

1.0 GENERAL

1.1 Introduction

The Town of New Tecumseth Engineering Design Criteria and Standards herein presented are intended as a guideline to provide a good engineering basis for subdivision design, to establish a uniform criteria of minimum standards, and to improve processing of subdivision plans and agreements in the Town. Technological or economical deviations which improve or maintain the quality of the design will be considered and must be approved by the Town. Furthermore, all such deviation are to be specified on the General Notes Sheet as discussed further in this section.

Changes and revisions will be made to these standards from time to time and it the responsibility of the Developer or the Developer's Consulting Engineer to obtain and make use of the latest version available at the time of engineering design.

1.1.2.1 Application Form and Fees

The Developer shall submit a completed application form and all applicable fees to be in accordance with the Town of New Tecumseth current Fees and Charges By-law as part of the first submission.

1.1.3 The Town operates under a complete submission process and the Developer or the Developers Consulting Engineer is obligated to ensure that all required materials as outlined in this document are included in each submission.

It is required that prior to first submission, a meeting is scheduled with Town Staff to present the design details of the development. At the pre-submission meeting, the Developer's Consultant shall provide a full set of drawings and a letter outlining all design exemptions from the Town's Engineering Design Criteria and Standard Drawings document. The Developer shall ensure that all appropriate Design Consultants are in attendance at the meeting, which shall include at minimum the following: Civil Consultant, Landscape Architect, Electrical Consultant, Transportation Consultant, and where required, Geotechnical, Noise and Environmental Consultants. Final decisions on any exceptions would not be provided at the meeting. All issues raised in this meeting are to be resolved as part of the first submission.

Disclaimer?

1.2 Drawings

The following drawings are to be prepared for each development application, as applicable:

- Cover Sheet: Showing subdivision name, application number, key plan showing the subdivision's location relative to nearby arterial roads, Developer's and Consultants' information, a drawing index, Submission No. and Town File No.
- Draft M-Plan and R-Plan
- Draft Plan of Subdivision: Shall be the most up-to-date Draft Plan of Subdivision showing all redline revisions.
- General Notes Sheet: Showing the approved general notes of the Town (see Section 1.5), without alteration, any other text based information not included on any other drawing and a list of design exceptions (i.e., cases where the Town's design criteria and standards are not strictly adhered to.)
- General Aboveground Services Plan: Showing existing and proposed aboveground infrastructure including external works where applicable. Scale 1:1000. Including the phasing of the Development as applicable.
- General Underground Services Plan: Showing existing and proposed underground infrastructure including external works where applicable. Scale 1:1000.
- Sanitary Drainage Plan: Showing existing and proposed sanitary sewers, tributary areas to each sewer including areas of future development, external drainage areas, sewer design sheets. A separate *External Sanitary Drainage Plan* may be required to show large external areas. Scale 1:1000.

Copy to be provided

- Storm Drainage Plan: Showing existing ground contours to a minimum of 30m beyond the limits of development, existing and proposed storm sewers, channels, overland flow routes, tributary areas to each sewer including areas of future development, external drainage areas, sewer design sheets. A separate *External Storm Drainage Plan* may be required to show large external areas. Scale 1:1000.
- Design Sheets Sanitary and Storm Design Sheets for the Development as outlined in this document.
- Water Distribution System Plan: Showing existing and proposed watermains, internal and external demand information, as well as any hydrant flow test or static pressure test results including the test dates and times **and fire flow table**. Scale 1:1000.
- Grading Control Plan: Showing existing contours and proposed road, lot and block elevations, noise attenuation berms and fences (refer to Section 8.2.1 for additional information required on the plan). Scale 1:500.
- Composite Utility Plan : Showing existing and proposed aboveground utility locations, underground service connection locations, driveways (refer to Section 3.1.2 for additional information required on the plan). Scale 1:500.
- Traffic Management Plan Traffic Management information to be included (e.g., pavement markings, signage, etc.), unless the drawing becomes too congested, in which case a separate Traffic Management Plan may be submitted. Showing Canada Post boxes and traffic controls . Scale 1:500.
- Plan and Profile Drawings: Showing detailed alignments and profiles of; the roads; sewers and watermain including pipe material, length, diameter, slope, bedding and strength classification, borehole locations, restraining joints, bends on watermains. 100-year return storm Hydraulic gradeline for the storm sewer shall be plotted. Service easements to be included in Plan and Profile Drawings. These drawings are to clearly identify all relevant Town and O.P.S. Drawings not covered in the general notes identified in Section 1.5 (e.g., maintenance holes, safety platforms, drop structures). Horizontal Scale 1:500. Vertical Scale 1:50.
- Stormwater Management Plan: Showing the proposed Stormwater Management facility including the existing and proposed contours, cross-sections and details of structures and other elements associated with the proposed facilities, as appropriate.
- Erosion and Sediment Control Plan: Showing temporary erosion and sediment control measures to be implemented on the site (refer to Section 5 – Stormwater Management Facilities) for additional information required on the plan). Temporary construction access location and details to be provided on this plan. Scale 1:1000.
- Miscellaneous Detail Plans: Other plans not specifically noted, including special details, cross-sections, acoustic and privacy fencing, retaining walls, etc.
- Standard Detail Plan: Showing the applicable Town Standards and OPSD's
- Tree Inventory, Assessment and Preservation Plan and Details:

- To be prepared by a qualified arborist or landscape architect.
- Landscape and Streetscape Plans: Showing location and species of all plant material, planting details, fencing, decorative features, rehabilitation and restoration works. Include plantings for Stormwater Management Facility. Scale 1:500
 - Street Lighting Plans: Showing the underground ducts, streetlight schematic, photometric data (point plot) and details. Scale 1:1000.
 - As-Built Drawings & Design Sheets Submission of As-Built Drawings shall be submitted digitally on a CD and shall include one set of drawings in PDF format and two sets of AutoCAD drawings. The first set of AutoCAD drawings shall include all external reference files bound and clipped into the actual drawing. The second set of drawings shall include all external reference files attached to the actual drawing with no path information saved. All supporting files (e.g. pen tables, image files, non-standard fonts and line-styles) shall be included. All drawings shall be spatially referenced for incorporation into GIS.
 - Individual service record sheets Complete set of individual service record sheets shall be submitted. Each service record sheet shall show the location, size, material, and invert elevation of the storm, sanitary and water services tied to the house foundation or other acceptable aboveground utility furniture. See section 1.8 for further details.

All measurements and dimensions shall be in S.I. units and shall be in North American Datum 1983 (NAD 83) Universal Transverse Mercator (UTM) Zone 17. All drawings shall include the Town standard Title Block, Revision Block and Signing Endorsement (template available from Town). Key plans shall be provided on each drawing clearly identifying the focus area on each drawing. All elevations shown on plans should be referenced to a known geodetic benchmark.

1.3 Supporting Information

The following information/documents shall be submitted with the drawings. In addition, any other reports as required in the conditions of Draft Plan of Subdivision Approval or deemed necessary by the Town shall also be submitted for review and approval by the Town. All reports and supporting documentation shall be assembled in a binder.

Functional Servicing Report

To include a review of current infrastructure and illustrating how the proposed development(s) may be serviced from the perspectives of water supply and distribution, sanitary sewage collection, storm drainage and stormwater management, roadways. In addition, the provision of utilities such as telecommunications, natural gas and hydro distribution, etc., shall be covered in this report. The report shall identify any improvements to existing infrastructure which may be required to service the proposed development(s). The report shall illustrate how the ultimate development conditions for the subject lands and any applicable external areas will be accommodated by the proposed infrastructure. The report shall include calculations of water demand and sewage generation rates, as well as sizing for watermains and sewers, stormwater management facilities, pumping/booster stations, forcemains, etc., as necessary. The report is to be stamped and signed by a licensed professional engineer. To be in keeping the applicable Master Service Plan for Secondary Plan for the area, or Identify any exceptions.

Water Distribution System Analysis Report

Refer to Section 7.3.1 for reporting requirements.

Stormwater Management Report

Refer to Section 5 for reporting requirements.

Stormwater Management Operations and Maintenance Report

Refer to Section 5 for reporting requirements.

Hydrogeological Well Impact Report

To identify wells within a 500m radius of the site or current M.O.E requirements and identify the anticipated impact the development will have on the existing wells. Mitigating measures shall be specified, if required.

Also, monitoring of the wells will be required before, during and after construction of deep municipal services.

Geotechnical (Soils) Report

This report shall provide calculations and recommendations for pavement design, slope stability, pipe beddings, trench backfill requirements, engineered fill requirements, building foundations, retaining walls, soil corrosivity, etc., as necessary. The report is to be stamped and signed by a licensed professional engineer.

Phase 1 Environmental Site Assessment

To be conducted in accordance with current CSA Standards if required by the Municipality.

Transportation and Traffic Impact Study

The study shall provide a summary of existing and proposed traffic volumes and conditions, time periods, evaluation of site traffic impacts, level of service (L.O.S.) calculations, mitigative measures (if required), transit operations, parking, sightlines and access requirements. The study shall also include recommendations for traffic calming, if deemed appropriate. The appropriately sized Sight triangles at intersections are to be confirmed by the Consultant. The report is to be stamped and signed by a licensed professional engineer.

Noise and Vibration Report

This report shall identify sources of environmental noise and vibration under ultimate conditions and recommend mitigating measures in accordance with MOE Guidelines. Warning clauses shall be included in the report. The report is to be stamped and signed by a licensed professional engineer.

Tree Inventory, Assessment and Preservation Plans

Plans to show inventory of all existing trees, assessment of their condition and recommendation of trees for preservation as appropriate, considering the infrastructure requirements and grading design of the proposed development. Tree Inventory shall include all trees with a diameter of 10.0cm at breast height (DBH) or greater and all trees on adjacent property within 6.0m of the property line.

1.4 Submissions and Approvals

1.4.1 Development Projects

1.4.1.2 General

The table presented at the end of this section outlines general submission requirements. For second and subsequent submissions, the original red-lined comments from the Town and any reports requiring revision are to be re-submitted.

1.4.1.3 Pre-Grading Requirements

The following will be required in order to undertake rough grading operations, including topsoil stripping, in advance of a registered Subdivision Agreement:

Technical Requirements

- Archaeological Clearance
- Reviewed and satisfactory approval of Phase I ESA and any other environmental studies as may be required
- Approved Sediment & Erosion Control Plan(s)
- Reviewed and satisfactory approval of Grading Control Plan(s)
- Reviewed and satisfactory approval of Tree Preservation Plan(s)
- Clearance and necessary permits issued by appropriate Conservation Authority

Numbering
to be
corrected

Administrative Requirements

- Certificate of Insurance from Developer/Owner (\$5,000,000)
- Executed Earthworks Agreement between the Town and the Developer.
- Letter of Credit or Certified Cheque in the amount of \$5,000 per gross hectare with a minimum of \$50,000 and a maximum of \$250,000
- Certificate of Insurance from Contractor(s) (\$5,000,000)
- Pre-Construction Meeting with Municipality
- Payment of Tree Compensation as per current Town By-Law.

1.4.1.4 Pre-Servicing Requirements

The following will be required in order to install underground services and roadworks in advance of a registered Subdivision Agreement:

Technical Requirements

- All technical requirements of Pre-Grading (noted above)
- Engineering drawings, excluding Composite Utility Plans, and Landscape Plans, to be acceptable in principle by the Town.

Administrative Requirements

- Payment of Engineering Review Fees
- Certificate of Insurance from Developer/Owner (\$5,000,000)
- Executed Pre-Servicing Agreement between the Town and the Developer.
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- Letter of Credit or Certified Cheque in the amount of 10% of all Internal works, plus 10% of all Development Charge external works, plus 100% of all external Non Development Charge works, plus 10% of the total Letter of Credit value for Engineering and contingencies plus the amount required for pre-grading (see above), if the latter is not already in place
- Certificate of Insurance from Contractor(s) (\$5,000,000)
- MOE Certificates of Approval
- Pre-Construction Meeting with Municipality

1.4.1.5 Cost Estimates

Estimates for the cost of engineering, landscape and streetlighting works are to be prepared by the consulting team for purposes of financial securities to be held by the Town. A summary sheet shall be submitted in the Town standard format, supported by detailed breakdown.

1.4.2 Capital Works Projects

The principles to be applied, and the approvals processes to be followed, for capital works projects are set out in Section 10 – Capital Works Projects. Drawing requirements for these projects are to be as set out above.

1.5 General Notes

The following notes are to appear on the General Notes Sheet without alteration, with the exception of items covered under section 1.5.6 – Exceptions and Deviations.

1.5.1 General

1. ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT TOWN OF NEW TECUMSETH, COUNTY OF SIMCOE, APPROPRIATE CONSERVATION AUTHORITY AND ONTARIO PROVINCIAL STANDARD DRAWINGS AND SPECIFICATIONS.
2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. THE LOCATION OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE LOCATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

4. ALL DIMENSIONS AND ELEVATIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND HE SHALL REPORT ANY DISCREPANCIES TO THE CONSULTANT IMMEDIATELY. DETAILS ARE NOT TO BE SCALED FROM THE DRAWINGS. ALL DIMENSIONS ARE SHOWN IN S.I. UNITS UNLESS OTHERWISE NOTED.
5. ALL CONCRETE AND PLASTIC SEWER PIPES SHALL HAVE RUBBER GASKET JOINTS.
6. ALL CONCRETE SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.030 CLASS 'B' AND BEDDING MATERIAL TO BE GRANULAR 'A' UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
7. ALL PLASTIC SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010 AND BEDDING MATERIAL TO BE GRANULAR 'A' UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
8. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES ON THE ROAD ALLOWANCE MUST BE MECHANICALLY COMPACTED TO 100% STANDARD PROCTOR DENSITY, UNLESS OTHERWISE RECOMMENDED BY GEOTECHNICAL ENGINEER.
9. SEWER MAINTENANCE HOLE FRAME AND COVERS TO BE AS PER O.P.S.D. 401.010 TYPE 'A', STAMPED "SANITARY", "STORM" AND/OR "FDC" AS APPROPRIATE.
10. MAINTENANCE HOLE AND CATCHBASIN ADJUSTMENT UNITS SHALL BE A MAXIMUM OF 300mm IN HEIGHT AND THREE UNITS.
11. GRANULAR BACKFILL AROUND MAINTENANCE HOLES, CATCHBASINS AND VALVE CHAMBERS SHALL BE GRANULAR 'B' COMPACTED BY MECHANICAL MEANS TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
12. RISERS ARE REQUIRED ON ALL STORM AND SANITARY CONNECTIONS WHERE COVER ON THE MAIN SEWER EXCEEDS 4.5m AS PER O.P.S.D. 1006.020.
13. ALL AREAS BEYOND THE SITE LIMITS WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.
14. CHAIN LINK FENCING SHALL BE AS PER OPSD 972.130 WITH ALL COMPONENTS BLACK VINYL COATED AND HEIGHT AS SPECIFIED ON THE DRAWINGS.
15. EROSION AND SEDIMENT CONTROL MEASURES TO BE IN PLACE PRIOR TO START OF ANY CONSTRUCTION, AND MUST BE MAINTAINED AT ALL TIMES, IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
16. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE M.T.O. ONTARIO TRAFFIC MANUAL - BOOK 7 LATEST EDITION.

1.5.2 Sanitary Sewer System

1. ALL SANITARY SERVICE CONNECTIONS TO DWELLINGS SHALL BE 125mm DIAMETER P.V.C. SDR-28 LAID AT A MINIMUM SLOPE OF 2%, AND SHALL BE GREEN IN COLOUR.
2. A TEST FITTING SHALL BE INSTALLED AT THE PROPERTY LINE.
3. ALL SERVICE CONNECTIONS TO BE MARKED WITH A 50mm x 100mm WOOD STAKE, PROJECTING 1.0m ABOVE THE GROUND, WITH THE TOP 300mm PAINTED GREEN.
4. CONNECTIONS TO EXISTING SANITARY SEWER TO BE MADE USING PIPE CUTTER AND APPROVED SADDLES.
5. ALL SEWERS SHALL BE INSTALLED WITH LASER AND CHECKED PRIOR TO BACKFILLING.
6. MAINTENANCE HOLE PIPE OPENING AND BENCHING DETAILS TO BE AS PER O.P.S.D. 701.021.
7. SANITARY SERVICES TO HAVE A MIN. 2.7m COVER AT THE STREET LINE, UNLESS OTHERWISE NOTED.
8. FROST STRAPS TO BE INSTALLED AS PER O.P.S.D # 701.100

Proper O.P.S.D #

1.5.3 Storm Sewer System

1. ALL STORM SERVICE CONNECTIONS TO DWELLINGS SHALL BE 125mm DIAMETER (SINGLE) AND 150mm DIAMETER (DOUBLE) P.V.C. SDR-28 LAID AT A MINIMUM SLOPE OF 2%, AND SHALL BE ONLY WHITE IN COLOUR.
2. A TEST FITTING SHALL BE INSTALLED AT THE PROPERTY LINE.
3. ALL SERVICE CONNECTIONS TO BE MARKED WITH A 50mm x 100mm WOOD STAKE, PROJECTING 1.0m ABOVE THE GROUND, WITH THE TOP 300mm PAINTED ORANGE
4. SINGLE CATCHBASINS TO BE PRECAST CONCRETE WITH CAST IRON FRAME AND GRATE CONFORMING TO O.P.S.D. 705.010 AND DOUBLE CATCHBASINS TO BE PRECAST CONCRETE WITH CAST IRON FRAME AND GRATE CONFORMING TO O.P.S.D. 705.020. THE CATCH BASIN GRATES SHALL BE THE FISH STYLE GRATES MANUFACTURED BY BIBBY-STE-CROIX DETAIL JW107AF AND DOUBLE CATCH BASIN GRATE AS PER JW100AF OR AS APPROVED BY THE TOWN.
5. CONTRACTOR SHALL ENSURE THAT THE LOW POINT OF CURBS COINCIDE WITH THE LOCATION OF CATCHBASINS INSTALLED AT ROADWAY SAG AREAS.

6. CATCHBASIN CONNECTIONS TO THE CURB SUBDRAIN SYSTEM TO BE IN ACCORDANCE WITH O.P.S.D. 216.021.
7. SINGLE CATCHBASIN LEADS TO BE 250mm LAID AT A MINIMUM SLOPE OF 1% UNLESS OTHERWISE NOTED. DOUBLE CATCHBASIN LEADS TO BE 300mm LAID AT A MINIMUM SLOPE OF 1% UNLESS OTHERWISE NOTED. ALL CATCHBASIN LEADS TO BE EITHER CONCRETE OR P.V.C. SDR-35 UNLESS OTHERWISE NOTED.
8. ROAD CATCHBASIN LEAD INVERTS TO BE 1.5m BELOW GRATE ELEVATION, UNLESS OTHERWISE REQUIRED FOR POSITIVE DRAINAGE TO MAIN LINE SEWER.
9. MAINTENANCE HOLE BENCHING AND PIPE OPENING DETAILS TO BE AS PER O.P.S.D. 701.021.
10. STORM SERVICES TO HAVE A MIN. 2.5m COVER AT THE STREET LINE UNLESS OTHERWISE NOTED.
11. REAR LOT CATCHBASINS TO BE SUMPLESS PRECAST CONCRETE WITH STEEL FRAME AND GRATE CONFORMING TO O.P.S.D. 705.010 AND O.P.S.D. 400.120.
12. REAR LOT CATCHBASIN LEADS ARE TO BE CONCRETE ENCASED FOR THE FULL LENGTH OF THE LOT AND TO THE BACK OF THE STREET CURB.
13. NO CATCH BASIN SHALL BE LOCATED IN THE PROPOSED AREAS OF DRIVEWAYS.
14. CONNECTIONS TO EXISTING SANITARY SEWER TO BE MADE USING PIPE CUTTER AND APPROVED SADDLES.
15. ALL SEWERS SHALL BE INSTALLED WITH LASER AND CHECKED PRIOR TO BACKFILLING.
16. FROST STRAPS TO BE INSTALLED AS PER O.P.S.D # 701.100

1.5.4 Water Distribution System

Verify NFPA

1. P.V.C. WATERMAIN TO CONFORM TO LATEST A.W.W.A. SPECIFICATIONS.
2. WATER SERVICES TO BE 25mm TYPE 'K' COPPER UNLESS OTHERWISE SPECIFIED.
3. WATERMAIN TO HAVE A MINIMUM 1.70m COVER OR 1.9m BELOW CENTRELINE OF ROAD, WHICHEVER IS DEEPER.
4. WATER SERVICES ARE TO HAVE MINIMUM 1.90m COVER.
5. WATER SERVICES TO HAVE 1.2m MINIMUM HORIZONTAL CLEARANCE FROM MAINTENANCE HOLES AND CATCHBASINS, AND 1.00m MINIMUM HORIZONTAL CLEARANCE FROM ALL OTHER UTILITIES.
6. FIRE HYDRANTS TO CONFORM TO A.W.W.A C502 AND TO BE INSTALLED AS PER O.P.S.D. 1105.010 WITH 2 – 63.5MM INSIDE DIAMETER HOSE NOZZLES AT 180 DEGREES AND 1 – 100MM STORZ PUMPER NOZZLE, WITH OPERATING NUT "OPEN LEFT" (COUNTER-CLOCKWISE). HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS
7. WATERMAIN BEDDING SHALL BE AS PER OPSD 802.010 AND BEDDING MATERIAL TO BE GRANULAR 'A' UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
8. ALL PVC WATERMAINS SHALL BE INSTALLED WITH A WHITE PLASTIC COATED 12 GAUGE SOLID COPPER TRACER WIRE WHICH SHALL BE BROUGHT TO THE SURFACE AT ALL SECONDARY VALVES AND MAIN LINE VALVES.
9. VALVE IN BOXES SHALL BE INSTALLED AS PER O.P.S.D 1101.020 AND CONFORM TO A.W.W.A. C500. MAINLINE VALVES TO BE MECHANICALLY RESTRAINED.
10. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS. WEIGHT OF THE ANODES TO BE MINIMUM 5.4 kg (12 lbs.), UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL CONSULTANT.
11. ALL PLUGS, CAPS, TEES AND BENDS SHALL BE MECHANICALLY RESTRAINED. RESTRAINING JOINTS SHALL BE AS PER UNI-FLANGE SERIES 1300, OR APPROVED EQUAL.
12. ADAPTER FLANGES AT VALVES, METERS, ETC., SHALL BE AS PER UNI-FLANGE 900C, OR APPROVED EQUAL.
13. THE OPERATION OF EXISTING WATERMAIN VALVES SHALL BE CONDUCTED BY THE TOWN OF NEW TECUMSETH.
14. THE NEW WATERMAIN TO BE TAPPED FOR WATER SERVICES MUST BE ISOLATED FROM THE EXISTING WATERMAIN. TO MAINTAIN PRESSURE IN THE NEW MAIN DURING INSTALLATION OF SERVICES, A 50mm BY-PASS WITH AN APPROVED DIFFERENTIAL BACKFLOW PREVENTER IS TO BE INSTALLED AROUND THE CLOSED OPERATING VALVE.
15. UNLESS OTHERWISE NOTED, THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE WATERMAIN AND ANY SEWER SHALL BE 2.5m. A MINIMUM VERTICAL SEPARATION OF 0.3m MUST BE MAINTAINED IF WATERMAIN IS ABOVE SEWER, OR 0.5m IF SEWER IS ABOVE WATERMAIN. CLEARANCES ARE MEASURED FROM OUTSIDE EDGES OF PIPES.
16. MINIMUM CURVATURE OF ANY WATERMAIN SHALL BE COMPLETED BY PIPE DEFLECTION IN ACCORDANCE WITH THE MANUFACTURER'S RADIUS GUIDELINES.
17. VALVES SHALL BE RESILIENT SEAT GATE VALVES FOR 300mm DIAMETER OR LESS.

18. ALL SERVICE CONNECTIONS TO BE MARKED WITH A 50mm x 100mm x 2.4m WOOD STAKE, PAINTED BLUE.

1.5.5 Roads, Sidewalks and Walkways

1. CATCHBASIN, MAINTENANCE HOLE AND VALVE CHAMBER COVERS SHALL BE SET FLUSH TO BASE COURSE ASPHALT LEVEL AND ADJUSTED TO GRADE PRIOR TO INSTALLING TOP COURSE OF ASPHALT.
2. CURB AND WIDE GUTTER SHALL BE TWO STAGE AS PER TOWN OF NEW TECUMSETH STANDARD DRAWING TNT.SD. 604
3. SINGLE STAGE CURB AND WIDE GUTTER IF REQUIRED SHALL BE AS PER O.P.S.D. 600.010.
4. CONCRETE FOR CURBS TO CONFORM TO O.P.S.S. 353.
5. TEMPORARY ASPHALT CURB SHALL BE AS PER O.P.S.D. 601.010.
6. SIDEWALKS SHALL BE AS PER O.P.S.D. 310.01 WITH CONCRETE TO CONFORM TO O.P.S.S. 351.
7. UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER, THE FOLLOWING MINIMUM PAVEMENT STRUCTURES (COMPACTED DEPTH) SHALL BE USED:

	OPSS GRAN 'B'	OPSS GRAN 'A'	BASE	TOP
URBAN LOCAL	300mm	150mm	80mm	40mm
MINOR COLLECTOR	350mm	150mm	100mm	40mm
MAJOR COLLECTOR	400mm	150mm	100mm	40mm
ARTERIAL	450mm	150mm	100mm	40mm
INDUSTRIAL	450mm	150mm	100mm	40mm
RURAL	300mm	150mm	50mm	40mm

8. RESIDENTIAL DRIVEWAYS SHALL BE PAVED FROM CURB TO GARAGE IN ACCORDANCE WITH THE FOLLOWING PAVEMENT STRUCTURE (COMPACTED DEPTH), AND OTHER DRIVEWAYS SHALL CONSIST OF THE FOLLOWING PAVEMENT STRUCTURE (COMPACTED DEPTH) WITHIN THE MUNICIPAL ROAD ALLOWANCE, UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER:

	OPSS GRAN 'B'	OPSS GRAN 'A'	HL8	HL3
RESIDENTIAL	N/A	150mm	50mm	25mm
LIGHT INDUSTRIAL, COMMERCIAL, APARTMENT, CONDOMINIUM, ETC.,	300mm	150mm	75mm	40mm
HEAVY INDUSTRIAL	400mm	150mm	100mm	40mm

9. UNSHRINKABLE FILL TO BE USED FOR CUTS UNDER EXISTING ROADS AND SHALL EXTEND TO SUBGRADE LEVEL.

1.5.6 Exceptions and Deviations

Any exceptions and/or deviations to the published Town Engineering Design Criteria and Standards shall be listed in this section.

1.6 Grading Notes

The following notes are to appear on the Grading Control Plan(s) and dwelling siting/grading (plot) plans without alteration.

1. DRIVEWAYS ARE TO HAVE A MINIMUM SEPARATION OF 1.0m AT CURBS AND SHALL NOT CROSS THE PROJECTION OF THE PROPERTY LINE.
2. A MINIMUM HORIZONTAL CLEAR SEPARATION OF 1.5m BETWEEN TRANSFORMERS AND DRIVEWAY EDGES AND 1.0m FOR OTHER STREET FURNITURE SHALL BE MAINTAINED.

Ask Valdor
for Rationale
Items 12 &
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3. DRIVEWAY GRADES TO BE A MINIMUM OF 2% AND A MAXIMUM OF 7%.
4. REAR TO FRONT DRAINAGE CAN BE ACCOMMODATED ONLY IF THE SEPARATION BETWEEN UNITS IS 2.4m OR GREATER.
5. DRIVEWAY LOCATION SHALL NOT BE CHANGED WITHOUT APPROVAL OF SUBDIVISION ENGINEER AND THE TOWN OF NEW TECUMSETH.
6. DOWNSPOUTS SHALL DISCHARGE TO THE GROUND SURFACE VIA SPLASH PADS AND SHOULD BE DIRECTED TO THE FRONT OF THE HOUSE.
7. DOWNSPOUT LOCATIONS TO BE INDICATED ON SITING/GRADING (PLOT) PLANS.
8. AT LEAST 75% OF THE YARD SHALL CONSIST OF A "FLAT" AREA, WHICH HAS A GRADIENT BETWEEN 2% - 5%.
9. THE MAXIMUM SLOPE ON THE LOTS SHALL BE 3H:1V, EXCEPT BETWEEN UNITS WHERE THE MAXIMUM SLOPE SHALL BE 4H:1V.
10. A MINIMUM OF 0.15m CLEARANCE MUST BE PROVIDED BETWEEN THE BRICKLINE AND THE FINAL TOP OF GROUND ELEVATION AT THE HOUSE.
11. SWALE GRADES SHALL BE A MINIMUM OF 2.0% AND A MAXIMUM OF 5.0% EXCEPT ON BACK TO FRONT LOTS, WHERE THE MINIMUM GRADE SHALL BE 2.5%.
12. REAR YARD SWALES SHALL BE OFFSET A MINIMUM OF 1.0M FROM THE LOT LINE.
13. SWALES SHALL HAVE A MAXIMUM SIDE SLOPE OF 3H:1V, A MINIMUM DEPTH OF 0.15m AND A MAXIMUM DEPTH OF 0.3m. SWALES ALONG THE LOT LINE BETWEEN HOUSES SHALL HAVE A MAXIMUM DEPTH OF 0.2m.
14. FOOTINGS TO BE FOUNDED IN UNDISTURBED NATIVE SOIL OR, IF LOCATED IN ENGINEERED FILL, FOUNDATIONS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF, AND CERTIFIED IN THE FIELD BY, A GEOTECHNICAL ENGINEER.
15. A MINIMUM 1.5m FLAT AREA SHALL BE PROVIDED AT THE BOTTOM OF SLOPES LOCATED ADJACENT TO FENCES.
16. A MINIMUM 100mm TOPSOIL SHALL BE PROVIDED ON ALL DWELLING LOTS, COMMERCIAL AND INDUSTRIAL PROPERTIES. A MINIMUM 150mm TOPSOIL SHALL BE PROVIDED ON ALL TOWN OWNED LANDS AND SCHOOL BLOCKS.
17. ALL LOT GRADING MUST COMPLY WITH TOWN CRITERIA AND STANDARDS.

1.7 Tree Preservation Notes

The following notes are to appear on the Grading Control Plan(s), Tree Preservation Plan(s), Erosion and Sediment Control Plan(s) without alteration. These notes may be supplemented by site-specific notes as recommended by the project consulting Arborist or Landscape Architect

1. ALL EXISTING TREES WHICH ARE TO REMAIN SHALL BE FULLY PROTECTED WITHIN A TREE PRESERVATION ZONE (TPZ). THE PROTECTION SHALL BE ERECTED OUTSIDE THE DRIPLINE OF TREES PLUS 1.0 METER INTO THE DEVELOPMENT AREA OR IN ACCORDANCE WITH ARBORIST REPORT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
2. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO PREVENT DAMAGE TO TREES OR SHRUBS TO BE RETAINED.
3. NO CONSTRUCTION ACTIVITY, GRADE CHANGES, TREATMENT OR EXCAVATION OF ANY KIND IS PERMITTED WITHIN THE TPZ. THE TPZ MUST REMAIN UNDISTURBED AT ALL TIMES.
4. THE TPZ SHALL REMAIN IN PLACE UNTIL ALL SITE WORK HAS BEEN COMPLETED, AND MAY NOT BE REMOVED, RELOCATED OR OTHERWISE ALTERED WITHOUT THE WRITTEN PERMISSION OF A CONSULTING ARBORIST OR LANDSCAPE ARCHITECT.
5. ANY TREE/SHRUB MARKED FOR PRESERVATION WHICH IS DAMAGED OR HAS DIED AS A RESULT OF CONTRACTOR NEGLIGENCE SHALL EITHER BE REPLACED WITH A SPECIMEN OF EQUIVALENT SPECIES AND SIZE OR MONETARILY COMPENSATED FOR ACCORDING TO THE ACCEPTED TREE PRESERVATION REPORT FOR THE DEVELOPMENT.
6. ANY TREES DESIGNATED FOR REMOVAL SHALL HAVE THE STUMPS COMPLETELY EXCAVATED AND REMOVED FROM THE SITE.

Town of New Tecumseth

Engineering Design Criteria and Standards for Subdivisions and Capital Works Projects

1.8 Submission Requirements

	SUBMISSION											
	First	Second (Third, etc.)		Pre-Grading	Pre-Servicing		Final (see note)				As constructed	
	Bond Copies	Bond Copies (Min)	11"x17" Copies	Bond Copies	8.5"x14" Reductions	Bond Copies	Signing Set	8.5"x14" Reduced	Bond Copies	11"x17" Copies	Mylar copies	11"x17" Copies
Cover Sheet	7	3	3		2	3	1		2	3	1	1
General Notes Sheet	7	3	3		2	3	1		2	3	1	1
General Underground Services Plan(s)	7	3	3		2	3	1	10	2	3	1	1
Sanitary Drainage Plan(s)	7	3	3		2	3	1		2	3	1	1
Storm Drainage Plan(s)	7	3	3		2	3	1		2	3	1	1
Water Distribution System Plan(s)	7	3	3		2	3	1		2	3	1	1
Grading Control Plan(s)	7	3	3	3	2	3	1		2	3	1	1
Composite Utility		3	3				1		2	3	1	1
Traffic Management Plan (s)	7										1	1
Plan and Profile Drawing(s)	7	3	3		2	3	1		2	3	1	1
Stormwater Management Plan(s)	7	3	3		2	3	1		2	3	1	1
Erosion and Sediment Control Plan(s)	7	3	3	3	2	3	1		2	3	1	1
Miscellaneous Detail Plan(s)	7	3	3		2	3	1		2	3	1	1
Standard Detail Plan(s)	7	3	3		2	3	1		2	3	1	1
Tree Preservation Plan(s)	7	3	3	3	2	3	1		2	3	1	1
Landscape and Streetscape Plan(s)	7	3	3				1		2	3	1	1
Streetlighting Plan(s) and Photometric Report	7	3	3				1		2	3	1	1
Sanitary and Storm Sewer Design Sheets	2	2	2						2			
Stormwater Management Report	6		3									
Water Distribution System Analysis Report	1		3									
Draft M-Plan	7	3	3	3	2	3	1	10	5			
Draft Easement R-Plans	7	3	3				1	10	5			
O.L.S. Certificate of Frontages & Areas	2		3						2			
Geotechnical (Soils) Report	6		3									
Noise Report	6		3									
Archaeological Report	6		3									
Phase I Environmental Site Assessment	As Req'd		3									
MOE Application Forms		3	3									
Cost Estimate for Financial Securities	1	1	3									
Individual service record sheets											1	

Note: Electronic copy of all drawings and sewer design sheets in AutoCAD and PDF formats to be included at both Final Submission and As-Built stages. One set (paper copy) and one digital set in PDF format of individual service record sheets for each lot shall be submitted prior to the issuance of the Certificate of Substantial Completion (all works).

