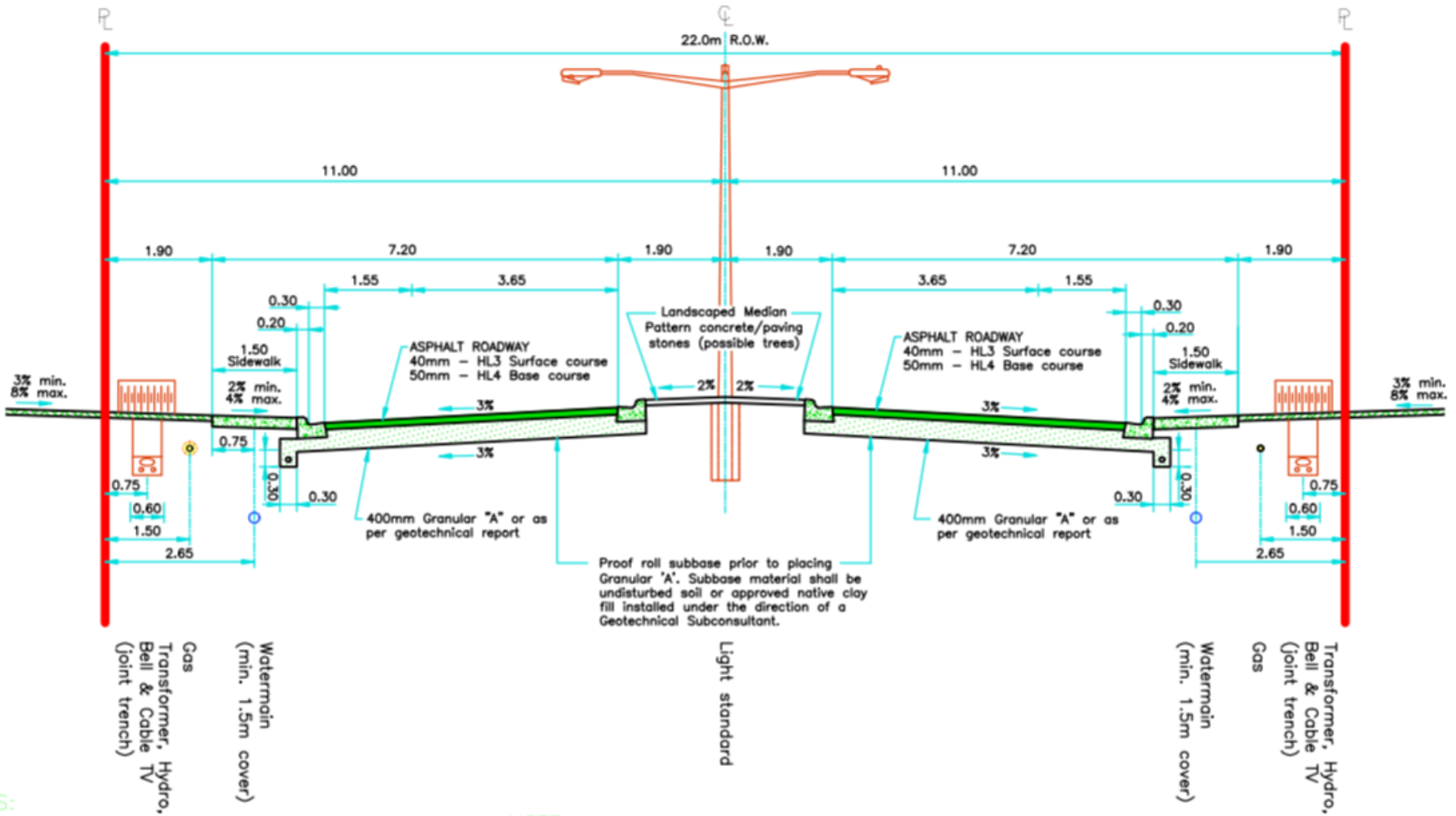
TYPICAL ROAD CROSS–SECTION OF 22m R.O.W.

COLLECTOR ROAD

Date: April 1, 2011

Last Revision:

Drawing No: S20



NOTES:

1 Minimum turning radii to be 9.0m to edge of pavement.
2 Cul-de-sac radii is 12.0m to edge of pavement.
3 Sidewalk construction is required.
4 Hydrant spacing at 150m maximum.
5 Sanitary sewer 200mm minimum.
6 Watermain 150mm minimum.
7 Storm sewers designed to 2 year storm (300mm minimum).
– catch basin leads 200mm minimum.
– All storm sewers to drain to stormwater management system (100 year storm).

NOTE:

Left turn lane should be 3.35m wide

TOWN OF KINGSVILLE

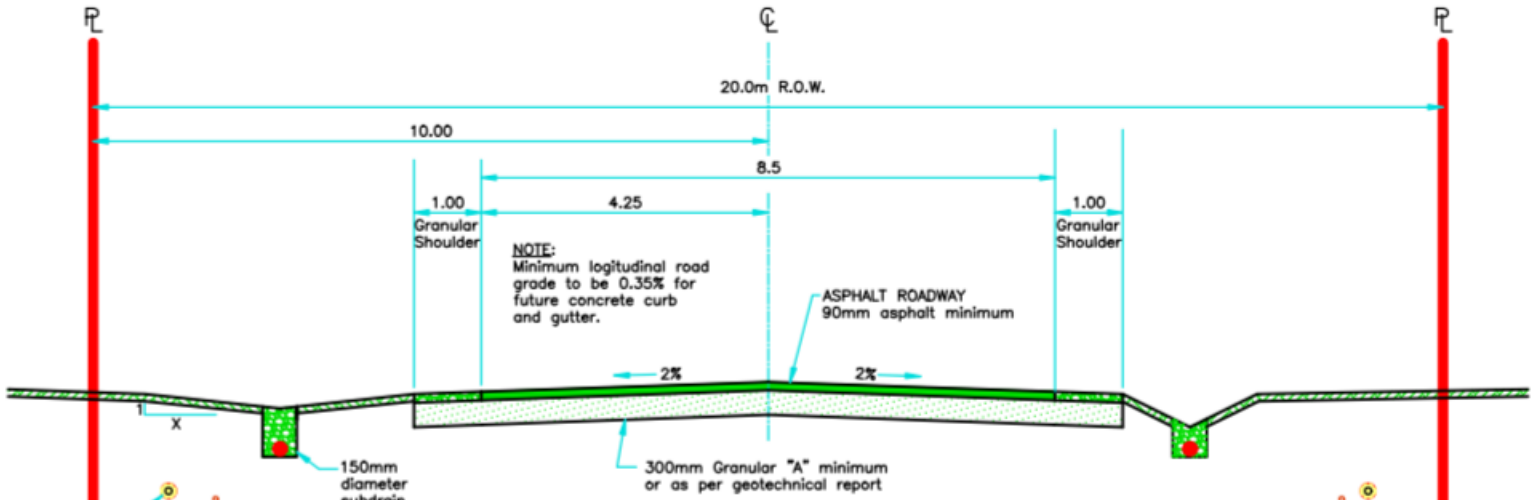
TYPICAL ROAD CROSS-SECTION OF 22m R.O.W.

COLLECTOR ROAD WITH BOULEVARD

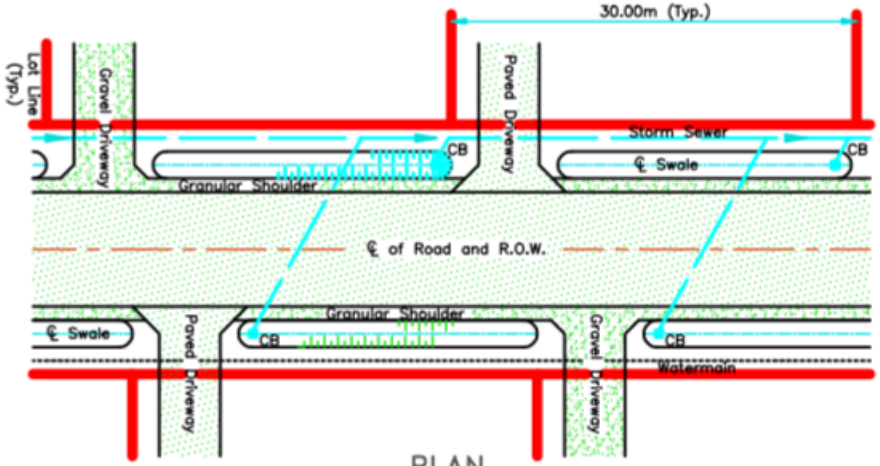
Date: April 1, 2011

Last Revision:

Drawing No: S21



CROSS–SECTION



PLAN

Gas
Storm sewer (min. 1.07m cover)
Hydro, Bell & Cable TV

Gas
Watermain (min. 1.5m cover)
Hydro, Bell & Cable TV

NOTES:

1 Final location of utilities may vary depending on Utility Company and on–site specific requirements.
2 Sub–drains can be oversized and used as storm sewer.
3 No driveway culverts allowed.

TOWN OF KINGSVILLE

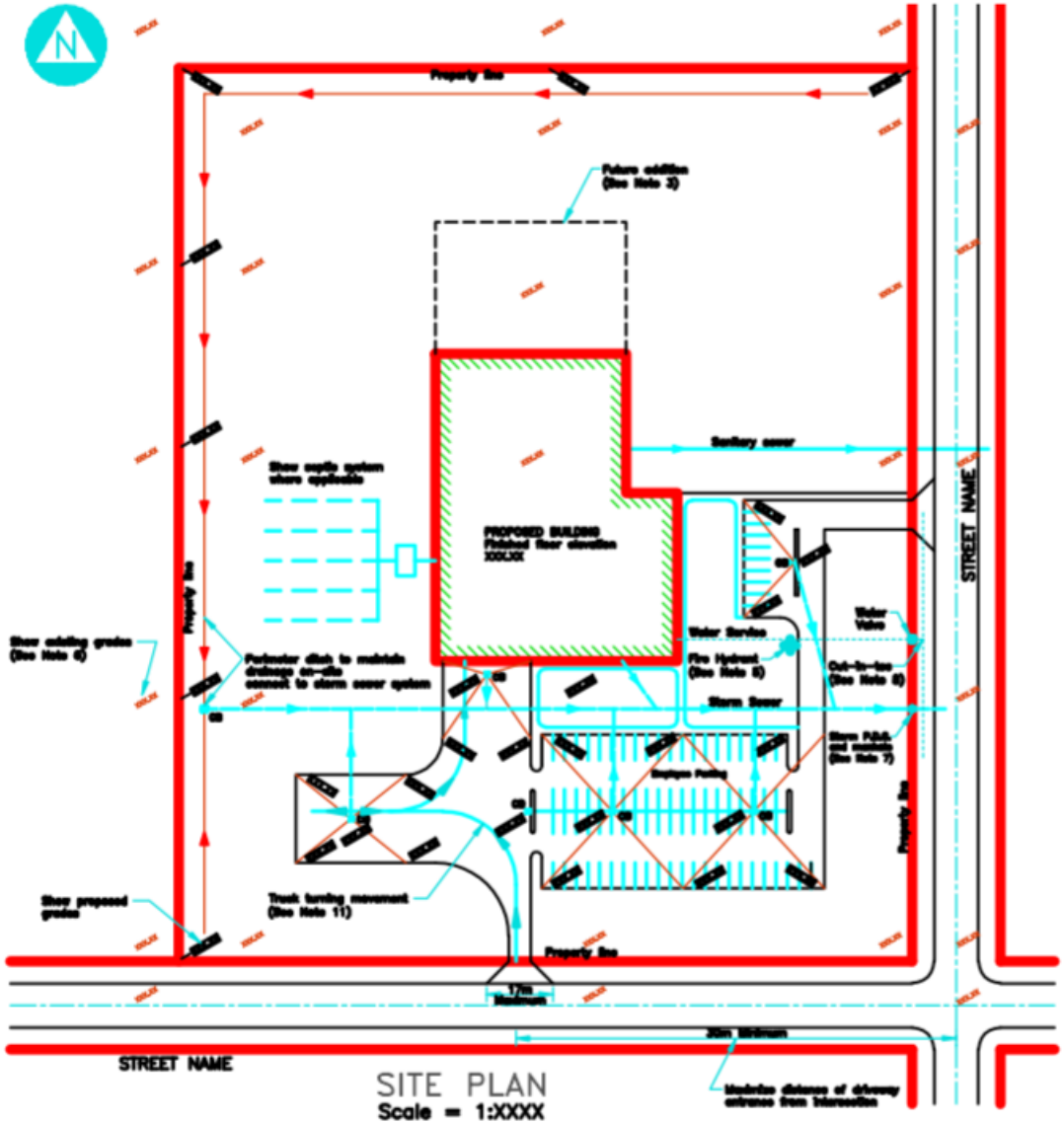
TYPICAL ROAD CROSS–SECTION OF 20m R.O.W.

SEMI–URBAN DEVELOPMENT

Date: April 1. 2011

Last Revision:

Drawing No: S22



SITE PLAN
Scale = 1:XXXX

GENERAL NOTES:

1 Site services: type, size, slope, depth and locations to be shown.

2 Developer shall submit required studies as may be required for each development. (For list of possible studies required, see Development Manual, Section 2.6, Page 12.

3 Future phasing to be shown if applicable.

4 All property lines and easements shall be accurately shown and dimensioned.

5 Fire hydrant locations to be shown and submission made to Town of Kingsville Chief Building Official for approval. Fire hydrants to have Storz couplings.

6 Existing grades to be shown on this lot and adjacent property, if possible. Indicate finish floor elevation of adjacent buildings.

7 Unless otherwise noted in subdivision servicing agreement, control storm water runoff rates to pre-development conditions. Orifice located in manhole at property line preferred. (Submit calculations)

8 Connections to existing watermains to be cut-in-tees.

9 All work on public right-of-way requires a street opening permit. Restore to existing condition with full granular backfill ('A' or 'B') compacted to 100% S.P.D.

10 Parking and driveways to be paved. (See Development Manual)

11 Truck turning movements for loading and deliveries to be confined within private property. (No backing in off roadway)

12 Note use of building. (3.2.2. Ontario Building Code Classification)

13 See Development Manual for applicable Town standards.

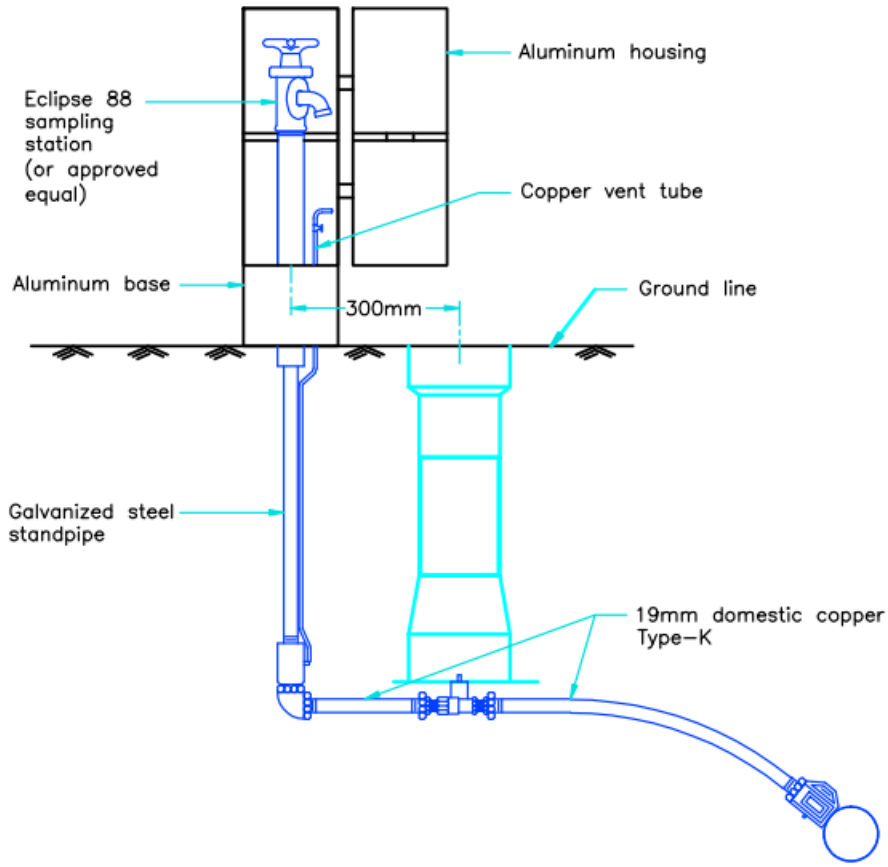
TOWN OF KINGSVILLE

Date: April 1, 2011

Last Revision:

TYPICAL SITE PLAN

Drawing No: S23



Sampling Stations shall be 1.5m bury, with a 19mm FIP inlet, and a (19mm hose or unthreaded) nozzle.

All stations shall be enclosed in a lockable, non-removable, aluminum cast housing.

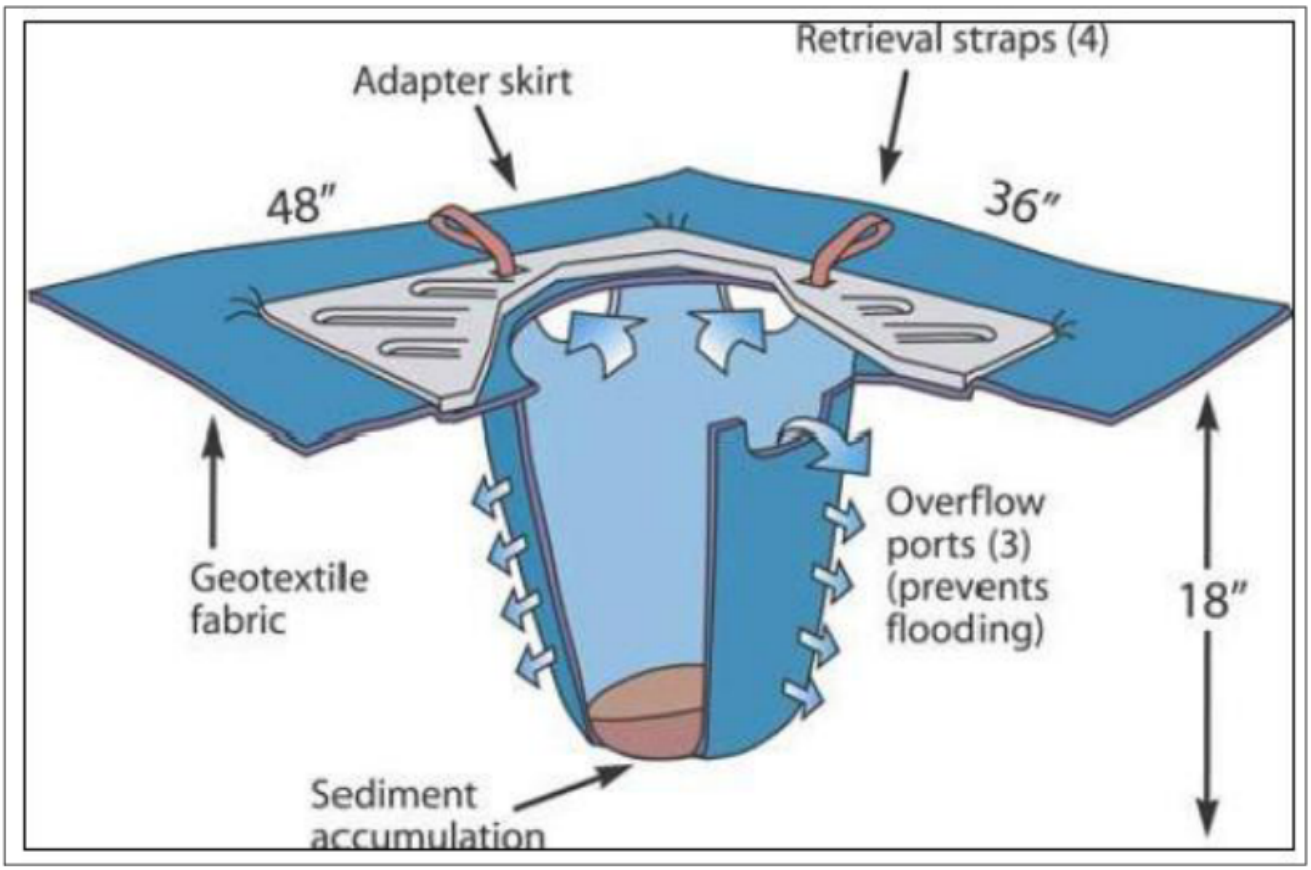
When opened, the station shall require no key for operation, and the water will flow in all brass waterway.

All working parts will also be of brass and be removable from above ground with no digging. Exterior piping shall be galvanized steel (brass pipe also available).

A copper vent tube will enable each station to be pumped free of standing water to prevent freezing and to minimize bacteria growth.

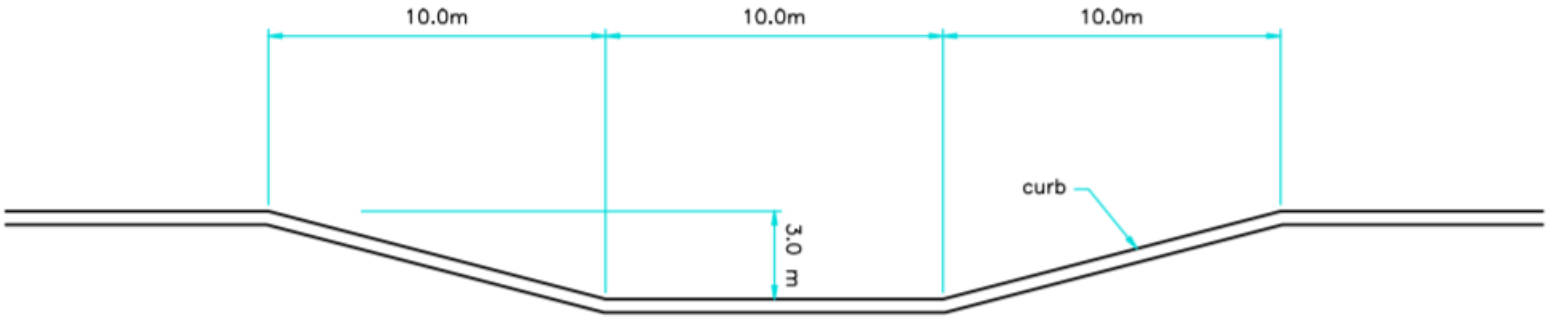
One sampling station to be installed for each 100 lots (or as directed by Town).

	TOWN OF KINGSVILLE	**Date:** April 1, 2011
		Last Revision:
	WATER SAMPLING STATION	**Drawing No:**



STREAMGUARD #3003
CATCH BASIN INSERT
FOR SEDIMENT ONLY

	TOWN OF KINGSVILLE	**Date:** April 1, 2011
		Last Revision:
	CATCH BASIN FILTER	**Drawing No:**



TOWN OF KINGSVILLE

TYPICAL COMMUNITY MAILBOX CAR BAY

Date: April 1, 2011

Last Revision:

Drawing No: S26

APPENDIX F
MUNICIPAL WATER SUPPLY FOR GREENHOUSE FACILITIES

2021 Division Road North, Kingsville, Ontario, N9Y 2Y9
Telephone: (519) 733-2305 Fax: (519) 733-8108

THE CORPORATION OF THE TOWN OF KINGSVILLE

MUNICIPAL WATER SUPPLY FOR AREA GREENHOUSE FACILITIES

Policy ***Information Booklet***

INTRODUCTION & BACKGROUND

During the last few years, this area has experienced significant growth in new hydroponic greenhouse developments and expansions of existing hydroponic greenhouse operations. These facilities have placed considerable demands on the municipal water supply and distribution infrastructure. In order to maintain an adequate supply of water to existing consumers while accommodating future growth, policies and bylaws have been enacted to ensure full and fair utilization of available water system capacity.

This booklet is designed to assist the Greenhouse owner or developer in complying with these policies.

POLICIES & BY-LAWS

Subsection 6.2.9 iii) of the Zoning By-Law deals specifically with onsite storage and rate-of-flo1w control and reads as follows:

"In addition to the other requirements of this By-law, the construction of any building or structure in the Al zone greater than 7,430 square meters in floor area shall comply with the following additional requirements.

iii) that the roof of any building or structure shall not be constructed or covered until a water reservoir and rate-of-flow control device is installed that is suitable for the size of the farming operation as approved by the Chief Building Official. "

In addition, the Town must comply with Ministry of Environment regulations which state that:

"The operating authority shall not approve any additional stub watermains, fire hydrants, fire hydrant leads and service pipes to the distribution main unless it has reviewed the hydraulic capacity of the water distribution system and the water supply works and has concluded that the additional s tub watermains, fire hydrants, fire hydrant leads and service pipes together with all existing and previously approved stub watermains, fire hydrants, fire hydrant leads, and service pipes will not overload either the water distribution system or the water supply /treatment works · and has recorded its review and conclusion in writing. "

GREENHOUSE WATER CONSUMPTION

The majority of water is consumed during the daylight hours with approximately 90% of the total water consumed over a 10 hour (daylight) period. Maximum consumption occurs during the months of July and August.

Current information indicates that for hydroponic tomato greenhouses, typical maximum day water consumption is approximately .8 to 1 Imperial gallon per plant per day. With plant densities of 10,000 plants per acre, the total water demand is *between 8,000 and* 10,000 Imperial gallons per acre per day.

UNDER SERVICED AREAS

In the event that an applicant is requesting to expand or develop a new greenhouse complex in an area that, as determined by the Town Engineer, does not have sufficient water delivery capacity, the applicant may enter into an agreement indemnifying the Town and acknowledging the lack of sufficient water delivery capacity. A copy of this agreement is attached to this policy information booklet as schedule "A".

WATER SUPPLY & ONSITE STORAGE

To maximize the use of both existing and new watermains, the Town utilizes onsite water storage and flow rate regulation.

An onsite reservoir serves to reduce a greenhouse's peak water demand on the water distribution system. During hours of low water use, water is supplied to the greenhouse site and stored in a water reservoir. By sunrise, the reservoir is full and ready for a day of use. As the temperature and sunlight intensity increase, the water demand by the crop may exceed the rate of water supply to the site. During these periods of peak demand, water continues to flow into the onsite reservoir from the municipal water system at a controlled rate. When the rate of withdrawal from the reservoir exceeds the

rate of filling, the water level will approach the reservoir's lower limit at sunset, at which time the water demand from the crop drops below the rate of filling and the reservoir begins to fill. By sunrise the next morning, the reservoir is full and the cycle begins again. An example of sizing a reservoir enclosed.

RATE-OF-FLOW CONTROL SYSTEM

The purpose of the rate-of-flow control system is to control the filling rate of the reservoir so that the instantaneous rate of water ,withdrawal from the municipal water supply is always maintained at or below the maximum approved rate.

The rate-of-flow control system consists of a mechanical flow meter, . electric modulating valve, manual bypass valve and microprocessor control unit. A backflow preventor is also required to prevent possible contamination of the municipal water supply. A typical schematic of the rate-of-flow control system is included with this booklet. Due to the complex nature of the rate-of-flow control system, the Town will authorize its engineer to perform the detailed analysis to determine the proper size and type of components required. Construction drawings and specifications will be prepared and forwarded to the applicant. Upon acceptance of the design, the applicant will then be responsible for the purchase and installation of the rate of flow control system in accordance with the engineered drawings. The applicant will b responsible for all engineering costs incurred by the Town and these costs will be added to the applicant's water bill for payment.

PERMIT & APPLICATIONS

An application for building permit must be submitted to the Chief Building Official from the Town of Kingsville for the construction of new greenhouses or the expansion of existing greenhouses. Along with the building permit application, the applicant must fill out and submit the following applications:

i. Application for Water Capacity from Union Water Plant (approval required from the Union Water System Board.)

ii. Application for Greenhouse On-Site Reservoir & Rate-of-flow Control System (approval required. from Chief Building Official.)

The Application for Water from the Union Water plant is used by the Union Water Treatment Plant to determine if the treatment plant has the capacity to produce the requested water. The Application for Greenhouse On-Site Reservoir and Rate-of-flow Control is used by the Town of Kingsville to determine if the water distribution system has sufficient capacity to deliver the water from the Union Water Treatment Plant to the proposed greenhouse.

NEW WATERMAINS OR SERVICE CONNECTIONS

If the e applications are approved, and a new water main or service connection is required, the Town ,will authorize its engineer to prepare construction drawings and specifications, and solicit Tenders from approved contractors to construct the new. water service from the municipal watermain to a point inside the building where the water meter will be located. Tenders will be reviewed by the engineer and a recommendation made. The applicant will be advised of the costs and after receiving written authorization from the applicant, the engineer will award and administer the contract including inspection. The applicant will be responsible for all construction and engineering costs incurred by the Town. These costs will be added to the applicant's water bill for payment.

EXAMPLE

Note: The numbers provided in this example have been gathered from and are generally supported by the local greenhouse industry. It is the responsibility of the individual greenhouse operator to determine the water, requirements of its operation and complete the application accordingly. The Town of Kingsville and its agents accept no responsibility for the estimation or determination of individual water requirements.

TYPE OF PLANT:	*Tomatoes*
PLANT WATER CONSUMPTION:	.8 Imperial gallons per plant per day
PLANT DENSITY:	10,000 plants per acre

- Water is to be supplied into the reservoir from the distribution system over a 24 hour period.

Daily Water Requirement per Acre:

.8 Imp. gallon per plant per day x 10,000 plants per acre x 1 acre = 8,000 Imp. gallons per acre per day

Regulated Water Supply Rate:

24 hours= 1440 71Jinutes ·

8,000 Imp. gallons per acre per day+ 14400 min per day= 5.55 Imp. gallons per minute per acre

- Water is to be withdrawn from the reservoir using onsite pumps for irrigation over a 10 hour period. To allow for peak demands, a 2 hour safety :(actor is a dded which will reduce the withdrawal time period to 8 hours.

Rate of Withdrawal from Reservoir:

8 hours = 480 minutes

8,000 Imp. gallons per acre + 480 minutes = 16.67 Imp. gallons per minute per acre

- The difference between the rate of filling and rate of withdrawal will establish the working volume of the reservoir required per acre of greenhouse. When the rate of withdrawal exceeds the rate of supply, the storage volume in the reservoir will be depleted. In this example, all 8,000 gallons of water per acre will be used over an 8 hour period. During this 8 hour period, the rate of withdrawal exceeds the rate of supply by 10.0 Imp. gallons per minute (16.67Igpmwithdrawal- 6.67Igpmsupply= 10.0 1gpm depletion rate). Over a 480 minute (8 hour) period, the volume removed from the reservoir is:

10.0 Imp. gallon per minute x 480 minutes = 4,800 imp. gallons per acre

This is the usable reservoir volume required for normal operation. Applying a safety of 1.25 brings the required volume of onsite storage to 6,000 Imp. gallons per acre (4,800 x 1.25 = 6,000).

Therefore, the minimum working volume of the reservoir that must be provided is

Volume !gal= *Number of Acres* x 6,000 !gal/acre

where the working volume is that volume between the high and low water levels necessary to operate the pumping equipment.

The distribution system must be capable of supplying water at a rate of 6.67 Imperial gallons per minute per acre plus a small component for domestic use. This rate must be controlled using a rate-of-flow control system.

2021 Division Road North, Kingsville, Ontario, N9Y 2Y9
Telephone: (519) 733-2305 Fax: (519) 733-8108

THE CORPORATION OF THE TOWN OF KINGSVILLE

APPLICATION for
GREENHOUSE ON-SITE RESERVOIR & RATE-OF-FLOW CONTROL SYSTEM

An onsite reservoir and rate-of-flow control system serves to reduce the peak water demand on the water treatment plant and water distribution system. A reservoir is only effective if it is properly sized and operated to prevent a shortage of water.

Fill in and submit this application with your building permit application.

NAME OF GREENHOUSE OPERATION: _____

ADDRESS: _____

Contact Representative: _____ Phone: _____
Fax: _____

RESERVOIR SIZING *(Determine the size of your onsite reservoir substituting the values entered below in the example presented in the information booklet)*

1. TYPE OF CROP: _____

2. MAX. DAY PLANT WATER CONSUMPTION: _____ Imperial Gallons per Plant per Day
(This demand may only occur on 5 to 10 days per year when the daily temperature and light intensity are at seasonal maximums.)

3. PLANT DENSITY: _____ Plants per Acre

4. IS THIS A NEW FACILITY *Circle One* **YES / NO** *OR* EXPANSION TO EXISTING FACILITY *Circle One* **YES / NO**

5. SIZE OF GREENHOUSE: Existing: _____ Acres Size Applying For: _____ Acres
Ultimate Future Size: _____ Acres

6. LENGTH OF PEAK WATERING PERIOD: _____ Hours per Day

7. CALCULATED RESERVOIR SIZE: _____ Imperial Gallons
(Using Example with above values)

8. WHERE A RESERVOIR IS PROPOSED OR EXISTING, WHAT IS THE STORAGE VOLUME BY:

I. DIMENSION _____ IGAL II. WORKING VOLUME _____ IGAL
(DIFFERENCE BETWEEN LOW & HIGH WATER LEVELS)

Continued of Back

RATE-OF-FLOW CONTROL SYSTEM

1. WILL AIR GAP BE PROVIDED AT RESERVOIR ON FILL LINE: *Circle One* **YES / NO**

2. WILL AUTOMATIC LEVEL CONTROL & ALARM PROVIDED IN RESERVOIR: *Circle One* **YES / NO**
   (If "YES" describe system with details on separate sheet and attach to Application.)

3. WATER PRESSURE AT BUILDING: MAXIMUM [ ] PSI MINIMUM [ ] PSI

   (The Min. and Max. water pressure values entered above will be used to size the modulating control valve and must be accurate. Monitoring of pressures over a period of time may be conducted by the Town of Kingsville.)

4. ESTIMATED TOTAL NUMBER OF EMPLOYEES THAT WILL BE WORKING AT THIS FACILITY. [ ]

5. ESTIMATED NUMBER OF EMPLOYEES THAT WILL BE HOUSED ON-SITE FROM ABOVE TOTAL. [ ]

6. IF AVAILABLE, PROVIDE COPIES OF DRAWINGS SHOWING SITE PLAN, GREENHOUSE LAYOUT AND RESERVOIR LAYOUT WITH DETAILS. INDICATE DESIRED ROUTING OF SERVICE CONNECTION (where applicable) AND DESIRED LOCATION FOR THE RATE-OF-FLOW SYSTEM.

7. *Note that the above numbers will be used to determine the rate of water supply to the proposed greenhouse facility. This rate will be regulated by the Rate-of-flow Control System. If the water demands exceed those estimated above, and/or sufficient onsite water storage is not provided, a local water shortage may occur.*

8. *My signature on this application authorizes the Town of Kingsville to proceed with the design, tendering and construction of the "water service connection" to the described facility (where applicable), provided the water service connection is approved by the municipality. I also grant authorization to the Town to proceed with the design of the rate of flow control system and ordering of the major components for installation and acknowledge that I am responsible, as the owner, for all costs incurred by the Town.*

9. *My signature also authorizes the Town of Kingsville (or its agent) to lay the service pipe from the street line to the interior wall of the building and further have also authorized the municipality to enter upon my lands to complete this installation. As well, I further acknowledge that the municipality will carry out all future maintenance and repairs and all costs will be borne by me as owner. My signature also confirms that the service pipe from the street line to the interior wall of the building will be under the control of the municipality and all costs of repair and maintenance are my responsibility as Owner.*

Name of Applicant (Print Please): _____ *Date:* _____

Signature of Applicant _____ *Position:* _____

OFFICE USE ONLY

1. DATE APPLICATION RECEIVED: [ ] Initials: [ ]

2. STATUS

   - UNION WATER SYSTEM — Approved [ ] Rejected [ ] Date: [ ] Initials: [ ]

     Comments: _____

   - TOWN OF KINGSVILLE — Approved [ ] Rejected [ ] Date: [ ] Initials: [ ]

     Comments: _____

UNION WATER SYSTEM

Application for Large Water Service Connection or Water Main Extension

Municipality:	Date:

Full Name and Mailing Address of Applicant:
Contact:
Street Address of Connection:
Phone: Fax:

Application (please check one)	
New :	
Replacement :	
Size of Service Conn.:	
Connecting Main Size:	

For Plant Use Only
Application # :
Operations Manager:
Date of Approval :

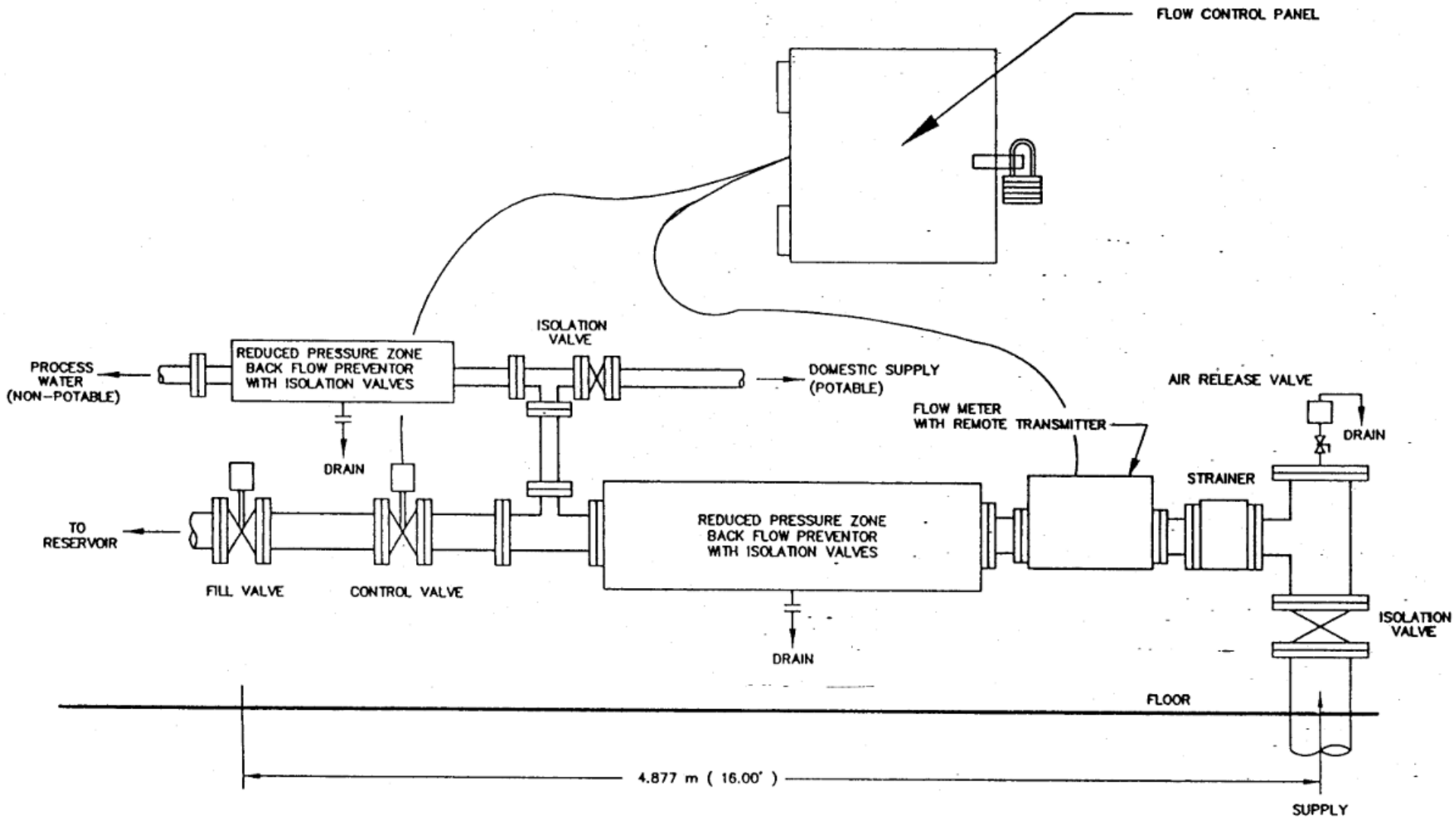
Projected Water Use in : m^3 [ ] or : Imp. Gallons [ ]

Municipalities actual consumption in past year: _____

Added new consumption as a % of municipalities actual : _____ %

Water Use Category	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Residential-single connection													
Residential - subdivision													
Commercial - single connection													
Commercial - multi unit													
Commercial - other													
Industrial - dry process; F.P. only													
Industrial - wet process													
Agricultural - greenhouse-acreage=													
Agricultural - drip irrigation-acreage=													
Agricultural - food process													
Agricultural - other-acreage=													
Other (list)													
Total													

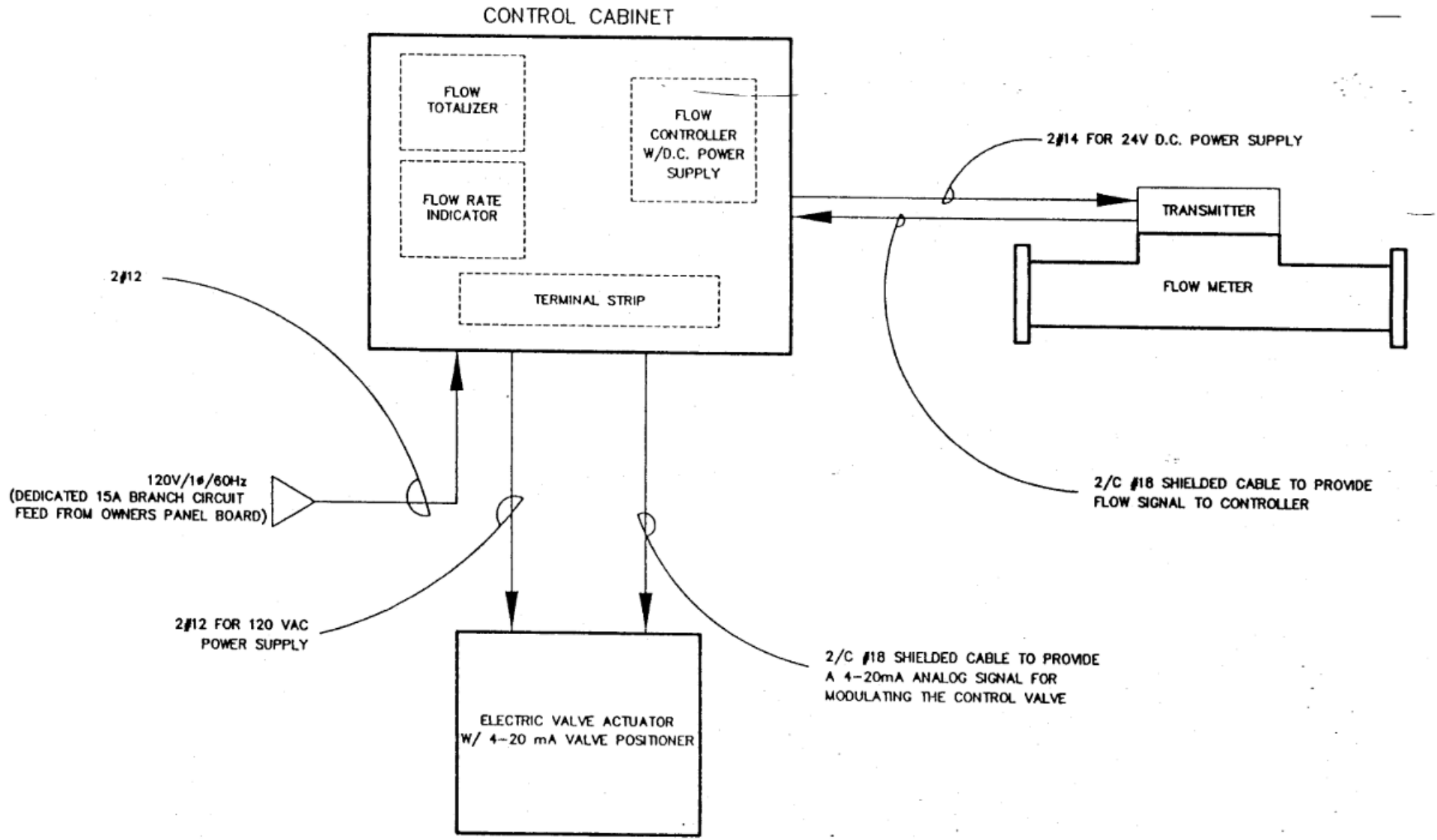
LSCU\Bank 123 revised 22 Feb 08



Stantec

TOWN OF KINGSVILLE
FLOW CONTROL SYSTEM

SHEET TITLE: FLOW MONITORING PIPING LAYOUT		DWG NO: 1-1
DATE: 1999-06-30	OFFICE FILE: 85600345	DWG FILE: FIG1-1



NOTES:
1. ISOLATE AC AND DC CIRCUIT WIRING IN SEPERATE RACEWAYS.
2. SHIELDED CABLES ARE TO BE GROUNDED ONLY AT ONE END.

Stantec

TOWN OF KINGSVILLE
FLOW CONTROL SYSTEM

SHEET TITLE: BLOCK WIRING DIAGRAM			DWG NO: 2-1
DATE: 1999-06-30	OFFICE FILE: 65600345		DWG FILE: FIG2-1

APPENDIX G
SAMPLE SUBDIVISION BOND

ZURICH

ZURICH INSURANCE COMPANY

HEAD OFFICE FOR CANADA, 400 UNIVERSITY AVENUE, TORONTO, ON M5G 1S7

SUBDIVISION BOND

BOND NO: **AMOUNT: $1,299,000.00**

KNOW ALL MEN BY THESE PRESENTS that we _____ of Ontario hereinafter called the Owner, and ZURICH INSURANCE COMPANY a Corporation created and existing under the laws of Canada, and whose principal office for Canada is located in the Municipality of Metropolitan Toronto, Ontario, hereinafter called the Surety, are held and firmly bound unto **THE CORPORATION OF THE TOWN OF KINGSVILLE**, hereinafter call the Town in the full and just sum of ONE MILLION TWO HUNDRED AND NINETY-NINE THOUSAND.....00/100 DOLLARS ($1,299,000.00) of lawful money of Canada, to the payment of which sum well and truly be made to said Town, their successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the said Owner has entered into a written Subdivision Agreement, hereinafter called the Agreement, with the Town dated the ___ day of _____, to construct in a good and workmanlike manner the Services as described in the Subdivision Agreement in respect to the Subdivision of the lands described in the Subdivision Agreement is made a part hereof as fully and to all intents and purposes as though recited in full herein..

NOW THEREFORE THE CONDITION OF THIS OBLIGATION is that whenever the Owner fails to perform the Agreement in accordance with the Subdivision Agreement, the Surety shall, upon written demand or demands for payment by the Town, honour such demand or demands, without inquiring whether the Town has a right between itself and the Owner to make such a demand or demands and without recognizing any claim of the Owner.

PROVIDED HOWEVER, that the Town is required to deliver to the Surety at such time or times as a written demand or demands for payment are made upon the Surety, a certificate confirming that monies demanded pursuant to this bond are to be and/or have been expended by the Town in accordance with the Agreement. The Surety will be given thirty (30) days from the date of demand for payment to make payment to the Town under the Bond.

Any suit under this bond must be commenced within six (6) months of the date of the acceptance of the services by the Commissioner of Works.

Nor right or action shall accrue on this bond, to or for the use of , any person or corporation other than the Town named herein, or the heirs, executors, administrators or successors of the Town.

IN TESTIMONY WHEREOF, the said Owner and Surety have caused their corporate seals to be affixed hereto under the hands of their proper offices this day of .

SIGNED, SEALED AND DELIVERED in the presence of:

_____ _____

WITNESS **OWNER**

_____

TITLE
ZURICH INSURANCE COMPANY

APPENDIX H
WASTE COLLECTION BY-LAW

THE CORPORATION OF THE TOWN OF KINGSVILLE

BY-LAW 25 - 2001

A By-law to establish, maintain and operate a waste management system in the Corporation of the Town of Kingsville.

WHEREAS pursuant to Section 208.2 of the Municipal Act R.S.O. 1990, c.M.45, as amended a local municipality may pass by-laws to establish, maintain and operate a waste management system;

AND WHEREAS Section 208.6 of the Municipal Act R.S.O. 1990, cM.45, as amended states that for the purpose of Section 208.2, a local municipality may pass by-laws to prohibit or regulate the use of any part of a waste management system within the Corporation of the Town of Kingsville.

NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CORPORATION OF THE TOWN OF KINGSVILLE ENACTS AS FOLLOWS:

A. **DEFINITIONS:**

1. **"Collectible Garbage or Waste"** shall include all household garbage or waste from any residential premises and any trade garbage or waste from any place of business including such items as kitchen and table waste of animal or vegetable origin resulting from the preparation or consumption of food, ashes, broken crockery, non-recyclable paper, wearing apparel and glassware and such other discarded materials which are generated at a residential premises and/or place of business but does not include household trash or trash accumulated from a place of business, hazardous waste, transient waste or recyclable material or other non-collectible waste as hereinafter defined.

2. **"Employee"** means any person employed or hired by the Town.

3. **"Hazardous Waste"** means waste that poses a present or potential danger to human beings or other organisms because it is toxic, explosive, reactive, corrosive, radioactive, pathological or otherwise poses substantial risk to human life and includes, but is not limited to:

   i) tires, paint, batteries, automotive parts, propane tanks;

   ii) insecticides, herbicides, acids, caustics, infected materials; and

   iii) any substance which may be classed as a "designated substance" pursuant to the Occupational Health and Safety Act, R.S.O. 1990 c.0.1, as amended.

4. **"Highway"** shall have the same meaning as provided in the Municipal Act, R.S.O. 1990, c.M.45.

5. **"Household Trash"** includes weighty or bulky materials such as bedsprings, mattresses, furniture, boxes, barrels, and any other large discarded materials, which are generated on residential premises but shall not include trade waste, construction or renovation waste or any trash accumulated from a place of business or other non-collectible wastes as defined in this by-law.

6. **"Non-collectible Garbage or Waste"** shall mean any garbage or waste that is not collectible garbage or waste and shall include but not be limited to:

   i) Plaster, lumber or other waste resulting from building, alteration or demolition operations;

   ii) Swill, liquid waste, or organic matter which has not been drained and wrapped in accordance with the provisions of this by-law;

   iii) dressings, needles or syringes, bandages, or other infected materials from hospitals, surgeries, or offices of physicians, surgeons, dentists or veterinarians;

   iv) faecies of any dog, cat or fowl that is not normally accumulated in a litter box situated in a dwelling;

   v) carcasses or part thereof, of any dog, cat, fowl or any other creature with the exception of bonafide kitchen waste;

   vi) transient waste;

   vii) collectible waste which has not been put out for collection in conformity with the provisions of this by-law;

   viii) trade waste;

   ix) recyclable material;

   x) natural soil, earth, sand, clay, gravel, loam, stones, rocks or other similar material;

   xi) any material which has become frozen to the receptacle and cannot be removed by shaking;

   xii) septic tank pumpings, raw sewage sludge and industrial process sludge;

   xiii) hazardous waste;

   xiv) trees or tree stumps, with the exception of used Christmas Trees;

   xv) yard waste;

   xvi) white goods; and

   xvii) water-soaked or broken containers.

7. **"Place of Business"** means any place other than residential premises and includes any hotel, motel, restaurant, shop, store, shopping centre, plaza, service station, commercial or industrial office, industrial plant or other commercial establishment, school, institution and public building.

8. **"Public Lane"** means any lane or alley accepted by by-law of the Corporation as a public thoroughfare, and which is deemed to be of sufficient width and condition for use by vehicles used for the collection of all collectible garbage or waste as defined in this by-law.

9. **"Recyclable material"** includes any material designated by the Essex Windsor Solid Waste Authority as recyclable.

10. **"Recycling Receptacle"** shall mean a container suitable for placing recyclable material as approved and/or provided by the Essex Windsor Solid Waste Authority.

11. **"Residential Premises"** means any individual property designated residential under the Town's Comprehensive Zoning By-law.

12. **"Town"** means the Corporation of the Town of Kingsville.

13. **"Town Council"** means the Council of the Town.

14. **"Public Works Manager"** means the superintendent employed by the Town.

15. **"Trade Waste"** includes Non-Collectible Garbage or Waste which is generated at a place of business.

16. **"Transient Waste"** means any refuse, trash, garbage or waste carried into the Town from outside its boundaries by any person.

17. **"White Goods"** means large steel based appliances which have been used on residential premises which include washers, dryers, stoves, refrigerators, hot water tanks, air conditioners and furnaces.

18. **"Yard Waste"** shall include grass clippings, leaves, flowers, weeds, small sticks and twigs and garden waste.

B. **GENERAL PROVISIONS:**

1. The Town shall operate a system for the collection, removal and disposal of collectible garbage or waste, household trash and yard waste, including all new single family residential units (including six multi-residential units or less) but excluding:

   a) all new multi-unit apartments (over six multi-residential units or more);

   b) all new commercial and industrial development;

   c) all new greenhouse development.

2. Collectible garbage or waste shall be placed in non-returnable plastic bags or receptacles as defined below

   i) Non-returnable bags shall be an approximate size of 26" wide x 48" high (.65m x 1.20m) and are to be tied as to provide a condition of being airtight and sanitary.

   ii) Containers shall be constructed of a durable non-flammable material and be not more than 0.7 M in height and 0.4 M in diameter and shall contain a water tight lid and two (2) handles.

   iii) Containers to weigh no more than total 40 lbs. or 18 kilograms or a maximum of five (5) containers.

3. All collectible garbage or waste shall be drained and placed in a non-returnable plastic bag or wrapped and tied and placed in a container as defined above.

4. Any sharp objects or broken glass shall be secured with material and wrapped in a way so as not to pierce the wrapper.

5. Containers for collectible garbage or waste shall be placed for collection in accordance with the following:

   i) highways with concrete curbs or in the Downtown Business Improvement Area -- to be placed directly behind the curb.

   ii) highways with concrete sidewalks tightly abutting the curb except in the downtown business improvement area -- to be placed directly behind the sidewalk on property owner's side.

   iii) highways with boulevards between sidewalks and curbs -- to be placed directly behind the curb.

   iv) public lane or alleyway -- to be placed as close as possible to the edge of the lane or alleyway.

   v) Containers are to be no closer than five (5) feet from the travel portion of the road.

6. Garbage or waste shall be placed in a suitable container the night before the collection day.

7. The Town will publish an annual collection schedule which will contain the descriptions of routes, dates for pick-up and holiday changes.

8. All bins, structures or buildings for the storage of collectible garbage or waste shall at all times be maintained in a clean and sanitary condition and constructed so as to prevent entry of rodents or insects.

C. **HOUSEHOLD TRASH / WHITE GOODS / YARD WASTE**

1. For the purpose of collection of household trash, white goods and yard waste the Town will publish an annual collection schedule which will contain the dates for pick-ups, prescribed fees if applicable, and other pertinent information.

D. **RECYCLABLE MATERIALS / HAZARDOUS WASTE**

1. For the purpose of collection of Recyclable Material and Hazardous Waste Essex Windsor Solid Waste Authority will be responsible for setting out a schedule which will contain the dates for pick-ups.

2. Leaves and refuse shall not be raked or piled on the street except in containers and such refuse shall not be burned.

E. **OTHER SERVICES:**

1. **WOOD TRAILER**: The Town will make available the use of the Town owned wood trailer for the purpose of disposal of used and scrap lumber. Particulars of the availability and prescribed fee, if applicable, will be published in the annual collection schedule.

2. **CHIPPER**: The Town will provide the service of the Town owned chipper for the purpose of disposal of small twigs and branches. Particulars of the availability and prescribed fee will be published in the annual collection schedule.

F. **RESTRICTIONS:**

1. No collectible garbage or waste or non-collectible garbage or waste shall be placed on any property other than that upon which it is generated or so located on the occupants property as to cause a public nuisance to the adjoining property owner.

2. A passageway affording a convenient and unimpeded means of access to the items to be collected pursuant to this by-law shall be maintained and the passageway shall be of sufficient dimensions to enable the employees of the Town or of its contractors, servants, workmen and agents to load the items to be collected pursuant to this by-law on the collection vehicles.

3. Collection of collectible garbage or waste may be refused for any premises which in the opinion of the Town Superintendent present an unsafe situation for employees or agents.

4. The Town may, in the exercise of any of its legal or statutory powers, or in the implementing of any orders made by the Medical Officer of Health remove and dispose of any garbage or other waste within the Town and charge the costs incurred by the Town to the Owner of the premises upon which the garbage or other waste was generated.

5. Any costs incurred by the Town pursuant to Section 208.2 of the Municipal Act, R.S.O. 1990, c.M.45 as amended includes the power to provide waste management services to the Town at the expense of the owners and occupants of the land in the area, and impose upon that land, according to its assessed value, a special rate to defray the expense of the waste management services and may be collected or recovered in the same manner as municipal taxes provided in Section 326 of the Municipal Act, R.S.O. 1990, c.M.45 as amended.

6. Every person shall provide for the proper storage, collection and disposal of non-collectible garbage or waste generated upon a property of which that person is an owner.

7. No person shall deposit or permit the deposit of non-collectible garbage or waste, yard waste, recyclable material, or household trash, during regular collection dates as set out by the Town.

8. Through site plan control agreements, all new development shall be responsible for the collection and disposal of collectible garbage or waste generated by the new development.

9. Every person shall be responsible for the collection and disposal of any non-collectible garbage or waste at a site as approved by the Ministry of Energy and Environment for such garbage or waste in some method other than collection by the Town.

10. No person shall pick over, interfere with, disturb, remove or scatter any recyclable material, collectible garbage or waste, non-collectible garbage or waste, bundle, article or any other item placed out for collection whether contained in recycling receptacles, containers or bundles, or otherwise placed for collection.

11. No person shall permit empty containers or receptacles, after the contents have been removed, to remain on the boulevards, curbs, or street for a period longer than midnight of the normal day of collection.

12. No person shall haul, convey or transport through or upon any street within the Town limits any collectible garbage or waste material or any non-collectible garbage or waste material except:

    i) in properly covered containers; or

    ii) in vehicles totally enclosed; or

    iii) in vehicles covered in canvas or tarpaulins, so fastened down around the edges to prevent any of the contents from falling upon the streets and to protect the same from flies and to prevent the escape of any offensive odours.

G. **ADMINISTRATION:**

1. It shall be the duty of the By-law Enforcement Officer or Public Works Manager to enforce the provisions of this by-law.

2. Interpretation of any of the definitions, provisions or restrictions contained in this by-law shall be at the sole discretion of the Public Works Manager of the Town.

3. Fees relating to this by-law will be updated from time to time in the Town's "Fees By-law" pursuant to Section 220.1 of the Municipal Act, R.S.O. 1990, c.M.45 as amended.

H. **PENALTY PROVISION:**

1. Any person who violates any provision of this By-law or causes or permits a violation shall be liable on conviction to a penalty not exceeding $2,000.00 exclusive of costs for each offense and every such penalty shall be recoverable under the provisions of the Provincial Offenses Act.

I. This by-law hereby repeals By-law-law 85-1999 and shall come into force and effect upon the third reading and being.

READ a FIRST and SECOND time this 26th day of November, 2001.

READ a THIRD time and FINALLY passed this 26th day of November, 2001.

THE CORPORATION OF THE TOWN OF KINGSVILLE

MAYOR, Patrick M. O'Neil

ACTING CLERK, Linda Burling

APPENDIX I
MUNICIPAL TOPSOIL SPECIFICATIONS

Corporation of the Town of Kingsville

2021 Division Road North
Kingsville, Ontario N9Y 2Y9
Phone: (519) 733-2305 FAX: (519) 733-8108

www.kingsville.ca

MUNCIPAL TOPSOIL SPECIFICATIONS FOR IMPORTED SOIL

Imported topsoil shall be supplied and placed to a minimum depth of 100 mm for all boulevard areas and any other areas to be restored and seeded.

Topsoil shall be tested by an appropriate certified laboratory to confirm the following items:

1. Organic matter constitutes at least 4%, but no more than 10%;

2. ph level is between 5.5 – 7.5;

3. Phosphorus minimum 120 PPM with annual applications of phosphorus fertilizers, potassium, magnesium general range 30 – 200 PPM, and calcium not to exceed 6000 PPM;

4. cat ion exchange capacity shall not be less than 10 or more than 24:
   a. 10-15 sandy loam
   b. 15-19 silty loam
   c. 20-24 silty clay loam
   d. total salts reading of 0-0.45 millisiemens/cm3 are acceptable provided the contractor applies and incorporates recommended fertilizer of the type and rate specified. Readings above 0.45 will not be accepted.

Topsoil shall be screened and free from:
1. debris and all stones,
2. coarse vegetative material, 10mm length, occupying more than 2% of soil volume.

APPENDIX J
WATER DISTRIBUTION SYSTEM
INSTALLATION SPECIFICATIONS

KINGSVILLE ENVIRONMENTAL SERVICES

SPECIFICATIONS

FOR INSTALLATION OF ALL WATER DISTRIBUTION SYSTEM STRUCTURES - INCLUDING PIPE, HYDRANTS, VALVES, FITTINGS AND SERVICES IN NEWLY OPENED AREAS OR RECONSTRUCTED AREAS

Revised March 2011

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KINGSVILLE ENVIRONMENTAL SERVICES

SPECIFICATIONS

FOR INSTALLATION OF ALL WATER
DISTRIBUTION SYSTEM STRUCTURES
INCLUDING PIPE, HYDRANTS, VALVES,
FITTINGS AND SERVICES
IN NEWLY OPENED AREAS OR
RECONSTRUCTED AREAS

1. GENERAL

The word ***"Corporation***" shall mean the Town of Kingsville Environmental Services.

The word "***Director***" shall mean the Director of Municipal Services or his appointed representative.

The word "***Inspector"*** shall mean an employee of the Corporation who has been assigned by the engineer to inspect the work and method of installation.

The word "***Contractor***" when occurring in the specifications shall mean the firm of contractors, the company or the individual acting as contractor and commissioned by the owner to install the services, mains, hydrants, etc.

The word ***"Owner***" shall mean the person or firm commissioning the contractor to install mains, services and appurtenances.

The words "***Normal Working Hours***" shall mean the hours regularly worked by the staff of the Kingsville Environmental Services i.e. 7:30 am to noon and 12:30 p.m. to 4:00 p.m.

The layout and location of mains, valves, hydrants, private services and any other fittings shall be approved by the "Director" before start of construction. The "Director" shall have the right to specify size and type of main, location of valves, hydrants and other fittings.

All work shall be carried out during normal working hours to permit proper inspection. See Section 5 concerning work outside normal working hours. The contractor will be required to provide 4 hours notice of intent to start work on the project, or to return to work on the project during normal work week Monday to Friday inclusive and 24 hours notice to work on the project on Saturday, Sundays or Statutory Holidays.

The Contractor shall furnish all Labour and equipment and any materials for the complete installation of watermains, hydrants, valves and accessories. The Contractor shall excavate the trenches to the required dimensions; sheet, brace and support the adjoining ground or structures where necessary; handle all drainage or groundwater, lay and test the pipe, castings, fittings and accessories; install valves and hydrants; backfill and compact the trenches and pits.

In the event material is broken during installation it shall not be repaired but shall be replaced by new material to the satisfaction of the inspector.

Canadian suppliers and manufacturers materials are preferred, however, non-Canadian materials may be used only with expressed approval of Kingsville Environmental Services.

General Maintenance by Owner

When repairs are undertaken by the Owner during the guarantee period, such repairs shall be made while a Kingsville Environmental Services Inspector is present. The Inspector's fees shall be paid by the Owner.

Emergency Repairs by the Kingsville Environmental Services

During the guarantee period, where maintenance of water service to the consumer or consumers is required, or where, in the opinion of the Director or his representative, a faulty or damaged installation may cause inconvenience or further damage immediate repairs will be undertaken by Kingsville Environmental Services. The Corporation will not be required to notify the Owner before these repairs are undertaken and the cost of such repairs will be collected from the Owner. The decision of the Director or his representative will be final as to the necessity of repairs done or required and the amount expended for these repairs.

2. SHUTTING DOWN OR CHARGING MAINS

During the progress of the work or at any other time, the contractor shall not shut down or charge any watermain or operate any gate valve for the purpose of making connection or for any other purpose. Operation of valves is performed solely by the Corporations forces.

3. CONNECTIONS TO AND ABANDONING OF EXISTING WATERMAINS

All cutting in or connecting to the Corporations mains shall normally be made by the Corporations forces at the expense of the contractor. This work may be performed by the contractor, by permission of the engineer and with the inspector present. The Contractor shall make suitable connections to existing watermain, whether the connections are made from concrete, P.V.C., ductile iron, cast iron or asbestos cement water pipe. A tapping sleeve and valve shall be used for this purpose as specified in Appendix 'A'. The Contractor shall further take note that the location of the existing mains as shown on the drawings is approximate and he is to satisfy himself as to the exact nature, extent and location of these mains prior to making the connection. During the progress of the work or at any other time, the Contractor shall not shut down or charge or open any watermain or operate any gate valve for the purpose of making a connection or charging any watermain installed by the Contractor or for any other purpose. Operation of valves shall be performed solely by employees of Kingsville Environmental Services.

a) In all cases of watermain tie-ins or disconnections, the Contractor shall take whatever measures necessary to carry out his work in the dry. Before capping or plugging existing watermains, the Contractor is to excavate a large pit in the area of the work in order to collect discharging water, well below the pipe and the bottom of the excavation filled with 20 mm (3/4") clear stone. The Contractor shall then pump the discharged water into a nearby storm drain. It will be the responsibility of the Contractor to contact

affected water customers when existing watermains are being shut down. Interruption of water service, when reconnecting water services to the new watermain or installing fittings on the existing watermain, must be minimized to the greatest extent possible and scheduled appropriately to suit the type of business or residence. The customer must be notified by the Contractor a head of time.

Prior to reconnecting a customer to a new service, the new service must be connected and tested to the meter setter.

All existing copper services are to be completely removed.

Special precautions shall be exercised to prevent contamination of the watermain. All material used for the final capping procedure shall be washed in a chlorine solution to prevent contamination of the watermain.

b) The Contractor must make exploratory excavations at the tie-in locations of each of the intersecting streets to determine the exact outside diameter of the existing watermains to obtain the correct size tapping sleeve.

c) The Contractor shall schedule **ALL** watermain tie-in with customers to be affected by an interruption in the water supply. In the case of residential consumers, the Contractor shall provide a minimum 24 hours advance notice of the expected time and duration of the loss of water service. In the case of institutional and commercial consumers, the Contractor shall provide a minimum 24 hour advance notice and obtain a signed release from the private representative agreeing to the scheduled time and duration of the interruption in the water supply. A copy of this signed release shall be supplied to the Kingsville Environmental Services Department and the Engineer. If required, the Contractor shall obtain permits from the Town to work after regular working hours to accommodate any special needs of local water consumers.

4. CONTRACTOR'S ABSENCE

In the absence of the Contractor from the job (whether permanent or temporary), he shall provide and leave a competent and reliable agent or foreman in charge for him. This person shall be considered as acting in his place and all notices, communications, instruction or orders given, sent or served upon this person shall be taken as served upon the Contractor.

5. INSPECTOR'S POWERS

Inspectors are required to see that the provisions of the specifications are faithfully adhered to, especially with regard to the quality of workmanship and materials. An inspector may stop the work entirely if there is not a sufficient quantity of suitable and approved material on the ground to carry it on properly, or for any good and sufficient cause. Any work done in the absence of an inspector or before and after normal working hours, may be ordered to be opened up for thorough examination and must be rebuilt or replaced as directed and at the Contractor's sole expense. No approval by any inspector shall be taken as or construed as an acceptance of defective or improper work or material, which must in every case, be removed and properly replaced whenever discovered at any stage of the work. Orders given by an inspector relating to the quality or type of material and workmanship shall be at

once obeyed by the Contractor, but inspectors do not have the power to set out work, or give any stakes, lines, levels or grades. Any orders or directions, other than as herein provided for, given by inspectors shall not be binding upon the Corporation or the Contractor.

6. SURVEY AND GRADE STAKES

It is the responsibility of the Owner to provide survey, grade stakes, and lines, as required, to ensure watermains and fittings are installed in the correct location with respect to property lines, and at the correct bury depth for finished grade. Failure to provide such survey, grade stakes, and lines will result in the shutdown of the project until they are provided. Mains not laid to the line and grade approved within permitted deviation shall be relocated to the approved line and grade at no expense to the Corporation.

7. MATERIALS

All the waterworks material used shall be new and shall conform to the latest revision of the Standards of the American Waterworks Association (AWWA). These are available at present at:

AWWA
Customer Services
6666 West Quincy Avenue
Denver, Colorado, U.S.A. 80235
Phone: (303) 794-7711
Fax: (303)794-7310

8. PVC PIPE

Polyvinyl Chloride (PVC) pressure pipe shall be manufactured to cast iron outside diameters, be colour coded blue, "and shall have an integral wall-thickened bell end designed for joint assembly using elastomeric seals as manufactured to AWWA C900, C905 and C909 and certified to CSA B137.3".

9. HANDLING OF MATERIALS

Pipe, fittings, valves, hydrants and all accessories must be loaded and unloaded by lifting with hoist or skidding so as to avoid shock or damage. Under no circumstances shall such be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. All pipe up to and including 600mm diameter PVC delivered to and stored on site shall be capped both ends.

10. PREPARATION OF TRENCH

The trench shall be excavated to the alignment shown on the drawings and at a minimum depth of cover of 1.7 metres (5.5ft) minimum vertical clearance between the watermain pipe and any other underground facilities shall not be less than 150 mm (6"). The trench shall not be opened for a length greater than 30 m (100 ft) unless permitted by the Director.

If the bottom of any trench is excavated below the limits shown on the drawings or prescribed by the Director, it shall be refilled at the Contractor's expense with material acceptable to the Director, in such a manner as the Director may direct.

The trench must be drained or pumped in order to avoid the necessity of making joints under water. The trench must be drained to avoid any possibility of drainage water entering the pipe in the trench.

The width of the trench shall meet the requirements of the Occupational Health and Safety Act and be sufficient to permit the pipe to be laid and joined properly, and the backfill to be placed and compacted. All trench construction to conform to the Occupational Health and Safety Act and Regulations for Construction Projects (latest revision).

The Contractor shall furnish, put in place and maintain such sheeting and bracing as may be required to support the sides of the excavation and to prevent any movement which can in any way:

(i) injure personnel, pipe or appurtenances;
(ii) diminish the necessary width of the excavation;
(iii) otherwise injure or delay the work or endanger adjacent structures.

If the Director is of the opinion that at any point inadequate support has been provided, he may order additional supports put in at the expense of the Contractor. Compliance with such order shall not release the Contractor from his responsibility for the adequacy of such supports.

If voids are formed outside the sheeting they shall be immediately filled and rammed with suitable material. If necessary, additional sheeting shall be driven outside the existing sheeting to prevent settlement of the adjacent ground.

Where sheeting and bracing is to be removed it shall be done so that adjacent facilities and properties are not damaged. All voids left or caused by the withdrawal of sheeting shall be immediately refilled with suitable material and compacted. Where timber or steel used in sheeting, bracing or coffer ramming has been left in place for the convenience or to serve the interest of the Contractor, the Contractor shall receive no additional payment.

11. DEWATERING

The Contractor shall dewater the trench so as to permit the proper laying of the pipe on a firm foundation. The Contractor shall remove water at his own expense and shall have sufficient pumping equipment available for immediate use.

The water discharged from the trenches shall be disposed of so it will not damage the works nor any private property. It shall be conveyed to natural drainage channels or to sewers. If trench water is to be conveyed to a sewer, the Contractor may be required to remove all sand and mud and no compensation shall be allowed therefore.

In general, all water encountered in trenches shall be pumped out and at no time shall the pipe be used as a drain for such water. Pipe shall not be laid in water.

12. PIPE CLEARANCES FROM OTHER UTILITY STRUCTURES

A minimum clearance of 150 mm (6 inches) must be maintained between all water distribution system structures, and the structure of any other municipal or private utility system.

13. EXCAVATION TO GRADE

The trench shall be excavated to provide a minimum of 1.7 metres (5.5 foot) cover for all main and service installations.

14. SPECIAL BEDDING

If in the opinion of the inspector soil conditions are encountered at sub-grade, which requires special bedding, the Inspector shall have the authority to stop the work, the job shall be inspected by the Engineer or his representative, who will indicate the bedding to be used.

14.1 Bedding

Bedding materials shall be placed as shown on the contract drawings. The bed shall be shaped to line and grade, free from sags and high points. Bedding shall be shaped to a cylindrical surface with the radius conforming to the pipe.

Granular bedding shall be uniformly compacted to 90% of its SMPDD.

14.2 Haunching

When a "self-compacting" material such as crushed stone is used, ensure that the material does not arch or bridge beneath the haunch of the pipe. Remove these voids with the tip of a spade and compact with a mechanical compactor if necessary to 90% SMPDD.

When compacting the haunching, do not allow the tool or machine to strike the pipe. Ensure that the compacting effort does not dislodge the pipe.

14.3 Initial Backfill

It is not necessary to compact the initial backfill for the sake of the pipe structural strength. The initial backfill shall be compacted to 90% SMPDD where roadway integrity is required.

14.4 Final Backfill

After the initial backfill has been placed, the balance of the backfill may be hand or machine placed as required. Unless otherwise specified, trenches under pavements, sidewalks or roads shall be backfilled and compacted to 98% SMPDD in lifts not to exceed 300mm (12") in depth. Unless otherwise specified other trenches may be backfilled without controlled compaction. The Contractor shall furnish additional backfill to completely backfill the trenches or to fill depressions caused by subsequent settlement, to the satisfaction of the Engineer.

15. INSTALLATION AND SETTING OUT

Watermain shall be laid to the lines shown on the drawings with 1.7 m (5 1/2 ft.) minimum cover to finished grade, or as otherwise approved by the consulting Engineer. Minimum vertical clearance between watermain pipe and any other underground facility shall not be less than 150 mm (6").

Pipe shall not deviate from line or grade by more than 75 mm (3").

The Contractor shall comply with the requirements of the Occupational Health and Safety Act and other applicable acts, regulations and ordinances. The Contractor shall slope the trench wall to conform to the Act.

Barricades, guards, lights and other safety precautions shall be provided by the Contractor.

If damage occurs to any pipe, fittings, valves or watermain accessories in handling, the damaged items shall be removed.

16. PIPE LAYING

Proper implements, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the efficient laying of the pipe and the settling of the required fittings, etc. All materials shall be lowered into the trench by suitable means. Under no circumstances shall these materials be dropped or dumped into the trench.

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. The interior of the pipe shall be inspected and completely cleaned of all sand or other foreign material before placing in the line.

The outside of the pipe spigot and the inside of the bell shall be wiped clean and dry.

As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to correct line and grade. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Precautions shall be taken to prevent dirt from entering the joint space. Pipe shall be laid with bell ends facing in the direction of laying.

When crossing over or under sewers, a full pipe must be used so that joints are a maximum distance away from the sewers.

Change in Line and Grade

PVC Pipe:

PVC pipe may be deflected in order to follow the curvature of the trench. To achieve curvature, the pipe shall be installed in accordance with the manufacturers recommendations. Directional change may be accomplished by axial flexure (pipe bending) or joint deflection of the pipe to the extent recommended by the manufacturer. However, under no circumstances will radii less than those specified in the tables below be permitted. Do not combine the two methods. In addition, the Owner reserves the right to require the installation of additional bends to ensure that the pipe is not over-stressed by excessive joint deflection.

Axial Flexure:

Pipe Size (mm)	*Min. Radii of Curvature (m)*
100	30
150	44
200	58
250	70
300	84

Joint Deflection:

Pipe Size (mm)	*Min. Radii of Curvature (m)*
100	116
150	116
200	116
250	116
300	140
350+	233

Where it is not possible by using allowable joint deflection or pipe bending to lay pipe to the required radius or relocate pipe past an obstruction, bends must be used.

17. SHUT DOWN PRECAUTIONS

At times when pipe laying is not in progress, the open ends of pipe shall be closed up by a water-tight plug. This provision shall apply during the noon hours as well as overnight. If water is in the trench the seal shall remain in place until the trench is pumped completely dry.

18. CUTTING PIPE

The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the axis of the pipe.

19. JOINT DEFLECTION

Wherever it is necessary to deflect the pipe from a straight line either in the vertical or horizontal plane, the amount of deflection shall not exceed that recommended by the pipe manufacturer. If the deflection is excessive in the opinion of the Inspector, he will order the job stopped. The Engineer or his representative will inspect the job and if necessary will order the use of specials in order to provide the necessary deflection.

20. JOINTING PIPE

PVC Pressure Pipe

PVC pipe shall be laid in accordance with AWWA Standard C605 Underground Installation of Polyvinyl Chloride (PVC) Pressure pipe and Fittings for Water.

Bell and Spigot Joints

The pipe shall be jointed in accordance with AWWA Standard C605 Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water. If elastomeric gaskets are supplied separately, they shall be inserted into the groove of the bell end of the pipe. Lubricant for gaskets shall conform to pipe manufacturer's recommendations and shall be NSF-61 approved. Clean the gasket, the bell, the groove area and the spigot area with a clean rag to remove any dirt or foreign material before assembling. Insert the gasket into the groove and seal it firmly. Apply lubricant, as provided by the manufacturer, to the bevelled spigot end. Push the lubricated end past the gasket into the bell until the reference mark is even with the bell.

Cutting Pipe

The pipe shall be cut in a neat and workmanlike manner without damage to the pipe. Pipe ends shall be cut square at right angles to the axis of the pipe, deburred and bevelled. The chamfer should be approximately 15 degrees. Using the factory pipe as a guide, the cut length should be chamfered to approximately the same angle and distance back (38mm 1-1\2"). A power sander or abrasive disk, a bevelling tool, and a rasp or file may be used to chamfer the pipe. When assembling to iron fittings, only a short bevel of approximately 3 mm (1\8") should be made to the cut edge.

21. SETTING OF MECHANICAL JOINT TEES, BENDS AND

Tees, bends, fittings and other accessories shall be of the cement lined mechanical joint type and shall be fitted and joint to the pipe in the manner heretofore specified for the cleaning, laying and jointing of pipe. Retainer glands are to be installed as required. All fittings to be set on a minimum of 15 centimeters (6 inches) of clear stone and then on a 100 x 200 x 400 mm (4 x 6 x 16 inch) solid concrete blocks. At each mechanical joint bolt, after nut has been tightened, a 90 gram “Protecto-cap” shall be installed.

See Appendix "A".

22. TAPPING SLEEVES AND VALVES

Tapping sleeves and valves shall be used when new pipe is connected into the existing distribution system, at locations approved by the Engineer. Tapping valves shall conform to AWWA C500 and must open Counter Clockwise. All materials shall conform to the current specifications as detailed in Appendix "A".

23. VALVES

Valves shall be resilient wedge gate valves conforming to AWWA C509. ALL VALVES MUST OPEN COUNTER CLOCKWISE. See Appendix A.

24. SETTING OF VALVES

Valves shall be located according to the plan approved by the Engineer. A cast iron valve box shall be provided for each valve. Valves installed at a greater depth than 1.7 meters (5 1/2 feet) shall be equipped with operating rod extensions. The Contractor shall install valves truly plumb and vertical in locations indicated on the Contract Drawings or as directed by the Engineer. All valves are to be supported with solid concrete blocks of minimum size 100 x 200 x 400 mm (4" x 8" x 16") installed on a minimum 150mm (6") clear stone bedding, and retainer glands are to be installed as required.

25. VALVE BOXES

Valves boxes shall be cast iron, screw type with two fingers hole lid. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve. The top of the valve box must be set flush with the finished grade. Clear stone shall be placed around the valve, starting at the trench bottom, up and around the valve, and up to the level of support for the valve box. See Appendix "A".

26. DEAD ENDS

All dead ends on watermains shall be equipped with a valve and a fire hydrant. Dead ends will only be considered when the possibility of "Looping" watermain is not an option.

27. SETTINGS OF HYDRANTS

Hydrants shall conform to AWWA C502 for dry barrel hydrants. The Contractor shall obtain from the Director of Municipal Services the current specification for hydrants which will be used in the project, before starting the project. See Appendix "A". Hydrants shall be located according to the plan approved by the Engineer. Hydrants shall be set at a grade whereby the final grading of the street or area shall be 10 centimetres (4 inches) below the bottom of the ground line flange. Hydrants shall be installed between sidewalk location and curb location.

A GRADING WHICH RESULTS IN DEPRESSION OR PONDING AT THE HYDRANT WILL NOT BE ACCEPTED.

The Contractor shall install hydrants truly plumb and vertical in locations indicated on the Contract Drawings or as directed by the consulting Engineer. All hydrants are to be supported with solid concrete blocks of minimum size 100 x 200 x 400 mm (4"x 8" x 16") installed on a minimum 150 mm (6 inches) clear stone bedding, and retainer glands are to be installed as required, in lieu of tie reds and blocking, to brace the watermain against any internal thrust forces.

28. REMOVAL OF EXISTING FIRE HYDRANTS

A Contractor shall very carefully remove and salvage the existing fire hydrant and deliver to the Kingsville Environmental Services yard as well as plugging the existing watermain. Any damage created by careless removal will result in a new hydrant to replace the removed hydrant.

29. HYDRANT CONNECTIONS TO MAINS

Each hydrant shall be connected to the main with not less than a 150 mm (6 inches) lateral, controlled by an independent gate valve. Hydrant bases shall be 150 mm (6 inches) mechanical joint. Each hydrant shall have a 150mm (6 inch) shut-off valve. Hydrants shall be connected to hydrant valves and tees by means of retainers glands.

30. ANCHORAGE FOR HYDRANTS,TEES, VALVES, PLUGS, CAPS, BENDS, AND ALL OTHER MECHANICAL JOINT FITTINGS

All mechanical joints must be anchored to prevent movement, by using approved retainer glands. See Appendix "A".

31. BACKFILLING

All backfill material shall be free from ashes, refuse, cinders, vegetable or organic material, boulders, rocks or stones or any other material which in the opinion of the Director of Municipal Services is unsuitable. When mains and services cross under roads the inspector shall specify type of backfill.

32. BACKFILLING UNDER PIPE

If conditions so dictate, the inspector shall order the trench backfilled by hand from the bottom of the pipe to the center line of the pipe with sand, gravel, or other approved material, placed in layers of 8 centimetres (3 inches) an compacted by tamping.

33. FREEZING WEATHER

Backfill shall not be made with frozen material.

34. HYDROSTATIC TESTS

Before the installation is turned into service, a pressure and leak test shall be made. All materials and labour required for the test must be supplied by the contractor. The Contractor shall make all taps into the pipe and shall furnish all necessary assistance for conducting the tests. The pump, pipe connection and all necessary apparatus shall be furnished by the Contractor. The water supplied for testing shall be potable water and all containers used to handle it must be clean and sterilized before use. The Contractor is required to put a hydrostatic test on lines in accordance with A.W.W.A. Specification C605-94 for PVC Pipe.

Prior to pressure testing and sterilization, the consulting Engineer and a competent person supplied by the Contractor at the expense of the Contractor will inspect the installation. During this inspection, each and every valve will be checked using the proper valve operating key. Each valve must be fully opened or closed as required.

The test shall be witnessed by the consulting Engineer and/or a representative of Kingsville Environmental Services. The Contractor shall notify the Engineer and a representative of the Kingsville Environmental Services at least 24 hours in advance of the intended testing time.

After the pipe has been laid and backfilled and hydrants are installed, the newly laid pipe shall be subjected to a hydrostatic pressure test in accordance with AWWA C605-94 Section 7.3 for PVC Pipe except that the pressure shall be not less than 1035 kPa (150 psi) and the duration of the test shall be for at least two hours.

Maximum permissible leakage shall be 2.22 litres per day per mm diameter per km of pipe. The pressure gauge shall be certified and of minimum 100 mm (4 inch) diameter, applicable for the water pressure measurement from 0 to 1700 kPa and be liquid filled type. Gauges which show signs of being tampered with, having broken glass or visual damage shall not be acceptable.

If the measured leakage exceeds the allowable leakage, all leaks shall be located and reaired and the test section shall be retested until a satisfactory result is obtained.

35. FLUSHING AND DISINFECTING WATERMAINS

Flushing and disinfecting operations shall be carried out in accordance with the requirements of Kingsville Environmental Services. The Director of Municipal Services shall be notified at least 24 hours in advance of the proposed date on which operations are to commence.

Mains shall be cleaned or flushed before hydrostatic testing and disinfecting is done. Cleaning shall be repeated until the discharge is clear and approved by Kingsville Environmental Services. Watermains shall be flushed in a sequence and in accordance with the procedure set out by the Director. The Director may permit or require the flushing to be carried out in stages as sections of the system are completed. No unsuitable matter shall be allowed to enter the sections which have been flushed.

The Contractor shall provide disinfecting taps on the watermain to be disinfected.

After flushing is completed, water from the existing distribution system shall be allowed to flow at a controlled rate into the new pipeline. Liquid chlorine solution (Sodium Hypochlorite base) shall be introduced so that the chlorine shall be applied to provide a chlorine concentration of 50 mg/l minimum throughout the section.

The system shall be left charged with 50 mg/l chlorine solution for 24 hours. All valves and hydrants shall not be operated during the 24 hour period.

The discharge of chlorinated water shall be in accordance with "Environmental Construction Guidelines for Municipal Road, Sewage and Water Projects" by Municipal Engineers Association, Appendix B, attached hereto.

The Contractor must supply all labour and materials necessary for the disinfection of the pipe in accordance with the requirements of the Engineer. The installation shall not be turned into the system until Ministry of Health bacteriological analysis of water results indicate coliform count total = 0 and fecal = 0. The Contractor will supply and install two hoses of a minimum 6.3 centimeter (2 1/2") diameter size suitable to the Inspector for flushing hydrants as part of the sterilization procedure. The Contractor will move the hose from hydrant to hydrant as required by the Inspector. When sterilization procedure is completed to the satisfaction of the Engineer, the Contractor shall disconnect the "chlorination copper piping" from the Corporation stop in the presence of the Inspector.

a) The test shall be observed by Kingsville Environmental Services personnel

b) The system shall not be put into operation until approved by Kingsville Environmental Services and/or the consulting Engineer.

36. INSPECTIONS - MAIN COMPLETION

Prior to placing the main in service, the Corporation's inspector and a competent person supplied by the Contractor at the expense of the Contractor will inspect the installation during normal working hours. During this inspection, each and every valve will be checked using the proper valve operating key. Each valve must be fully opened or closed as required before the installation is placed into service. See Appendix "B"

37. PAYMENT FOR WATER

Advance arrangements must be made with the Kingsville Environmental Services for water required during construction work. The Corporation's staff shall operate hydrants and provide and install a hydrant meter complete with a valve for such requirements.

The fee for providing such connections and operating hydrants during normal working hours (7:30 am - 4:00 p.m.) shall be a minimum of one (1) hour charge for labour and equipment. At other times the applicable overtime rates shall apply. The cost of water shall be in accordance with metered rates in effect at the time of use.

38. NOTIFICATION OF RESIDENTS

Residential or commercial establishments that will be without water service during the progress of the work are to receive at least 24 hours notice from the Contractor. A Contractor shall obtain notice cards and shall distribute them at no expense to Kingsville Environmental Services.

Water service must not be turned off prior to 9:00 am and must be restored prior to 4:00 p.m. for residential users. The Contractor shall schedule any interruption of water service with the commercial or institutional water users to minimize inconveniences in the operation of services provided to inhabitants and/or customers.

The appropriateness of the timing of scheduled interruption of water service shall be subject to the approval of commercial and institutional water users, and the Director. Restrictions to the interruption of water service will be strictly enforced.

39. PRIVATE SERVICE CONNECTIONS - 19 mm (3/4") & 25 mm (1")

The portion of the private service from the main to the property line will be owned and maintained by the Corporation, and materials used in this section of the service shall comply with the following Corporation standards.

"NO LEAD" NSF61 Compliant Waterworks Brass shall be utilized in all cases

See Specification: Appendix A

a) Main cocks or corporation stops shall be Full Port, Mueller 300 Ball Type Corporation Valve with AWWA taper no. B-25008 Ford FB1000-3Q, Cambridge Brass 301, or equivalent with Town approval.

b) Curb stops for private service connections shall be Full Port, Mueller 300 Ball Curb Valve No. B-25209, FORD B44-333Q, Cambridge Brass 202CB

c) Shut-off boxes shall be of the type manufactured by Mueller A726 with 1.14 meters (45 inches) long round stainless steel rods complete with stainless steel cotter pins and A800 ribbed cover, Box #8 - 1.85 meters (6 foot) maximum extension.

d) Service pipe shall be of 19 mm (3/4 inch) and/or 25 mm (1"), TYPE K soft copper supplied in a minimum of 66 foot coils and the service run from the main to the property line (P/L) curb stop shall be one continuous piece of service pipe without couplings. Consideration to upgrade to "Poly Coated" (KAMCO) TYPE K soft copper will be dependent upon Director's discretion.

* Note: The Corporation of the Town of Kingsville only installs water meters on Type K copper water service tubing. Any substitution of material from the property line into the residence/facility will require the installation of an approved “Meter Pit” at the property line.

e) Tapping position: Corporation stops shall be tapped into the main at the two o'clock position.

f) Service pipe connected to the corporation stop shall be bent to form a "gooseneck".

g) Service pipe shall be laid in an evenly graded trench to provide a minimum of 1.7 metres of cover below future or existing road and/or boulevard grades. In the event 1.7 metres cover cannot be obtained for water services, due to the location of the storm sewer or other utilities, the Contractor will make provisions to go under the sewer and/or utilities with a 50 mm (2") diameter thick-walled polyethylene casing for services up to 25 mm (1") in diameter and a 100 mm (4") diameter thick-walled polyethylene casing for 100 mm (4") services. Care must be exercised to prevent deformed sections in the pipe caused be excessive bending.

h) Normally Service tapping into the main shall only be made after satisfactory completion of disinfection procedures, and pressure testing, with main under normal pressure conditions.

   Provision to commission watermain c/w service connections prior to disinfection and pressure testing may be considered in consultation with engineer and Environmental Services.

i) No clear or crushed stone is to be placed within 8 centimeters (3 inches) of the copper service pipe-bedding to consist entirely of sand including under sewers if no plastic casing is used.

j) Standard waterworks equipment shall be used for the tapping of watermain pipe and the insertion of corporation stops. The tapping machine must be in good condition. It is important that the boring bar does not wobble and that the drill-tap tool is clean and sharp. The threads on the tap shall match the threads on the corporation stop (AWWA).

k) Any copper water service pipe which is damaged after installation, shall be replaced from the watermain to the property line at the Contractor's expense.

l) Water service pipe shall be installed in a single, straight horizontal alignment from the watermain to the property line, the curb stop and/or meter pit shall be installed on the water service pipe at this prescribed alignment.

m) Should the curb stop and/or meter pit location, as establish the existing private water service to be reconnected, a length of water service pipe shall be installed from the meter pit to the existing water service along the property line.

n) Tenderers shall note that the Contractor shall have no claim for additional payment for any labour, material or equipment required to provide any additional length of private water service pipe to reconnect the existing water service to the meter pit along the property line. The Contractor shall therefore locate the existing water service at the property line for each property to establish the most appropriate location on the watermain to tap the main stop.

o) All costs for the installation of the meter pit must be included in the unit prices for water service connections and the removal of existing meter pit and/or curb stop and curb top box and rod.

Main stops are to be left in the open position.

Meter pits and/or curb stops are to be set on the property line as directed by the Engineer. Meter pit covers are to be installed slightly above ground level for easy identification and access.

See Appendix "A".

p) The Contractor shall remove and dispose of all existing copper water service connections within the limit of the right-of-way subsequent to successful reconnection of the new water services to the new watermain.

q) When a water service is provided to premises previously served by a private well, the new service will not be accepted nor turned on until the original supply is mechanically separated from the Kingsville Environmental Services supply in accordance with the Public Health Act, latest revision.

40. PRIVATE SERVICE CONNECTIONS - ALL 50 mm (2 inch)

All 50 mm (2 inch) private services will be detailed on the general watermain and service layout submitted before the start of the work.

The Engineer will specify materials required for such services and this information will be shown on the layout. See Appendix "A".

Water services 50 mm (2") shall be TYPE "K" - soft copper.

* Note: The Corporation of the Town of Kingsville only installs water meters on Type K copper water service tubing. Any substitution of material from the property line into the residence/facility will require the installation of an approved “Meter Pit” at the property line.

Long 50 mm (2") water services, usually road crossings that can't be open cut, are to be installed inside of a 100 mm (4") PVC DR 28 casing pipe, buried under the road and extending to within 1 meter (3.25 ft.) of the corporation stop and the curb stop.

The ends of the casing pipe are to be fitted with a 100 mm (4") PVC plug with a 50 mm (2") hole to accommodate the copper service pipe.

41. SERVICE SADDLE

If a corporation stop cannot be tapped directly into the main because of excess size or for some other reason, a Service Saddle shall be required. See Appendix "A".

42. JOINING OF COPPER SERVICE PIPE

All joining of service pipe shall be done by compression fittings. Cutting of service pipe shall be by means of a disc cutter in order to ensure square cuts. Cut ends must be thoroughly reamed.

43. PRIVATE SERVICE CONNECTIONS - 100 mm (4 inch) AND LARGER

On services of 100 mm and larger, a tapping sleeve and valve will be required at the main. Also a valve is required at the property line.

Specifications for Materials

In all cases preference to Canadian manufactured products shall prevail.

WATERWORKS BRASS

- All brass in contact with potable water will be heavy wall design made no lead material as defined in section 4 of current C800 specification.
- Treading will be in accordance with latest revisions of AWWA C800 specifications.
- Parts not in contact with potable water may be made of other material suited for buried water services as specified in AWWA C800
- All Ball valve, Couplings and adaptors will be pressure rated for 300 PSI.
- Ball valves will be supplied with blowout proof stainless steel stems with double SBR or NBR o-ring stem seal.
- Stem and cap assembly will be two-piece design and will withstand minimum 200 ftp of torque.
- Ball seats will be made with unfilled Teflon for resilience and minimal friction.
- Ball will be uncoated lead free cast brass design.
- All waterworks fittings and ball valves will be guaranteed for a minimal 40 years against factory defects.
- All fittings will have a lifetime guaranteed against lead leachate from the casting.
- All ball valve will be factory tested in the open and closed position.
- Yield Strength, Tensile Strength and percentage of elongation will be similar to 85-5-5-5 (Red Brass).

HYDRANTS:

- Hydrants shall conform to AWWA C502 and the requirements of this section
- Mueller (Canada Valve) "Century"B50b-18, Mueller Super Centurion 250, McAvity Brigadier M67B with drain outlets plugged * ONLY
- Stainless steel Type 304 bolts and nuts on all flanges and boot assembly
- Each Hydrant shall have 2 - 65 mm C.S.A. hose nozzles and one 117 mm pumper nozzle with "Stortz" Type pumper configuration. "Counter Clockwise to Open"
- Hydrants shall be shop painted in accordance with Town of Kingsville paint colour coding. Exterior Ductile Iron underground portion coated with bitumen or epoxy shall be encased with an 8mill thick polyethylene encasement per AWWA C105.

SAMPLE STATIONS:

“KUPFERLE” Model Eclipse No. 88, c/w pedestal suitable for freezing climates or equivalent

TAPPING SLEEVES:

Ford, Robar, or * Approved equal

VALVES:

- Gate Valves (50 mm - 300 mm)
  AWWA C509, Class 200W NSF 61 certified
- Iron body with modified wedge disc.
- Non rising stem with O-ring seals.
- Open by turning counter clockwise
- 2-inch (50mm) operating nut.
- Mechanical joint to ANSI A21.11 unless otherwise indicated on the contract drawings. For tapping gate valve, or connection to flanged outlets, ends shall be mechanical joint to ANSI B16.1 and ANSI A21.11
- Finished with 2 coats of epoxy paint for U/G service, inside and outside suitable for potable water use conforming to AWWA C550 and NSF 61.
- All exposed fasteners to be stainless steel.

Manufacturer:
- Mueller Canada resilient wedge gate valve.
- CLOW Canada resilient wedge gate valve.
- American AVK Company resilient wedge gate valve
  * Approved equal

VALVE BOXES:

- Three piece, 130 mm screw type.
- If depth of operating nut is greater than 1.5 m, provide a square steel extension stem to return operating nut to max 1.5 m.
- Canada Valve Bibby-Ste-Crois Foundries or * Approved equal.
  A valve box shall be provided for every valve. the valve box will be supported by crushed stone as not to transmit shock or stress to the valve and shall be centered and plumb over the operating nut of the valve, with the box cover flush with the surface of the finished pavement or such other level as may be directed.

ANCHORAGE AT MECHANICAL JOINT CONNECTIONS:

- PVC – Uni-Flange Series 1500 Circle –Lock
- PVC – Star Mechanical Series 4000 Joint Wedge Action Restraint – Stargrip
- PVC – Sigma Contoured Wedge Action Retainer Gland – One Lok
  * Approved equal

MECHANICAL JOINT BOLTS & NUTS:

- T-bolts and nuts - low alloy steel in accordance with ANSI/AWWA C111/A21.11.
- All bolts and nuts on mechanical joint systems up to and including 300 mm dia. shall include Protecto caps at every bolt 90 grams, 20 mm dia.

MECHANICAL JOINT GASKETS FOR DUCTILE IRON OR PVC:

Tapered MJ plain rubber gasket

PVC WATERMAIN:

PVC pipe in sizes 100 mm through 300 mm (4" - 12") in conformance with the engineering specifications shall be Class 150 DR18 AWWA C900 or Class 235 AWWA C909, and shall be certified by an organization accredited by the Standards Council of Canada, Underwriter Laboratories of Canada (ULC) and Fireman's Mutual (FM)

PVC pipe in sizes 350 mm through 900 mm (14" - 36") shall be designed to accommodate working pressure plus surge pressure and shall conform to AWWA C905 and be certified by an organization accredited by the Standards Council of Canada to CSA Standard, Underwriter Laboratories of Canada (ULC) and Fireman's Mutual (FM)

Tracer wire shall be installed with all PVC pipe.

FITTINGS FOR PVC WATERMAIN:

Fittings for 100, 150, and 200 mm (4", 6" & 8") PVC pipe shall be injection moulded, with push-on gasket joints conforming to AWWA C907 and "be certified by an organization accredited by the Standard Council of Canada to CSA Standard B137.3." Underwriter Laboratories of Canada ULC and Firemans Mutual FM. PVC fittings and couplings to be tested to a Long Term Pressure strength of 470 PSI.

Fittings for 250 mm and larger PVC pipe shall be fabricated from PVC pipe, and "be certified by an organization accredited by the Standards Council of Canada to CSA Standard B137.3." Underwriter Laboratories of Canada (ULC) and Firemans Mutual (FM). Fittings 250 mm and 300 mm (10" & 12") shall be manufactured from segments of AWWA C900 PVC pipe, bonded together and over-wrapped with fiberglass-reinforced polyester to meet the requirements of the standard. Fittings 350 mm to 900 mm (14" - 36") shall be manufactured from segments of AWWA C905 PVC pipe, bonded together and over-wrapped with fiberglass-reinforced polyester to meet the requirements of the standard. The pressure ratings of the fabricated fittings shall match the pressure ratings of the pipe.

TRACER WIRE FOR PVC MAINS:

Tracer wire shall be10 gauge TWN or TWU multi-strand flame seal copper, solid white, and shall be installed along all PVC watermains at the 12 o'clock position and as close to the pipe as possible. The tracer wire shall be brought to the surface at all fire hydrants and valve locations, looped twice around the hydrant barrel/ valve box.

- 100 mm (4") below finished grade and fastened by means of a washer to a breakaway flange bolt. (Hydrant application)
- To surface grade inserted into valve box immediately below box cap via drilled hole (valve box application)

o Splice connectors - Burndy KS-90 16-10 wrapped with insulating mastic tape (Plymoth Bishop Polyseal)

- Dry-Conn Waterproof Connectors

RESTRAINED JOINTS FOR PVC MAINS:

Mechanical thrust restraint devices shall conform to the following:

PVC Pipe

@ Ductile Iron fittings and valves
- PVC – Uni-Flange Series 1500 Circle –Lock
- PVC – Star Mechanical Series 4000 Joint Wedge Action Restraint - Stargrip
- PVC – Sigma Contoured Wedge Action Retainer Gland – One Lok
- * Approved equal

@ PVC Fittings
- 100 to 300 diameter - Uniflange Series 1350/1360, CLOW Series 350/360, Sigma PWPF
- 350 mm to 900 mm diameter - Uniflange Series 1350, CLOW Series 350,
- * Approved equal

@ PVC bell & spigot joints
- 100 to 300 mm diameter - Uniflange Series 1390, CLOW Series 390, Sigma PV-LOK PWP
- 350 to 900 mm diameter - Uniflange Series 1390, CLOW series 390,
- * Approved equal

Mechanical joint restraints shall conform to UNI-B-13-92 and manufacturer's specifications. Restraining collars shall be attached to the fitting bell behind the gasket face. Tie-rods shall run from the collar behind the bell to a suitable collar on the connecting pipe.

- All mechanical restraint devices shall be protected with a tape corrosion system specified herein.
- All threaded rods and bolts including fastening hardware on thrust restraining systems shall be epoxy coated, stainless steel, or hot dipped galvanized including bolts, rods, washers and nuts, and protected with a tape corrosion protection system specified herein.
- The manufacturer of the mechanical restraint system in coordination with the pipe supplier shall conform with calculations, the length of restraint required to suit specific site conditions at every location where a restraint system is used

SACRIFICIAL ZINC ANODES:

Protecto-caps - 90 gram - 3/4" threaded for mechanical joint bolts.

Sacrificial zinc anode caps shall be installed on ALL bolts of mechanical joint fittings and pipe.

Sacrificial caps on all exposed bolts, eg. Mechanical joints, tapping sleeves & valves, valves, hydrants, double strap service saddles and any other exposed bolts, may be 3/4", 5/8" or 1/2".

SERVICE SADDLES FOR PVC MAINS:

Service saddles shall be stainless steel minimum 304 and be a minimum 18 gauge construction and shall have AWWA taper (CC) outlet thread. Service saddles shall be used on all PVC taps.

Manufacturers:

- ROBAR Industries Series 2600 DB
- FORD Meter Box Company FS 303 DB
- CAMBRIDGE BRASS Series 403 DB

GASKETS AND JOINTS FOR PVC WATERMAIN:

Gaskets shall be made of SBR.

TAPE CORROSION PROTECTION SYSTEM

All buried steel valves, all flexible couplings including flanged coupling adaptor, all mechanical restraint to harness devices, steel fittings, steel joints, saddles, fasteners, etc. shall be wrapped including steel pipe flanges and plain steel ends wherever they occur. Tape protection generally not required over epoxy paint finishes unless specified.

Manufacturer:

- Denso North America Inc.
  - Saturated hydrocarbon (Petrolatum) Denso Paste primer and adhesive and Denso-Profiling Mastic and/or Densyl Mastic Blanket filler shall be used to eliminate bridging on valves, flanges, couplings, and irregular shaped joints to create a smooth surface for application of the Denso tape. Paste is free from acids, alkalis, waxes, resins and saponifiable matter, weight is 0.04lb/ft, density is 25in /lb.
  - Denso tape, impregnated, nylon carrier, coated both sides with petrolatum shall be applied over the Denso Paste primer and Mastic filler. Tape is available in 2" to 12" in widths to suit application 0.295 lb/ft and is chemically resistant to water, all mineral acids, alkalis and salts.
  Thickness is 1.15 mm, Roll lengths are 10 metres. Provide 50% overlap of Denso tape on all pipe and joints. Apply tape after all hydrostatic testing is completed (where practical)
  - Denso Paste shall be used to prime smooth pipe and joints not requiring Denso fillers.
  - Denso corrosion protection 3 step system T-1 shall be applied to manufacturer‘s instructions and be inspected by the engineer prior to burial and final acceptance.

CONCRETE METER PITS:

Concrete meter pits as supplied by Underground Specialties

For 5/8" x 3/4" Meter:

18" inside diameter x 42" long

Flat on bottom, Bell end on top (female)

For 1" Meter:
24" inside diameter x 42" long
Flat on bottom, Spigot on end on top (male)

Cover for 24" Concrete Meter Pit:
24" solid overlapping covers 5-1/2" high
18" hole in center

For 2" Meter:
Upper section 36" x 30" long
Lower section 36" x 18" long

METER PIT TOP CASTING:

Ford Wabash Double Lid Meter Pit Top Casting for 18" & 24" Meter Crock

11-1/2" lid opening
4" Air Space between top lid and inner frost lid
Aluminium / Plastic inner lid
Standard waterworks brass pentagon locking bolt on outer lid
For 18" tile
For 24" tile with concrete lid

Order # W-32-A * Approved equal

METER SETTERS:

Ford 80 Series copper setters for 5/8" x 3/4" meter in pits:

Vertical inlet and outlet
Meter inlet valve - ball
Meter outlet valve - none
3/4" service line inlet - (CTS) - quick joint
3/4" service line outlet - (CTS) - quick joint

Order # VB-82-W-44-33-G * Approved equal

Ford 80 Series copper setters for 1" meter in pits:

Vertical inlet and outlet
Meter inlet valve - ball
Meter outlet valve - none
1" service line inlet - (CTS) - quick joint
1" service line outlet - (CTS) - quick joint

Order # VB-84-W-44-44-G * Approved equal

50 mm (2") METER SETTERS IN PITS:

Ford 70 Series coppersetter for 2" flanged meter:

17" meter spacing
24" Height
Ball valve inlet
Angle check valve outlet
Service line connection inlet - (CTS) - quick joint
Service line connection outlet - (CTS) - quick joint

Order # VBH77-24-44-77G * Approved equal

INSPECTION SERVICES

Relating to Work by Contractors
on the Water Distribution System
in the Town of Kingsville
Kingsville Environmental Services

Conditions

Before commencing installation, the Contractor shall apply to the Corporation for an Inspector. This application shall be made at least 24 hours prior to the commencement of work.

The Corporation shall provide an inspector(s) who will be on duty during the Corporations normal working only (7:30 a.m. to 4:00 pm) excepting a half hour lunch period from noon to 12:30 p.m.

Any work done in the absence of an Inspector may be ordered to be opened up for examination and, should there be any faults in the workmanship or materials, must be rebuilt or replaced as directed by the Inspector, at the Contractor's sole expense, but no approval by any Inspector shall be taken as or construed into an acceptance of defective or improper work or material, which in every case must be removed and properly replaced whenever discovered at any stage of the work.

The Inspector is empowered to stop the installation work at any time he feels the Contractor is not proceeding according to the specifications of the Corporation.

An Inspector is required on the job site when installation work is in progress, during the Corporation's normal working hours, in order to ensure that the provisions of the specifications are adhered to, especially with respect to the quality of materials and workmanship.

The inspector is authorized by the Corporation to stop the installation at any time if there is not sufficient quantity of suitable and approved materials on the site to carry out the work properly.

Any materials provided by the Corporation to the Contractor must be picked up by the Contractor at the Corporations Service Centre during normal working hours. In the event the Corporation`s staff is required to provide materials to the Contractor at a time other than the Corporation`s normal working hours, the Contractor will be invoiced the full amount of the associated cost.

In the event the Corporation's staff is required to assist the Contractor with repairs of any other activity, the Contractor will be invoiced the full amount of the associated costs.

The Inspector's duties shall not include ensuring that trench is in accordance with the Trench Excavators Act, the Construction Safety Act, or other current safety legislation, nor shall the Inspector set out work, or give any stakes, lines, levels or grades.

The provision for inspection by the Corporation is not to be considered a substitute for supervision by the Contractor.

In the absence of the Contractor for the job, (whether permanent of temporarily) he shall provide and leave a competent and reliable agent in charge on his behalf. This person shall be considered as acting for the Contractor, and all notices, communications, instructions, or orders given, sent, or served upon this person shall be taken as being served upon the Contractor.

Lending/ Borrowing Policy

Effective immediately, Kingsville Environmental Services will no longer lend equipment, materials, or tools to persons or parties not directly associated with the Corporation.

Kingsville Environmental Services will however, in some circumstances, order materials required by a Contractor to complete his work. Arrangements to do so are made prior to commencement of work.

Contractors Responsibilities:

All Contractors, Individuals of Firms performing work on the water distribution systems in the Town of Kingsville, shall assume full responsibility as to public safety, public liability and property damage, and their workmen shall be covered by Workers` Compensation.

They must be competent personnel who are qualified by knowledge, training
(Certification) and experience in every phase of the work they are required to perform. They must perform all their responsibilities in accordance with the requirements of the Occupational Health and Safety Act, and the regulations under this Act.

APPENDIX K
TRANSPORTATION IMPACT STUDY GUIDELINES

County of Essex

TRANSPORTATION IMPACT STUDY GUIDELINES

FINAL DRAFT

DECEMBER 2006

IBI GROUP

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LIST OF EXHIBITS

APPENDIX

1. INTRODUCTION

1.1 Transportation Impact Assessments

A transportation impact study (TIS) provides valuable information and analysis for governing agencies and others reviewing development and redevelopment proposals. The County of Essex Transportation Impact Study Guidelines have been compiled to outline the process and structure required to produce a comprehensive transportation impact assessment for a development or redevelopment proposal in the County. A transportation impact study includes all modes of travel including automobiles, trucks, transit vehicles, cyclists and pedestrians.

1.2 Transportation Impact Study Objectives

The main purpose of a TIS is to demonstrate that the transportation impacts of a proposed development or redevelopment will be manageable and that the transportation aspects of the proposal are consistent with the objectives of the County. The TIS also provides the basis for the identification and evaluation of transportation related improvements or measures to be included as conditions of approval for the development or redevelopment application. Hereafter, all references to the terms development or development proposal will be equally applicable to redevelopment applications/proposals as well.

Through the TIS, the proponent must demonstrate that the application meets these criteria, as summarized below:

- That there is sufficient arterial road network capacity to accommodate the proposed development, taking into account transportation system improvements and travel demand management initiatives which will be secured in conjunction with the proposal;
- That the phasing of the development is conducted in conjunction with the implementation of transportation system improvements and travel demand management initiatives, to ensure that supply and demand are balanced over time;
- That the proposal incorporates all modes of transportation including the provision of future transit services in the County or the area municipalities; and
- That the number of vehicular parking spaces provided in conjunction with the proposal be minimized with explicit consideration for short and long term parking demands, special needs parking and commercial vehicle loading facilities.

1.3 Applicability

It should be recognized that the policies and standards included in this document are relevant at the time of printing. These guidelines will be revised, as necessary, to reflect current County policy, practice and accepted standards. The proponents shall contact County of Essex staff to identify any major modifications to this document since its compilation date.

In addition, there may be instances where the guidelines and general study assumptions may not be applicable to certain locations in the County, or specific types of developments. It should be recognized that the purpose of this document is to provide a framework for the preparation of a TIS and shall not be substituted for good transportation engineering judgement.

For additional information or for clarification of any of the material contained in this document, please contact one of the following County authorities, as applicable:

Transportation Planning, Traffic Operations and Engineering Inquiries

County Engineer
County of Essex
360 Fairview Avenue West
Essex, Ontario, N8M 1Y6
Telephone: 519-776-6441

Planning/Development Inquiries:

Manager of Planning Services
County of Essex
360 Fairview Avenue West
Essex, Ontario, N8M 1Y6
Telephone: 519-776-6441

In addition, there may be cases where the scope of the TIS can be reduced due to previous approvals or studies in the area or on the site. **Sections 2.1 and 2.2** include a discussion regarding the scope of a transportation impact study at various points in the development approval process.

1.4 Technical Responsibility Acknowledgement

When the scale of the development warrants a transportation study, it is the Proponent's responsibility to retain an experienced transportation consultant. The County of Essex requires that a transportation impact study be prepared and/or reviewed by a qualified firm/individual. The individual taking responsibility for the Proponent's transportation impact work must be a registered Professional Engineer with more than five years of applicable experience in the preparation of transportation impact studies.

A cover letter must be submitted with all TISs and addendums, including the stamp of the professional engineer taking responsibility for the work. In submitting the work the engineer is verifying that appropriate assumptions and methodologies have been used in the completion of the transportation impact study and is indicating the individual(s) whom are taking corporate/professional responsibility for the work. This information will also assist County staff in contacting the appropriate individual if clarification of any part of the transportation impact assessment is required during the review process, or in the future.

2. TIS REQUIREMENTS AND SCOPE

When a development is proposed to the County, staff will coordinate a pre-application meeting with the proponent and their transportation consultant to discuss the nature of the development and the level of analysis required. The County has developed a draft policy, which outlines the requirement for, and general scope of transportation impact work. They define three levels of study:

- **Traffic Impact Assessment (TIA)** – a review of the transportation operations related to the proposed access locations and internal circulations for smaller scale projects;

- **Transportation Impact Study (TIS)** – an evaluation of the effects of a development or redevelopment on the area transportation system and recommendation of mitigation measures to address negative impacts to the existing network;

- **County Transportation Study (CTS)** – a review of the transportation impacts of a large development over a longer study horizon and broader study area.

The need to complete one of the above studies is a function of trip generation potential and site-specific uses. The following section includes a summary of the general criteria.

Hereafter the references to TIS requirements will generally be applicable to all of the above study types, unless specifically identified by type.

2.1 Required Study Type

The type of transportation assessment to be undertaken is generally a function of its conformance with the Official Plan, its location with respect to critical corridors and its overall trip generation potential. Included in **Exhibit 2-1** is a summary of the general criteria for each study.

Exhibit 2-1: Study Requirements

Type of Application	Description	Required Study
Rezoning	• The proposed zoning is not consistent with the Official Plan • The resultant zoning would generate 100 or more peak hour directional trips than the existing zoning	CTS
	• The proposed zoning is consistent with the Official Plan, but the resultant zoning would generate 1,000 or more daily trips greater than the existing zoning; and/or • The County believes the timing of the rezoning may be inappropriate due to existing traffic conditions	CTS
	• The rezoning is along a roadway that the County has identified as a "critical corridor", "congested corridor" or "safety management corridor"	CTS
Site Plan/Subdivision	• The Project is located along a roadway that the County has identified as a "critical corridor", "congested corridor" or "safety management corridor"	TIA, TIS or CTS
	• The project is expected to generate 50 to 99 peak hour directional trips or 500 – 749 daily trips	TIA
	• The project involves a drive-thru facility	TIS
	• The project is expected to generate 100 to 500 peak hour directional trips or more than 750 daily trips	TIS

Type of Application	Description	Required Study
	• The project will generate over 500 peak hour directional trips or significant traffic volumes impacting a wide geographic area due to its regional attraction.	CTS

The above criteria are necessarily general and further emphasize the need for the proponent to identify the development aspirations to the County so that a pre-application meeting can be held to define a study scope.

2.2 Study Scope/Detail

The level of detail and the required components of the TIS will be a function of the location, size and operation of the development proposal. Included in **Exhibit 2-2** is a summary of the major component of the three types of studies. **Appendix A** includes a general study flow chart for a complete study.

In some cases, the size, location and nature of the proposal will be such that a detailed TIS or CTA is not required. In addition, the proposed development may lie within an area for which a recent and relevant CTS or other secondary planning work has already been completed. Under this scenario, the County shall determine if certain elements of the TIS can be omitted or directly incorporated into the current TIS work, i.e., background growth potential, identified arterial road improvements, etc.

Exhibit 2-2: General Study Scope

Study Type	General Study Scope
CTS	• Identification of major/arterial transportation infrastructure and operational improvements associated with area wide development potential • Determination of the collector roadway network and the major intersection configurations and type of control • Transportation infrastructure improvements tied to phasing plan • Site specific impacts on adjacent road network
TIS	• Arterial and collector roadway requirements and operations • Transportation infrastructure improvements tied to phasing plan • Site specific impacts on adjacent road network
TIA	• Access location and operations • Site specific impacts on road network including adjacent site operations

2.3 Other Jurisdictional Requirements

In addition to the requirements outlined herein for the County of Essex, the local municipality and Province of Ontario may require additional information or analysis to satisfy their requirements for a development proposal. The proponent should identify the overall scale of the development to the County such that appropriate jurisdiction representatives can be invited to the pre-application meeting. The proponent shall meet with all affected jurisdictions simultaneously to expedite the process and ensure consistency for the TIS scope/approach.

2.4 Functional Life of TIS

Generally, a TIS will have a "functional life" of three years. However, major planning/ development, road network or transit changes within the study area during this timeframe may reduce the applicability of the document if they were not previously considered.

3. DESCRIPTION OF THE DEVELOPMENT PROPOSAL AND THE STUDY AREA

A description of the development proposal, its location and the proposed TIS study area is required to allow County Staff to identify the site location, its anticipated operation and area of potential impact. In addition, this valuable information allows timely review of key study assumptions. Provided below is a summary of the required elements of the project and study area.

3.1 Description of the Development or Redevelopment Proposal

The following components of the project shall be summarized at the beginning of the transportation impact study document, *as applicable*:

- Existing land uses or "as-of-right" provisions in an Official Plan, Official Plan Amendments, Zoning By-law etc.;
- Planned staging of the development;
- Boundary roadways, near-by intersections and accesses to adjacent land uses or developments;
- Proposed access points and types; and
- Nearby transit facilities.

For site specific TISs the following shall be provided, as applicable:

- Municipal address;
- Rezoning application number;
- Total building size and building locations;
- Floor space including a summary of each type of use;
- Number of parking spaces along with location and access arrangements;
- Number and type of loading areas along with location and access arrangements; and
- Anticipated date of occupancy and hours of operation, if known.

As applicable, the proponent shall provide area road network, subdivision drawings or a preliminary site plan, of a suitable scale, for consideration in the evaluation of the transportation impact study.

3.2 Description of Study Area

3.2.1 DEFINITION OF THE STUDY AREA

Generally, the size of the study area will be a function of the size and nature of the development proposal and the existing and future operations of the surrounding road network.

The study area shall encompass all county, municipal and provincial roads, intersections, interchange ramp terminals and transit facilities, which will be noticeably affected by the travel generated by the proposed development. Typically, this will include area that may be impacted as follows:

- Increase by 5% or more of traffic volumes or transit usage on adjacent facilities;
- Volume/capacity (V/C) ratios for overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above; or
- V/C ratios for exclusive movements increased to 0.95 or above.

The exact limits of the study area will be discussed at the pre-application meeting.

3.2.2 FEATURES OF STUDY AREA

A description and an illustration of the existing transportation system within the study area shall be provided in the existing conditions section of the TIS and shall include, but not be limited to, the following:

- Roads indicating the number of lanes, jurisdiction and posted speed;
- Signalized/unsignalized intersections and interchange ramps terminals indicating, as relevant:
  - Lane configurations, widths and storage lengths;
  - Available permitted movements;
  - Type and mode of control/detection; and
  - Turning restrictions, by time of day/day of week, as applicable.
- Location of sidewalks, bicycle paths/routes and pedestrian control such as crossovers, intersection pedestrian signals (IPS) and school crossing guard locations;
- Location of on-street parking, parking/stopping restrictions adjacent to the development and those, which would affect the operation of the roadways and intersections in the study area;
- Future transit facilities and routes, which will may serve the development site; and
- Truck routes/heavy vehicle restrictions including the times they are in effect;

- Planned roadway, transit and pedestrian improvements which will have a noticeable impact on the transportation operations within the study area; and
- Other developments in the study area, which are under construction, approved or for which an application has been submitted. Briefly describe the size and nature of these developments in general terms.

4. ANALYSIS PERIODS

4.1 Horizon Year(s)

Generally, the horizon year will be taken as five (5) years from the build-out of the site/area for TIA and TIS studies. Other considerations to be taken into account are as follows:

- Area plan/secondary planning horizons;
- Other area development proposals;
- Future roadway infrastructure and transit initiatives; and
- Occupancy date.

Interim horizon years may need to be evaluated to account for:

- Phasing of developments;
- Interim site access arrangements; and/or
- Planned transportation system improvements.

For CTS studies, longer-term development horizons, such as a ten year horizon, may be required. The appropriate analysis horizons will be established at the pre-application meeting and should be finalized prior to proceeding.

4.2 Analysis Periods

Identification of the time periods for analysis should take into consideration the following:

- Type and size of development;
- Trip generation potential during weekday AM and PM peaks of the adjacent road network;
- Hours of operation;
- Reoccurring special events; and
- Seasonal fluctuations.

Typically, the weekday AM and PM peak traffic periods will constitute the "worst case" combination of site related and background traffic; however, in the case of retail, entertainment, religious, institutional, sports facility uses, weekend or site peak analysis may be required.

5. EXISTING TRANSPORTATION CONDITIONS

5.1 Traffic Conditions

To provide a representative picture of the existing traffic conditions, the following shall be included in the TIS, as applicable:

- Exhibit(s) showing the existing traffic volumes for the roadways and intersections in the study area including pedestrian volumes and heavy vehicle percentages. Traffic volumes may be acquired from the County or local municipality, previous transportation planning, traffic operation or transportation impact studies undertaken in the vicinity of the proposed development. In general, traffic counts more than three (3) years old or counts that do not appear to reflect current conditions, shall be updated by the proponent;

- Intersection analysis of the existing conditions for all peak periods. The analysis shall be undertaken with methodologies consistent with the Highway Capacity Manual (HCM) and preferably with the Highway Capacity Software (HCS) or Synchro 6.0 (or newer). Calibration of the analysis to actual conditions must be undertaken;

- Summary of level-of-service including volume to capacity (v/c) ratios and critical queue lengths for all intersections and critical movements. Full documentation of the results of all level of service analyses shall be provided in an appendix; and

- Summary of key field observations of the existing conditions.

5.2 Transit Operations (Where Provided)

To provide a representative picture of the existing transit conditions within the study area, the following shall be included in the TIS, *as applicable*:

- Commentary/exhibit(s) summarizing to the existing transit routes, stops and facility locations;

- Approximate walking distance to the transit services from the proposed development;

- Transit vehicle headways/frequency for routes that service or may be anticipated to service the development proposal.

6. BACKGROUND TRAFFIC

Background traffic consists of two components:

- **Background Growth** – A growth in through travel demands resulting from overall growth in the County; and

- **Background Development** – Travel demands associated with adjacent developments in the study area.

These two components are described in the following sections.

6.1 General Background Traffic Growth

To account of general background traffic growth along adjacent transportation corridors, the proponent should consult with the County regarding an applicable per annum growth rate and application to the existing traffic volumes. In general, the background growth rate would be established through a review of historic volume trends on the major roadways in the study area or through the travel forecast modelling undertaken as part of the Essex-Windsor Regional Transportation Master Plan.

6.2 Background Development

The proponent shall include anticipated traffic growth on the area road network from developments that are expected to proceed prior to or within the selected study horizons (as identified in **Section 4.1**). This may include land zoned for development, but for which there isn't an active development application. The proponent shall consult with County's Planning Department to establish the active development proposals within the study area.

The background changes in traffic growth shall take into account:

- Developments that are being constructed;
- Occupancy levels of adjacent development, i.e., buildings which are constructed but not fully occupied; and
- Developments/land uses that are planned to be closed, or activities suspended which will noticeably impact the transportation system in the study area.

7. SITE TRAVEL DEMANDS

7.1 Estimation of Traffic Demand

Available trip generation methods may include one or more of the following, and will be a function of the proposed development and its intended operations:

- Trip generation surveys from similar developments in the County of Essex or comparable municipality, which have similar operating characteristics as the proposed development;
- ITE Trip Generation rates provided that differences in the site operations and size are accounted for; and
- "First principles" calculations of anticipated trips to/from the site.

Where appropriate, it may be justified to reduce the base trip generation rates of the proposed development to account for:

- **Captive Market Effects** – Trips which are shared between two or more uses on the same site;
- **Pass-by Trips** – Trips that represent intermediate stops on a trip already on the road network, i.e. a motorist stopping into a service station on their route to/from work. Pass-by trips must be accounted for in the turning movements into/out of the site;
- **Transit Usage** – Reductions in automobile travel to the site to account for travel to/from the site by public transit. Transportation planning projections/goals shall be considered; however, shall not replace good engineering judgement and actual modal split data; and
- **Travel Demand Management (TDM)** – strategies to be employed at the proposed development to reduce single occupancy vehicle (SOV) trip making, i.e., staggered work hours, ridesharing, company/hotel shuttle, etc.

All trip generation assumptions and adjustments assumed in the calculation of "new" vehicle trips shall be supported and documented. Sensitivity analysis shall be undertaken where trip generation parameters have the potential to vary considerably and most probable values cannot be readily identified.

7.2 Trip Distribution and Assignment

7.2.1 TRIP DISTRIBUTION

The trip distribution assumptions should be supported by one or more of the following, in the order of preference:

- Comprehensive origin-destination or travel surveys;
- Employment and population data;
- Existing/anticipated travel patterns; and/or
- Market studies.

Engineering judgement shall be used to determine the most applicable of the above methodologies for each particular application.

7.2.2 TRIP ASSIGNMENTS

Trip assignment assumptions shall reflect the most "probable" travel patterns considering the planned site access(es). Traffic assignments may be estimated using a transportation planning model or "hand assignment" based on knowledge of the proposed road network in the study area.

The assumptions shall take into account projected "pass by" trips, "diverted" trips, and "internal" trips.

7.3 Summary of Traffic Demand Estimates

A summary of the existing and future traffic demands shall be provided in a series of graphics that summarize the following:

- Existing traffic;
- Future background – existing plus background traffic growth;
- Site generated traffic; and
- Future total traffic – future background + site generated traffic.

Summary exhibits must be provided for each peak period and analysis horizon. In some cases, interim traffic conditions may need to be assessed to reflect phasing of developments, interim site access arrangements or planned transportation system improvements.

8. EVALUATION OF IMPACTS OF SITE GENERATED TRAVEL DEMAND

The following are the steps that shall be undertaken to evaluate the impacts of the site-generated traffic on the area road network:

- Calculate the travel demand generated by the development proposal and assign it to the area road network consistent with the methodology outlined in **Section 7**.
- Undertake intersection analysis for all intersections and accesses within the study area. The intersection analysis shall be conducted with the industry-accepted assumptions and the methods outlined in **Section 5.1**;
- Provide a summary of level-of-service for all analysis periods and time horizons. Full documentation of the results of all level of service analyses shall be provided in an appendix.
- Identify signalized intersections where:
  - Volume/capacity (V/C) ratios for overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above;
  - V/C ratios for dedicated turning movements increased to 0.95 or above; or
  - Queues for an individual movement are projected to exceed available turning lane storage.
- Identify unsignalized intersections where:
  - Level of service is "E" or above.
- Identify potential safety or operational issues associated with the following:
  - Weaving/merging;
  - Corner clearances;
  - Sight distances;
  - Vehicle-pedestrian conflicts;
  - Access conflicts;

- Traffic infiltration;
- Cyclist operations; and
- Heavy truck movement conflict.

All of the above considerations may not be applicable to the development site/area. It should also be recognized that the above list is not exhaustive and there may be other operational or safety concerns that may need to be addressed in the TIS; and

- Provide supplementary analysis required to address vehicle queue lengths/queue blocking, merging, weaving, gap availability/acceptance, sight distance availability, etc.

8.1 Accommodation of Future Transit Services

The site or subdivision should be assessed from the perspective of accommodating future transit services to the area. The ITE document "Promoting Sustainable Transportation Through Site Design: An ITE Proposed Recommended Practice" (ITE 2006) provides some valuable guidance on designing to better accommodate transit service for a site or subdivision, for a number of land use types.

The proponent should identify the positive site/subdivision attributes and operations that would support existing or future transit provisions and ridership.

9. TRANSPORTATION SYSTEM IMPROVEMENTS

This section outlines the process of identification of physical and operational transportation system improvements and other measures required to ensure that the impacts associated with proposed development could be mitigated to the satisfaction of the County.

The physical and operational remedial measures recommended in the TIS must address all deficiencies identified through the completion of the tasks outlined in **Section 8** of this document.

9.1 Identification of Required Transportation Network Improvements

The physical and operational road network improvement requirements identified in the TIS must address and ensure that:

- Site generated traffic does not create conditions in which the capacity criteria summarized in **Section 8** are exceeded;
- Vehicular, pedestrian and cyclist operations and safety are maintained or improved;
- Motorist, pedestrian and cyclist needs and safety are accommodated; and
- Site generated traffic will not have a noticeable adverse impact on existing or proposed residential communities.

Additional analysis shall be provided to demonstrate that the proposed mitigating measures will in fact address the impacts of the site generated traffic. The County requests that functional plans be provided for all recommended road improvements. A "to-scale" drawing illustrating edge of

pavement and lane designations is typically required. An exhibit should be provided within the body of the report, which illustrates the proposed physical improvements.

9.2 Implementation and Funding of Required Improvements

The proponent must demonstrate that the required improvements are:

- Implemented in conjunction with the planned timing of the development. For example, some roadway improvements may require an environmental assessment prior to implementation. The Proponent must demonstrate that the development will be phased or timed, as necessary, in conjunction with the implementation of transportation infrastructure or service improvements and/or TDM strategies, to ensure that travel supply and demand are kept in balance over time; and

- Feasible given existing operational or physical constraints of the road network, transit service or field equipment, i.e., if an advance phase is required at a signalized intersection, then the ability of the controller to accommodate additional phases will need to be verified.

10. SITE PLAN, PARKING AND ACCESS REQUIREMENTS

This section addresses site plan criteria, parking and access locations in order to develop a plan that will be harmonized with the surrounding developments and provide acceptable access and site circulation for all anticipated modes of travel.

Points of consideration with respect to site plan criteria, parking and access are:

- An evaluation of proposed access points with respect to possible mutual interference with other adjacent or opposed access points shall be undertaken;

- An evaluation of sight-lines to ensure safe conditions in accordance with accepted standards;

- An evaluation of the potential for access and circulation movements with on-site parking, traffic control, drive through facility etc. to result in queues extending onto or vehicles backing onto public roadways;

- Demonstration that the parking policies and standards applied to the development are in accordance with County requirements;

- An evaluation of delivery vehicle/courier unloading facilities and access to these facilities with respect to location, size and design. Convenient access shall be provided in order to avoid the possibility of pick-up/delivery occurring on County rights-of-way;

- A description and evaluation of site access provisions for pedestrians and cyclists; and

- A description of the measures taken to make the proposed development or redevelopment, including future on-site transit facilities, where appropriate, accessible to persons with personal mobility limitations.

11. DOCUMENTATION AND REPORTING

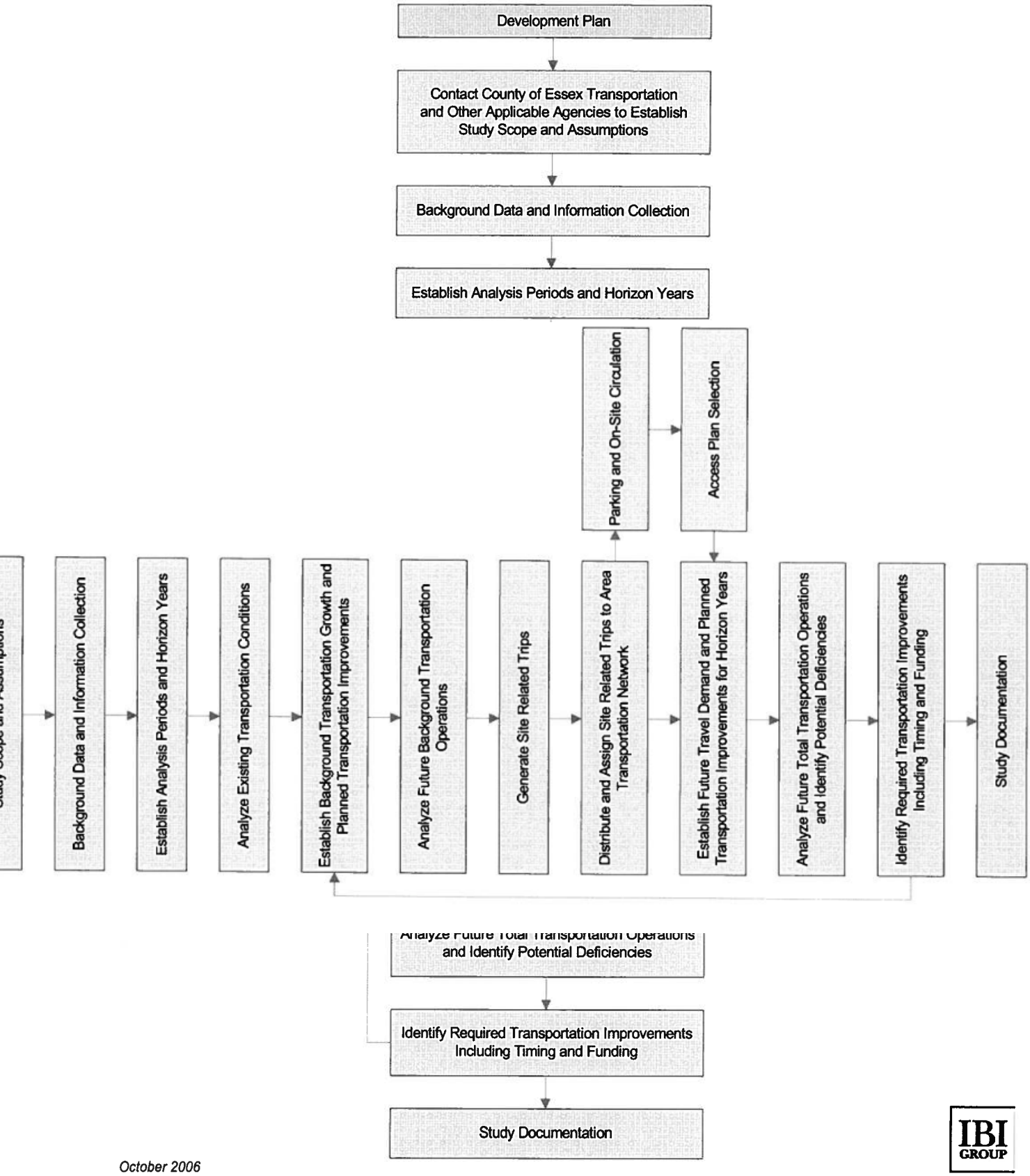
It is recommended that the format of the TIS follow the guidelines outlined in this document, as applicable. The following is a recommended structure for a standard comprehensive TIS and reflects a typical table of contents:

- Executive Summary;
- Site/Development Description;
- Study Area;
- Existing Conditions;
- Analysis Periods;
- Background Travel Demand;
- Site Generate Travel;
- Future Travel Demand;
- Future Traffic Operations and Impacts;
- Improvement Alternatives Required to Mitigate Traffic Impacts;
- Future Transit Operation Provisions;
- Transportation Improvements; and
- Conclusions and Recommendations.

Three (3) copies of the TIS with technical appendices shall be provided to the County for review. A technical appendix included under another cover shall be provided in the case were the analysis and other technical materials are too substantial to provide in one document.

APPENDIX A

STUDY PROCESS FLOW CHART


Development Plan
Contact County of Essex Transportation and Other Applicable Agencies to Establish Study Scope and Assumptions
Background Data and Information Collection
Establish Analysis Periods and Horizon Years
Parking and On-Site Circulation
Access Plan Selection
Background Data and Information Collection
Establish Analysis Periods and Horizon Years
Analyze Existing Transportation Conditions
Establish Background Transportation Growth and Planned Transportation Improvements
Analyze Future Background Transportation Operations
Generate Site Related Trips
Distribute and Assign Site Related Trips to Area Transportation Network
Establish Future Travel Demand and Planned Transportation Improvements for Horizon Years
Analyze Future Total Transportation Operations and Identify Potential Deficiencies
Identify Required Transportation Improvements Including Timing and Funding
Study Documentation
and Identify Potential Deficiencies
Identify Required Transportation Improvements Including Timing and Funding
Study Documentation

APPENDIX L
WATERMAIN AND APPURTENANCES AUTHORIZATION FORMS

Ontario Ministry of the Environment

Form 1 - Record of Watermains Authorized as a Future Alteration

RETAIN COMPLETED FORM - DO NOT SEND TO MOE

Part 1 - Drinking Water Works Permit Number

(Insert the Drinking Water Works Permit number authorizing the addition, modification, replacement or extension of watermains)

Part 2 - Description of watermain addition, modification, replacement or extension (Use attachments if required)

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name); and
2) An attachment including a plan view drawing identifying at a minimum:
   a) location(s) of the undertaking (e.g. showing street names, easements, etc.); and
   b) nominal diameter of the watermain(s) associated with the addition, modification, replacement or extension.

Part 3 - Verification by Professional Engineer

I hereby verify that I am a Professional Engineer who is licensed to practice in the Province of Ontario and the design of the watermain addition, modification, replacement or extension:

1) Has been prepared by a Professional Engineer who is licensed to practice in the Province of Ontario;
2) Has been designed only to transmit water and has not been designed to treat water;
3) Satisfies the design criteria set out in the Ministry of the Environment publication "Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – March 2009", as amended from time to time; and
4) Is consistent with or otherwise addresses, the design objectives contained within the Ministry of the Environment publication "Design Guidelines for Drinking Water Systems, 2008", as amended from time to time.

Name (Print)	PEO Licence Number

Signature	Date (yyyy/mm/dd)

Part 4 - Verification by Owner

I hereby verify that:

1) The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system;
2) The watermain addition, modification, replacement or extension will not adversely affect the distribution system's ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.
3) Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03;
4) The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction;
5) The owner consents to the watermain addition, modification, replacement or extension; and
6) I am authorized by the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)

Signature	Date (yyyy/mm/dd)

Ontario

Ministry of the Environment

Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System

RETAIN COMPLETED FORM - DO NOT SEND TO MOE

Part 1 - Drinking Water Works Permit Number

(Insert the Drinking Water Works Permit number authorizing minor modifications or replacements to the Drinking Water System)

Part 2 - Description of Minor Modifications or Replacements (Use attachments if required)

The description shall include:

1) An identification of the system component being modified or replaced;
2) The location of the works being modified or replaced; and
3) A brief description of the modification or replacement

Part 3 - Verification by Owner

I hereby verify that

1) The minor modifications or replacements described in Part 2 of this form meets the requirements of the conditions of the Drinking Water Works Permit identified in Part 1 of this form which authorizes the minor modifications or replacements; and
2) I am authorized by the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)

Signature	Date (yyyy/mm/dd)

Ontario

Ministry of
the Environment

Form 3 - Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere

RETAIN COMPLETED FORM - DO NOT SEND TO MOE

Part 1 - Drinking Water Works Permit Number

(Insert the Drinking Water Works Permit number authorizing the addition, modification or replacement of equipment discharging a contaminant of concern to the atmosphere)

Part 2 - Description of Equipment Added, Modified or Replaced (Use attachments if required)

The description shall include:

1) A brief description of the undertaking; and
2) An attachment including a plan view drawing identifying at a minimum the location of the undertaking and the location of the stack or vent discharging to the atmosphere

Part 3 - Verification by Owner

I hereby verify that

1) The addition, modification or replacement of equipment discharging a contaminant of concern to the atmosphere described in Part 2 of this form meets the requirements of the conditions of the Drinking Water Works Permit identified in Part 1 which authorizes the addition, modification or replacement;
2) Where required, an Emission Summary Table was prepared by a Professional Engineer who is licensed to practice in the Province of Ontario; and
3) I am authorized by the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)

Signature	Date (yyyy/mm/dd)

APPENDIX M
AGENCY LIST
FOR POTENTIAL DISTRIBUTION

List of Agencies
For Potential Distribution

Provincial Ministries

Ministry of Transportation Ontario
659 Exeter Road
London Ontario
N6E 5L3

Ministry of Environment
733 Exeter Road
London, Ontario
N6E 1L3

Ministry of Environment
4510 Rhodes Drive, Unit 620
Windsor, Ontario
N8W 5K5

Ministry of Municipal Affairs and Housing
659 Exeter Road, 2nd Floor
London, Ontario
N6E 1L3

Ministry of Natural Resources
615 John Street North
Aylmer, Ontario
N5H 2S8

Ministry of Aboriginal Affairs
720 Bay Street, 4th Floor
Toronto, Ontario
M5G 2K1

Department of Indian and Northern Affairs
10 Wellington Street, Room 1310
Ottawa, Ontario
K1A 0H4

County and Municipal Contacts

County of Essex
Engineering Department
Planning Department
360 Fairview Avenue West
Essex, Ontario
N8M 1Y6

Corporation of the Town of Essex
33 Talbot Street West
Essex, Ontario
N8M 1A8

Municipality of Leamington
38 Erie Street North
Leamington, Ontario
N8H 2Z3

Corporation of the Town of Lakeshore
419 Notre Dame Street
Belle River, Ontario
N0R 1A0

Local Agencies

Essex Region Conservation Authority
360 Fairview Ave West, Suite 311
Essex Ontario
N8M 1Y6

Greater Essex County District School Board
451 Park Street West, PO Box 210
Windsor, Ontario
N9A 6K1

Windsor-Essex Catholic District School Board
1325 California Avenue
Windsor, Ontario
N9B 3Y6

Student Transportation Services
360 Fairview avenue West, Suite 112
Essex, Ontario
N8M 1Y6

Emergency Services

Ontario Provincial Police
41 Division Street South
Kingsville, Ontario
N9Y 1P4

Kingsville Fire Department
1720 Division Road North
Kingsville, Ontario
N9Y 3S2

Sun Parlour Emergency Services Inc.
46 Seacliff Drive West
Leamington, Ontario
N8H 3X9

First Nations

Walpole Island First Nation
RR#3
Wallaceburg, Ontario
N8A 4K9

Oneida Nation of the Thames
2212 Elm Avenue
Southwold, Ontario
N0L 2G0

Munsee-Delaware Nation
289 Jubilee Road
Muncey, Ontario
N0L 1Y0

Moravian of the Thames First Nation
RR#3
Thamesville, Ontario
N0P 2K0

Chippewas of Kettle and Stoney Point First Nation
6247 Indian Lane, RR#2
Forest, Ontario
N0N 1L0

Chippewas of the Thames First Nation
320 Chippewa Road
Muncey, Ontario
N0L 1Y0

Caldwell First Nation
10297 Talbot Trail, RR#2
Blenheim, Ontario
N0P 1A0

Aamjiwaang First Nation
978 Tashmoo Avenue
Sarnia, Onatrio
N7T 7H5

APPENDIX N
FENCE BY-LAW

THE CORPORATION OF THE TOWN OF KINGSVILLE

By-Law No. 96 - 2005

A BY-LAW TO REGULATE THE HEIGHT AND DESCRIPTION OF FENCES

WHEREAS Sections 11(1), 7 and 15(4) of the *Municipal Act, S.O. 2001, c. 25*, as amended, authorizes municipalities to pass by-laws respecting fences which includes the authority to prescribe the height and description of fences and to require owners of privately-owned outdoor swimming pools to erect and maintain fences and gates around such swimming pools;

NOW THEREFORE, the Council of The Corporation of the Town of Kingsville enacts as follows:

PART I

INTERPRETATION

1.1 In this by-law:

(1) **"building"** shall mean any structure greater than 108 square feet, whether temporary or permanent, used or intended for sheltering any use or occupancy but shall not include a fence, travel trailer, camping trailer, truck camper, motor home or tent;

(2) **"Chief Building Official"** shall mean the officer or employee of the Town charged with the duty of enforcing the provisions of the Ontario Building Code Act and the provisions of this By-law;

(3) **"corner lot"** shall mean a lot situated at the intersection of or abutting upon, two or more streets provided that the angle of intersection of such streets is not more than one hundred and thirty-five (135) degrees and each of which is at least 30 feet wide; where such intersecting sides are curved, the angle of intersection of the adjacent sides shall be deemed to be the angle formed by the intersection of the tangents to the street lines, drawn through the extremities of the front lot line and the exterior lot line;

(4) **"Council"** shall mean the Council of The Corporation of the Town of Kingsville;

(5) "**dwelling"** shall mean a building, occupied or designed to be occupied, exclusively as a home, residence or sleeping place by one or more persons;

(6) **"fence"** shall mean a railing, wall, line of posts, wire, gate, boards, pickets, or other similar substances, used to enclose or divide in whole or in part a yard or other land or to provide privacy;

(7) **"front yard"** shall mean that part of any lot extending across the full width of the lot and lying between the street and the nearest wall of any dwelling or other main building located on the lot;

(8) **"gate"** shall include a door or other device constructed to be self-closing and with a self-latching device that may be opened to gain access to an area enclosed by a fence;

(9) **"hedge"** shall mean a continuous line of thick shrubs or low trees, planted so as to form a fence;

(10) **"height"** shall mean the vertical distance between the grade level adjacent to the fence and the highest point of the fence without taking into account fence posts;

(11) **"lot"** shall mean any parcel or tract of land described in a deed or other instrument legally capable of conveying land;

(12) **"open type construction"** means a fence constructed so that at least one half of its vertical surface area is open space, enabling a clear view through such fence, including materials such as wrought iron and chain link;

(13) **"owner"** shall include any person who has lawful possession of any lands or premises;

(14) **"permit"** shall mean a permit issued by the Chief Building Official certifying approval of plans for swimming pool fences;

(15) **"person"** shall mean a person, firm or corporation, or any group or association of persons;

(16) **"privacy screen"** means a visual barrier used to shield any part of a yard from view from any adjacent lot, but does not include a fence as defined as herein;

(17) **"rear yard"** shall mean that part of any lot extending across the full width of the lot and lying between the rear boundary of the lot and the nearest wall of any dwelling or other main building located on the lot;

(18) **"side yard"** shall mean that part of any lot that is not part of the front yard or rear yard lying between the side lot line and any dwelling or other main building located on the lot;

(19) **"sight visibility triangle"** means the triangular space included between the street lines for a distance of 30 feet from the point of intersection or 15 feet where an alley intersects another alley or where an alley intersects a street;

(20) **"street"** shall mean a common and public street, road, highway or commons vested in the municipality, the county, the province or any other public authority having jurisdiction over the same and includes a bridge or any other structure forming part of a street on, over or across which a street passes, including a private road or alley;

(21) **"swimming pool"** shall mean any manmade structure that may be used to contain water for the purpose of swimming, wading or bathing purposes but shall not include:

a) a manmade pond;

b) irrigation lagoon that is used for agricultural purposes;

c) a temporary excavation below the water table; or

d) a portable wading pool that is emptied after each use;

(22) **"swimming pool fence"** shall mean any fence that encloses in whole or in part, a swimming pool, and includes any temporary enclosure erected during the construction of any swimming pool and includes a gate attached to the fence;

(23) **"temporary enclosure"** shall mean a device that is intended to temporarily perform the functions of a fence, and is subject to the approval of the Chief Building Official;

(24) **"through lot"** shall mean a lot that is not a corner lot and has frontage on more than one street, in which case, the front yard requirements contained herein shall apply on each street;

(25) **"Town"** shall mean The Corporation of the Town of Kingsville;

(26) **"waterway"** shall mean a natural or manmade channel, body or stream of water;

(27) **"zone"** shall mean an area as delineated on a zoning map schedule and established and designated by any by-law passed under Section 34(1) of the *Planning Act, R.S.O. 1990, c.P.13.*

PART II

GENERAL

2.1 No person shall erect or cause to be erected a swimming pool fence without first obtaining a permit from the Chief Building Official and the charge for such permit shall be in accordance with the Fees By-law as amended.

2.2 No person shall construct or reconstruct or cause to be constructed or reconstructed any fence that is not in compliance with this by-law.

2.3 No person shall use or cause to be used razor wire, barbed wire or any other similar material in the construction of any fence unless specifically permitted by this by-law.

2.4 No person shall use, or cause to be used, electric current as a part of or in conjunction with any fence unless specifically permitted by this by-law.

2.5 No person shall post or exhibit placards, playbills, posters or graffiti on any fence.

2.6 No person shall erect a fence that is not uniform in appearance on each side.

PART III

GENERAL PROVISIONS – RESIDENTIAL ZONES

3.1 (1) No person shall construct, erect, maintain or permit to be constructed, erected or maintained on any property zoned Residential, a fence which exceeds a height of 6 feet in any rear yard , interior or exterior side yard.

(2) No person shall construct, erect, maintain or permit to be constructed, erected or maintained on any property zoned Residential, a fence which exceeds a height of 3 feet in any designated front yard.

(3) Notwithstanding Sections 3.1(1) and 3.1(2) above, fences shall be required to comply with all sight visibility triangle regulations as set out in this by-law.

(4) No fence shall be constructed in a manner such that the vertical boards are less than 3.5 inches wide, greater than 5.5 inches wide or spaced more than 1.5 inches apart.

(5) Subsection 3.1(4) shall not apply to fences constructed of masonry or wrought iron or to hedges.

3.2 Notwithstanding Section 3.1, but subject to the provisions for Residential zones along a waterway in this Part and sight visibility triangles in Section 6.3 of this by-law:

(a) archways forming part of an entrance may exceed the height restrictions to a maximum of 7 feet 6 inches;

(b) decorative items on structural posts may exceed the prescribed height restrictions to a maximum of 6 inches;

(c) a fence may be erected to enclose a tennis court or similar private sports facility, not including a pool that is

i. no higher than 12 feet;

ii. constructed of chain link with adequate posts, support wires and bracing of a corrosive resistant or treated material; and is

iii. not closer than 2 feet to any property line; and

(d) a boundary fence in side yards or rear yards may be 7 feet in height provided any portion of the fence over 6 feet is of open type construction.

3.3 In a Residential zone used for multiple attached dwelling units, privacy screens are permitted when erected upon a deck or platform in a rear yard which is permitted provided:

(a) the maximum height of the privacy screen shall be 6 feet measured from the floor of the deck;

(b) the maximum projection of a privacy screen or fence from the building shall be 12 feet;

(c) the privacy screen shall be set back at least 3 feet from any property line other than a property line which is an extension of a common wall between two dwelling units; and

(d) no privacy screen on a corner lot shall be closer to the street than the portion of the building nearest the street.

SWIMMING POOL FENCES

3.4 Every owner of a lot on which a swimming pool is located shall construct and maintain, or cause to be constructed and maintained, a swimming pool fence.

3.5 Every person who constructs, or causes to be constructed, a swimming pool fence shall construct the swimming pool fence so as to prevent access under, over or through the fence except by way of a gate.

3.6 No person shall construct or cause to be constructed a swimming pool fence, unless such swimming pool fence complies with the following regulations:

(a) The minimum permitted height of a swimming pool fence shall be 4 feet as measured from the grade level outside and immediately adjacent the swimming pool fence;

(b) The maximum permitted height of a swimming pool fence shall be 6 feet;

(c) Every swimming pool fence shall be constructed so that all horizontal or diagonal structural members of the fence are located on the pool side of the fence and the swimming pool fence shall not have openings, holes or gaps large enough to facilitate climbing;

(d) If a swimming pool fence is to be constructed of chain link material, the chain link material shall have an open diamond mesh not exceeding 1.5 inches;

(e) A dwelling or building may be utilized as part of a swimming pool fence;

(f) Every swimming pool fence opening shall be secured with a gate;

(g) Every gate shall be equipped with a self-closing device and a self-latching device on the swimming pool side of the top of the gate to the intent that all gates will remain securely closed;

(h) Paragraph (g) shall not apply to the door of any dwelling or building which forms part of the enclosure;

(i) Every swimming pool fence shall be not less than 3 feet from the swimming pool;

(j) Nothing shall be placed at or near the exterior side of a fence located within the same property so that it might facilitate the climbing of the swimming pool fence;

(k) Sun-decks or walkways may be used as part of a swimming pool fence provided that they are constructed so as not to facilitate climbing and are a minimum of 4 feet above the immediately adjacent grade level and if equipped with a gate, such gate shall be constructed in accordance with these regulations;

(l) Once a swimming pool is filled with water it must be fenced. A temporary enclosure is permitted in lieu of a swimming pool fence, but must be replaced with a swimming pool fence within fourteen (14) days of the pool being filled with water.

3.7 Every owner of a lot containing a swimming pool shall ensure that the gate providing access through the swimming pool fence is locked whenever the swimming pool is not in use.

3.8 The provisions of this by-law requiring the erection of a fence shall not apply to an above ground pool that complies with the following standards:

(a) sides of not less than 4 feet above grade; and

(b) the point where a user of the above ground pool gains access to the pool is protected by a gate.

RESIDENTIAL ZONES ALONG A WATERWAY

3.9 On lots abutting a waterway, no person shall construct, or cause to be constructed:

(a) a fence that exceeds 3 feet in height in any front yard;

(b) a fence that exceeds 6 feet in height in any side yard; or

(c) a fence in any rear yard except in compliance with the following height regulations, in order to preserve a view of the waterway:

i. if the average distance between the rear wall of the dwelling or other main building and the waterway is less than or equal to 50 feet, the height of any fence shall not exceed 6 feet for a distance not exceeding one-half of the distance between the corners of the rear wall of the dwelling or other main building and the waterway measured parallel to the side lot lines; and the height of any fence beyond the one-half distance shall not exceed 4 feet and shall be of an open type construction;

ii. if the average distance between the rear wall of the dwelling or the other main building and waterway is greater than 50 feet, the height of any fence shall not exceed 6 feet for a distance not exceeding 25 feet and the height of any fence beyond a maximum distance of 25 feet shall not exceed 4 feet and shall be of an open type construction.

3.10 On lots abutting a waterway, every swimming pool fence must comply with Section 3.1 and Section 3.6 of this by-law.

3.11 On lots abutting a waterway, the portion of the property open to the waterway is permitted to be unfenced provided that there is no gap between the swimming pool fence and the said waterway or a break wall.

3.12 On lots abutting a waterway, a hedge in the rear yard shall be deemed to be a fence.

PART IV

GENERAL PROVISIONS – COMMERCIAL/INDUSTRIAL/INSTITUTIONAL ZONES

4.1 Unless permitted by a site plan agreement or any other development agreement executed by the Town, a fence on any property zoned Commercial, Industrial or Institutional shall not exceed 8 feet in height.

4.2 Barbed wire may be placed on the top of a fence on any property zoned Commercial, Industrial or Institutional that does not abut a residential zone, provided that the said fence is a minimum of 6 feet in height.

PART V

GENERAL PROVISIONS – AGRICULTURAL ZONE

5.1 Properties in an Agricultural zone that include a residential use shall comply with all other parts of this by-law as they apply to properties in a Residential zone.

5.2 Barbed wire may be used in the construction of a fence on any property zoned Agricultural that does not abut a residential zone.

5.3 An electrified fence may be erected on any property zoned Agricultural provided such fence:

(a) has a maximum 12 volt trickle charge;

(b) is designed and erected solely to contain animals; and

(c) has attached thereto, at approximate 100 foot intervals, a sign warning that the fence carries electricity.

PART VI

HEIGHT CALCULATIONS

6.1 The height of a fence at any given point shall be measured from the grade at the base of the fence, exclusive of any artificial embankment, provided:

(a) where changes in grade contours along the fence line result in changes in height of the fence, the height of the fence is deemed to be the average height of the fence over any 8 foot portion.

GRADE DIFFERENCES BETWEEN LOTS

6.2 Where grade elevations of adjacent lots differ, the height of any boundary fence shall be measured from the mean grade elevation between the lots.

SIGHT VISIBILITY TRIANGLES – DRIVEWAYS AND CORNER LOTS

6.3 No person shall erect a fence or keep any hedge in any zone greater than 3 feet in height at any point:

(a) within a 30 foot sight visibility triangle, measured along the property line at the intersection of any two streets or at the intersection of two parts of the same street meeting at an angle of not more than 135 degrees;

(b) within a 6 foot sight visibility triangle measured at the intersection of any driveway and the property line of any street.

PART VII

VARIANCES

7.1 Any person, being the occupier or owner of land in the Town, may apply to the Chief Building Official for permission to exceed any of the requirements set out in this by-law, and if the Chief Building Official is satisfied that the proposed application is reasonable and does not contravene the purpose and intent of the provisions of this by-law, then the Chief Building Official may grant such permission, in whole or in part, conditionally or unconditionally, as deemed advisable.

7.2 Any person who has made application pursuant to the provisions of Section 7.1 of this by-law and who has received notice of the decision of the Chief Building Official shall have the right to appeal to the Committee of Adjustment for the Town.

7.3 This by-law is designated under Section 45(3) of the *Planning Act, R.S.O. 1990, c.P. 13,* as amended, as a by-law implementing the Official Plan of the Town of Kingsville and the Committee of Adjustment for the Town is empowered to grant variances from the provisions of this by-law.

PENALTY

7.4 Every person who contravenes any of the provisions of this by-law is guilty of an offence and shall, upon conviction thereof, pay a fine as provided for in the *Provincial Offences Act, R.S.O. 1990, c.P.33,* as amended, exclusive of costs.

SEVERABLITY

7.5 Should any section, subsection, clause or provision of this by-law be declared by a court of competent jurisdiction to be invalid, the said section shall not affect the validity of this by-law as a whole or any part thereof, other than the part so declared to be invalid.

MISCELLANEOUS

7.6 This by-law shall be deemed to have come into force and take effect on the date of the final passing thereof.

7.7 All by-laws regulating fences and/or swimming pool fences passed under the *Municipal Act, S.O. 2001, c.25,* as amended, by the former Town of Kingsville or the former Townships of Gosfield North or Gosfield South are hereby repealed.

7.8 All owners of lots containing a swimming pool must comply with the provisions of this by-law. Swimming pool fences erected prior to this by-law coming into force shall not be considered lawful unless they conform to this by-law. All other legal fences erected prior to this by-law coming into force are deemed to be lawful fences.

This by-law was read a first, second and third time and finally passed this 11th day of October, 2005.

Mayor, Nelson Santos

Clerk, Linda Burling

APPENDIX O
LIGHTING GUIDELINES
FOR SITE PLAN APPLICATIONS

1.0 PURPOSE

The purpose of this guideline is to provide a set of effective standards designed to limit the impacts of excess and unnecessary external lighting.

2.0 SCOPE

These guidelines are intended to address lighting plans that are submitted and approved as part of site plan approval. The *Planning Act* ((Section 41(7)(a)(5))) allows for lighting studies to be requested as part of this process.

The scope of the lighting guidelines is to create a set of standards that are applicable across the Town of Kingsville, depending upon the particular and adjacent land use.

Specifically, these guidelines are intended to be used as part of the site plan approval process for new development as it pertains to applications for commercial, industrial, institutional, recreational, and multi residential (3 or more units) uses.

These guidelines are not intended to regulate lighting for single detached dwellings, semi-detached dwellings, townhouse dwellings, or municipal street lighting.

3.0 BACKGROUND

As growth and intensification occurs within the municipality, it is important to maintain night time comfort and safe conditions, reduce light pollution, support dark skies and evaluate impacts of new development on surrounding areas. This guideline will assist in the implementation of urban design policies of the Official Plan.

Excessive and unnecessary site lighting can have a number of detrimental environmental and safety impacts. Specifically, excessive lighting can be inefficient in terms of energy consumption, as well as create glare levels that can be a detriment to drivers, pedestrians and neighbouring properties. From an environmental perspective, the over lighting of towns and cities creates a phenomenon known as Urban Sky Glow, that renders the night sky effectively unviewable to town and city dwellers. Furthermore, poor outdoor lighting design can create light trespass which is a nuisance that negatively affects the enjoyment of a person’s property.

The uneven application of lighting standards can create issues around transition; moving from an under lit area to an over lit one. This can have a significant affect on the night vision of drivers, cyclists and pedestrians.

4.0 DEFINITIONS

“Candelas” means luminous intensity as it relates to luminous flux. Candelas are the intensity of a light source in a particular direction. One Lumen = one Candela emitted within a solid angle known as a steradian. (There are 4 pi, or 12.57 steradians in a sphere).

“Foot candles” means lumens per square foot.

“Illuminance” means the amount of light that actually falls on an object. It is the density of light on a particular surface – measured in lux or lumens per square foot (foot candles – fc).

“Lamp” means a bulb or other light producing source.

“**Light Pollution”** means the overall impact that the lightning of cities and towns has on the night sky.

“Light Trespass” means the projection of light from one site onto another.

“Lumens” means the measurement of total amount of light emitted by a bulb, known as luminous flux. A 100-watt incandescent bulb will put out roughly 1,800 lumens, while a high- pressure sodium street lamp of the same wattage will emit about 8,550 lumens.

“Luminaire” means the lighting fixture itself. It is a combination of the bulb, socket, reflectors or lenses, ballast, and housing.

“Luminance” means the light that the eye sees – i.e., light that has been reflected by a surface. It is measured in Candelas per square foot or metre.

“Lux” means the measure of illuminance, expressed in units of Lumens per square metre.

“**Pole Height”** means the height of a light standard, measured from grade to top tenon cap.

“Qualified Lighting Design Professional”, as it relates to these lighting guidelines means a Registered Professional Engineer (P.Eng).

“Uniformity” means the uniformity of light distribution. Uniformity is measured as maximum:minimum, and average:minimum.

“IES” means the Illuminating Engineering Society. IES is a non-profit organization that develops and publishes standards regarding lighting.

5.0 LIGHTING PLAN

When requested, site plan applications shall be accompanied by a lighting plan and lighting fixture details that demonstrates the proposal meets the guidelines. The following submission requirements and standards will apply:

5.1 Submission Requirements and Standards

Applicants will be required to submit information from a qualified lighting consultant with respect to any proposed external lighting. The Lighting Plan submission shall be stamped by a Professional Engineer (P.Eng) responsible for the plan.

5.1.1 Lighting Plan

A Lighting Plan showing photometric data (see Figure 1) must be provided that includes:

- The illumination levels expressed in foot candles or lux values and in the form of Isolux curves showing the predicted lighting levels at the property line and throughout the development site;
- Lighting analysis shall be carried out with independent software (e.g. AGI 32 or equivalent);
- Pole specification such as height, spacing, foundation details, and placement;
- The lot boundaries;
- The location of all structures;
- Location and height of all proposed luminaires, including wattage, and lamp type;
- The illumination levels at all property lines should follow the levels outlined in Attachment A. However, the design should strive to achieve ‘0’ Lux (0 foot candles);
- A photometric diagram showing the predicted lighting levels from each of the proposed light sources;
- The lighting plan is to be signed by a Professional Engineer responsible for the plan;

5.1.2 Lighting Fixtures

Photometric Plans must include luminaire design sheets for fixtures proposed for the property. Design Sheets must include:

- Detail specifications, including lamp type, fixture type, lumens rating of lamp, wattage, colour temperature and drive current etc.;
- Light source shall be LED with a maximum colour temperature (CCT) of 3000K;
- Fixture specifications must be full cut off and be International Dark Sky Association (IDA) compliant. All other fixtures shall not be accepted;
- As general principles, light fixtures should be positioned across a site so as to give a uniform distribution of light across the relevant area. This assists in the avoidance of the creation of “hot spots,” being areas of over-illumination that make adjacent areas seem darker;
- Fixtures shall be positioned such that they focus light down, preventing light from emitting above the horizontal plane (90-degree position relative to the ground) and preventing light trespass;
- Lamps shall be located in such a way to direct light away from neighbouring properties;
- Fixtures should encourage the conservation of energy;
- Except where lighting is strictly ornamental, photometric performance (the glare, intensity and uniformity of the light produced) will be a more important factor in assessing the suitability of proposed lighting, rather than aesthetics;

A wide number of lighting fixture designs and lamp types exist today. Light sources, or lamps, are available in a variety of styles. Depending on what the light is intended to do will affect which lamp is best for the job.

Light fixture designs which cannot meet these standards, such as those with sag lenses or wall mount lights that shine horizontally, are prohibited.

Examples of full cut off and International Dark Sky Association compliant fixtures and prohibited fixtures are shown below.

Acceptable Fixtures (Full Cut Off, Dark Sky Association Compliant)	
	
FULL CUT OFF WALL MOUNT	CUT OFF LIGHT STANDARD
Prohibited Fixtures	
	
PROHIBITED WALL MOUNT	PROHIBITED SAG LENS

5.1.3 Illumination Requirements

In addition to setting standards for acceptable lamps and fixture types, these guidelines have established a set of maximum illumination values for different lighting zones. The illumination requirements are expressed in the form of tables pertaining to each lighting zone (see Attachment A).

The purpose of the lighting zones is to recognize the illumination needs for various land uses, while at the same time setting maximum illumination values at the property lines. This will ensure that sites are adequately illuminated as well as controlling light trespass.

The land uses that these guidelines will apply to are:

- Commercial uses such as Plazas, Retail Outlets, Car sales, Offices, Personal Service Uses, and others;
- Employment uses such as warehousing, manufacturing, fabrication, aggregate extraction and processing uses;
- Institutional uses such as, places of worship, schools (public and private), long term care, medical , and government facilities;
- Residential uses (3 or more units, save and except for on-street townhouses).

5.1.4 Glare

Glare is the sensation produced by a light source within the visual field that is sufficiently greater than the background brightness to which the eye is adapted to cause discomfort, annoyance or loss in visibility.

The control of glare is primarily a function of the light distribution characteristics of the luminaire and to some extent the brightness of the surroundings.

For outdoor lighting applications the impact of glare can be contained by limiting the Glare Index as outlined in the IES TM15-07 (Luminaire classification system for outdoor luminaires).

The glare rating for outdoor applications should be limited to G0 to G1 (see Attachment A).

5.1.5 Post Installation Investigation

After the installation of any new lighting subject to municipal review and approval, the applicant's lighting consultant shall provide a written signoff confirming that the lighting has been installed as per the approved plans. This will be confirmed as part of the site plan inspection.

ATTACHMENT A

Lighting Design Criteria for Outdoor Applications

Parking Lots and Loading Areas	Lux	
	Basic	Enhanced Security
Minimum Horizontal **Illuminance**	20 (2.0 f.c.)	50 (5.0 f.c)
Uniformity Ratio (Max:Min)	20:1	15:1
Average Vertical **Illuminance**[2]	10 (1.0 f.c)	25 (2.5 f.c)
Glare Rating	G1	
Note: During periods of non-use, the **illuminance** of certain parking facilities may be turned off or reduced to conserve energy. If reduced lighting is to be used for the purpose of security, the minimum value should not be less than 1.0. Reductions should not be applied to facilities subject to intermittent night use, such as apartments, long term care and transport terminals. If there are a number of handicap parking spaces, enhanced lighting levels may be used.		

Car Dealerships	Max Illuminance Horizontal	Uniformity (Max:Min)
Adjacent to roadway	200	5:1
Other areas	100	10:1
Entrances	100	5:1
Driveways	30	10:1
Glare rating	G2	

Private Roads and Driveways	**Lux**	
	Avg. Illuminance Horizontal	**Minimum**
Commercial/Industrial Driveways	6.0 (0.6 f.c)	2.0 (0.2 f.c.)
Residential/ Institutional Driveways	4.5 (0.4 f.c.)	1.5 (0.15 f.c.)
Glare Rating	G0	

Service Stations	Average Illuminance (Lux)
Approach	20
Driveway	20
Pump island	200
Building facades	30
Service areas	30
Landscape highlights	20
Glare rating	G1

Floodlighting Buildings and Monuments	Average Target Illuminance (Vertical) Lux
Bright surroundings and light surfaces	50
Bright surroundings and medium light surfaces	70
Bright surroundings and dark surfaces	100
Dark surroundings and light surfaces	20
Dark surroundings and medium light surfaces	30
Dark surroundings and dark surfaces	50

ATTACHMENT B

Lighting Zones, Spill Light Limitations and Maximum Pole Heights

Lighting Zone	Ambient Brightness	Locations / Zoning Description	Lighting Levels Lux Level at Property Lines	Maximum Pole Height (m)
LZ1	Dark	Natural Heritage System	0 (0 f.c.) at the limit of the Natural Heritage System	4.5
LZ2	Low	Open Space	2 (0.2 f.c)	4.5
LZ3	Medium	Low / medium density Residential or Institutional	5 (0.5 f.c.)	6.0
LZ4	High	Urban with Mixed Commercial and Industrial	7.5 (0.75f.c.)	6.0[5]

[4] Where a property is adjacent to another zone the more restrictive illuminance level shall apply at the property line. Where multiple zones exist on the same lot, the zone line shall be treated as property line for the purposes of the lighting plan.

[5] For industrial sites or large commercial sites (i.e. 2000 square metres or greater) the maximum pole height may be increased to 7.3 metres.

ATTACHMENT C

Lighting Site Plan Approval Checklist

Site Plan Application #:	

#	Task		Complies			Comments
			Yes	No	N/A	
2	Lighting Zone and Adjacent Lighting Zone Noted (Attachment B)					
3	Lighting Pole Type and Mounting Height Maximum Pole Height (Attachment B):					
4	Light Source to be LED					
5	Maximum Colour Temperature CCT (3000K)					
6	Drive Current Specified					
7	Luminaires that are full cut off and International Dark Sky Association (IDA) compliant specified					
8	Manufacturer Catalogue Number Specified					
9	Photometric Data with IES I file Number Specified					
10	Applicable Lighting Design Criteria (check all that apply):					
		Commercial / Parking Lot				
		Private Driveway or Road				
		Greenhouse Development				
		Industrial / Loading / Parking				
		Other (Specify)				
11	Glare Rating Specified (see Attachment A)					

12	Independent Lighting Software Specified					
13	**Illuminance** and **Luminance** Grid Pattern as specified in IES RP-8-18 and RP-20-14					
14	Vertical **Illuminance** Level at Property Limit (See Attachment A)					
15	Horizontal **Illuminance** Level at Property Limit (See Attachment B)					
	Lighting Zoning:					
	Illuminance Level at Property Line					
16	Summary Tabulation of Photometric Analysis Submitted					
17	Lighting Controls and Energy Saving Measures Specified					
18	Submission Stamped by P.Eng					

REFERENCE DOCUMENTS

IES – TM15-07 - Luminaire Classification System for Outdoor Luminaires
IES – RP 8-18 - Design of Roadway Facility Lighting
IES – RP 20-14 - Lighting for Parking Facilities CPTED
Manual.

RESPONSIBILITIES

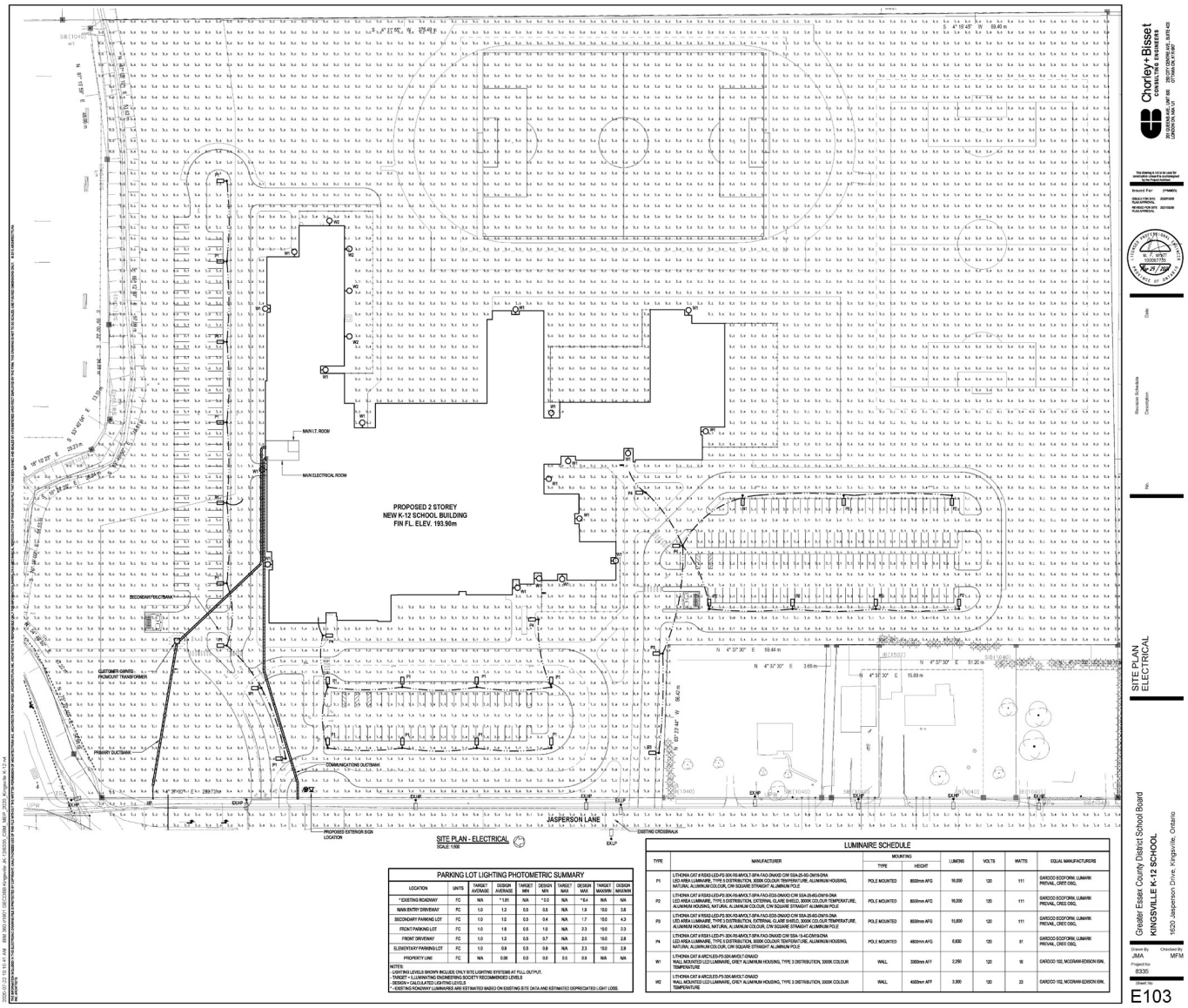
Director of Planning and Development

REVIEW/REVISIONS

No.	Revision Details (incl. provision #)	Revision By	Date
1.			
2.			
3.			
4.			
5.			

6.			
7.			
8.			

FIGURE 1: EXAMPLE OF LIGHTING PLAN



APPENDIX P
MUNICIPAL DRINKING WATER LICENCE
&
DRINKING WATER WORKS PERMIT

Ontario

MUNICIPAL DRINKING WATER LICENCE

Licence Number: 030-101
Issue Number: 6

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this municipal drinking water licence under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Town of Kingsville

2021 Division Road North
Kingsville ON N9Y 2Y9

For the following municipal residential drinking water system:

Kingsville Distribution System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements

Upon the effective date of this drinking water licence # 030-101, all previously issued versions of licence # 030-101 are revoked and replaced by this licence.

DATED at TORONTO this 18th day of September, 2024

Signature

A. Ahmed

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	**The Corporation of the Town of Kingsville**
Licence Number	**030-101**
Drinking Water System Name	**Kingsville Distribution System**
Licence Effective Date	**September 18th, 2024**

1.0 Licence Information

Licence Issue Date	2024-09-18
Licence Effective Date	2024-09-18
Licence Expiry Date	2029-09-17
Application for Licence Renewal Date	2029-03-18

2.0 Incorporated Documents

The following documents are applicable to the above drinking water system and form part of this licence:

2.1 Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
Kingsville Distribution System	030-201	2024-09-18

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
Not Applicable	Not Applicable	Not Applicable

2.3 Other Documents

Document Title	Version Number	Version Date
Not Applicable	Not Applicable	Not Applicable

3.0 Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	030-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	030-301A

4.0 Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
Kingsville Distribution System	Corporation of the Town of Kingsville	030-401	030-OA1

Schedule B: General Conditions

System Owner	**The Corporation of the Town of Kingsville**
Licence Number	**030-101**
Drinking Water System Name	**Kingsville Distribution System**
Licence Effective Date	**September 18th, 2024**

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

"**adverse effect**", "**contaminant**" and "**natural environment**" shall have the same meanings as in the EPA;

"**alteration**" may include the following in respect of this drinking water system:

(a) An addition to the system,
(b) A modification of the system,
(c) A replacement of part of the system, and
(d) An extension of the system;

"Clean Water Act" means the *Clean Water Act*, 2005, S.O. 2006, c. 22.

"compound of concern" means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged to the air from a component of the drinking water system in an amount that is not negligible;

"CT" means the CT Disinfection Concept, as described in subsection 3.1.1 of the Ministry's Procedure for Disinfection of Drinking Water in Ontario, dated July 29 2016.

"**Director**" means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

"Duty" means the unit installed and used in regular operation of the drinking water system. The duty unit is included in determining the design capacity calculation.

"**drinking water works permit**" means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

"**financial plan**" means the financial plan required by O. Reg. 453/07;

"Harmful Algal Bloom (HAB)" means an overgrowth of aquatic algal bacteria that produce or have the potential to produce toxins in the surrounding water, when the algal cells are damaged or die. Such bacteria are harmful to people and animals and include microcystins produced by cyanobacterial blooms.

"**licence**" means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

"**licensed engineering practitioner**" means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act* R.S.O. 1990, c. P.28.

"Minister" means the Minister of the Ministry or such other member of the Executive Council as may be assigned the administration of the SDWA under the Executive Council Act, R.S.O. 1990, c. E.25.

"Ministry" means the Ministry of the Minister and includes all employees or other persons acting on its behalf.

"**operational plan**" means an operational plan developed in accordance with the Director's Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

"**owner**" means the owner of the drinking water system as identified in Schedule A of this licence;

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. 0.40;

"**permit to take water**" means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"**point of impingement**" has the same meaning as in section 2 of O. Reg. 419/05 under the EPA;

"**point of impingement limit**" means the appropriate standard from Schedule 2 or 3 of O. Reg. 419/05 under the EPA and if a standard is not provided for a compound of concern, the concentration set out for the compound of concern in the document titled "Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants", as amended from time to time and published by the Ministry and available on a government of Ontario website;

"**provincial officer**" means a provincial officer designated pursuant to section 8 of the SDWA;

"**publication NPC-300**" means the Ministry publication titled "Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning" dated August 2013, as amended;

"**SCADA system**" means a supervisory control and data acquisition system used for process monitoring, automation, recording and/or reporting within the drinking water system;

"**SDWA**" means the *Safe Drinking Water* Act, 2002, S.O. 2002, c. 32;

"**sensitive receptor**" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from a discharge to air from an emergency generator that is a component of the drinking water system, including one or a combination of:

(a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
(b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
(c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
(d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings).

"**Spare**" means a separate unit that is not connected and can be installed and placed into operation when the Duty unit is out of service (not operational). The spare should be the same size or larger than the duty unit it may be replacing.

"**Standby**" means a separate unit that is connected for use and operation. The standby unit is available for operation when the duty unit is offline or out of service. The standby unit is not considered in determining the design capacity calculation, but should be the same size or larger than the duty unit it may be replacing.

"**sub-system**" has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts) under the SDWA;

"**surface water**" means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

"UV" means ultraviolet, as in ultraviolet light produced from an ultraviolet reactor.

2.0 Applicability

2.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

6.1 At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Permit to Take Water and Drinking Water Works Permit

7.1 A permit to take water identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

7.2 A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

8.0 Financial Plan

8.1 For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:

8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and

8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

9.1 Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:

9.1.1 The SDWA*;*

9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;

9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;

9.1.4 Any regulation made under the SDWA;

9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;

9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;

9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and

9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.

9.1.9 Any other technical bulletin or procedure issued by the Ministry from the most recent to the earliest.

9.2 If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.

9.3 The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:

9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and

9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.

9.4 For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

10.1 Nothing in this licence or the drinking water works permit shall be read as to permit:

10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or

10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.

10.2 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

10.3 Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

11.1 This licence is not transferable without the prior written consent of the Director.

11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.

11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request and in a timeframe outlined by the Director or a provincial officer.

13.0 Records Retention

13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 or section 13 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/14, NSF/60, NSF/61 and NSF/372.

14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.

14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical

and material used in the operation of the drinking water system that comes into contact with water within the system.

14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:

14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high density polyethylene (HDPE);

14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;

14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;

14.3.4 Gaskets that are made from NSF approved materials;

14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use that may come into contact with drinking water, but are not added directly to the drinking water; or

14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.

15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within twelve (12) months of the alteration being completed or placed into service.

15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system.

16.0 Operations and Maintenance Manual

16.1 An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.

16.1.1 For clarity, up-to-date in the context of condition 16.1 means an operations and maintenance manual or manuals that reflects the current procedures in use within the drinking water system.

16.2 The operations and maintenance manual or manuals, shall include at a minimum:

16.2.1 The requirements of this licence and associated procedures;

16.2.2 The requirements of the drinking water works permit for the drinking water system;

16.2.3 A description of the processes used to achieve secondary disinfection within the drinking water system;

16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;

16.2.5 Procedures for the operation and maintenance of monitoring equipment;

16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;

16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;

16.3 Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.

Schedule C: System-Specific Conditions

System Owner	**The Corporation of the Town of Kingsville**
Licence Number	**030-101**
Drinking Water System Name	**Kingsville Distribution System**
Licence Effective Date	**September 18th, 2024**

1.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

1.1 For each treatment subsystem or treatment subsystem component identified in column 1 of Tables 5 and 6 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 5: Drinking Water Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 6: Drinking Water Non-Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Environmental Discharge Parameters

1.2 Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:

1.2.1 The discharge of potable water from a watermain to a road or storm sewer;

1.2.2 The discharge of potable water from a water storage facility or pumping station:

a) To a road or storm sewer; or

b) To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.

1.2.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer;

1.2.4 The discharge of potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.

1.2.5 The discharge of any excess water to a road, storm sewer or the environment, associated with the management of materials excavated as part of watermain construction or repair, where necessary sediment, erosion and environmental control measures have been implemented.

2.0 Studies Required

2.1 Not Applicable

3.0 Source Protection

3.1 The Owner shall implement risk management measures, as appropriate, to manage any potential threat to drinking water that results from the operation of the drinking water system.

3.2 Where the drinking water system, or a portion thereof, is located in a source protection area as defined in the *Clean Water Act, 2006*, the owner shall prepare an "Assessment of Fuel Storage and Handling" (the "Assessment") on or before August 1, 2025.

3.3 At a minimum, the Assessment shall:

3.3.1 Identify all locations that are part of drinking water system where fuel is stored or handled within a well head protection area (WHPA) or intake protection zone (IPZ), as identified in the ministry's Source Protection Information Atlas (SPIA) mapping tool.

3.3.2 For each location identified under 3.3.1, document an evaluation of the fuel storage or handling for the purposes of determining if the fuel storage or handling is a Significant Drinking Water Threat by using the SPIA, the latest Technical Rules under the *Clean Water Act, 2006* and in particular, the tables of drinking water quality threats, having regard to the circumstances set out in the table and the vulnerability score of each fuel storage or handling location in the WHPA or IPZ.

3.3.3 Having regard to conditions 3.8, 3.9 and 3.10, determine and document the risk management measures that shall be implemented in respect of each fuel storage or handling location mentioned in condition 3.3.2 that is determined to be a Significant Drinking Water Threat.

3.4 If the Owner proposes to make alterations to the drinking water system authorized in Schedule B of the drinking water works permit that would result in any new or modified

fuel storage or handling that is part of the drinking water system, the Owner shall, before making the alteration, ensure that the new or modified fuel storage or handling is identified and evaluated in accordance with conditions 3.3.1, 3.3.2 and 3.3.3, and the Assessment is updated accordingly.

3.5 The owner shall review the Assessment at least once every twelve (12) months and:

3.5.1 If the Technical Rules under the *Clean Water Act, 2006*, the delineation of any WHPA or IPZ in the source protection area, or any applicable source protection plan policies have changed since the Assessment was last reviewed under this condition, identify and evaluate fuel storage or handling in accordance with conditions 3.3.1, 3.3.2 and 3.3.3 and update the Assessment accordingly.

3.5.2 Record the date that the review was completed and outcome(s) of the review.

3.6 The owner shall notify the Director in writing within thirty (30) days of preparing or updating an Assessment that identifies or changes one or more fuel storage or handling Significant Drinking Water Threats.

3.7 The notification required in condition 3.6 shall:

3.7.1 list new location(s) where fuel storage or handling has been identified as a Significant Drinking Water Threat;

3.7.2 list the locations where existing fuel storage or handling has become or is no longer a Significant Drinking Water Threat; and,

3.7.3 be submitted using the “Director Notification Form” published by the Ministry.

3.8 Where fuel storage or handling is identified as a Significant Drinking Water Threat, the owner shall implement risk management measures for the fuel oil storage systems that ensure fuel is appropriately stored and managed to protect the raw water source of supply for the drinking water system or subsystem.

The measures shall include the following:

3.8.1 The storage tank(s) associated with the fuel oil systems shall be inspected at least once every twelve months, or more frequently as recommended by the manufacturer or required by the Technical Standards and Safety Act (TSSA) 2000, and applicable regulations, codes and standards.

3.8.2 the inspection required by condition 3.8.1 shall be performed by a person certified for that purpose under the TSSA and shall include, at a minimum,

a) Visual inspection of the fuel oil tank, tubing, and piping for leaks;

i. Where the tank is below grade (underground), visible components of the tank should be inspected, including the fill pipe and vent;

b) Visual inspection of any grade-level secondary containment;

c) Inspection of any equipment installed to monitor or measure fuel levels;

d) Inspection of any cut-off or control valves and associated equipment;

e) Visual inspection of any fuel pumps and/or sumps and testing of such devices for proper operation;

f) Inspection of any installed corrosion protection systems;

g) Testing for water at the bottom of storage tanks that are not bottom outlet tanks; and,

h) Inspection of any installed electronic or mechanical leak-detection equipment.

3.9 A record of the inspections performed in accordance with condition 3.8.1 and a record of any associated repairs, maintenance or upgrades shall be kept on-site and available for review by ministry staff.

3.10 Spill or leak detection and spill response procedures shall be incorporated into the Operations and Maintenance Manual required under condition 16 of this licence.

3.11 Where the local source protection plan outlines risk management measures for fuel storage or handling in addition to those identified in 3.8, the measures identified in the source protection plan shall also be implemented.

3.12 The owner shall undertake alterations and develop operating procedures as appropriate to ensure that the storage and handling of fuel is adequately managed to protect the source of drinking water.

3.13 Conditions 3.8 to 3.10 have been included to ensure that the fuel storage facilities at the water treatment plant, which have been identified as a significant drinking water threat, conform to the applicable source protection policies. This statement may be relied upon by the owner for the purposes of subsection 61 (4) of O. Reg. 287/07 under the Clean Water Act in order to obtain an exemption from the requirement for a risk management plan under section 58 of that Act.

4.0 Additional System Specific Conditions

Not applicable

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	**The Corporation of the Town of Kingsville**
Licence Number	**030-101**
Drinking Water System Name	**Kingsville Distribution System**
Licence Effective Date	**September 18th, 2024**

1.0 Chlorine Residual in the Distribution System

1.1 Where a chlorine residual below the values set out in s.1-2(2)(4) of Schedule 1 of O. Reg. 170/03 is identified at a location within the distribution system and:

1.1.1 the drinking water system's water treatment equipment is confirmed to be operating effectively;
1.1.2 any adverse result is reported in accordance with s.16-3(1)(4) or s.16-3(1)(5) in Schedule 16 of O. Reg. 170/03;
1.1.3 the operator undertakes corrective action required by s.17-4 in Schedule 17 or s.18-4 in Schedule 18 of O. Reg. 170/03; and
1.1.4 actions are taken to prevent reoccurrence(s) of low chlorine residual results at the location,

the owner shall be deemed not to have contravened s.1-2(2)(4) in Schedule 1 of O. Reg. 170/03.

1.2 For clarity, actions taken under condition 1.1 d) may include but are not limited to implementation of a flushing program, enhancement of an existing flushing program, or infrastructure upgrades.

Ontario

DRINKING WATER WORKS PERMIT

Permit Number: 030-201
Issue Number: 5

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Town of Kingsville

2021 Division Road North
Kingsville ON N9Y 2Y9

For the following municipal residential drinking water system:

Kingsville Distribution System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system

Upon the effective date of this drinking water works permit # 030-201, all previously issued versions of permit # 030-201 are revoked and replaced by this permit.

DATED at TORONTO this 18th day of September, 2024

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Description

System Owner	**The Corporation of the Town of Kingsville**
Permit Number	**030-201**
Drinking Water System Name	**Kingsville Distribution System**
Permit Effective Date	**September 18th, 2024**

1.0 System Description

1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Kingsville Distribution System** consists of 350 kms of watermain from 100 mm diameter to 300 mm diameter.

The Kingsville Distribution System obtains all of its water from the Union Water Supply System (UWWS). The UWWS monitors and controls the water level in the Leamington Tower and Kingsville Tower to ensure proper pressure in the Kingsville Distribution System.

The UWWS is owned by four municipalities, Essex, Kingsville, Lakeshore and Leamington. The UWWS is managed by a Union Water Supply System Inc and is operated by Ontario Clean Water Agency (OCWA). The raw water is obtained from Lake Erie and is treated by conventional surface-water treatment plant.

Instrumentation and Control

SCADA System

Description	N/A
Notes	

Watermains

1.2 Watermains within the distribution system comprise:

1.2.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains

Column 1 Document or File Name	Column 2 Date
WaterDistrubitionMap2024	March 2024

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

1.2.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	**The Corporation of the Town of Kingsville**
Permit Number	**030-201**
Drinking Water System Name	**Kingsville Distribution System**
Permit Effective Date	**September 18th, 2024**

1.0 Applicability

1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence # 030-101.

1.2 The definitions and conditions of licence # 030-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence # 030-101.

2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.

2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:

a) The ministry's Watermain Disinfection Procedure, dated August 1, 2020;
b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
c) Subject to condition 2.3.3
    i. AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
    ii. AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
    iii. AWWA C654 – Standard for Disinfection of Wells.

2.3.1 For greater certainty, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.

2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

2.3.3 Requirements described in condition 2.3 c) are effective until:

a) In the case of AWWA C652, six months after the issue date of the ministry's Water Storage Facility Disinfection Procedure;
b) In the case of AWWA C653, six months after the issue date of the ministry's Water Treatment Plant Disinfection Procedure; and,
c) In the case of AWWA C654, six months after the issue date of the ministry's Wells Disinfection Procedure.

2.3.4 The ministry documents described in condition 2.3.3 shall be implemented within the timeframe specified in condition 2.3.3 and once implemented all parts of the drinking water system in contact with drinking water that are added, modified, replaced or extended shall be disinfected in accordance with the applicable provisions of the document or a procedure approved by the Director.

2.3.5 After the initial issue date, any updated requirements are effective six months from the date of publication of the updated Water Storage Facility Disinfection Procedure, Water Treatment Plant Disinfection Procedure or Wells Disinfection Procedure.

2.3.6 For greater certainty the timeframes described in conditions 2.3.2, 2.3.3 and 2.3.5 are intended to provide a period for transition. Implementation may occur at any point within the identified timeframe in these conditions.

2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:

2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;

2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermains; or

2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermains which were not in service at the time of the issuance of the first drinking water works permit.

2.5 The notification required in condition 2.4 shall be submitted using the "Director Notification Form" published by the Ministry.

2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:

2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;

2.6.2 Constitutes maintenance or repair of the drinking water system; or

2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.

2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the

requirements of the licence and this drinking water works permit as applicable to the prescribed system.

2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner's behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:

3.1.1 The design of the watermain addition, modification, replacement or extension:

a) Has been prepared by a licensed engineering practitioner;

b) Has been designed only to transmit water and has not been designed to treat water;

c) Satisfies the design criteria set out in the Ministry publication "Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012", as amended from time to time; and

d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication "Design Guidelines for Drinking Water Systems, 2008", as amended from time to time.

3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.

3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system's ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.

3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.

3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.

3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.

3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.

3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.

3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:

3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;

3.2.2 Has a nominal diameter greater than 750 mm;

3.2.3 Results in the fragmentation of the drinking water system; or

3.2.4 Connects to another drinking water system, unless:

a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner's delegate of the drinking water system being connected to; and

b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.

3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:

3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and

3.3.2 Retained for a period of ten (10) years by the owner.

3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:

3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

3.4.2 Constitutes maintenance or repair of the drinking water system.

3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.

3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.

3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:

3.7.1 inspected the replacement prior to it being put into service;

3.7.2 prepared a reporting confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. “Form 1 – Record of Watermains Authorized by a Future Alteration” (Form 1), Part 3, items No. 2, 3 and 4); and

3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,

the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.

3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:

4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:

a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.1.1 b) shall be submitted using the “Director Notification Form” published by the Ministry

4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;

4.1.3 SCADA system software or programming that:

a) Measures, monitors or reports on a regulated parameter;
b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;

4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;

4.1.5 Spill containment works; or,

4.1.6 Coarse screens and fine screens

4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:

4.2.1 Treated water pumps, pressure tanks, and associated equipment;

4.2.2 Raw water pumps and process pumps in the treatment system;

4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;

4.2.4 Re-circulation devices within distribution system storage facilities;

4.2.5 In-line mixing equipment;

4.2.6 Chemical metering pumps and chemical handling pumps;

4.2.7 Chemical storage tanks and associated equipment; or,

4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.

4.2.9 Chemical injection points.

4.2.10 Valves;

4.2.11 Fuel storage tanks and spill containment works, and associated equipment; or,

4.2.12 Any other component(s) where the Director has provided authorization in writing to proceed with the alteration.

4.3 The drinking water system may be altered by replacing the following:

4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;

4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.

4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;

a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry

4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:

4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;

4.4.2 The bypassing or removal of any unit process within a treatment subsystem;

4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;

4.4.4 A deterioration in the quality of drinking water provided to consumers;

4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;

4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or

4.4.7 An adverse effect on the environment.

4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.

4.6 The verifications and documentation required in condition 4.5 shall be:

4.6.1 Recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" published by the Ministry, prior to the modified or replaced components being placed into service; and

4.6.2 Retained for a period of ten (10) years by the owner.

4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:

4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3

4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:

5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;

5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;

5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;

5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;

5.1.5 Maintenance welding stations;

5.1.6 Minor painting operations used for maintenance purposes;

5.1.7 Parts washers for maintenance shops;

5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;

5.1.9 Venting for activated carbon units for drinking water taste and odour control;

5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;

5.1.11 Venting for an ozone treatment unit;

5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or

5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.

5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.

5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.

5.4 The owner shall ensure that the criteria outlined for standby power sources in s.20.4 of O. Reg. 419/05 (Air Pollution – Local Air Quality) are met for all discharge that occurs from the use of emergency generators added, modified or replaced under condition 5.1.13.

Performance Limits

5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:

5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;

5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m^3 as amended; and

5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.

5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.

5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.

5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:

5.8.1 Recorded on “Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere”, as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and

5.8.2 Retained for a period of ten (10) years by the owner.

5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:

5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

5.9.2 Constitutes maintenance or repair of the drinking water system.

5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:

6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;

6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and

6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

7.1 Not Applicable

8.0 Source Protection

8.1 Not Applicable

Schedule C: Authorization to Alter the Drinking Water System

System Owner	**The Corporation of the Town of Kingsville**
Permit Number	**030-201**
Drinking Water System Name	**Kingsville Distribution System**
Permit Effective Date	**September 18th, 2024**

1.0 General

1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents

Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.