



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: **September 2010**

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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	

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 fulfillment 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, sidewalks), 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.

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 and sidewalks are normally delayed to minimize damage to these services 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 and/or sidewalks may be delayed for one year or longer to allow for settlement of the road base and boulevards. 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 and curb and gutter prior to the construction of the surface asphalt and sidewalks. 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 and sidewalk until they are constructed and they will have separate one year maintenance periods.

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 and sidewalk, 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 and sidewalk, 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.

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.

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.

Developers can delay the installation of the sidewalks until one year from the Municipality's acceptance of the underground services and the road (up to base asphalt). Developers will be responsible to maintain and repair all damages to sidewalks regardless of who caused the damage for one year from the Municipality's acceptance of the sidewalk.

Upon either option, 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.

Under either option 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

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 - 150mm diameter (permitted on long services only –longer than ½ R.O.W.)
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 be 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-800 cover, 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.

5.9 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 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
- APPENDIX M - POTENTIAL AGENCY DISTRIBUTION LIST
- APPENDIX N - FENCE BY-LAW