

CITY OF TOLEDO

DEPARTMENT OF PUBLIC UTILITIES

DIVISION OF ENGINEERING SERVICES

MAY 2014

INFRASTRUCTURE DESIGN AND CONSTRUCTION REQUIREMENTS

ONE LAKE ERIE CENTER
600 JEFFERSON AVENUE, SUITE 300
TOLEDO, OHIO 43604

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I. PURPOSE

This document presents design and construction requirements for roadway, storm drainage, sanitary sewers, and water distribution facilities installed in the City of Toledo or connecting to City of Toledo storm drainage, sanitary sewer, or water distribution facilities. The plan submittal requirements, plan review, and approval procedures are outlined. Building plans are officially logged in and submitted through the City's Central Permits Center (One Stop Shop) at One Government Center, Suite 1600 (Phone: 419-245-1210). The site plan portion of these plans may be submitted directly to the Division of Engineering Services to expedite plan review. Subdivision plans or other plans not requiring a building permit are submitted directly to the Division of Engineering Services.

These requirements apply to all new residential land partitions and subdivisions, planned unit developments, multi-family developments (3 or more units), commercial developments, roads and streets, industrial developments, flood hazard zone development, and to the reconstruction or expansion of such developments.

Substantive changes from the previous edition of this document are indicated in bold lettering. This convention does not apply to the appendices.

II. GENERAL REQUIREMENTS

A. Definitions/Abbreviations

"Best Management Practices" (BMP's) - Schedules of activities, prohibitions of practices, general housekeeping practices, pollution prevention practices, educational practices, maintenance procedures, and other management practices (both structural and non-structural) designed to reduce either directly or indirectly, the pollutant load in stormwater runoff to the maximum extent practicable. They include but are not limited to structural BMP's such as detention basins or ponds, filter media barriers, vegetative stabilization, interceptor dikes/swales, spill containment and construction site drainage; and non-structural BMP's such as retaining natural vegetation, buffer zones, seeding, covering, and general site housekeeping.

"Consulting Engineer" – Agent engaged by the developer/customer to undertake certain duties relating to plan and specification preparation of public improvements for subdivisions and private developments.

"Contractor" – Agent engaged by the developer/customer to undertake construction of subdivisions and private developments. The DES requires that the work be done by a contractor, licensed to work in the City, who, in the opinion of the Commissioner of the DES, has sufficient experience, competency, and capability to properly construct the public improvements. If requested by the Commissioner of the DES, the developer or consulting engineer shall furnish documentation that the contractor engaged to construct the public improvements is qualified to perform the work.

“Developer/Customer” – The person(s) who develop and/or construct the improvements at their own expense under these standards.

“DES” – Division of Engineering Services

“DWD” – Division of Water Distribution

“Public Improvements” – Roadway, sidewalk, sanitary sewer, storm drainage facilities, water distribution facilities and their appurtenances owned by the City or whose ownership will be turned over to the City for maintenance purposes.

“Public Water Distribution Facilities” – Publicly-owned water distribution facilities including water main extensions and water mains for subdivisions.

“Private Water Distribution Facilities” – Privately-owned water distribution facilities including private water mains, fire lines and large water services (4-inch diameter and larger).

B. City of Toledo Address & Contacts

City of Toledo
Department of Public Utilities
Division of Engineering Services
One Lake Erie Center
600 Jefferson Ave., Suite 300
Toledo, Ohio 43604
419-245-1315 general office phone
419-936-2850 fax

General
Scott Sibley, Administrator, 419-936-2851, scott.sibley@toledo.oh.gov

Roadway
Scott Bishop, Engineering Associate, 419-936-2756, scott.bishop@toledo.oh.gov

Stormwater
Lorie Haslinger, Senior Professional Engineer, 419-245-3221, lorie.haslinger@toledo.oh.gov
Andy Stepnick, Professional Engineer, 419-936-2848, andy.stepnick@toledo.oh.gov

Sanitary Sewer
Mike Elling, Senior Professional Engineer, 419-936-2276, mike.elling@toledo.oh.gov

Water Distribution
Andrea Kroma, Senior Professional Engineer, 419-936-2163, andrea.kroma@toledo.oh.gov

Construction Inspection (Roadway, Stormwater, Sanitary Sewer, and Public Water Distribution Facilities)

Tracy Martin, Senior Professional Engineer, 419-936-2847, tracy.martin@toledo.oh.gov

Construction Inspection (Private Water Distribution Facilities)
Christy Soncrant, Senior Professional Engineer, 419-245-1395,
christy.soncrant@toledo.oh.gov

Records and Plans

Robin Homer, Engineering Technician, 419-245-1348, robin.homer@toledo.oh.gov

- C. Plan Submittal and Approval. **Plans may be submitted to the City of Toledo Central Permit Center (CPC) on the 16th Floor of One Government Center, or directly to the Division of Engineering Services.** A minimum of two (2) weeks must be allowed for plan review. The review of the plans will be made in the order in which they are received. One set of review prints shall be submitted for each of the following areas:

- Roadway
- Storm Drainage
- Sanitary Sewer
- Water Distribution

These plan sets need only consist of the relevant sheets for each respective discipline (i.e. site/utility plans only).

Whenever a subdivision is divided into two (2) or more plats, a separate and complete set of plans for each plat shall be submitted.

Submittals shall be accompanied with a transmittal letter, which indicates the name and address of the Developer and Consulting Engineer. All necessary design computations shall be submitted for checking. Plans or prints will be returned to the Consulting Engineer after review, with marked up comments. Marked prints shall be returned with future submittals and with final **prints** for approval signatures.

Final approvable prints shall be submitted incorporating review comments as follows:

- Pavement (4 sets)
- Storm Drainage (6 sets)
- Sanitary (4 sets)
- Water (**Public Water Distribution Facilities**) (4 sets)
- Water (**Private Water Distribution Facilities**) (5 sets, 6 for private mains outside the City)

Following final plan approval the drawings will be stamped, signed and dispersed as follows:

One set to Engineering Services file

Two sets to Inspection Section in DES, Division of Sewers and Drainage, **or DWD.**

One set to Developer/Customer to be kept on the project site.

Consultant to submit additional sets as required for their record files.

Additional Storm Drainage sets of plans are distributed as follows:

- One set to Division of Environmental Services.
- One additional set to Applicant to be kept on project site.

Additional Water Distribution sets of plans are distributed as follows:

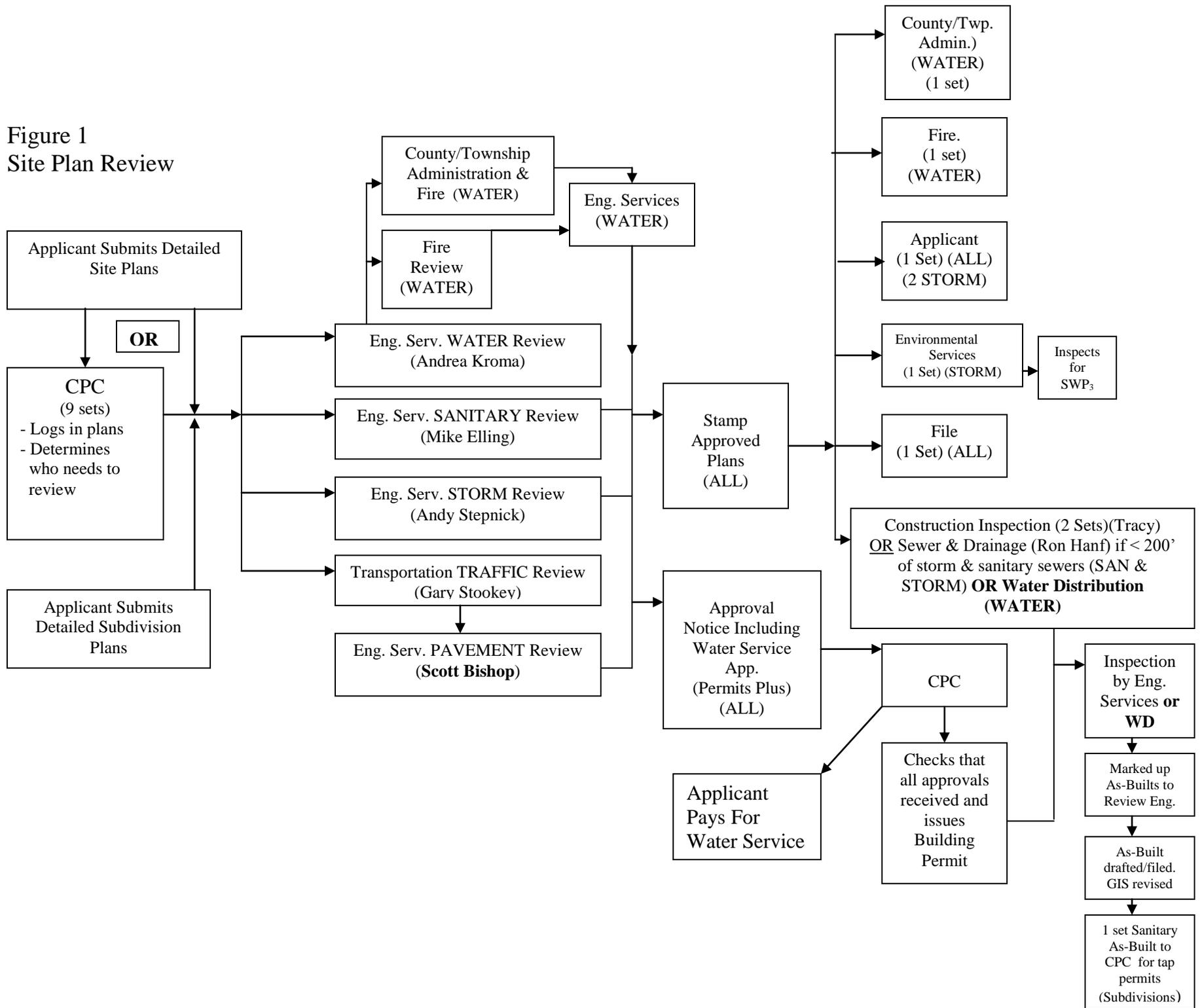
- One set to Local Governing Authority's Fire Prevention Agency (fire lines only).
- One set to Local Governing Authority (Private Water Distribution Facilities, outside City only)

Figure 1 shows the plan submittal and approval routing.

The City of Toledo reviews and approves water plans in all areas that receive City of Toledo water that are not master-metered. This includes portions of Lucas County and portions of Monroe County. It is the responsibility of the consultant/applicant to determine whether the project is located in an area that requires review and approval by the City of Toledo for water services.

The Engineer/Consultant is responsible to pick up the approved drawings and documents and disperse a copy to the contractor. The approved copies shall be kept at the construction site for the duration of the project.

Figure 1
Site Plan Review



- D. Subdivisions. A signed mylar title sheet shall be submitted after final approval (subdivisions only).
- E. AutoCAD Files. AutoCAD files (Release **2007** or later) shall be provided to the City digitally (CD or DVD or e-mail) after plan approval is received. Projects shall be plotted in Cartesian coordinates and tied to at least two governmental survey monuments, with separate layers for each existing utility, and each proposed utility, at a minimum.
- F. Record Drawings. After construction, record "as-builts" shall be provided to the City, incorporating as-built conditions including City inspector notes. For improvements within the right of way, record drawings shall be provided on mylar and AutoCAD file as described in II.E above. Drawings shall be plotted directly onto mylar. Photographic copies of drawings onto mylar will not be accepted. Mylars shall be double mat 4 mil thick. Computer discs shall be virus free. Provide plot style settings and layering standards. The mylars and computer files shall become the property of the City of Toledo. For improvements on private property, paper copies of record drawings are acceptable.
- G. Other controlling documents:
1. Subdivision Rules and Regulations, Toledo-Lucas County Plan Commission, **2009.**
 2. Part A Standards, City of Toledo, Division of Engineering Services, Latest Edition.
 3. Construction Standards, City of Toledo, Division of Engineering Services, Latest Edition.
 4. Stormwater Management Standards Manual (SWMSM), TMACOG Stormwater Coalition, Latest Edition.
 5. Rules and Regulations, Department of Public Utilities, latest version (found in Toledo Municipal Code, Part Nine, Title Three, Appendix C).
 6. Great Lakes Upper Mississippi River Board – Recommended Standards for Water Works, Latest Edition (Ten States Standards).
 7. Great Lakes Upper Mississippi River Board – Recommended Standards for Sewer Works, Latest Edition (Ten States Standards).
 8. State of Ohio Department of Transportation Construction and Material Specifications, **Latest Edition.**
 9. **Toledo Municipal Code (TMC), Part 9, Title 3, Utilities.**
 10. **Ohio EPA NPDES General Stormwater Permit for Construction Activities.**

- H. Variations. All requests for variations to the established policies and related requirements imposed by DES shall be submitted in writing for consideration.
- I. PE Seal. Plans are required by Ohio Revised Code and City of Toledo Municipal Code to be sealed by a Professional Civil Engineer licensed by the State of Ohio. A Surveyor licensed by the State of Ohio must perform survey work. Any changes in the plans, made necessary by unforeseen field conditions, must be approved by the Commissioner of the DES, or his or her authorized representative. **The requirement for an engineer's seal may be waived by the reviewing engineer for existing sites where no additional drainage area or impervious surface is being added.**
- J. License Agreement. A license agreement is required for plats, for construction of public utilities in the right of way, or special circumstances as determined by the review engineer. **The license agreement authorizes construction, stipulates payment of fees, and establishes liabilities, maintenance bonds, and ownership of facilities. The agreement is prepared by the City (Robin Homer, (419)245-1348).** No plat plans will be approved without all required plat information, agreements, and escrows being completed.
- K. Construction Inspection. If both the length of new sanitary sewer and the length of new storm sewer are less than 200 feet, sewer inspection will be by the Division of Sewer and Drainage Services under a Sewer Tap Permit obtained from the Central Permit Center, 16th Floor, One Government Center. **Private water distribution work is inspected by the Division of Water Distribution.** All other work is inspected by DES. Additionally, all sites are inspected by Division of Environmental Services for pollution prevention.
- L. Water Service Application (Appendix 8). **A New Water Service Application (Tap Application) is required for projects that include large water taps (4"x4" and larger), large water services (4-inch diameter and larger), private water mains, and fire lines 4-inch diameter and larger. Water Service Applications and fees will be processed through the Central Permit Center/One Stop Shop. The owner or his agent is required to sign the New Water Service Application. Fees for large taps and construction inspection shall be paid before the DWD will schedule large taps or construction inspection.**
- M. Sewer Plan Review and Inspection Permit. A Sewer Plan Review and Inspection permit is required if either the sanitary or storm piping is greater than 200-feet in length or as required by the review engineer. If so, both storm and sanitary piping lengths are combined to determine the fee. The developer or his agent is required to sign the permit application. Fees for inspection are to be paid before final approval of the plans will be granted (see **Appendix 5**). Permit application and fees will be processed through the DES.
- N. Stormwater Credit. A Stormwater Credit application may be submitted with plans or after construction. However, credit will not be applied until construction has been completed.

- O. Approvals Valid. **Approved plans are valid for 18 months. If construction is not initiated within 18 months, a new approval will be required before any earth-disturbing activities may occur. If revisions/changes are made to the plans after the original approval, the revisions/changes shall be resubmitted for approval before changes are made in the field.**
- P. Work Schedule. A work schedule shall be provided to the City of Toledo inspection for projects expected to last longer than 5 months. Changes and updates shall be provided as needed.
- Q. Approval to Commence. Construction of improvements, including any work which disturbs the site, shall not commence until all plans (paving, storm, sanitary, water) have been approved, building permit approval has been received from Building Inspection (where applicable), the necessary permit fees have been paid, license agreement signed, **where applicable**, large tap and inspection fees have been paid, and Ohio Environmental Protection Agency (OEPA) approval of the plans (if required) has been obtained.
- R. Traffic Maintenance. In the event construction of the project has an impact on traffic, a note shall appear regarding traffic maintenance. This note, and other traffic control related provisions of the plans, shall be reviewed and approved by the Division of Transportation. If the Division of Transportation concurs, the following standard traffic maintenance note shall appear on the plan:
- “Traffic shall be maintained at all times during construction of this project. All barricades and signs shall be furnished and used by the Contractor in accordance with the ‘Ohio Manual of the Uniform Traffic Control Devices’ and as supplemented by the ‘City of Toledo Manual for Uniform Traffic Control for Construction and Maintenance.’”
- S. Pavement Replacement and Traffic Control in the Public Right of Way
1. A detailed typical pavement replacement section shall be included on the plans when construction will necessitate removal and replacement of pavement within the public right-of-way.
 2. For installation of any facility within an asphalt pavement area that results in the creation of a trench or pavement opening, the resulting pavement repair shall require, as a minimum, the strip of pavement between the trench and closest curb to be removed by milling the pavement surface to a depth of 1 ½-inch - 2-inch and replacing same with asphaltic materials meeting City of Toledo standards.
 3. All pavement replacement involving two or more lanes shall be by construction of a common and continuous transverse pavement butt joint. The creation of a checkerboard pavement repair pattern shall not be allowed.
 4. For rigid concrete pavements, including drive approaches and sidewalks, similar pavement repair standards shall apply, with the exception that pavement removal

and replacement shall be extended to the closest construction joint from the edge of trench. The salvaging of integral pavement curbs by sawing shall not be allowed.

5. Permission for open-cut construction on all streets shall be at the discretion of the DES in consultation with the Division of Transportation.
6. In cases where open-cut construction is permitted on streets, the Contractor shall be responsible for insuring that a traffic control plan suitable to the Division of Transportation is prepared and implemented.
7. On a day declared by the City of Toledo as an “Ozone Action Day”, contractors are requested to suspend paving operations voluntarily.

T. Easements

1. As a general rule, public sanitary sewers, storm sewers, and water mains should be constructed in the public right-of-way and be located a minimum of ten feet from the right-of-way line.
2. In the event an easement is necessary, a minimum width of twenty (20) feet shall be required, centered on the pipeline for utilities or pipe less than 8 feet deep. For depths between 8 feet and 15 feet the required easement width shall be 25 feet. For depths beyond 15 feet, the easement shall be 2 times the depth of the utility up to 50 feet. Alignment other than centering may be permitted or required by DES. Easement(s) shall be recorded by the City of Toledo, Division of Real Estate. Developer shall contact the Real Estate Section prior to approval of plans at 419-245-1409 (Jamie Miller). Recording costs shall be paid by the developers.
3. The easement shall be dedicated to the City of Toledo, for City utility use only, to allow for future maintenance and shall not be combined with easements for other utilities. The following language, and/or other such terms and conditions as determined to be appropriate or necessary by the Director of Law, shall appear on the plat:

“That a ___ foot utility easement (or however it is described on the drawing) is hereby dedicated to the City of Toledo for public (sewer/water/drainage) facilities. The easement shall be primary in nature to any other easements located therein, and any easement retained by any other entity shall be subject first to the easement rights of the City of Toledo. Said easement herein shall be permanent in nature for each utility facility currently located thereon and shall run with the land. Said easement also includes reasonable rights of ingress and egress over and through the utility easement area for the purpose of operating, maintaining, replacing, repairing and/or constructing any utility facilities located within the easement. The property owner shall not construct fences, walls or other barriers, which would impede access onto the easement. No temporary or permanent structures, including building foundations, roof overhangs or other barriers

denying access, may be constructed on or within the easement. Driveways, parking lots, walkways and other similar improvements are acceptable. The property owner hereby releases the City of Toledo, only, from any liability, responsibility or costs resulting from the City's removal of any barriers which deny ingress or egress from the easement or which obstruct access to the public utilities located on said property, and the City of Toledo shall have no obligation or duty to restore or compensate the property owner for the removed facilities."

U. **Sediment and Erosion Control**

1. **Any earth disturbing activity which may cause or contribute to stormwater pollution, contamination, illicit discharges, and/or discharge to the municipal sewer system, shall employ Best Management Practices (BMPs).**
2. All designs shall comply with the latest City of Toledo and Ohio EPA regulations and standards covering pollution prevention. Designs shall be as described in the SWMSM and shall have detailed plans and a specification covering all construction and post construction BMP measures.
3. A Notice of Intent (NOI) shall be filed with the Ohio EPA for all projects of one acre size or greater of disturbed land. OEPA contact is Lynette Hablitzel at 419-373-3009, in Bowling Green. A copy of the NOI will be required for stormwater plan review approval.
4. **For projects which will disturb 2,500 square feet or greater**, no construction of facilities may start or land may be disturbed without an approved Stormwater Pollution Prevention Plan (SWP3). Additionally, City inspection shall be notified prior to the start of any work as specified in the following Plan Requirements section. The SWP3 shall **address all components required per the latest Ohio EPA General Stormwater NPDES permit. The checklist that will be used to review the SWP3 can be found on the Ohio EPA website at http://epa.ohio.gov/dsw/storm/const_SWP3_check.aspx and is also attached to this document as part of appendix 4.**
5. Soil erosion and best management practice (BMP) measures shall be installed prior to start of any construction and shall be maintained at all times until construction has been completed, including all grass being well established and/or permanent erosion and sedimentation BMP measures are in place. All BMP measures shall be installed to the satisfaction of the City of Toledo **and shall be inspected by qualified inspection personnel on a regular basis in accordance with TMC 941.12.** The City of Toledo may require work to be stopped and the storm drainage outlet to be plugged, if conditions become unsatisfactory.

V. **Plan Requirements**

The following general requirements apply to all plans:

1. The minimum plan and profile scale shall be: Plan 1" = 50' horizontal and profile 1" = 5' vertical. (1" = 20' is preferred.)
2. Location Map – Provide and locate in upper right of title sheet with North arrow, minimum scale 1" = 200'.
3. Street Address or Plat Name of Project – Provide and locate in lower right title block on all drawings.
4. Developer's Name, Address, Phone and Fax Nos., and e-mail address - should be located on the title page. Subdivision drawings shall be signed by the developer.
5. Consultant's Name, Address, Phone and Fax Nos., and e-mail address - should be located on the lower right of plan pages. The drawings shall be stamped and signed by a civil engineer licensed to practice in the State of Ohio.
6. Legal Description of Property – Provide near location map. Subdivision Name and Lot number or Plat and Parcel number is adequate.
7. On subdivision projects, the following note shall be placed next to the signatures:
“Approval of these plans is contingent upon the project being completed within 18 months from the date of approval.”
8. Plan Sheet - The standard plan sheet size shall be 24"x 36" (out to out) with a 1.5 inch margin on the right, top, and bottom, and 2.5-inch margin on the left. This will allow scaled half size 11"x17" plots, when ½-inch is trimmed off of each side.
9. Notes – Minimum construction notes as follows shall be on the drawings.
 - a. For protection of underground utilities, call the Ohio Utilities Protection Service at 1-800-362-2764 a minimum of 48 hours prior to excavating.
 - b. All material and construction shall be in accordance with the Construction Standards and Specifications of the State of Ohio Department of Transportation (ODOT), **latest revision**, as amended by current City of Toledo, Division of Engineering Services, Part A Standards. All standards referred to in these plans shall be in accordance with the current City of Toledo Construction Standards, unless otherwise noted. A copy of City of Toledo, Part A Standards and Construction Standards are available from the DES **and on the City web site**. In addition, all work shall be in compliance with all applicable federal and state standards and regulations.
 - c. Contractor shall notify City of Toledo, Division of Environmental Services at 419-936-3015 three (3) days prior to starting earth-disturbing activities for the purpose of monitoring erosion and BMP measures.
 - d. Contractor shall notify City of Toledo, DES for inspection at 419-936-2847 three (3) days prior to starting construction.

OR

Contractor to notify City of Toledo, Division of Sewer and Drainage Services for inspection at 419-936-2927 three (3) days prior to starting construction for Sewer Tap Permit sites (<200' of sewer).

AND/OR

Contractor shall notify City of Toledo, DWD for inspection at 419-245-1395 three (3) days prior to starting construction of Private Water Distribution Facilities.

- e. Contractor is to designate a site dump/wash area prior to starting construction for such purposes as washing out concrete trucks and dumping non-hazardous waste materials, subject to the supervision of the City of Toledo, Division of Environmental Services and the City of Toledo Municipal Code. Dumping or discharge of any waste materials to any City of Toledo sewers is prohibited. Hazardous Wastes are to be removed off site and properly disposed of consistent with all Federal, State and Local regulations.
10. Graphic Scale - locate in the lower middle of plan page.
 11. Plan and Profile Drawings - shall be provided for the entire length of all piping parallel with and within the public right-of-way or as directed by the engineer. Where possible, plan and profile should be shown on the same sheet.
 12. Existing Utilities - check for existing utilities in proposed construction areas. Show all utilities in plan and profile.
 13. Show stationing of centerline of roadways and intersecting pavements, width of pavement and rights-of-way, size and distance from centerline to existing and proposed water mains, sanitary sewers, storm sewers, curbs and other utility facilities, lot lines, numbers and frontage, all existing permanent property monuments and references, all mensuration information, including radii, PTs, PCs, and other curve data
 14. Where OEPA approval is required, a sufficient number of prints shall be submitted to OEPA to allow for the return of one (1) set of OEPA approved prints to the DES.

III. ROADWAY

- A. No vertical curve shall be established unless the algebraic differential of grades is greater than 2.0%.
- B. On any vertical curve, the grade shall be at least 0.4% between adjacent points. (10 feet intervals for 75 feet vertical curve and under, and 25-foot intervals for over 75-foot vertical curve).
- C. No top of curb or gutter shall be less than 0.40%. Minimum top of curb or gutter grade for mountable curb shall be 0.5%.
- D. The maximum pavement grade shall not exceed 4.00% except in case of extreme necessity.
- E. The preferred pavement cross slope shall be ¼-inch per foot, but in no case less than 3/16-inch per foot. Maximum cross slope shall be 3/8-inch per foot.
- F. Inlets shall be placed at all low points in streets, at intersections, at points where changes in the street configuration will direct flow across the street and at intervals on continuous grades that will limit the width of flow in the gutter to six feet (6') for arterial streets and eight feet (8') for local streets, for a two year storm.
- G. Minimum lateral diameter for connection to an inlet or catch basin shall be 12-inches. Minimum inlet lead slopes shall be 2% or as needed to obtain a velocity of 3 feet per second for a 5-year storm.
- H. Water from all low areas shall be collected and conveyed to the storm drainage system. Quantity of gutter flow is determined using the Rational Method. Inlet design flows shall exceed gutter design flows.
- I. Intersections
 - 1. Maximum grade differentials should not exceed 2% and shall not exceed 3% on pavements.
 - 2. Top of pavement grades shall be established on intersection details at the following locations:
 - a. At all ends of radii in gutter and on pavement centerline.
 - b. At gutter in center of radii.
 - c. At radii P.I.'s.
 - d. Intersection of pavement centerline with lines connecting radius P.I.'s.
 - e. Intersection of pavement centerlines.
 - f. Any other point necessary to clarify drainage and reduce bump.
 - 3. Minimum curb radius should be at least 25 feet.

4. A 30-foot minimum radius should be used on uncurbed pavements at intersections.
5. Inlets and catch basins shall be located at, or beyond end of radius. (If radius is 30 feet or greater, inlets and catch basins may be located in radius).
6. Through gutters will not be allowed.

IV. STORMWATER DRAINAGE

Purpose

A properly designed stormwater system shall provide for the drainage of surface water from all residential, commercial and industrial development; minimize erosion; reduce degradation of water quality due to sediments and pollutants in stormwater runoff; and reduce downstream flooding.

All stormwater runoff shall be conveyed to the municipal stormwater system, unless a retention design is utilized. Receiving waters, including underground storm drainage systems, shall have adequate capacity to carry necessary flow without overflowing or causing damage to public property or welfare. The cost for the approved system shall be wholly borne by the owner or developer, including any off site system that is required.

Stormwater Utility

The City of Toledo has in place a Stormwater Utility which charges a monthly fee to all property owners. For non-residential properties, the fee is based on the square footage of impervious surfaces (pavement, roofs, etc.) on the property. Non-residential development generally results in changes in the impervious area. The City will make the appropriate adjustment to the Stormwater Utility bill. The City also has a Stormwater Credits program that provides credits against the Stormwater Utility bill for certain stormwater best management practices. These practices could be incorporated into the project to qualify the property for credits. Contact the stormwater engineer indicated in Chapter II for details on how to apply.

Plan Requirements

In addition to General Plan Requirements, the following requirements apply to storm drainage plans:

- A. Legend – All yard drains, catch basins, manholes and structures should be labeled and in a schedule if possible with all elevations, sizes, direction of flow, remarks, etc. as necessary. Include a legend abbreviation key on a plan page.
- B. Show flow lines of surface water onto and off the site.
- C. Show existing contours at one-foot intervals.
- D. Show existing and proposed drainage, including channels, drainage swales, ditches, berms, and proposed storm drains. Connections to existing system shall be identified.
- E. Detention facilities – location, with detailed drawings as needed.
- F. Stormwater Pollution Prevention Plan (SWP 3) - Furnish a SWP 3 for all projects, covering both during and post construction phases of the project.

- G. Flood Zone – Location of the FEMA floodplain shall be shown on plans if any part of the development property is within the flood zone. The lowest floor, including basement, of any structure built within a flood hazard area shall be a minimum of one (1) foot above the base flood elevation for the site.
- H. Grading and drainage plan - show the location of perimeter drainage facilities and private drainage easements that will control runoff to and from project sites. This shall include adjoining area within 100 feet of the development (less with DES approval).

Grading and drainage plans shall identify survey control for finished floor elevations, and shall be enforced in conjunction with the Division of Building Inspection.

- I. Wetlands – The location of any wetlands, which could be affected by the development, shall be shown on the plans, as delineated by a qualified professional.

Design Requirements

- A. General. The latest edition of the Stormwater Management Standards Manual (SWMSM) by the TMACOG Stormwater Coalition is to be used for design along with the standards described herein.

Manuals can be obtained on line at <http://tmacog.org/storc.htm>. Other City of Toledo, State, or Federal codes, rules, or regulations, which exceed the SWMSM standards shall govern and shall be followed. All development shall be planned, designed, constructed and maintained to:

1. Protect and preserve existing natural drainage channels to the maximum practicable extent.
 2. Protect development from flood hazards.
 4. Assure that waters drained from the development are substantially free of pollutants, through such construction and drainage techniques as sedimentation ponds, reseeded, and phasing of grading.
 5. Assure that waters are drained from the development in such a manner that will not cause erosion to any greater extent than would occur in the absence of development.
- B. Design Calculations. Design calculations shall be included with all plan submittals. See SWMSM for details for runoff calculations. Complete drainage calculations shall be submitted for pipe size determinations. As needed: 5-year, 10-year, 25-year, and 100-year hydraulic gradient checks, culvert or ditch size, and catch basin type and catch basin spacing designs shall be provided. Drainage calculations shall be

submitted on standard engineering drainage forms or spread sheets, including charts acceptable to this Division.

- C. Drainage Layout and Design. An overall drainage area layout plan showing the limits of the contributing runoff area, broken down into areas contributing to each drainage pick-up point shall be submitted with the paving and drainage plans. Drainage design within the development shall be adequate to handle the entire contributing watershed area and its existing, proposed and probable future development, and not the area under submission only. Drainage design, which makes use of an existing system, shall follow practical engineering judgment.

Calculation of existing runoff patterns from subject property onto adjacent properties, and estimates of existing runoff from adjacent properties onto subject property shall be provided as needed.

If future plat extensions will utilize the same drainage system, the overall drainage plan shall be submitted with the first plat paving plan.

Drainage maps, when submitted, shall contain the basic information as shown on the site grading plan and be drawn to such a scale that it will fit on a standard 24" x 36" plan sheet. Smaller presentations may be acceptable.

- D. Drainage Internal. Adjacent property owners are not permitted to shed stormwater runoff onto neighboring properties.

Adjacent property owners may share a common storm sewer but must submit a legal document describing the perpetual arrangement worked out for maintenance, repairs and future connections.

- E. Stormwater Detention. Whenever a storm drainage system for a proposed subdivision or commercial development **or redevelopment** is designed to outlet into an existing storm sewer system, and the existing storm sewer cannot be shown to be adequate, as outlined in this section, a restricted flow into the existing system will be required. **This requirement will not apply to development or redevelopment which results in less than 2,500 square feet of earth disturbance.** For the purposes of this requirement, all existing storm sewer systems within the City of Toledo shall be considered inadequate, except direct discharges to the Maumee River, Swan Creek, Ottawa River, or other large ditch system as approved by the Stormwater Engineer. This restricted flow shall be equivalent to the five (5) year frequency storm runoff occurring from a strip of land measuring 100 feet in depth from the right-of-way line by the length of property fronting on the roadway being served by the existing storm sewer and in the undeveloped state (Rational Formula $C=0.15$). Areas greater in width will be acceptable if proper documentation can be found to support the fact that the wider width was used in the original **design of the City storm sewer.**

Metering devices shall be designed using pipe (6" minimum). Plates and gate valves are not allowed unless there is a significant reason pipe will not work. A downward facing elbow or trap should be utilized upstream of the metering pipe

to prevent floatables from entering the metering pipe. Where stormwater detention and water quality volumes cannot be obtained with a 6" metering line, other methods as approved by the engineer may be allowed.

All excess stormwater runoff shall be retained within the boundaries of the development and shall be stored in a detention facility of sufficient capacity to contain the excess runoff resulting from a 25-year frequency storm, having a duration up to 24 hours. **No portion of detention facilities may be located within the right of way. For redevelopment projects, when only a portion of a site is redeveloped, the required storage volume may be calculated for the redeveloped portion of the site only.** If an open pond is used as a detention facility, it shall be designed with a minimum safety factor of 1.1 for privately maintained ponds and 1.3 for City of Toledo maintained ponds.

Unless the City of Toledo specifically accepts responsibility for maintenance of a detention facility, all such facilities shall be private, including their connecting pipes to the public system.

Approved methods for detention of stormwater runoff may include, but not necessarily be limited to underground tanks (**not preferred**), roof areas (not preferred), parking lots (**maximum allowed depth of 10 inches**), recreational or playground areas, over sizing of storm sewer system, detention basins, detention with a permanent wet pond, or extended detention basin facilities. Post Construction BMPs may be incorporated into the stormwater detention facility. Selection of the method used shall be the responsibility of the developer. Complete design calculations and a Stormwater BMP Entry Form (Appendix 6) shall be provided and construction details shall be included in the paving and storm drainage plans.

The following minimum design criteria are strongly encouraged for privately owned open pond detention facilities and required for any open pond facility that will be maintained by the City of Toledo:

1. The side slopes shall have a maximum slope of 2.5:1; 3:1 or flatter for residential areas. Steeper slopes may be approved, but may require fencing or other safety measures. The pond bottom if graded for complete drainage (drain dry bottom) shall be of sufficient strength to support a tractor mower, or other equipment required for maintenance.
2. If required for the access and egress of maintenance equipment, a paved drive shall be provided to the facility. Grass pavers with approval. Curb cuts must be approved.
3. Interior side slopes and the exterior area shall be sodded or seeded with an approved seeding mixture and mulched.
4. Where possible, outlet piping shall extend to locations where future improvements or improved outlet facilities are contemplated.

- F. Best Management Practices – All designs shall comply with the Best Management Practices outlined in Section II.
- G. Post-Construction BMPs. All projects **that include 2,500 square feet or greater of earth disturbance** shall incorporate post construction BMPs to provide treatment of runoff prior to discharging into the City system. **Construction activities that do not include the installation of any impervious surface (e.g., soccer fields), stream and wetland restoration activities, and wetland mitigation activities are not required to include post-construction BMPs. Linear construction projects (e.g., pipeline or utility line installation), which do not result in the installation of additional impervious surface, are not required to include post-construction BMPs.**

For projects which disturb greater than one acre, the post-construction BMP shall be in accordance with the Ohio EPA General Stormwater Permit, except that the 20 percent allowance for redevelopment projects shall not apply. For redevelopment projects, when only a portion of a site is redeveloped, the post-construction BMP may be sized for, or treat runoff from, the redeveloped portion of the site only. Refer to the SWMSM for design guidance on applicable BMPs. Strong consideration shall be given to designs incorporating low impact development solutions such as grassy swales and bioretention, thereby reducing the number of catch basins, storm sewers, and curbed islands. A Stormwater BMP Entry Form (Appendix 6) shall be included with plan submittal.

Stormwater post-construction BMPs shall be designed to minimize the need for maintenance. A post-construction BMP operation and maintenance plan shall be submitted with the project's SWP3 and shall include: 1) the person(s) or organization responsible for maintenance, 2) the required maintenance tasks and schedule for inspection and maintenance, and 3) responsibilities and methods for financing maintenance. Inspection and maintenance reports shall be kept on file for a minimum of three years and made available to the Director of Public Utilities upon request.

- H. Storm Sewer Sizing. Storm sewers shall be designed to flow just full for the 5-year intensity-duration-frequency curve. The minimum pavement gutter elevations shall be at or above the hydraulic grade line for a 10-year frequency storm. Use the 10-year intensity-duration-frequency curve for determining this hydraulic grade line.

For the 10-year hydraulic gradient checks, the minimum starting point elevation, when a proposed storm drainage system outlets into a nearby stream or ditch, shall be based on the 25-year high water elevation, as per "Comprehensive Ditch Plan" or the current "Flood Insurance Study for Toledo, Ohio". If information is unavailable for these two sources, the 25-year high water elevation shall be determined by sound engineering principals, subject to approval by this Division.

The minimum design velocity for storm drainage conduits shall be 3.0 feet per second. Pipe slopes of 15-percent or greater will require anchor walls at approved intervals. Manning's "n" value of 0.013 or 0.011 for PVC shall be used for flow and velocity

calculations. Manning's equation shall be used for design of piped systems where practicable.

Minimum pipe size **within the City of Toledo right of way**, except for footer tile outlets and approved metering lines, shall be twelve (12) inches. **Minimum pipe size for metering lines shall be six (6) inches.**

- I. Storm Sewer Pipe Design. Storm sewers and culverts shall be designed to conform to the requirements of Item **611** of the State of Ohio, Department of Transportation, Construction & Materials Specifications, current issue, subject to the current City of Toledo addenda. The use of metal pipe will not be permitted in industrial or industrial zoned areas. Depth of cover shall be the determining factor in selecting the proper strength of pipe. Minimum cover for Type "C" or "D" Conduit shall be 18 inches. Types "A" and "B" Conduit shall have a minimum cover of 9 inches, measured from the top outside crown of the pipe to the finished subgrade.

Storm drainage pipe laid on a curve shall have a minimum radius of curvature according to the formula:

$$\text{Minimum Radius} = (\text{Outside diameter of pipe in inches} \times \text{Length of Pipe in Feet} \times 5.333).$$

When pipe depths exceed 10-feet, calculations for pipe loading and strength shall be submitted.

- J. Manhole and Catch Basin Spacing. Manhole and/or catch basin spacing between straight runs of pipe shall be limited to a maximum spacing of 300 feet for sewers 36-inch or less in diameter and a maximum of 400 feet for sewers over 36-inch in diameter. **Manholes shall be constructed in accordance with the City of Toledo Construction Standards.** Structures are required for all changes in horizontal or vertical alignment greater than ten (10) degrees and at all connections and changes in pipe size. Location of manholes should avoid driveways and sidewalks.
- K. Catch Basins. Catch basin type and spacing shall be designed using the 2-year intensity-duration-frequency curve. The maximum allowable width of the sheet gutter flow from the face of the curb shall be limited to six feet (6') for arterial streets and eight feet (8') for local streets.

All catch basins shall have a minimum 2 foot sump unless there are in excess of 4 catch basins tributary to the catch basin or if the inlet pipe exceeds 12 inches. Traps shall be provided on catch basin outlets to a combination sewer.

- L. Drainage Structures. Precast concrete structures are always preferred and provide the ability to have cored holes installed at the factory with boots. Concrete block structures will be allowed at the City's discretion especially if there is a condition

where a precast structure may not be able to be used due to field conditions or time being a factor in getting the work completed.

- M. Open Drainage Ditches. Open drainage ditches shall be designed to the following minimum standards:
1. A maximum side slope of 2:1 to insure slope stability; 3:1 or flatter preferable for maintenance.
 2. Maximum of 6-8 feet per second velocity at 25-year storm; 3 feet per second min. at 10-year storm. Velocities exceeding 10 feet per second may require special erosion control.
 3. **To allow for maintenance access, structures, permanent fences, walls or other obstructions are not permitted within 12 feet of the top of back or ordinary high water mark, or within the floodway (TMC 1110.09).**
 4. Easement to encompass top of bank and maintenance way. **See section S. Easements, if ditch is to be maintained by City of Toledo.**
 5. Low maintenance buffalo or Burma grass, 10-inch maximum growth on side slope.
 6. Trash grates at openings. Surface area 8-10 times opening for conduit area less than 20 square feet; 6-8 times for 20 to 44 square feet; 4-5 times for greater than 44 square feet. Trash grate may not be required for large opening on culverts with DES approval.
- N. Culverts. Where culverts cannot provide sufficient capacity without significant environmental degradation, the City may require the watercourse to be bridged or spanned. Culvert design shall be performed using the Federal Highway Administration (FHWA) publication Hydraulic Design of Highway Culverts (Reference No. 10). Other methods may be used with approval of the DES. Any roadway structure with a span 10 feet or greater is considered a bridge and must be approved by Division of Streets, Bridges and Harbors.
- O. Riparian Setbacks. **Refer to the SWMSM for recommended riparian setbacks. Development should be set back from riparian zones in accordance with the SWMSM to the extent practical. Development, including clearing of vegetation and storage of materials is discouraged within 40 feet of the ordinary high water mark of streams and ditches.**
- To allow for maintenance access, structures, permanent fences, walls or other obstructions are not permitted within 12 feet of the top of bank or ordinary high water mark of streams or ditches, or within the floodway (TMC 1110.09).**
- P. Pump Stations. If the proposed development includes construction of a pump station, information on peak and average flows, pump ratings, and other pertinent information

shall be submitted along with the plans for review to the DES. Discharge calculations may require a study of and determination of outlet system capacity. Any required system capacity studies shall be performed and paid for by the developer.

If the pump station is to be taken over as a City facility for operation and maintenance purposes, then the following is required:

1. A separate signature block shall be provided on the plan sheet detailing the pump station for the approval (and approval date) of the Commissioner of Water Reclamation.
2. All equipment to be installed shall be compatible with the Division of Water Reclamation requirements.
3. The developer shall make the necessary arrangements to provide the Division of Water Reclamation with operation manuals, parts lists, manufacturer's literature, and other pertinent information needed for future maintenance of the facility.

- Q. Regulatory Floodplain. Development involving fill in a regulatory floodplain shall comply with Toledo Municipal Code 1110. Application shall be made for a Floodplain Development Permit through City Building Inspection One Stop Shop. **An escrow agreement may be required if a Conditional Letter of Map Revision or Letter of Map Revision are required to be submitted to the Federal Emergency Management Agency per TMC 1110.**
- R. Wetlands. Dredging, filling, clearing, or otherwise altering wetlands is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include written concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers.
- S. Easements. In the event any City-maintained watercourse, channel, stream or creek, gulch or other natural drainage channel traverses any part of a development, adequate easements for storm drainage purposes shall be provided to the City. The full width of the 100-year storm flow design channel plus a minimum of 10 feet adjacent to the channel shall be required as the easement. Access by the City of Toledo shall not be obstructed. No permanent structures are permitted on an easement. Approved fencing will require adequate gate openings. Any required easement shall not imply any special maintenance by the City.
- T. Rear Lot Drainage. In areas where the site grading calls for the conveyance of surface stormwater along and across rear property lines, a Type "D" catch basin shall be placed not more than every 400 feet. In areas where rear yard grading is designed to equal or exceed a grade of one percent (1%), the above spacing requirement may

be waived upon the condition that suitable drainage inlets are provided in accordance with sound engineering judgment.

Please note that the Division of Sewer & Drainage Services does not prefer rear yard drainage due to difficulty in maintenance. If this system of drainage is used, the design shall provide for private maintenance. Specific and detailed language covering this condition shall be made part of the plat, deed, homeowners or association rules, and other pertinent documents, such as: "All rear yard drainage, swales, catch basins, manholes, and their connecting pipes are to be privately owned and maintained, either by adjacent property owners or a subdivision association."

- U. Footer Tile Outlets. Outlets for footer tile drainage shall be provided for all lots in new subdivisions unless basements and crawl spaces are prohibited by a plat recitation. Design of these outlets shall conform to the requirements that follow:
1. Footer tile taps, which are to be provided for each lot(s), shall be located within the public street rights-of-way. Footer drain sewers and taps will not be permitted along the rear or side lot lines.
 2. Existing drainage facilities on existing unimproved streets shall not be used as outlets for footer tile drains or the **rear lot** catch basin described previously, unless deemed to have sufficient capacity by the DES. Where sufficient capacity is unavailable, this drainage shall be connected to the storm drainage system of the proposed subdivision.
 3. In areas where street drainage would normally be provided by gutter flow only, the storm sewer shall be extended beyond its normal upper terminus so as to serve those lots that would not normally front on a storm sewer. Tees, wyes, or crossovers shall be provided for each lot.
 4. The "extended storm sewer" shall be designed for a capacity of flow equal to 1.25 gallons per minute from each house served, but shall have a minimum diameter of 6-inch and a minimum grade of 0.3%.
 5. All crossovers shall have a minimum grade of 0.3%.
 6. Location and elevation of all taps shall be indicated on the subdivision paving plan.
 7. All storm sewer services shall be extended to the front property line. For a single lot, the service shall be 4-inch minimum diameter. When two lots are serviced off one crossover, the crossover size shall be 6-inch minimum diameter.
 8. In combined sewer areas, the storm and sanitary sewers shall be separate lines to the right-of-way. With approval, they may be combined after that point. **In combined sewer areas not designated for future sewer separation, single home residential sanitary and storm taps may connect into an external cleanout, downstream of the backflow valve.**

- V. Unimproved Streets. Where proposed plats incorporate an unimproved street, or have frontage on an unimproved street, catch basins shall be required to intercept the street and front yard storm drainage. There shall be one catch basin between every driveway having such frontage and the basin shall be located within the public right-of-way.

It is the property owner's responsibility to maintain a swale so that drainage is not interrupted, impeded or prevented in any way. If it becomes necessary for a property owner to install/replace/repair a driveway crossing or swale pipe, there is no formal approval required. However, the pipe shall consist of one of the following materials:

- **Solid wall PVC, ASTM 3034, SDR35, with gasketed joints according to ASTM D-3212**
- **Corrugated polyethylene smooth lined pipe, ASHTO M 294, Type Sor D**
- **PVC corrugated smooth interior pipe, ASTM F 949 or F 794**
- **Reinforced Concrete, ASTM C655**

Minimum diameter is 12-inches and pipe must be installed with a minimum cover as recommended by the manufacture and shall be maintained by the property owner. The installation is subject to inspection by the City for conformance with these requirement.

- W. Floodway Obstructions – Obstructions in the floodway are not permitted.

Plan Approval

- A. See the General Requirements Section for plan approval requirements.
- B. A plan approval checklist used by the City Stormwater Engineer is contained in Appendix 4.
- C. **The Stormwater BMP Entry Form (Appendix 6) must be submitted with plans, if applicable.**
- D. **Plans will not be approved fees are paid. If neither the storm or sanitary piping is greater than 200 feet in length the Developer/Customer will be required to obtain a sewer permit from and pay applicable fees to the Central Permit Center on the 16th Floor of One Government Center. Otherwise, fees are paid to DES in accordance with the fee schedule in Appendix 5.**
- E. **Plans will not be approved until a copy of all required forms and permits have been received. This includes the Ohio EPA Notice of Intent, Flood Hazard Development Permit, maintenance agreements, etc.**

V. SANITARY SEWER

Sanitary sewer design requirements are divided into three parts:

- Part 1 Sanitary sewers constructed in the public right-of-way.
- Part 2 Private sanitary sewers with a length of 200 feet or more or serving more than one building.
- Part 3 Private sanitary sewers with a length of less than 200 feet.

PART 1 - SANITARY SEWERS CONSTRUCTED IN THE PUBLIC RIGHT-OF-WAY

Introduction

- A. The following criteria and procedures govern the construction of sanitary sewers within the public right-of-way, which, upon completion and acceptance by the City of Toledo, will become part of the publicly maintained sanitary sewer system.
- B. Criteria and procedures for construction of privately maintained sanitary sewers are contained in Part 2 and Part 3 of this document.
- C. The applicant is responsible for obtaining a Permit to Install from the Ohio EPA.

Design Criteria

- A. The following publications and standards shall be utilized for the preparation of sanitary sewer plans, except as modified herein.
 - Sanitary Sewer Design and Installation Guidelines, Part I, Gravity Sewers, Ohio Environmental Protection Agency.
 - Gravity Sanitary Sewer Design and Construction, Water Environment Federation - Manual of Practice, Facilities, and Development No. 5.
 - Design of Wastewater and Stormwater Pumping Stations, Water Environment Federation - Manual of Practice, Facilities, and Development No. 4.
 - Construction and Material Specifications, State of Ohio Department of Transportation.
 - Addenda to the State of Ohio Department of Transportation, Construction and Material Specifications (Part A Standards), (current issue), City of Toledo, Division of Engineering Services.
 - City of Toledo Construction Standards, City of Toledo, Division of Engineering Services, (current issue).

- Recommended Standards for Wastewater Facilities, current Edition, (10 States Standards), Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers.

Plan Requirements

In addition to General Plan Requirements, the following requirements apply to sanitary sewer plans:

- A. Each sheet of the plans (including the title sheet) shall contain the sanitary sewer number and a name (subdivision name, street name, etc.) in the lower right hand corner margin. In addition, the sheet number (e.g. 1 of 3) shall be placed in the lower right hand corner of the sheet.
- B. The sewer number and name shall be prominently displayed in the title lettering.
- C. The location map shall depict the proposed sewer as a solid line and existing sewers as dashed lines. Sheet numbers shall be shown on the location map. The existing sewer (and sewer number) that is being connected into shall also be shown.
- D. The existing sewer number and the existing manhole number(s) shall be indicated on the site plan.
- E. A space for the approval signature (and date of approval) shall be provided on the title sheet for the Owner and DES representative.
- F. The following note shall be placed next to the signatures:

 “Approval of these plans is contingent upon the project being completed within 18 months from the date of approval. Extensions of time shall be granted only by written approval of the Division of Engineering Services.”
- G. A general summary containing estimated quantities, ODOT item numbers, units, and a description of the item shall be included on the title sheet except where space limitations require placement of this information on a separate sheet.
- H. The General Notes in Appendix 1 for “Sewers in Public Right-of-Way” shall be included on the plans.
- I. The site plans shall include sewer plan and profiles drawings.
- J. Stationing for each sanitary sewer tap shall commence with each downstream manhole at 0+00, and the taps shall be stationed accordingly as the sewer rises to the next manhole.
- K. The stationing for taps shall begin again at 0+00 at the next manhole.

- L. All tap data shall be located in the plan view on the same side of the street and immediately adjacent to the tap location.
- M. Tap data shall include:
 - 1. Station on main line from nearest downstream manhole.
 - 2. Length and slope of tap.
 - 3. Size and type of fittings (Tees, Wyes, etc.).
 - 4. Invert elevation of tap at right-of-way (property) line.
 - 5. Depth of tap at right-of-way line.
 - 6. If riser required, show in profile.
- N. Manholes shall be numbered in both the plan and profile views.
- O. All existing and proposed storm sewers and water mains shall be shown as lightly dashed lines in both the plan and profile.
- P. A property description(s) shall be shown on the plans for all property affected by the proposed sewer.

Design Requirements

- A. The maximum manhole spacing for all sanitary sewers 36-inch diameter or less shall be three hundred (300) feet.
- B. Lateral risers shall be required whenever the depth of the sanitary sewer exceeds twelve (12) feet.
- C. **A single sanitary sewer tap from the property line to the sewer main shall be provided for each parcel. Combining multiple taps into one cross-over tap or vertical riser will not be permitted. Taps shall be perpendicular to the right-of-way line. Existing taps shall be used, when available.**
- D. Double tees shall not be permitted for sanitary sewer construction.
- E. Manhole lids shall be as follows:
 - 1. **Solid lid conforming to City of Toledo Construction Standards.**
 - 2. All manholes on private property shall have solid lids with closed pick holes.
 - 3. Tops of manholes in unpaved areas shall be raised adequately so normal rainfall runoff will not run into the lid.
- F. Except as provided in the next paragraph, outside drop connections shall be provided for all intersecting sewers with differences in elevations of twenty four

(24) inches or greater.

- G. Inside drop connections shall not be permitted **on new manholes. Inside drop connections may be approved on a case by case basis when connecting to an existing manhole if the depth of the existing manhole would make an outside drop excessively expensive or complex to construct and an inside drop can be accomplished without unduly compromising maintenance access.**
- H. Separate taps shall be provided to all developed properties to be served by the sanitary sewer.
- I. Sanitary sewer taps on the main line shall be made with a tee fitting.
- J. In a combined sewer areas, sanitary and storm (clean) water sources shall have separate taps into the sewer system to facilitate future sewer separation projects. **In combined sewer areas not designated for future sewer separation, single home residential sanitary and storm taps may connect into an external cleanout, downstream of the backflow valve.**
- K. Only one tap will be allowed for a building with two or more tenants.
- L. Existing sanitary sewer taps shall be used whenever feasible. **However, it is recommended that the existing tap be video inspected to verify its condition.**
- M. Property owner/developer of lands to be served by public sewers shall be responsible to meet all requirements of the Ohio EPA anti-degradation policy.

Approved Conduits

- A. All sanitary sewer conduits shall contain a premium joint per ASTM D-3212.
- B. The following Conduits listed under ODOT 603.02 shall be used for sanitary sewers:
 - 1. Polyvinyl Chloride (PVC) Conduit (6" - 15") conforming to ASTM D-3034, SDR 35, with cell classification 12454-B, solid wall pipe.
 - 2. Reinforced Concrete Pipe (RCP) conforming to ASTM C-76, Wall B (minimum) and ASTM C-443 joints.
 - 3. Vitrified Clay Pipe (VCP) conforming to ASTM C-700 ES, with full inside diameter and ASTM C-425 joints.
 - 4. Polyvinyl Chloride (PVC) Conduit (>15") conforming to ASTM F-679, solid wall pipe.
- C. Sewers 15-inch and smaller shall be PVC.

- D. Sewers 18-inch and larger shall be RCP, VCP or PVC as approved by the City of Toledo.
- E. Force mains shall be as follows:
 - 1. 4 inch and larger: AWWA C-900, D.R. 18, Class 150
 - 2. 3 inch and smaller: ASTM D-2241, PR160 (SDR26)

Pump Stations

- A. If the proposed development includes construction of a pump station, information on peak and average flows, pump ratings, and other pertinent information shall be submitted along with the plans for review to the DES.
- B. If the pump station is to be taken over as a City facility for operation and maintenance purposes, then the following is required:
 - 1. A separate signature block shall be provided on the plan sheet detailing the pump station for the approval (and approval date) of the Commissioner of Water Reclamation.
 - 2. All equipment to be installed shall be compatible with the Division of Water Reclamation requirements.
 - 3. The developer shall make the necessary arrangements to provide the Division of Water Reclamation with operation manuals, parts lists, manufacturer's literature, and other pertinent information needed for future maintenance of the facility.

Plan Approval

- A. **See the General Requirements Section for plan approval requirements.**
- B. Mylars will be loaned out to allow the preparation of prints for the Ohio Environmental Protection Agency (OEPA).
- C. The consulting engineer shall be responsible for submitting the required prints, data sheets, and applicable fees to OEPA.
- D. Antidegradation – The consulting engineer shall be responsible for complying with Ohio EPA Antidegradation Requirements. Projects that have been approved for Infrastructure Development Funds may request to use City Antidegradation Credits.
- E. **Plans will not be approved until the necessary License Agreement has been signed, where applicable, Sewer Plan Review and Inspection Permit Fees (Appendix 5) paid, and Ohio EPA Permit to Install has been obtained.**

PART 2 - PRIVATE SANITARY SEWERS WITH A LENGTH OF 200 FEET OR MORE OR SERVING MORE THAN ONE BUILDING

Introduction

- A. The following criteria shall govern the construction of privately maintained sanitary sewers with a total length of two hundred (200) feet or more, or serving more than one building.
- B. Ohio EPA Permit to Install is required if more than one building is served by the sewer.
- C. Criteria and procedures for the construction of sanitary sewers in the public right-of-way, which will be maintained by the City of Toledo, are contained in Part 1 of this Chapter.

Design Criteria

- A. Refer to Part 1 for publications and standards to be utilized.

Plan Requirements

- A. The format of sanitary sewer plans to be submitted for review and approval will depend on the type of project. Formats shall be as follows:
 - 1. Projects Requiring Platting
 - a) Plans shall be prepared in accordance with the requirements of Part 1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.
 - 2. Community Unit Plans (CUP)
 - a) Sanitary sewer plans shall not be combined with other improvements (storm drains, water, paving, etc.).
 - b) The plan format shall be in accordance with the requirements of the DES with minimum requirements as noted above under “Projects Requiring Platting”.
 - 3. Site Plan
 - a) All improvement plans for developments that are not platted or are not community unit plans are considered as site plans for the purposes of this document.
 - b) Plans shall be prepared in accordance with the requirements of Part

1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.

- c) A plan and profile view shall be included on the site plans.
 - d) A signature block shall not be required for site plans, however, a blank space (minimum size three and one half inch square shall be provided for the City’ Sanitary Sewer approval
 - e) The site plan shall show the proposed sanitary sewer as a solid line and with the following information:
 - 1. Sewer Size (6-inch minimum)
 - 2. Sewer Slope (1% minimum)
 - 3. Sewer Length
 - 4. Sewer Material
- B. The general notes in Appendix 2, “Private Sewers > 200 ft” shall be included on the plans.

Design Requirements

- A. The criteria stated in Part 1 shall be adhered to for private sewers when applicable.
- B. **Except as provided in Sanitary Sewer Part 1**, inside drop connections will not be permitted for any private sewer connection within the public right-of-way.
- C. In a combined sewer area, sanitary and storm (clean) water sources shall have separate taps into the sewer system. **In combined sewer areas not designated for future sewer separation, single home residential sanitary and storm taps may connect into an external cleanout, downstream of the backflow valve.**
- D. Only one tap will be allowed for a building with two or more tenants.
- E. Existing sanitary sewer taps shall be used whenever feasible. **However, it is recommended that the existing tap be video inspected to verify its condition.**

Plan Approval

- A. **See the General Requirements Section for plan approval requirements.**
- B. If an existing sanitary sewer tap is to be reused a “Request For Use Of Existing Sewer Line” shall be completed.
- C. **Plans will not be approved until the Sewer Plan Review and Inspection**

Permit Fees (Appendix 5) are paid, and Ohio EPA Permit to Install has been obtained.

PART 3 - PRIVATE SANITARY SEWERS WITH A LENGTH OF LESS THAN 200 FEET

Introduction

- A. The following criteria shall govern the construction of privately maintained sanitary sewers with a total length of less than two hundred (200) feet.
- B. Criteria and procedures for the construction of sanitary sewers in the public right-of-way, which will be maintained by the City of Toledo, are contained in Part 1 of this Chapter.

Design Criteria

- A. Refer to Part 1 for publications and standards to be utilized.

Plan Requirements

- A. The format of sanitary sewer plans to be submitted for review and approval will depend on the type of project. Formats shall be as follows:
 - 1. Plans shall be prepared in accordance with the requirements of Part 1 of this chapter with the additional requirement that the words “Private Sanitary Sewer” shall be prominently displayed in the title and margin lettering of the plans.
 - 2. A signature block shall not be required for site plans, however, a blank space (minimum size three and one half inch square) shall be provided for the approval stamp of the Sanitary Sewer Section.
 - 3. Profile drawings are not required.
- C. The general notes in Appendix 3, “Private Sewer < 200 ft” shall be included on the plans.
- D. The site plan shall show the proposed sanitary sewer as a solid line and with the following information:
 - 1. Sewer Size (6-inch minimum)
 - 2. Sewer Slope (1% minimum)
 - 3. Sewer Length
 - 4. Sewer Material
 - 5. Elevations at changes of direction and at terminal points.

Design Requirements

- A. The criteria stated in Part 1 shall be adhered to for private sewers when applicable.
- B. **Except as provided in Sanitary Sewer Part 1**, inside drop connections will not be permitted for any private sewer connection within the public right-of-way.
- C. In a combined sewer area, sanitary and storm (clean) water sources shall have separate taps into the sewer system. **In combined sewer areas not designated for future sewer separation, single home residential sanitary and storm taps may connect into an external cleanout, downstream of the backflow valve.**

Plan Approval

- A. One (1) set of prints shall be submitted to the Sanitary Engineer for review and comment. This set of prints shall be returned to the Sanitary Engineer along with three (3) revised drawings (four (4) if the storm drain is 200 feet or more).
- B. After the review process, the project will be inspected and fees charged by Sewer & Drainage Services. Call 419-936-2927 three days before starting construction for inspection. **If neither the storm or sanitary piping is greater than 200 feet in length the Developer/Customer will be required to obtain a sewer permit from and pay applicable fees to the Central Permit Center on the 16th Floor of One Government Center.**
- C. If an existing sanitary sewer tap is to be reused a “Request For Use Of Existing Sewer Line” shall be completed.

VI. WATER DISTRIBUTION

Water distribution design requirements are divided into three parts:

- Part 1A PUBLIC WATER DISTRIBUTION FACILITIES WITHIN CITY OF TOLEDO
- Part 1B PUBLIC WATER DISTRIBUTION FACILITIES OUTSIDE CITY OF TOLEDO
- Part 2 PRIVATE WATER DISTRIBUTION FACILITIES

PART 1A – PUBLIC WATER DISTRIBUTION FACILITIES WITHIN CITY OF TOLEDO

Introduction

- A. The information contained herein is designed to serve as a guide to procedures, plan preparation requirements, material specifications, and installation **of public water main extensions and new water mains for subdivisions within the City of Toledo.**
- B. The City of Toledo, through the DES, requires plans to be prepared in accordance with its standards and specifications; materials and equipment to be incorporated into the work to meet its standards and specifications; and the water mains to be installed, pressure tested, and disinfected under the immediate and direct supervision of authorized DES personnel.
- C. **Developers shall pay 100 percent of the cost of water main extensions to new development and water mains for new subdivisions.**
- D. **Fees for Water Taps (4” Diameter and Larger) are required to be paid prior to beginning construction (see Appendix 13).**

Plan Requirements

In addition to the General Plan Requirements, the following requirements apply to plans for **public water main extensions and new water mains for subdivisions:**

- A. The plans shall be drawn specifically for the installation of the water **distribution facilities** only. Plans shall become the property of the DES upon approval of the Commissioner of the DES.
- B. **Plan Notes – Notes as shown on Appendix 7, “WATER GENERAL NOTES FOR CITY OF TOLEDO PUBLIC WATER MAIN EXTENSIONS AND SUBDIVISIONS” shall be included on plans for water main extensions and subdivisions. Notes as shown on Appendix 9A “PRETAP CONDITIONS, PUBLIC WATER MAIN IN NEW ROAD, CITY OF TOLEDO & NON-MASTER-METERED AREAS shall be included on plans for subdivisions. Notes as shown on Appendix 9B, “TAP CONDITIONS, PUBLIC WATER MAIN IN EXISTING ROAD, CITY OF TOLEDO & NON-MASTER-METERED AREAS shall be included on plans for water main extensions.**
- C. Plan and Profile Drawings –The **water main** profile shall include the station and elevation of all changes in water main direction or depth; the percent grade and length of water line

between changes in grade; and existing ground elevations and proposed final grades over the water main. The provision for a minimum cover of five feet (5') and a maximum cover of seven feet (7') shall be shown, unless specifically waived by the DES. Wherever a water main is to be laid over a filled area, the profile of the undisturbed earth shall be shown. **All existing and proposed utilities shall be shown in the plan view. In the profile view, show all existing and proposed utilities that are within 10 feet of the proposed water main or that cross the proposed water main. All existing and proposed sanitary taps shall be shown in the profile view.**

- D. Connections to the existing water distribution system shall be identified. Large taps (4-inch through 12-inch diameter) will be performed by the City of Toledo at the Developer's expense.
- E. Details – Use City of Toledo standard details for water line trench, valve manhole, hydrants, boring, **pipe restraint, and thrust blocking. Plans shall refer to City of Toledo Construction Standards, latest edition.**
- F. Special provisions such as thrust blocks, restraints, specifications for jacking encasement pipe under railroads, pavement, etc., and special structures shall be shown on the plans, together with specification reference if not totally reproduced on the plans.
- G.. Size, type, station, and distance from centerline of all **fittings**, hydrants, valves, and pretaps shall be shown on the plan view.
- H. Oak Openings Wetlands - The City is required by Ohio EPA to verify that developments connecting to water main extensions in the Oak Openings Region comply with Federal and State wetlands regulations. For developments and waterline extensions in the Oak Openings Region (see Lucas County Highway Map Atlas for delineation), the following note is required on plans and the conditions set forth in the note shall be complied with prior to plan approval:

“This project is located within the Oak Openings Region, a significant, high quality, environmental resource. Dredging, filling, clearing, or otherwise altering Category 3 wetlands (see OAC 3745-1-54 for wetland category definitions) within the Oak Openings Region is prohibited. Dredging, filling, clearing, or otherwise altering Category 1 or 2 wetlands within the Oak Openings Region is strongly discouraged, and is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include notification and concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers. Any mitigated wetlands provided in accordance with said permits shall be located within the Oak Openings Region.”

Design Requirements

A. Fire Hydrants

1. Hydrant spacing shall not exceed 350 feet unless the DES deems it necessary to permit hydrant spacing greater than 350 feet.
2. Hydrants in new subdivisions shall be located within the center ten feet (10') of a lot. For corner lots hydrants shall be located ten feet (10') in either direction from the corner of lot. In case of zero lot line subdivisions and roadways with large radius curves, driveway locations shall be shown to ensure conflicts with hydrants are avoided.
3. Unless otherwise specifically approved by the DES, a hydrant shall be placed at each intersection of streets, or at a substantial bend in a street.
4. Hydrants shall be located no closer than three feet from the centerline of the hydrant to the back of the curb. Hydrants shall be installed so that all hydrants are of equal distance from the curb.
5. **On cul-de-sacs with an island, the water main shall be designed with a hydrant placed in the island.** On cul-de-sacs with no island, the water main shall be constructed around the outside of the cul-de-sac, with a hydrant placed in the middle ten feet (10') of the first lot into the cul-de-sac on the opposite side of the water main.
6. Hydrant branches – if a hydrant branch is limited to one length of pipe, a 6-inch branch may be permitted. If hydrant branch is greater than one length of pipe, branch shall be 8-inch and reduce to 6-inch just prior to the hydrant branch valve.
7. For industrial subdivisions, the City of Toledo may require an 8-inch inlet connection and a 6-inch main valve opening.
8. Hydrant drain holes shall be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket shall be placed around the base of the hydrant as shown on the standard hydrant drawing.

B. Water Mains

1. Water mains shall be eight-inch (8") in size unless a larger size is required to provide the customer's need. If that need is for process or fire protection, the cost of mains larger than eight-inch (8") shall be paid by the developer or petitioners involved. If the DES requests that a main larger than eight-inch (8") be installed to improve the supply to adjacent, already-developed areas, then the DES will consider paying the difference in material costs over the eight-inch (8") main.
2. **Water mains in cul-de-sacs with an island shall be designed such that all water service taps are located in the island.**

3. **Minimize bends, deflections, low points and high points. Slope water main to allow air release at proposed or existing hydrants. Avoid creating dead ends.**
4. Water mains should be located 21 feet off centerline. Location 18 feet off centerline (same as Lucas County) also will be acceptable.
5. Water mains that are to be extended in the future shall be provided with a valve (in manhole), one length of pipe, and a blow-off on the end of the pipe. 12-inch and 10-inch diameter pipe shall have a 2 1/2-inch blow-off; 8-inch **diameter pipe shall have a 2-inch blowoff**; and 6-inch pipe shall have a 1-1/2-inch blow-off.
6. Water mains crossing railroads shall be encased in steel pipe conforming to railroad specifications.
7. Water mains under thoroughfares shall be installed by open cut, boring and jacking a steel casing, **or directional drilling** in accordance with the City of Toledo Construction Standards. Open cuts shall be approved by the Divisions of Engineering Services and Transportation.
8. Pre-tap locations shall be shown on the plans, either in plan view or on a schedule. Pre-taps shall not be located under pavements.

C. Valves

1. **Main line valves shall be located at intersections and with a maximum spacing of 500 feet (commercial) or 800 feet (residential).**
2. Main line valves shall be enclosed in standard manholes **of the size indicated in the Construction Standards**. The location of main line valves shall be as **approved** by the DES for each project.
3. **Privately-owned valves (water services 4-inch diameter and larger) shall be installed with a valve box.**

Plan Approval

In addition to the General Plan Requirements, the following requirements apply to **plans for public water main extensions and subdivisions**:

- A. The Developer shall submit approved water main plans, required fees, and other appropriate documentation to the State of Ohio Environmental Protection Agency, Northwest District Office, 347 Dunbridge Road, Bowling_Green, Ohio 43402, for their approval. No construction may begin on the water mains until the DES has in its possession one (1) set of plans with the Ohio EPA stamp of approval.
- B. After the plans are approved, the Developer shall submit a cost estimate for waterline construction, including the waterline and appurtenances, inspection, testing, and tapping.

- C. The Developer shall enter into a license agreement with the City of Toledo. Construction shall not begin until all license agreements, escrows, and **fees** for large taps are completed **and paid**.
- D. In the event that the property proposed to be developed fronts on public rights-of-way which have existing water mains which were installed and paid for by private persons, the Developer shall pay the amount of any assessment charges due on said mains as authorized by City Council. These assessment charges shall be paid via check and deposited with the Division of Administrative Services.
- E. The Developer shall notify the DES as to the contractor he desires to employ for the installation of the water mains prior to the award of a contract for the work. The Commissioner of DES reserves the right to reject anyone proposed who, in his or her opinion, does not have the capabilities of installing the water main or mains as defined under "Contractor."
- F. The Developer, or his agents, shall submit shop drawings to the DES. This is to enable the DES to determine that the materials proposed for use meet the standards specified herein. The approval of the DES shall be obtained in writing for each item of material proposed to be incorporated into the project.

PART 1B – PUBLIC WATER DISTRIBUTION FACILITIES OUTSIDE CITY OF TOLEDO

Introduction

- A. **The information contained herein is designed to serve as a guide to procedures, plan preparation requirements, material specifications, and installation of public water main extensions and new water mains for subdivisions, outside the City of Toledo, in non-master-metered areas.**
- B. **The City of Toledo, through the DES, requires plans to be prepared in accordance with its standards and specifications; and materials and equipment to be incorporated into the work to meet its standards and specifications. Water mains to be installed, pressure tested, and disinfected under the immediate and direct supervision of the Local Governing Authority.**
- C. **Fees for Water Taps (4" Diameter and Larger) are required to be paid prior to beginning construction (see Appendix 13).**

Plan Requirements

In addition to the general plan requirements and the requirements of the Local Governing Authority, the following requirements apply to plans for public water main extensions and new water mains for subdivisions:

- A. **The plans shall be drawn specifically for the installation of the water distribution facilities only.**

- B. Plan Notes –Notes as shown on Appendix 9A, “PRETAP CONDITIONS, PUBLIC WATER MAIN IN NEW ROAD, CITY OF TOLEDO & NON-MASTER-METERED AREAS shall be included on plans for subdivisions. Notes as shown on Appendix 9B, “TAP CONDITIONS, PUBLIC WATER MAIN IN EXISTING ROAD, CITY OF TOLEDO & NON-MASTER-METERED AREAS shall be included on plans for water main extensions.**
- C. Plan and Profile Drawings –The water main profile shall include the station and elevation of all changes in water main direction or depth; the percent grade and length of water line between changes in grade; and existing ground elevations and proposed final grades over the water main. The provision for a minimum cover of five feet (5’) and a maximum cover of seven feet (7’) shall be shown, unless specifically waived by the DES. Wherever a water main is to be laid over a filled area, the profile of the undisturbed earth shall be shown. All existing and proposed utilities shall be shown in the plan view. In the profile view, show all existing and proposed utilities that are within 10 feet of the proposed water main or that cross the proposed water main. All existing and proposed sanitary taps shall be shown in the profile view. Connections to the existing water distribution system shall be identified. Large taps (4-inch through 12-inch diameter) will be performed by the City of Toledo at the Developer’s expense.**
- D. Details – Use the Local Governing Authority’s standard details for water line trench, valve manhole, hydrants, boring, pipe restraint and thrust blocking.**
- E. Special provisions such as thrust blocks, restraints, specifications for jacking encasement pipe under railroads, pavement, etc., and special structures shall be shown on the plans, together with specification reference if not totally reproduced on the plans.**
- F. Size, type, station, and distance from centerline of all fittings, hydrants, valves, and pretaps shall be shown on the plan view.**
- G. Oak Openings Wetlands - The City is required by Ohio EPA to verify that developments connecting to water main extensions in the Oak Openings Region comply with Federal and State wetlands regulations. For developments and waterline extensions in the Oak Openings Region (see Lucas County Highway Map Atlas for delineation), the following note is required on plans and the conditions set forth in the note shall be complied with prior to plan approval:**

“This project is located within the Oak Openings Region, a significant, high quality, environmental resource. Dredging, filling, clearing, or otherwise altering Category 3 wetlands (see OAC 3745-1-54 for wetland category definitions) within the Oak Openings Region is prohibited. Dredging, filling, clearing, or otherwise altering Category 1 or 2 wetlands within the Oak Openings Region is strongly discouraged, and is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the

Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include notification and concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers. Any mitigated wetlands provided in accordance with said permits shall be located within the Oak Openings Region.”

Design Requirements

A. Fire Hydrants

- 1. Hydrant spacing shall not exceed 350 feet unless the Local Governing Authority’s Fire Prevention Agency deems it necessary to permit hydrant spacing greater than 350 feet.**
- 2. Hydrants in new subdivisions shall be located within the center ten feet (10’) of a lot. For corner lots hydrants shall be located ten feet (10’) in either direction from the corner of lot. In case of zero lot line subdivisions and roadways with large radius curves, driveway locations shall be shown to ensure conflicts with hydrants are avoided.**
- 3. Unless otherwise specifically approved by the Local Governing Authority’s Fire Prevention Agency, a hydrant shall be placed at each intersection of streets, or at a substantial bend in a street.**
- 4. On cul-de-sacs with an island, the water main shall be designed with a hydrant placed in the island. On cul-de-sacs with no island, the water main shall be constructed around the outside of the cul-de-sac, with a hydrant placed in the middle ten feet (10’) of the first lot into the cul-de-sac on the opposite side of the water main.**
- 5. Hydrant branches – if a hydrant branch is limited to one length of pipe, a 6-inch branch may be permitted. If hydrant branch is greater than one length of pipe, branch shall be 8-inch and reduce to 6-inch just prior to the hydrant branch valve.**
- 6. Hydrant drain holes shall be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket shall be placed around the base of the hydrant as shown on the standard hydrant drawing.**

B. Water Mains

- 1. Water mains shall be eight-inch (8”) in size unless a larger size is required to provide the customer’s need.**

2. **Water mains in cul-de-sacs with an island shall be designed such that all water service taps are located in the island.**
3. **Minimize bends, deflections, low points and high points. Slope water main to allow air release at proposed or existing hydrants. Avoid creating dead ends.**
4. **Water mains that are to be extended in the future shall be provided with a valve (in manhole), one length of pipe, and a blowoff on the end of the pipe. 12-inch and 10-inch diameter pipe shall have a 2-1/2-inch blowoff; 8-inch diameter pipe shall have a 2-inch blowoff; 6-inch pipe shall have a 1-1/2-inch blowoff.**
5. **Water mains crossing railroads shall be encased in steel pipe conforming to railroad specifications.**
6. **Pretap locations shall be shown on the plans, either in plan view or on a schedule. Pre-taps shall not be located under pavements.**

C. Valves

1. **Main line valves shall be located at intersections and with a maximum spacing of 500 feet (commercial) and 800 feet (residential).**
2. **Privately-owned valves (water services 4-inch diameter and larger) shall be installed with a valve box.**

Plan Approval

In addition to the General Plan requirements and the requirements of the Local Governing Authority, the following requirements apply to plans for public water main extensions and subdivisions:

- A. **The Developer shall submit approved water main plans, required fees, and other appropriate documentation to the State of Ohio Environmental Protection Agency, Northwest District Office, 347 Dunbridge Road, Bowling, Green, Ohio 43402, for their approval. No construction may begin on the water mains until the DES has in its possession one (1) set of plans with the Ohio EPA stamp of approval.**

PART 2 – PRIVATE WATER DISTRIBUTION FACILITIES

Introduction

- A. **The information contained herein is designed to serve as a guide to procedures, plan preparation requirements, material specifications, and installation of new or modification of existing private water distribution facilities. A “private water distribution facility” is defined as a privately-owned water distribution facility including fire lines and large water services (4-inch diameter and larger).**

- B. The City of Toledo, through the DWD and DES, requires plans to be prepared in accordance with its standards and specifications; materials and equipment to be incorporated into the work to meet the standards and specifications; and the **fire lines and** large water services to be installed, tested, and disinfected under the immediate and direct supervision of authorized **DWD** personnel.
- C. **Fees for Water Taps (4" Diameter and Larger) and Water Plan Review and Inspection are required prior to beginning construction** (see Appendix 13).

Plan Requirements

In addition to the General Plan Requirements, the following requirements apply to **private water distribution facilities**:

- A. **Plan Notes – Notes as shown on Appendix 10, Exhibit A-1 – “WATER GENERAL NOTES FOR CITY OF TOLEDO PRIVATE WATER MAINS, FIRE LINES AND LARGE SERVICES”, or Appendix 11, GENERAL NOTES FOR PRIVATE WATER MAINS, FIRE LINES AND LARGE SERVICES OUTSIDE CITY OF TOLEDO” shall be included on plans for private water mains, fire lines or large services. Notes as shown on Appendix 12 TAP AND PRETAP CONDITIONS, PRIVATE WATER MAINS, CITY OF TOLEDO & NON-MASTER-METERED AREAS shall be included on plans for private water mains, fire lines or large services.**
- B. Plan and Profile Drawings – shall be provided for **existing and proposed private water distribution facilities within the public right-of-way, where facilities are to be installed over a filled area, or as directed by the DES.** Any profile shown of the water service shall include all other utilities at their appropriate grades; station and elevation of all changes in water main direction or depth; and the percent grade and length of water line between changes in grade; and existing ground elevations and proposed final grades over the water line. The provision for a minimum cover of five feet (5') and a maximum cover of seven feet (7') shall be shown, unless specifically waived by the DES. Wherever a water main is to be laid over a filled area, the profile of the undisturbed earth there under shall be shown.
- C. Existing and proposed water lines – Connections to the existing **public or private water distribution** system shall be identified. Water line numbers of existing water lines shall be shown. (This information may be obtained from the DES).
- D. Details – **Use City of Toledo standard details for trench, valve manhole, hydrants, and borings.**
- E. Special provisions such as thrust blocks, restraints, specifications for jacking encasement pipe under railroads, pavement, meter chambers, etc., and special structures shall be shown on the plans.
- F. Size, type, station, and distance from the centerline of all **fittings, hydrants, valves, offsets, and taps.**

- G. Oak Openings Wetlands - The City is required by Ohio EPA to verify that developments connecting to water main extensions in the Oak Openings Region comply with Federal and State wetlands regulations. For developments and waterline extensions in the Oak Openings Region (see Lucas County Highway Map Atlas for delineation), the following note is required on plans and the conditions set forth in the note shall be complied with prior to plan approval:

“This project is located within the Oak Openings Region, a significant, high quality, environmental resource. Dredging, filling, clearing, or otherwise altering Category 3 wetlands (see OAC 3745-1-54 for wetland category definitions) within the Oak Openings Region is prohibited. Dredging, filling, clearing, or otherwise altering Category 1 or 2 wetlands within the Oak Openings Region is strongly discouraged, and is prohibited without first providing proof of compliance with the following permits: Section 401 of the Clean Water Act, Ohio EPA Isolated Wetland Permit, and Section 404 of the Clean Water Act. If a permit does not apply, provide a letter from a qualified professional certifying that they have surveyed the site and determined that the permit is not applicable. All certifications and delineations shall include notification and concurrence from the U.S. Army Corps of Engineers and/or Ohio EPA, as appropriate, in accordance with protocols currently accepted by the U.S. Army Corps of Engineers. Any mitigated wetlands provided in accordance with said permits shall be located within the Oak Openings Region.”

Design Requirements

A. Water Availability

1. It is the customer’s responsibility to determine the water needed to adequately provide for fire and domestic service.
2. The following items shall be considered in determining water availability:
 - a. Source (Water Main Sizes)
 - 1) Existing **public** water **distribution** mains, contact the DES.
 - 2) Existing **public** water **transmission** mains – Water mains sixteen inches (16”) and larger in size are considered trunk mains and are not to be tapped for water service, except when approved by the Commissioner of the DES, after an engineering study of the affected part of the distribution system.
 - b. Demand – Customer’s anticipated consumption.
 - c. Pressure
 - 1) Pressure varies throughout the City system, minimum of 32 psi and maximum of 80 psi.

- 2) The City of Toledo will not be responsible for the furnishing and maintaining of any set amount of water at a given pressure or for the lack of service on a limited fire service (Rules and Regulations Section 202.06).
- 3) Information on typical pressure at a specific location may be available based on the results of flow tests, which are kept on file at the DES. If recent flow tests are unavailable, the customer can request a flow test be performed using the procedure listed under “Flow Tests.”
- 4) Flow Tests
 - a) Flow Tests can be requested by submitting a letter to the DES, including the test location and a check for the current rate, payable to the City of Toledo.
 - b) All flow test results are kept on file at the DES.
 - c) For flow tests on private fire systems see Section 202.18 of the Rules and Regulations.
 - d) For flow tests on the public water system by insurance companies see Section 202.19 of the Rules and Regulations.
 - e) The City of Toledo does not conduct flow tests outside the City limits.

B. Hydrants

1. Hydrant spacing shall be in accordance with the requirements of the appropriate **Local Governing Authority’s** Fire Prevention Agency.
2. Hydrant branches – if hydrant branch is limited to one length of pipe, a 6-inch branch may be permitted. If hydrant branch is greater than one length of pipe, branch shall be 8-inch and reduce to 6-inch just prior to the hydrant branch valve.
3. Design shall ensure that fire trucks have access to fire hydrants.
4. For industrial applications, the City of Toledo may require an 8-inch inlet connection and a 6-inch main valve opening.
5. Hydrant drain holes shall be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket shall be placed around the base of the hydrant as shown on the standard hydrant drawing.

C. Water Lines

1. Water services with hydrants shall be eight-inch (8”) minimum size unless a larger size is required to provide the customer’s needs.

2. Water lines that are to be extended in the future shall be provided with a valve in manhole, one length of pipe, and a blow-off on the end of the pipe. 12-inch and 10-inch diameter pipe shall have a 2-1/2 inch blowoff; 8-inch **pipe shall have a 2-inch blowoff** and 6-inch diameter pipe shall have a 1-1/2-inch blow-off.
3. Water lines crossing railroads shall be encased in steel pipe conforming to railroad specifications.
4. Water lines under thoroughfares shall be installed by open cut, boring and jacking a steel casing, **or directional drilling** in accordance with the City of Toledo Construction Standards. Open cuts shall be approved by the Divisions of Transportation and Engineering Services.
5. Installation of the water service to the first joint above final floor elevation shall be by the site contractor.
6. If a domestic service is split off the fire service, the split must occur outside the building.
7. **Water services may not be tapped into a private main on another property.**

D. Valves

1. Main line valves shall be enclosed in standard manholes or valve boxes. The location of main line valves **shall be as approved** by the DES.

Plan Approval

In addition to the General Plan Requirements, the following requirements apply **to private water distribution facilities** plans:

- A. **The Developer shall submit approved plans to the Ohio EPA for private water distribution facilities supply water service to a school, hospital, multi-unit housing, or any facilities meeting Ohio EPA criteria for a community water system.** No construction may begin on the water mains until the DES has in its possession one (1) set of plans with the Ohio EPA stamp of approval.
- B. Submit one copy of plan showing Fire Riser Detail (if applicable), Meter Setting Detail (if applicable) and Cross Connection Survey (Appendix 14) to Backflow Prevention Coordinator, Division of Water Distribution, 401 S. Erie, Toledo, OH 43602.
- C. In the event that the property proposed to be developed fronts on public rights of way which have existing water mains which were installed and paid for by private persons, the Developer shall pay the amount of any assessment charges due on said mains as authorized by City Council. These assessment charges shall be paid via check and deposited with the Division of Administrative Services.

D. Construction shall not begin until **fees** for large taps and construction inspection are provided.

APPENDICES

Appendix 1

SANITARY SEWER NOTES (IN PUBLIC RIGHT-OF-WAY)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the latest version of the Construction Standards of the City of Toledo and the City of Toledo Part A Standards Specifications which amend the Ohio Department of Transportation Construction and Materials Specifications. A copy of said Standards is available on the DES web site.
2. All PVC sanitary sewer conduits shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduits shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 611.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for exfiltration or infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. PVC pipe sections between manholes shall be tested for ring deflection, which shall not exceed five percent (5%). Testing shall be done at least 30 days after pipe is installed.
 - C. All new manholes shall be vacuum tested per ASTM C-1244.
 - D. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
 - E. The sanitary sewer shall be televised after installation. Pan and tilt type camera shall be used. Operator shall pan up all laterals. All construction debris shall be removed from the sewer. If construction debris is found, the sewer shall be cleaned and re-televised. This process shall be repeated until all construction debris is removed from the sewer. Any visible leakage or defects shall be repaired; cost for all work under this item shall be included in the unit price for

the sewer. Manhole numbers shall be displayed on the video indicating which manholes the inspector is traveling from and to, regardless of flow direction. All video shall be recorded in a digital format and shall also be accompanied by a written log. A separate file shall be provided for each sewer segment televised and named with the corresponding manhole numbers televised. A separate log sheet shall also be provided for each sewer segment televised. One copy of the video and log sheets shall be provided to the city.

7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.
9. A License Agreement or permit authorizing construction, payment of fees, maintenance bonds, and other items will be prepared by the City of Toledo for signature by the property owner/developer.
10. Construction of improvements cannot commence until the necessary License Agreement has been signed or Permit fees paid and Ohio EPA approval of the plans has been obtained.
11. Inspection - The contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for the inspection of sanitary sewers, water lines, and storm drains.
12. The Developer shall be responsible for meeting the requirements of the OEPA anti-degradation requirements.

Appendix 2

SANITARY SEWER NOTES (PRIVATE SEWER GREATER THAN 200 FEET)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the latest version of the Construction Standards of the City of Toledo and the City of Toledo Part A Standards Specifications which amend the Ohio Department of Transportation Construction and Materials Specifications. A copy of said Standards is available on the DES web site.
2. All PVC sanitary sewer conduit shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduit shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 611.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for exfiltration or infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. All new manholes shall be vacuum tested per ASTM C-1244.
 - C. PVC pipe sections between manholes shall be tested for ring deflection, which shall not exceed five percent (5%). Testing shall be done at least 30 days after pipe is installed.
 - D. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities

Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.

9. Inspection - The contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for the inspection of sanitary sewers, water lines, and storm drains.
10. The Developer/Customer shall be responsible for meeting the requirements of the OEPA antidegradation requirements, if applicable.

Appendix 3

SANITARY SEWER NOTES (PRIVATE SEWER LESS THAN 200 FEET)

The following general notes shall be included on the plans:

1. All construction and materials shall conform to the latest version of the Construction Standards of the City of Toledo and the City of Toledo Part A Standards Specifications which amend the Ohio Department of Transportation Construction and Materials Specifications. A copy of said Standards is available on the DES web site.
2. All PVC sanitary sewer conduit shall be ASTM D-3034, SDR-35, with cell classification 12454-B or approved equal.
3. All sanitary sewer conduit shall contain premium joints per ASTM D-3212.
4. Roof drains, foundation drains, and other clean water connections to the sanitary sewer are prohibited.
5. Granular material shall conform to the requirements of City of Toledo Part A Standards, Item 611.
6. Sewer Testing
 - A. All runs of the sanitary sewer shall be tested for infiltration by an Independent testing laboratory. The maximum rate of leakage or infiltration shall not exceed 100 gallons per inch of diameter, per mile of conduit, per 24 hours. A low-pressure air test may be used. All visible leakage in sewers or manholes shall be repaired even though the leakage is at a lower rate than the maximum allowed.
 - B. All new manholes shall be vacuum tested per ASTM C-1244.
 - C. Should any section of conduit fail to meet the test requirements, it shall be the Contractor's responsibility to provide television inspection and to make all necessary corrections. The cost of all materials, equipment, labor, and incidentals necessary for performing the tests and making any necessary corrections and replacements shall be the Contractor's responsibility.
7. The location of all existing utilities as shown on these plans is approximate. Determination of the exact location of existing utilities shall be the responsibility of the Contractor. The Contractor shall be responsible for any and all damage to existing utilities caused by his operations.
8. Underground Utilities: Two (2) working days before you dig, call Ohio Utilities Protection Service (OUPS) at 1-800-362-2764. Nonmembers must be called directly.
9. Inspections

- A. If both the proposed sanitary sewer and the proposed storm drain are individually less than 200 ft in length, the contractor shall call the supervisor-utilities at (419) 936-2927 a minimum of three (3) working days prior to the start of construction for inspection.
 - B. If either the proposed sanitary sewer or the proposed storm drain is greater than 200 ft in length, the contractor shall call the utilities construction engineer at (419) 936-2847 a minimum of three (3) working days prior to the start of construction for inspection.
10. Permit Application for Inspection Services – Required if either Sanitary or Storm piping is > 200 feet in length. If so, both storm and sanitary piping lengths are combined to determine the fee. Developer or his agent is required to sign the permit application. Fees for inspection are to be paid before plan approval will be granted. Permit and fees will be handled by the Division of Engineering Services.
11. Projects less than 200 feet Length – After the review process, projects of this size and smaller, will be inspected and fees charged by Sewer & Drainage Services.

Appendix 4

STORMWATER UTILITY PLAN REVIEW CHECKLIST

City of Toledo

Stormwater Utility Plan Review

Information Requirements for Drawings – Private Developments

General Plan Information				
	Y	N	N/A	Comments
Graphic Scale (Min. allowed 1"=50' horizontal, 1"=5' vertical; 1"=20' preferred)				
Location Map including north arrow on Title Sheet				
Street Address or Plat Name of Project on title sheet				
Developer's Information:				
a. Name, Address, Phone, Fax, email address				
b. Subdivision drawings signed				
Engineers/Consultant Information:				
a. Name, Address, Phone, Fax, email address.				
b. Engineer's Stamp and Signature				
Legal Description of Property Subdivision Name and Lot number or Plat and Parcel number is adequate				
Legend				
Plan and Profile drawings				
Existing public and private utilities shown and labeled				
Roadway and Pavement information provided				
Right of way and Lot lines shown				
Survey information shown (i.e. property monuments, reference and mensuration information)				
Standard Drawing Sheet Size (24"x26")				
Minimum construction Notes				
a. For protection of underground utilities, call the Ohio Utilities Protection Service at 1-800-362-2764.				
b. All material and construction shall be in accordance with the Construction Standards and Specifications of the State of Ohio Department of Transportation (ODOT), latest revision , as amended by current City of Toledo, Division of Engineering Services, Part A Standards. All standards referred to in these plans shall be in accordance with the current City of Toledo Construction Standards, unless otherwise noted. A copy of City of Toledo, Part A Standards and Construction Standards are available from the DES. In addition, all work shall be in compliance with all applicable federal and state standards and regulations.				
c. Contractor shall notify City of Toledo, Division of Environmental Services at 419-936-3015 three (3) days prior to starting earth-disturbing activities for the purpose of monitoring erosion and BMP measures.				

d. Contractor shall notify City of Toledo, DES for inspection at 419-936-2847 three (3) days prior to starting construction (> 200' of sewer). OR Contractor to notify City of Toledo, Division of Sewer and Drainage Services for inspection at 419-936-2927 three (3) days prior to starting construction for Sewer Tap Permit sites (<200' of sewer).				
e. Contractor is to designate a site dump/wash area prior to starting construction for such purposes as washing out concrete trucks and dumping non-hazardous waste materials, subject to the supervision of the City of Toledo, Division of Environmental Services and the City of Toledo Municipal Code. Dumping or discharge of any waste materials to any City of Toledo sewers is prohibited. Hazardous Wastes are to be removed off site and properly disposed of consistent with all Federal, State and Local regulations.				

Stormwater Drainage and Grading Plans				
	Y	N	N/A	Comments
Contours at 1' intervals				
Flow lines of surface water onto and off site				
Existing and proposed - public and private topographic features are shown and labeled (Including channels, swales, ditches, berms, piping, fences, buildings, parking lots, driveways, flood zone, wetlands, downspouts etc.)				
Existing and proposed public and private drainage structures features shown and labeled with elevations, sizes, direction of flow, pipe types etc. (Including yard drains, catch basins, manholes, swales, downspouts, etc.)				
Location of connection to public drainage				
Adjacent land abutting proposed development				
Property lines with grades and topography				
Proposed grading and drainage plan				
Existing and proposed impervious surfaces				

SWP3				
	Y	N	N/A	Comments
Does site have > 2500 square feet of disturbed area? (SWP3 is needed for all sites over 2500sq. ft disturbed)				
Does site have > 1 acre of disturbed area? (NOI is required for all sites over 1 acre disturbed)				
SWP3 plan?				
Copy of NOI provided?				
Ohio EPA SWP3 checklist for construction activities used to evaluate SWP3? (Attach copy of OEPA's Checklist)				
SWP3 notes (in addition to notes needed per OEPA's checklist):				
a. Soil erosion and sedimentation best management practice (BMP) measures will be installed prior to start of any construction and will be maintained at all times until construction has been completed, including all grass being well established and/or permanent erosion and sedimentation BMP measures are in place. All BMP measures will be installed to the satisfaction of				

the City of Toledo. The City of Toledo may require work to be stopped and storm drainage outlet to be plugged, if conditions become unsatisfactory.				
b. Contractor is to notify City of Toledo, Division of Environmental Services at 419-936-3015 three days prior to starting construction for purpose of monitoring erosion and BMP measures.				
c. Contractor is to designate a site dump/was area prior to starting construction for such purposes as washing out concrete trucks and dumping non-hazardous waste materials, subject to the supervision of the City of Toledo, Division of Environmental Services and the City of Toledo Municipal Code. Dumping or discharge of any waste materials to any City of Toledo sewers is prohibited. Hazardous Wastes are to be removed off site and properly disposed of consistent with all Federal, State and Local regulations.				
d. Any party (typically the general Contractor) who has day-to-day operation control of activities at this project, which are necessary to ensure compliance with the SWP3 for the site or other conditions as set forth in the permit, must file a Co-Permittee NOI with the Ohio EPA. This is the sole responsibility of the Co-Permittee and shall be done at least 21 days before ground is broken.				

Design Requirements				
	Y	N	N/A	Comments
Overall Drainage Layout and Design:				
a. Calculations of existing runoff patterns onto adjacent properties				
b. Drainage maps				
c. Plat				
d. Does Site drain internally?				
Pipe Design				
a. Plan and profile drawing for entire length of Pipe				
b. Pipe specifications per City of Toledo Standards				
c. Bedding and Backfill per City of Toledo Standards				
d. Calculations for pipe size determinations: 5-, 10-, 25-, and 100- year hydraulic gradient checks				
e. Pipes designed to flow full for 5-yr intensity –duration-frequency curve?				
f. Minimum design velocity 3.0fps				
g. Pipe slope >15% = anchor walls				
h. Minimum meter pipe size = 6"				
i. Minimum main line pipe in public right of way = 12"				
j. Pipe depth > 10', include calculations for pipe loading and strength				
Manhole and Catch Basin Design				
a. Structure specifications per City of Toledo Standards				
b. Max. spacing = 300' for sewers 36" or less; 400' for sewers > 36".				
c. Minimum cover from top of outside crown of pipe to finished subgrade: Type "C" or "D" = 18"; Type "A" or "B" = 9"				

d. Structures located at changes in alignment				
e. Catch basin type and sizing per 2-year IDF curve				
f. Gutter elevations set at HGL for 10-year IDF				
g. Sheet gutter flow = 6' for arterial streets, 8' for local streets				
h. 2' sump on catch basin only, if required.				
i. Traps on catch basin in combined sewer area				
Open Drainage Ditches				
a. Max. side slope 2:1				
b. Max. velocity = 6-8 fps at 25 yr storm; 3 fps at 10yr storm				
c. 12' clearance from top of bank, ordinary high water mark or floodway to any structure, fence, obstruction, etc ; highly recommended 40' clearance from high watermark				
d. Easement to encompass top of bank and maintenance way.				
e. Low maintenance buffalo or Burma grass				
f. Trash Rack (if needed)				
Culverts				
a. Per Federal Highway Administrations (FHWA) publication Hydraulic Design of Highway Culverts.				
b. Culvert span = 10'' or more, approval from Streets, Bridges & Harbor.				
c. Trash rack at inlet with appropriate openings				
Pump Stations				
a. Calculations for peak and average flow, pump ratings, etc.				
b. Discharge calculations and outlet system capacity				
c. Maintenance agreement				
Footer Tile Outlets (provided for all lots in new subdivision unless basement and crawl spaces are prohibited by plat)				
a. Location and elevation shown on plan				
b. Located within the right of way (prohibited along rear or side lots)				
c. Minimum size for services to front property line = 4''; unless two houses are served from one crossover = 6''				
d. Calculations for capacity of existing drainage facilities				
e. Storm sewer extended to serve all lots				
i. Capacity 1.25gpm per house served				
ii. Minimum diameter = 6''				
iii. Minimum grade = 0.3%				
f. Crossovers minimum grade = 0.3%				
g. Combined area are storm and sanitary shown as separate lines to the right of way.				

Stormwater Detention Facilities				
	Y	N	N/A	Comments
Does Site have > 2500square feet of disturbed area?				
Does the site discharge directly to Maumee River, Swan Creek, or Ottawa River?				
Type of detention facility				
Location, size and elevations shown on plan				
Calculations provided for capacity and outlet				
a. 25 year frequency storm up to 24 hour duration - Min.				

safety factor = 1.1 for private ponds, 1.3 for public ponds				
b. Restricted outlet – 5 yr 20 min. storm occurring from strip of land measuring 100 feet in depth along right of way in undeveloped state				
c. Meter line size – 6” minimum				
Open Detention Pond				
a. Side slope max. 2.5:1; 3:1 for residential				
b. Meter pipe				
c. Access for maintenance				
d. Slopes seeded or sodded				
e. Future improvements considered				
f. Downward facing elbow or trap upstream of metering pipe				
Parking lot Detention – Max. Depth 10”				
Maintenance Plan?				

Post Construction BMP's				
	Y	N	N/A	Comments
Is site within a combined sewer area?				
Does site have > 2500 square feet of disturbed area?				
Does site have > 5 acres of disturbed area?				
Does site include the installation of any impervious surface?				
Ohio EPA SWP3 checklist for construction activities used to evaluate post construction BMP's? (Attach copy of OEPA's Checklist)				
Maintenance Plan?				
a. Person/Organization responsible				
b. Maintenance and inspection tasks and schedule				
c. Responsibilities and methods for financing maintenance				

Special Conditions				
	Y	N	N/A	Comments
Flood Zone				
Is site located within or directly adjacent to a flood zone?				
Are Floodway and Flood plain boundaries shown?				
Does site improvement include fill within the Floodplain in excess of 10cy? If yes, are calculations for compensatory storage included?				
Is development within Floodway?				
Has an Hydrologic and Hydraulic (H&H) analysis been provided?				
Will development cause an increase or decrease the base flood elevation (BFE)?				
Does development propose alterations of a watercourse?				
CLOMR received from FEMA?				
Will a LOMR be required?				
Flood Hazard Development Permit?				
Wetlands				
Is the site located within or adjacent to a wetland?				

Are wetland boundaries shown on plans?				
Copy of the 401 and 404 permits?				
Certification letter from a qualified professional?				

Forms/ Permits				
	Y	N	N/A	Comments
NOI for sites over 1 acre				
Flood Hazard Development Permit				
Maintenance Agreement				
Agreement for drainage crossing property/parcel lines				
Stormwater Entry Form				
Ohio EPA SWP3 checklist for construction activities				
Fee Paid				
Stormwater Credit Application				



Stormwater Pollution Prevention Plan (SWP3) Checklist for Construction Activities (OHC000003)

Facility Name:	Date SWP3 Received:
SWP3 Reviewer:	Date SWP3 Reviewed:

Part III.G.1 - Site Description				
Does the SWP3.....	Y	N	N/A	Comments
(a) describe the nature and type of construction activity (e.g., low density residential, shopping mall, highway, etc.)?				
(b) describe the total area of the site that is expected to be disturbed (i.e., the area of grubbing, clearing, excavating, filling, or grading including off-site borrow areas)?				
(c) include a calculation of the runoff coefficients for both the pre-construction and post-construction site conditions?				
(d) include an estimation of the impervious area and percent imperviousness as a result of the construction activity?				
(e) include any existing data describing the soil? <i>NOTE: If this data is not available, it does not need to be included.</i>				
provide any information on the quality of the stormwater discharge from the construction site? <i>NOTE: If this data is not available, it does not need to be included.</i>				
(f) include any information about prior land uses at the site (e.g., was the property used to manage solid or hazardous waste)?				
(g) include an implementation schedule which describes the sequence of major construction operations (i.e., grubbing, excavating, grading, utilities and infrastructure installation) and the implementation of erosion, sediment and stormwater management practices or facilities to be employed during each operation of the sequence?				
(h) include the name(s) or location(s) of the initial and subsequent surface water bodies receiving the stormwater discharge?				
include the areal extent and description of the wetland or other special aquatic sites which will be disturbed and/or will receive the stormwater discharges?				
(i) include a detail drawing of a typical individual lot with shown sediment and erosion controls for construction sites with no centralized sediment controls (e.g., a sediment settling pond or inlet protection), which receives drainage from multiple lots?				
(j) include the location and description of stormwater discharges associated with dedicated asphalt and/or concrete batch plants covered by the NPDES construction stormwater general permit?				
(k) include a copy of the NPDES construction stormwater general permit?				
(l) include a cover page identifying the name and location of the site, the name and contact information for site operators and SWP3 authorization agents as well as preparation date, start date, and completion date?				
(m) include a modification log to be updated in the field?				

Part III.G.1.1 - Site Map Requirements

Does the SWP3 site map.....	Y	N	N/A	Comments
(1) describe the limits of earth-disturbing activity of the site including associated off-site borrow or spoil areas that are not addressed by a separate NOI and associated SWP3?				
(2) describe the soils types depicted for all areas of the site, including locations of unstable or highly erodible soils?				
(3) show existing and proposed contours to delineate drainage watersheds expected during and after major grading activities as well as the size of each drainage watershed, in acres?				
(4) show surface water locations including springs, wetlands, streams, lakes, water wells, etc., on or within 200 feet of the site, including the boundaries of wetlands or stream channels and first subsequent named receiving water(s) the permittee intends to fill or relocate for which the permittee is seeking approval from the Army Corps of Engineers and/or Ohio EPA?				
(5) include the location of existing and planned buildings, roads, parking facilities, and utilities?				
(6) include the location of all erosion and sediment control practices, including the location of areas likely to require temporary stabilization during the course of site development?				
(7) include the location of sediment and stormwater management basins noting their sediment settling volume and contributing drainage area?				
(8) include the location of permanent stormwater management practices to be used to control pollutants in stormwater after construction operations have been completed?				
(9) include areas designated for the storage or disposal of solid, sanitary, and toxic wastes (including dumpster areas), areas designated for cement truck washout, and areas for vehicle fueling?				
(10) include the location of designated construction entrances where the vehicles will access the construction site?				
(11) include the location of any in-stream activities including stream crossings?				

Part III.G.2 - Sediment & Erosion Controls				
(a) Non-Structural Preservation Methods	Y	N	N/A	Comments
(1) Has every effort been made to preserve the natural riparian setback adjacent to streams or other surface water bodies?				
(2) Have efforts been made to phase in construction activities in order to minimize the amount of land disturbance at one time?				
(3) Will any portions of the site be left undisturbed (e.g., tree preservation areas)?				
(b) Erosion Controls	Y	N	N/A	Comments
(1) Does the SWP3 describe the control practices used to restabilize areas after grubbing or construction?				
(2) Does the SWP3 specify the types of stabilization measures to be employed for any time of the year?				
(b)(2)(i) Temporary Stabilization	Y	N	N/A	Comments
For disturbed areas within 50 feet of a stream remaining dormant for over 21 days, will temporary erosion controls be applied within 2 days?				
For disturbed areas over 50 feet away from a stream remaining dormant for over 21 days, will temporary erosion controls be				

applied within 7 days?				
For disturbed areas that will be left idle over winter, will temporary erosion controls be applied prior to onset of winter weather?				
(b)(2)(i) Permanent Stabilization	Y	N	N/A	Comments
For disturbed areas within 50 feet of a stream at final grade, will permanent erosion controls be applied within 2 days of reaching final grade?				
For disturbed areas remaining dormant for over 1 year or at final grade, will permanent erosion controls be applied within 7 days?				
(c) Runoff Control Practices	Y	N	N/A	Comments
(1) Does the SWP3 incorporate measures to reduce flow rates (e.g., riprap, ditch check dams)?				
(2) Does the SWP3 incorporate measures to divert concentrated flow (e.g., pipe slope drains)?				
(d) Sediment Control Practices	Y	N	N/A	Comments
(1) Will sediment control devices be implemented for all areas remaining disturbed for over 14 days?				
(2) Are detail drawings of the sediment controls to be used included in the SWP3?				
(d)(i) Timing of Installing Sediment Controls	Y	N	N/A	Comments
Does the SWP3 specify that sediment controls will be installed/implemented within 7 days of grubbing activities?				
Does the SWP3 propose alternate sediment controls for the changing slopes and topography?				
(d)(ii) Sediment Settling Ponds	Y	N	N/A	Comments
Does the SWP3 include the installation and use of a sediment settling pond? <i>NOTE: Sediment settling ponds are required for all drainage areas of 10 or more acres of land disturbed at one time, when there is concentrated runoff (storm sewer or ditch), or when the design capacity of silt fence or inlet protection has been exceeded.</i>				
For construction activities that require sediment settling pond(s), does the SWP3 propose to implement alternative controls to sediment settling ponds? <i>NOTE: Alternative controls must be equivalent in effectiveness to a sediment settling pond.</i>				
Is the dewatering volume of the sediment settling pond sized to receive at least 67 cubic yards (1800 cubic feet) of stormwater per acre of total drainage area?				
Is the maximum depth of each sediment settling pond less than or equal to 5 feet?				
Will the dewatering volume drain down time in between 48 hours and 72 hours?				
Will the first half of the dewatering volume drain in no less than one-third of the total drain time?				
Does the dewatering device (e.g., a skimmer) meet the design standards of Ohio's Rainwater and Land Development Manual?				
Is the sediment storage zone volume of the pond at least 1000 cubic feet per disturbed acre (Method 1)?				
If not, was RUSLE method (Method 2) used to calculate the sediment storage zone volume?				
Is the length to width ratio of the sediment settling pond at least two units of length for every one unit of width (> 2:1 length to				

width)? <i>NOTE: The greater the distance from the stormwater inlet into the pond to the stormwater outlet, the greater likelihood of sediment settlement. This prevents short-circuiting of the pond.</i>				
Will the sediment storage zone of the pond be cleaned out when the silt occupies 40 percent of the sediment storage zone (approximately one-half of the sediment storage zone depth)?				
Is the sediment settling pond designed to consider public (i.e., child) safety where site limitations preclude a safe design?				
(d)(iii) Silt Fence & Other Diversions	Y	N	N/A	Comments
Will silt fence or other diversions be used to control sheet flow?				
Will silt fence be used in areas of steep slopes or concentrated flow? <i>NOTE: Silt fence is not permitted to be used for controlling high velocity stormwater flow (only sheet flow).</i>				

Design Capacity of Silt Fence

Maximum drainage area (in acres) to 100 linear feet of silt fence	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

(d)(iv) Inlet Protection	Y	N	N/A	Comments
Will the field drain inlets and/or the street curb inlets drain into a sediment settling pond or directly to surface waters of the state? <i>NOTE: Inlet protection is mandatory where sediment settling ponds will not be implemented.</i>				
Do any inlets not connected to a sediment settling pond receive runoff from one or more acres?				
Does the inlet protection meet the standards of Ohio's Rainwater and Land Development Manual?				
(d)(v) Stream Protection	Y	N	N/A	Comments
Does the SWP3 propose to use any structural sediment controls in a stream? <i>NOTE: Use of structural sediment controls in-stream is prohibited in accordance with Part III.G.2.d.v.</i>				
For construction activities that are on the stream bank or will involve stream crossing, does the SWP3 include measures to minimize the number of stream crossings and/or the width of disturbance? <i>NOTE: If work along a stream bank is necessary, a non-erodible pad or non-erodible stream diversion dams (sand bags) must be installed. If stream crossings are necessary, a non-erodible stream crossing must be installed.</i>				

Part III.G.2.e – Post-Construction Stormwater Management				
	Y	N	N/A	Comments
Does the SWP3 include the installation of a structural post-construction best management practice (BMP) to manage stormwater runoff once construction activities have been completed?				
Will the construction activity result in the installation of any impervious surface? <i>NOTE: Projects that do not result in the</i>				

<i>installation of impervious surface do not require the installation of post-construction BMPs.</i>				
Has a long-term maintenance plan been developed or included in the SWP3 for maintenance of the structural post-construction BMP? <i>NOTE: The long-term maintenance plan must be developed and provided to the post-construction site operator, but does not need to be implemented as required by this permit. Local municipalities may require maintenance plan implementation.</i>				
Is the construction activity a linear project (e.g., pipeline or utility line installation) that does not result in the installation of impervious surface? <i>NOTE: Linear projects that don't result in the installation of impervious surface do not need the installation of structural post-construction BMPs.</i>				
Large Construction Activities (\geq 5 Acres)	Y	N	N/A	Comments
Does the SWP3 include a structural post-construction BMP with a specified volume and drain time?				
If so, was one of the two methods proposed in the NPDES construction stormwater general permit (CGP) used to determine the water quality volume (WQv) and drain time?				
If the formula described in the CGP was used to calculate the WQv, were the correct values used for:				
(a) runoff coefficient (C)?				
(b) precipitation depth (P = 0.75-inches)?				
(c) and the drainage area (A) to the BMP?				
If the structural post-construction BMP will be used for sediment storage and/or has a reduced infiltration capacity, was the WQv increased by an additional 20 percent ("fudge factor")?				
Does the drain time in the SWP3 for the proposed structural post-construction BMP match the drain time for the selected BMP in the table below?				

Target Drain Times for Structural Post-Construction BMPs

Best Management Practice	Drain Time of WQv
Infiltration Basin	24-48 hours
Enhanced Water Quality Swale	24 hours
Dry Extended Detention Basin*	48 hours
Wet Extended Detention Basin**	24 hours
Constructed Wetland (above permanent pool) ⁺	24 hours
Sand & Other Media Filtration	40 hours
Bioretention Cell [^]	40 hours
Pocket Wetland [#]	24 hours
Vegetated Filter Strip	24 hours

* Dry basins must include forebay and micropool each sized at 10% of the WQv

** Provide both a permanent pool and an EDv above the permanent pool, each sized at 0.75 * WQv

⁺ Extended detention shall be provided for the full WQv above the permanent water pool.

[^] The WQv shall completely infiltrate within 48 hours so there is no standing or residual water in the BMP.

[#] Pocket wetlands must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDv above the permanent pool must be equal to the WQv.

Large Construction Activities (Continued)	Y	N	N/A	Comments
If the SWP3 proposes to use an alternative BMP instead of one of the BMPs listed in the table above, is the alternative BMP				

equivalent in effectiveness to the BMPs listed above?				
Is there a pre-existing drainage basin or other BMP that will receive the stormwater drainage from the construction site, is it sized appropriately to treat the WQv?				
For public road construction activities, are the post-construction BMPs designed consistent with the Ohio Department of Transportation's "Location and Design Manual, Volume Two?"				
For construction activities where a post-construction BMP cannot be placed onsite and will require an offsite post-construction BMP, has the offsite mitigation proposal been authorized by Ohio EPA? <i>NOTE: Offsite BMPs must have a long-term maintenance agreement, be within the same HUC, and be at least 1.5 times the size of an onsite BMP.</i>				
For redevelopment projects which disturb 5 or more acres of land, was one of the following options used to as a post-construction practice:				
(a) 20% reduction in impervious area?				
(b) a BMP sized to treat 20% of the WQv?				
(c) or a combination of (a) and (b) above?				
For construction activities where non-structural post-construction BMPs are proposed, has the substitution of structural BMPs with non-structural BMPs been authorized?				
For construction activities where alternative post-construction BMPs are proposed, has the alternative BMP been authorized by Ohio EPA? <i>NOTE: Alternative BMPs must have TARP Tier II acceptance, be able to remove 80% of total suspended solids (TSS) in the runoff, and be able to treat the WQv unless hydrologic impacts are not necessary.</i>				
Has the local municipality authorized the use of an alternative post-construction BMP?				
Small Construction Activities (≥ 1 Acre, but < 5 Acres)	Y	N	N/A	Comments
Does the SWP3 include a structural post-construction BMP? <i>NOTE: A structural post-construction BMP is required for small construction activities, but the design standards have not been specified in the CGP.</i>				
(i) If so, does the SWP3 explain the technical basis used to select the BMPs chosen where flows exceed pre-development levels?				
(ii) Does the SWP3 include the installation of velocity dissipation devices at discharge locations and outfall channels?				

Part III.G.2.f - Surface Water Protection				
	Y	N	N/A	Comments
Does the construction site contain any streams, rivers, lakes, or wetlands?				
If so, has the U.S. Army Corps of Engineers been contacted for a determination of impacts requiring Clean Water Act 401 or 404 permitting?				
For stormwater discharges from BMPs into wetlands, have BMPs (e.g., level spreaders, buffers, or infiltration basins) been proposed to diffuse the concentrated flow into non-erosive flow?				

Part III.G.2.g - Non-Sediment Pollutant Controls				
Handling of Toxic or Hazardous Materials	Y	N	N/A	Comments
(1) Does the SWP3 provide directions on how to dispose toxic or hazardous wastes properly?				
(2) Does the SWP3 provide areas for recycling of used or unused hazardous materials? <i>NOTE: No toxic or hazardous wastes shall be disposed into storm drains, septic tanks, or by burying, burning, or mixing the wastes.</i>				
Waste Disposal	Y	N	N/A	Comments
Will containers (e.g., dumpsters, drums) be available for disposal of debris, trash, hazardous or petroleum wastes? <i>NOTE: All containers must be covered and leak-proof.</i>				
Clean Hard Fill	Y	N	N/A	Comments
(1) Are bricks, hardened concrete, and soil waste free from contamination which may leach constituents to waters of the state?				
(2) If clean construction wastes will be disposed into the property, are there any local prohibitions from this type of disposal?				
Construction & Demolition Debris	Y	N	N/A	Comments
Does the SWP3 state that all construction & demolition debris (C&DD) waste will be disposed of in an Ohio EPA approved C&DD landfill as required by Ohio Revised Code (ORC) 3714? <i>NOTE: Construction debris may be disposed of on-site, but demolition debris must be disposed in an Ohio EPA approved landfill. Materials which contain asbestos must comply with air pollution regulations (see Ohio Administrative Code 3745-20).</i>				
Construction Chemical Compounds	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for mixing or storage of compounds such as fertilizers, lime, asphalt, or concrete?				
(2) If so, are these areas located away from watercourses, drainage ditches, field drains, or other stormwater drainage areas?				
Equipment Fueling & Maintenance	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for fueling or performing vehicle maintenance?				
(2) If so, are these areas located away from watercourses, drainage ditches, field drains, or other stormwater drainage areas?				
(3) Has a spill prevention control and countermeasures (SPCC) plan been developed? <i>NOTE: A SPCC plan must be developed for sites with one above ground storage tank (AST) of 660 gallons or more, total above ground tank storage of 1330 gallons, or below ground storage of 42,000 gallons of fuel.</i>				
Concrete Wash Waters	Y	N	N/A	Comments
(1) Does the SWP3 designate areas used for receiving concrete chute or other concrete wash waters?				
(2) If so, are these areas located away from watercourses, drainage ditches, field drains, or other drainage areas?				
Trench & Ground Water Control	Y	N	N/A	Comments
Does the construction site have an onsite trench or pond that must be dewatered?				
If so, does the SWP3 call for the discharge of potentially turbid water through a filter bag, sump pit, or other sediment removal				

device?				
Contaminated Soils	Y	N	N/A	Comments
Does the SWP3 address proper handling and disposal of soils contaminated by petroleum or other chemical spills? <i>NOTE: All contaminated soils must be treated and/or disposed in Ohio EPA approved solid waste management facilities or hazardous waste treatment, storage or disposal facilities (TSDFs).</i>				
If the facility contains contaminated soil, which of the following practices will be used to prevent contamination from being released?				
(1) The use of berms, trenches, and pits to collect contaminated runoff and prevent discharges				
(2) Pumping runoff into a sanitary sewer (with prior approval of the sanitary sewer operator) or into a container for transport to an appropriate treatment/disposal facility				
(3) Covering areas of contamination with tarps or other methods that prevent stormwater from coming into contact with the material				
Spill Reporting Requirements	Y	N	N/A	Comments
(1) Does the SWP3 describe what to do in the event of a small release (less than 25 gallons) of petroleum waste? <i>NOTE: Petroleum based and concrete curing compounds must have special handling procedures.</i>				
(2) Does the SWP3 describe what to do in the event of a larger release (25 or more gallons) of petroleum waste? <i>NOTE: You must contact, Ohio EPA (at 1-800-282-9378), the local fire department, and the local emergency planning committee (LEPC) within 30 minutes of a spill of 25 or more gallons.</i>				
Open Burning	Y	N	N/A	Comments
(1) Is open burning performed in a restricted area (as defined in OAC 3745-19)? <i>NOTE: Open burning is permitted in restricted areas for barbeques, heating, and certain occupational purposes.</i>				
(2) Is open burning performed in a non-restricted area, but within 1,000 feet of an inhabited building away from the property? <i>NOTE: Open burning in an unrestricted area is limited to scrap lumber, wooden fence posts, agricultural, land-clearing, or landscape wastes.</i>				
Dust Controls/Suppressants	Y	N	N/A	Comments
(1) Are dust suppressants proposed to be used in the SWP3?				
(2) If so, are the areas which the dust suppressant will be applied located near catch basins for storm sewers or other drainage ways? <i>NOTE: Used oil may not be used as a dust suppressant.</i>				
Air Permitting Requirements	Y	N	N/A	Comments
(1) Have appropriate measures been taken to ensure that all air pollution permits have been obtained? <i>NOTE: Air pollution permits may be required for activities including, but not limited to, mobile concrete batch plants, mobile asphalt plants, concrete crushers, and large generators.</i>				
(2) For restoration or demolition projects, will a notification be submitted to Ohio EPA, Division of Air Pollution Control to determine if asbestos corrective actions are required?				
Process Wastewater/Leachate Management	Y	N	N/A	Comments
Will all process wastewaters (e.g., equipment washing, leachate				

associated with on-site waste disposal, and concrete wash-outs) be collected and disposed of properly (e.g., to a publicly-owned treatment works)? <i>NOTE: The NPDES construction stormwater general permit only authorizes the discharge of stormwater and certain uncontaminated non-stormwaters. The discharge of non-stormwaters to waters of the state may be in violation of local, state, and federal laws or regulations.</i>				
Additional Concerns	Y	N	N/A	Comments
For construction activities involving the installation and/or replacement of a centralized sanitary system, (including sewer extensions) or a sewerage system (except those serving one, two, and three family dwellings) and potable water lines, was a PTI application submitted to Ohio EPA? <i>NOTE: Coverage under the NPDES construction stormwater general permit does not alone authorize the installation of such sanitary sewerage systems or potable water lines.</i>				
Does the SWP3 include measures for implementing good housekeeping practices?				
Does the SWP3 promote the use of protected storage areas for industrial or construction materials to minimize exposure of such materials to stormwater?				

Part III.G.2.i - Inspections				
	Y	N	N/A	Comments
Does the SWP3 require weekly inspections of BMPs and an inspection within 24 hours after every rain event of 0.5 inches within a 24 hour period?				
If the site will be dormant for a long period, it's stabilized, and less frequent inspections are desired, does the SWP3 call for a waiver request to be submitted to OEPA for a reduction to monthly inspections?				
Does the SWP3 state that only "qualified inspection personnel" will perform the inspections?				
Does the SWP3 state that an inspection checklist will be completed and signed by the inspector after every inspection?				
Does the SWP3 state that inspection records will be kept for 3 years after termination of construction activities?				
For BMPS that require repair or maintenance, does the SWP3 specify non-sediment pond BMPs to be repaired within 3 days of inspection and sediment ponds to be repaired or cleaned out within 10 days of inspection?				
For BMPs not meeting the intended function, does the SWP3 state that a new BMP will be installed within 10 days of the inspection?				
For missing BMPs required for installation by the SWP3, does the SWP3 state that the missing BMPs will be installed within 10 days of the inspection?				

Appendix 5
EXHIBIT A

CITY OF TOLEDO PERMIT APPLICATION FEE
FOR
SEWER PLAN REVIEW AND INSPECTION

The below listed permit application fees apply whenever either the sanitary or the storm sewer exceeds 200 feet in length, except single or double occupancy family residential properties. If both are less than 200 feet and for single or double occupancy family residential properties, a sanitary tap permit must be obtained from the Central Permit Center after plans are approved.

The total length of storm and sanitary sewer will be added together to determine the sewer fee for plan review and inspection of the sewers as indicated below. The detention volume fee will be added to the sewer fee to determine the total permit fee. Detention volume on parking lots is not part of inspection fees.

TOTAL LENGTH OF SEWERS	SEWER FEE	DETENTION VOLUME	DETENTION FEE
201 to 300 feet	\$700.00	500 to 8,000 cu. ft.	\$100.00
301 to 400 feet	\$900.00	8,001 to 16,000 cu. ft.	\$200.00
401 to 500 feet	\$1,100.00	16,001 to 30,000 cu. ft.	\$300.00
501 to 600 feet	\$1,300.00	30,001 to 50,000 cu. ft.	\$500.00
601 to 700 feet	\$1,500.00	50,001 to 75,000 cu. ft.	\$600.00
701 to 800 feet	\$1,700.00		
801 to 900 feet	\$2,000.00		
901 to 1,000 ft.	\$2,200.00		
1,001 to 1,100 ft.	\$2,400.00		
1,101 to 1,200 ft.	\$2,600.00		
1,201 to 1,300 ft.	\$2,800.00		
1,301 to 1,400 ft.	\$3,000.00		
1,401 to 1,500 ft.	\$3,200.00*		

* Add \$200.00 to the sewer fee for each 100 feet beyond 1,500 ft.

Checks should be made payable to: City of Toledo Department of Public Utilities (DPU).

Storm Water Entry Form

PROPERTY OWNER NAME

PROPERTY STREET NUMBER

PROPERTY STREET NAME

DATE APPROVED

DATE OF CONSTRUCTION

DESIGN ENGINEER NAME

DESIGN ENGINEER PHONE NUMBER

- Private
- Public

DRAWING NUMBER*

PAGE ____ OF ____*

SW FACILITY ____ of ____ on this site (new per this plan)

POST CONSTRUCTION BMP: YES ____ NO ____

<p>SW FACILITY TYPE</p> <p>CHECK ALL THAT APPLY</p>	<p><input type="checkbox"/> DETENTION - NOT EXTENDED - PARKING LOT</p> <p><input type="checkbox"/> DETENTION - NOT EXTENDED - DRAIN DRY</p> <p><input type="checkbox"/> DETENTION - EXTENDED - DRAIN DRY</p> <p><input type="checkbox"/> NO DETENTION - JUST PIPE</p> <p><input type="checkbox"/> GRASS SWALE OR TURF AREA</p> <p><input type="checkbox"/> DETENTION - NOT EXTENDED - PERMANENT WET BASIN</p> <p><input type="checkbox"/> DETENTION - NOT EXTENDED - UNDERGROUND</p> <p><input type="checkbox"/> BIOFILTER</p> <p><input type="checkbox"/> RAIN GARDEN</p> <p><input type="checkbox"/> DETENTION - NOT EXTENDED - ON ROOF</p> <p><input type="checkbox"/> DETENTION - EXTENDED - PERMANENT WET BASIN</p> <p><input type="checkbox"/> DETENTION - EXTENDED - UNDERGROUND</p> <p><input type="checkbox"/> CHECK DAM</p>	<p><input type="checkbox"/> HYDRODYNAMIC DEVICE</p> <p><input type="checkbox"/> MEDIA FILTER - NATURAL</p> <p><input type="checkbox"/> GRASS PAVING</p> <p><input type="checkbox"/> POROUS PAVEMENT - CONCRETE</p> <p><input type="checkbox"/> CATCH BASIN INSERT</p> <p><input type="checkbox"/> WETLAND</p> <p><input type="checkbox"/> INFILTRATION (DRY) WELL</p> <p><input type="checkbox"/> INFILTRATION BASIN</p> <p><input type="checkbox"/> OIL WATER SEPERATOR</p> <p><input type="checkbox"/> MEDIA FILTER - SYNTHETIC</p> <p><input type="checkbox"/> POROUS PAVEMENT - ASPHALT</p>
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CALCULATED:	
WATER QUALITY VOLUME (CUFT)	<input type="text"/>
SEDIMENT VOLUME (CUYD)	<input type="text"/>
25 YR VOLUME (CUFT)	<input type="text"/>
5 YR Q ALLOW (CFS)	<input type="text"/>
TOTAL DRAINAGE AREA (ACRES)	<input type="text"/>
IMPERVIOUS AREA (ACRES)	<input type="text"/>
RECEIVING STREAM (NAME)	<input type="text"/>
STORM WATER UTILITY CREDIT (PERCENTAGE)*	<input type="text"/>
STORM WATER UTILITY CREDIT TYPE *	<input type="text"/>

ACTUAL:	
TOTAL BASIN VOLUME (CUFT)	<input type="text"/>
WATER QUALITY VOLUME (CUFT)	<input type="text"/>
5-YR METER PIPE DIAMETER (IN)	<input type="text"/>
5-YR METER PIPE LENGTH (FT)	<input type="text"/>
5-YR METER PIPE MATERIAL	<input type="text"/>
5-YR METER PIPE FLOW (CFS)	<input type="text"/>
WATER QUALITY VOLUME DRAIN TIME (HRS)	<input type="text"/>
WATER QUALITY METER PIPE DIAMETER (IN)	<input type="text"/>
WATER QUALITY ORIFICE DIAMETER (IN)	<input type="text"/>
BOTTOM ELEVATION OF BASIN	<input type="text"/>
DATUM:	<input type="text"/>

NOTE: COMPLETE MULTIPLE FORMS IF SITE CONTAINS MULTIPLE STORAGE FACILITIES

* To be completed by City of Toledo

FORM COMPLETED BY: _____

APPENDIX 7

WATER GENERAL NOTES FOR CITY OF TOLEDO PUBLIC WATER MAIN EXTENSIONS AND SUBDIVISIONS

Water Main Specifications

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications and Construction Standards, and the Department of Public Utilities Rules and Regulations.

Water mains shall be installed, tested, and disinfected under the direct supervision of the Division of Engineering Services.

All material shall be manufactured in the United States of America.

Tapping sleeves and valves, for taps on water mains 12-inch and smaller, will be furnished and installed by the Division of Water Distribution at the developer's expense. Taps 12-inch and smaller on water mains 16-inch and larger will be performed by the Division of Water Distribution at the developer's expense, with tapping sleeve and valve furnished by the Contractor. Chlorination and air vent taps will be furnished and installed by the Division of Water Distribution at the developer's expense. Excavation, backfill, manhole and restoration shall be performed by the Contractor.

After water main has passed pressure and bacteriological testing, the Contractor shall coordinate domestic water service connections with the Division of Water Distribution. Domestic service connections 2-inch and smaller shall be taps and will be made by the Division of Water Distribution at the developer's expense. Excavation, backfill and restoration for the domestic connections will be performed by the Division of Water Distribution. For pretaps, refer to PRE-TAP CONDITIONS, NEW WATERLINE IN NEW ROAD, CITY OF TOLEDO & NON-MASTER-METERED AREAS.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Engineering Services shall be notified (936-2847) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

Materials

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum class 52 meeting the requirements of AWWA C151 Table 4 or Pressure Class 350 meeting the requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inches and smaller and four per joint on pipe larger than 12-inch). Pipe for horizontal directional bores shall be Class 52 ductile iron pipe with flexible restrained joints – TRFLEX, SNAP-LOK, FLEX-RING or SUPERLOK.

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends with ductile iron retainer glands as specified in ANSI-A21.11 (AWWA C111).

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. Wedge assembly coating system shall be Mega-Bond by EBAA Iron, or equal. All T-bolts and nuts shall be Cor-Blue, XYLAN, or equal.

Pipe joints shall be restrained per City of Toledo Construction Standards. Fittings shall be restrained by means of mechanical joints with wedge action restraint, and thrust blocking per City of Toledo Construction Standards. Restrained push-on joints shall be Tyton joints with Field Lok gaskets, Fastite joints with Fast-Grip gaskets, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21.4 (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All ductile iron pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall be three (3) piece adjustable screw type with a 5¼-inch shaft with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal with cast iron body. Valve boxes outside pavement shall be Pentek Roadway 5-245, or equal, with poly-iron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423), Kennedy Guardian K-81A, or American Darling B-62-B-5 meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel. Pumper nozzle shall be 5 inches internal diameter with Storz connector from Harrington, Inc. or Mueller Co. Storz connector shall be an integral part of the hydrant assembly. Hydrant exterior shall be shop coated using Pittsburgh Paint Brilliant Red (Safety Red) 7-801 Industrial Enamel with white bonnet. After the hydrant is installed, the contractor shall paint the hydrant with one coat of paint. Storz connector and cap are not to be painted.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

All hydrants shall have a tamper-resistant collar around and extending above the operating nut to prevent unauthorized operation of the hydrant.

Tapping sleeves shall be stainless steel with a full circumferential gasket.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

Provide Letter of Certification from material suppliers stating that all materials meet current City of Toledo standards.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

NOTE: The Ohio Environmental Protection Agency requires a conformance to the most current edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 6" dia. Fire protection

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

04/04/14
City of Toledo Public

Appendix 8 - New Water Service Application

SERVICE ADDRESS:		APPLICANT NAME AND ADDRESS :	
CITY, ZIP:			
COUNTY:			
SUBDIVISION:		APLICANT'S PHONE :	
LOT #:		APPLICANTS SIGNATURE:	
APPLICATION DATE:	FILLED OUT BY:	IF APPLICANT IS NOT THE OWNER, OWNER'S NAME AND ADDRESS :	
SAP ACCOUNT #:	PARCEL ASSESSOR #:		
SERVICE TO BE TAPPED ON STREET:			
MAIN FROM NODE:	TO NODE:	OWNER'S PHONE :	

STRUCTURE TYPE:	<input type="radio"/> RESIDENTIAL	<input type="radio"/> COMMERCIAL	<input type="radio"/> INDUSTRIAL	<input type="radio"/> IRRIGATION ONLY	<input checked="" type="radio"/> MAIN EXTENSION
	<input type="radio"/> DUPLEX	<input type="radio"/> APARTMENT	<input type="radio"/> CONDOMINIUM	# OF UNITS :	<input style="width: 50px;" type="text"/>
INSIDE CITY?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	SPLIT SERVICE?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
WATER AVAILABLE?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	ADDITIONAL ADDRESS:	<input style="width: 100%;" type="text"/>	
SEWER AVAILABLE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	ACCOMODATION TAP	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
BACKFLOW DEVICE:	<input type="checkbox"/> YES	<input type="checkbox"/> NO	If yes, submit drawings showing backflow device in your plans		If yes, submit the approval letter
			DISTANCE FROM TAP TO METER :	<input style="width: 50px;" type="text"/>	If over 150' meter box required

LIST ALL SERVICE(S) REQUESTED	SIZE	FEE	PT#	AMOUNT PAID	DATE PAID	METER SIZE	BACKFLOW	SAP C/O #
<input type="checkbox"/> FIRE OR <input type="checkbox"/> LARGE TAP								
INSPECTION FEE FOR SERVICE LENGTH <input style="width: 50px;" type="text"/> ft								
# OF HYDRANTS <input style="width: 50px;" type="text"/>								
FIRE SERVICES:								
F1								
F2								
F3								
DOMESTIC SERVICES:								
D1								
D2								
D3								
METER ONLY								
IRRIGATION ONLY								
MAIN EXTENSION								
CHLORINATION TAP								
AIR RELEASE VALVE								
HYDRANT RELOCATION								
TOTAL FEE		\$0.00						

E. S. INSPECTION COMMENTS	
W.D. INSPECTION COMMENTS	

TAP FEES ARE DETERMINED BASED ON THE FEE SHEET OF THE DIRECTOR OF PUBLIC UTILITIES, APPENDIX C OF THE 2010 RULES AND REGULATIONS.

BY REQUESTING THIS WATER SERVICE APPLICATION, APPLICANT AGREES TO BE SUBJECT TO AND BOUND AND GOVERNED BY THE PROVISIONS OF CHAPTER NINE OF THE TOLEDO MUNICIPAL CODE AND APPLICABLE CITY CHARTER PROVISIONS AND STANDARDS THAT ARE NOW IN EFFECT.

****To schedule an inspection call 419-245-1825 for small taps and 419-245-1395 for large taps (4" and larger)**

APPENDIX 9A

PRETAP CONDITIONS PUBLIC WATER MAIN IN NEW ROAD CITY OF TOLEDO & NON-MASTER-METERED AREAS

- 1) New water mains shall be totally completed before tapping, including pressure testing and bacteria samples. New water mains will not be tapped until the City of Toledo receives written confirmation of the negative results of the bacteria tests.
- 2) The Developer shall pay the total cost of all the taps prior to the City of Toledo making the taps.
- 3) The proposed tap location and curb stop location and grade shall be marked by the Developer as shown on the plans. The grade of the curb stop shall be 48" below final finished grade and 1 foot inside the right of way. The Developer shall provide to the City a list of the lot numbers showing the corresponding addresses for each lot that is to be tapped.
- 4) The Developer shall guarantee access to the site. Any conflicts with contractors, equipment, or ground conditions will be reflected in the cost of the taps.
- 5) The City of Toledo will supply the copper (type "K" soft) for the service from the tap to the property line. The City will furnish the corporation for the tap, curb stop, and curb box. All materials provided by the Developer are the sole responsibility of the Developer and are to be stored according to AWWA standards. Any bacteriological contamination problems will be the responsibility of the Developer.
- 6) Excavation, backfill, and compaction shall be the responsibility of the Developer. The City will make the tap, and install the copper and curb stop. The curb box will be set beside the curb stop for later adjustment by the property owner's plumber.
- 7) Tap installation will be Monday through Friday (excluding City observed holidays).
- 8) The curb stop shall be marked with a 4"X 4" wood timber by the Developer before pavement is placed. The service location shall be marked by the Developer with blue marking paint on the curb after the pavement is placed. It shall be the responsibility of the property owner's plumber to set the curb box on the curb stop with the top of the box set at the final finished grade.
- 9) Services shall not be placed closer than ten (10) feet horizontally to a sewer line or service or four (4) feet horizontally from all other utilities. Vertical separation of 18 inches shall be maintained between water taps and sewer lines or services.
- 10) The private portion of the service shall meet the City portion of the service in as straight a line as possible (90 degrees to the street). No bends will be permitted within ten (10) feet of the curb box.

- 11) No tap shall be placed under the proposed pavement. No driveways shall be placed over any portion of the service.
- 12) Any relocations, adjustments, or repairs to damaged services shall be paid for by the Developer.
- 13) The Contractor shall be responsible for all restoration.
- 14) The taps and curb stops and stationing of all taps and curb stops shall be shown on the "As Built" plans. The recorded street names shall also be shown on the "As Built" plans.
- 15) The Developer shall be responsible for any unauthorized use of the water from any of the taps.

4/4/14

New Public Water Main in New Road
City & Non-Master-Metered Areas

APPENDIX 9B

TAP CONDITIONS PUBLIC WATER MAIN IN EXISTING ROAD CITY OF TOLEDO & NON-MASTER-METERED AREAS

- 1) New water mains shall be totally completed before tapping, including pressure testing and bacteria samples. New water mains will not be tapped until the City of Toledo receives written confirmation of the negative results of the bacteria tests.
- 2) The Developer shall pay the total cost of all the taps prior to the City of Toledo making the taps.
- 3) The proposed tap location and curb stop location and grade shall be marked by the Developer as shown on the plans. The grade of the curb stop shall be 48" below final finished grade and 1 foot inside the right of way. The Developer shall provide to the City a list of the lot numbers showing the corresponding addresses for each lot that is to be tapped.
- 4) The Developer shall guarantee access to the site. Any conflicts with contractors, equipment, or ground conditions will be reflected in the cost of the taps.
- 5) The City of Toledo will supply the copper (type "K" soft) for the service from the tap to the property line. The City will furnish the corporation for the tap, curb stop, and curb box. All materials provided by the Developer are the sole responsibility of the Developer and are to be stored according to AWWA standards. Any bacteriological contamination problems will be the responsibility of the Developer.
- 6) Excavation, backfill, and compaction for the tap shall be the responsibility of the Developer. The City will make the tap, and install the copper and curb stop. The curb box will be set beside the curb stop for later adjustment by the property owner's plumber. Excavation, backfill and compaction at the curb stop will be the responsibility of the City of Toledo.
- 7) Tap installation will be Monday through Friday (excluding City observed holidays).
- 8) The service location shall be marked by the Developer with blue marking paint on the curb after pavement is placed. It shall be the responsibility of the property owner's plumber to set the curb box on the curb stop with the top of the box set at the final finished grade.
- 9)
- 10) Services shall not be placed closer than ten (10) feet horizontally to a sewer line or service or four (4) feet horizontally from all other utilities. Vertical separation of 18 inches shall be maintained between water taps and sewer lines or services.
- 11) The private portion of the service shall meet the City portion of the service in as straight a line as possible (90 degrees to the street). No bends will be permitted within ten (10) feet of the curb box.
- 12) No tap shall be placed under the proposed pavement. No driveways shall be placed over any portion of the service.
- 13) Any relocations, adjustments, or repairs to damaged services shall be paid for by the Developer.

- 14) The Contractor shall be responsible for restoration for taps. The City will be responsible for restoration at the curb stop; restoration by the City of Toledo will take place after all services are retapped.
- 15) The taps and curb stops and stationing of all taps and curb stops shall be shown on the "As Built" plans. The recorded street names shall also be shown on the "As Built" plans.
- 16) The Developer shall be responsible for any unauthorized use of the water from any of the taps.

4/4/14

New Public Water Main in Existing Road
City & Non-Master-Metered Areas

APPENDIX 10

WATER GENERAL NOTES FOR CITY OF TOLEDO PRIVATE WATER MAINS, FIRE LINES AND LARGE SERVICES

Waterline Specifications

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications and Construction Standards, and the Department of Public Utilities Rules and Regulations.

Water services shall be installed, tested, and disinfected under the direct supervision of the Division of Water Distribution.

All material shall be manufactured in the United States of America.

Tapping sleeves and valves, for taps on water mains 12-inch and smaller, will be furnished and installed by the Division of Water Distribution at the customer's expense. Taps 12-inch and smaller on water mains 16-inch and larger will be performed by the Division of Water Distribution at the customer's expense, with tapping sleeve and valve furnished by the Contractor. Chlorination and air vent taps will be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

After water main has passed pressure and bacteriological testing, the Contractor shall coordinate domestic water service connections with the Division of Water Distribution. All domestic service connections 2-inch and smaller shall be taps and will be made by the Division of Water Distribution at the owner's cost. Excavation and backfill shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Water Distribution shall be notified (419-245-1395) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

Materials

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum Class 52 meeting the requirements of AWWA C151 Table 4, or Pressure Class 350 meeting the requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inch and smaller and four per joint on pipe larger than 12-inch.) Pipe for horizontal directional bores shall be Class 52 ductile iron pipe with flexible restrained joints – TRFLEX, SNAP-LOK, FLEX-RING or SUPERLOK.

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends with ductile iron retainer glands as specified in ANSI-A21.11 (AWWA C111). All pipe, valves, and fittings for fire services shall also be UL/FM approved.

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. Wedge assembly coating system shall be Mega-Bond by EBAA Iron, or equal. All T-bolts and nuts shall be Cor-Blue, XYLAN, or equal.

Pipe joints shall be restrained per City of Toledo Construction Standards. Fittings shall be restrained by means of mechanical joints with wedge action restraint, and thrust blocking per City of Toledo Construction Standards. Restrained push-on joints shall be Tyton joints with Field Lok gaskets, Fastite joints with Fast-Grip gaskets, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21.4 (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All ductile iron pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall three (3) piece adjustable screw type, with a 5-1/4 inch shaft, with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal, with cast iron body. Valve boxes outside pavement shall be Pentek Roadway 5-245, or equal, with polyiron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJIW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJIW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423), Kennedy Guardian K-81A, or American Darling B-62-B-5 meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel. Pumper nozzle shall be 5 inches internal diameter with Storz connector from Harrington, Inc or Mueller Co. Storz connector shall be an integral part of the hydrant assembly. Storz connector and cap are not to be painted.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged, a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

All hydrants shall have a tamper-resistant collar around and extending above the operating nut to prevent unauthorized operation of the hydrant.

Tapping sleeves shall be stainless steel with a full circumferential gasket.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

NOTE: The Ohio Environmental Protection Agency requires a conformance to the most current edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection per AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

4/4/14

City of Toledo Fire Lines & Large Services

APPENDIX 11

WATER GENERAL NOTES FOR PRIVATE WATER MAINS, FIRE LINES AND LARGE SERVICES OUTSIDE CITY OF TOLEDO

Waterline Specifications

All materials and construction shall be in accordance with current City of Toledo Department of Public Utilities, Division of Engineering Services, Part "A" Specifications and Construction Standards, and the Department of Public Utilities Rules and Regulations.

Water services shall be installed, tested, and disinfected under the direct supervision of the Division of Water Distribution.

All material shall be manufactured in the United States of America.

Tapping sleeves and valves, for taps on water mains 12-inch and smaller, will be furnished and installed by the Division of Water Distribution at the customer's expense. Taps 12-inch and smaller on water mains 16-inch and larger will be performed by the Division of Water Distribution at the customer's expense, with tapping sleeve and valve furnished by the Contractor. Chlorination and air vent taps will be furnished and installed by the Division of Water Distribution at the customer's expense. All excavation and backfill shall be performed by the contractor.

After water main has passed pressure and bacteriological testing, the Contractor shall coordinate domestic water service connections with the Division of Water Distribution. All domestic service connections 2-inch and smaller shall be taps and will be made by the Division of Water Distribution at the owner's cost. Excavation and backfill shall be performed by the contractor.

All public and private utility companies shall be notified by the contractor, in writing, at least seven (7) days in advance of beginning any construction operations.

The Division of Water Distribution shall be notified (419-245-1395) at least three (3) working days in advance of any construction activity in order to arrange for inspection of the project.

Materials

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA), and the American Society for Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective organizations.

Pipe shall be ANSI-A21.51 (AWWA C151) ductile cast iron, minimum Class 52, meeting the requirements of AWWA C151 Table 4 or Pressure Class 350 meeting the requirements of AWWA C151 Table 2. Bronze wedges shall be used at all push-on joints (two per joint on pipe 12-inch and smaller and four per joint on pipe larger than 12-inch.) Pipe for horizontal directional bores shall be Class 52 ductile iron pipe with flexible restrained joints – TRFLEX, SNAP-LOK, FLEX-RING or SUPERLOK.

Fittings shall be ductile cast iron conforming to ANSI-A21.10 (AWWA C110) with a minimum class of 250 or ANSI-A21.53, (AWWA C153) and have mechanical joint ends with ductile iron

retainer glands as specified in ANSI-A21.11 (AWWA C111). All pipe, valves, and fittings for fire services shall also be UL/FM approved.

Wedge action restraint shall be used on all mechanical joints. Wedge action restraints shall be EBAA Iron Megalug Series 1100, or equal. Wedge assembly coating system shall be Mega-Bond by EBAA Iron, or equal. All T-bolts and nuts shall be Cor-Blue, XYLAN, or equal.

Pipe joints shall be restrained per City of Toledo Construction Standards. Fittings shall be restrained by means of mechanical joints with wedge action restraint, and thrust blocking per City of Toledo Construction Standards. Restrained push-on joints shall be Tyton joints with Field Lok gaskets, Fastite joints with Fast-Grip gaskets, or equal.

All pipe and fittings shall have a cement mortar lining, conforming to ANSI-A21.4 (AWWA C104) and a petroleum-asphaltic outside coating. Special linings may be required at the request of the City for special conditions.

All ductile iron pipe and fittings shall be laid with a polyethylene encasement. Pipe and polyethylene encasement shall be installed in accordance with ANSI-A21.5 (AWWA C105).

Valve manhole frames and covers shall be 22 inches, Neenah R-1765 or equal, ASTM A-48, with interchangeable pieces and machined horizontal bearing surfaces.

Valve boxes shall three (3) piece adjustable screw type, with a 5-1/4 inch shaft, with cast iron full flange ring and lid, and a base corresponding to the size of the valve. Valve boxes in pavement shall be Tyler Pipe 6860 series, or equal, with cast iron body. Valve boxes outside pavement shall be Pentek Roadway 5-245, or equal, with polyiron body.

Resilient-seated gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Kennedy, Mueller, US Pipe, EJW, or Clow Valve Companies meeting AWWA C509 or C515 as purchased by the Division of Water Distribution. Resilient-seated gate valves shall be designed for 250 psi working pressure and tested at 500 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Double-disc gate valves 12-inch and smaller shall be non-rising stem valves limited to valves made by American, Mueller, or EJW meeting AWWA C500. No resilient-seated valves will be accepted where double disc gate valves are called out on the plans. Double disc gate valves shall be designed for 200 psi working pressure and tested at 400 psi hydrostatic pressure. Valves are to open by turning right, or clockwise and shall be furnished with a 2-inch square operating nut with the direction indicated by a clearly visible arrow cast into the valve. Valves shall be supplied with O-ring seals at all joints. No flat gaskets will be accepted. Nuts and bolts shall be 304 stainless steel.

Hydrants shall be limited to Mueller Super Centurion 250 (A-423), Kennedy Guardian K-81A, or American Darling B-62-B-5 meeting AWWA C502 as purchased by the Division of Water Distribution. Nuts and bolts exposed to soil shall be 304 stainless steel.

The Contractor shall contact the local Fire Authority for the size and type of connections and threads for the outlet nozzles.

Hydrant drain holes will be required to be plugged if the hydrants are located within ten (10) feet of a sanitary sewer, storm sewer, or storm drain. Where the drain holes are not plugged a stone pocket will be placed around the base of the hydrant as shown on the standard hydrant drawing.

All hydrants shall have a tamper-resistant collar around and extending above the operating nut to prevent unauthorized operation of the hydrant.

Tapping sleeves shall be stainless steel with a full circumferential gasket.

Installation and pressure testing shall be as per AWWA C-600. Disinfection shall meet or exceed AWWA C-651.

No deviations from the above specifications will be permitted. Detailed specifications can be obtained from the Division of Engineering Services.

NOTE: The Ohio Environmental Protection Agency requires a conformance to the most current edition of "Recommended Standards for Water Works". This standard shall be equaled or exceeded for water lines. Special attention shall be given to the following:

Materials conform to AWWA Standards

Minimum 5' ground cover

Pressure testing AWWA C-600 or N.F.P.A. 24 *

Disinfection per AWWA C-651 *

10' horizontal separation water main/sewer

18" vertical separation water main/sewer

No entry and/or contact with sewer manhole

Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on the plans. In cases where one or more of the above-mentioned Ohio EPA Standards fall short of the City of Toledo's Department of Public Utilities Standards, the latter shall govern.

*Note: It shall be the contractor's responsibility to perform this test properly and the responsibility for adequate supervision and approval rests with the appropriate governmental agency.

4/4/14

Large Services Outside City of Toledo

APPENDIX 12

TAP AND PRETAP CONDITIONS PRIVATE WATER MAINS CITY OF TOLEDO & NON-MASTER-METERED AREAS

- 1) New water mains shall be totally completed before tapping, including pressure testing and bacteria samples. New water mains will not be tapped until the City of Toledo receives written confirmation of the negative results of the bacteria tests.
- 2) The Developer shall pay the total cost of all the taps prior to the City of Toledo making the taps.
- 3) The proposed tap location and curb stop location and grade shall be marked by the Developer as shown on the plans. The grade of the curb stop shall be 48" below final finished grade and 1 foot inside the right of way. The Developer shall provide to the City a list of the lot numbers showing the corresponding addresses for each lot that is to be tapped.
- 4) The Developer shall guarantee access to the site. Any conflicts with contractors, equipment, or ground conditions will be reflected in the cost of the taps.
- 5) The Developer shall supply the copper (type "K" soft) for the service. The City will furnish the corporation for the tap, 5 feet of copper (type "K" soft), curb stop and curb box. All materials provided by the Developer are the sole responsibility of the Developer and are to be stored according to AWWA standards. Any bacteriological contamination problems will be the responsibility of the Developer.
- 6) Excavation, backfill, and compaction shall be the responsibility of the Developer. The Developer shall install the copper to within 5 feet of the water main. The City will make the tap, install 5 feet of copper and connect to the Developer's copper with the curb stop, and install the curb box. When the service crosses under a private street, drive, parking lot, etc. to serve a building, the City may need to install a curb stop on the same side of the pavement as the building. The Developer shall excavate for the City to install the curb stop.
- 7) Tap installation will be Monday through Friday (excluding City observed holidays).
- 8) The curb stop shall be marked with a 4"X 4" wood timber by the Developer before pavement is placed. The service location shall be marked by the Developer with blue marking paint on the curb after pavement is placed. It shall be the responsibility of the property owner's plumber to set the curb box on the curb stop with the top of the box set at the final finished grade.
- 9) Services shall not be placed closer than ten (10) feet horizontally to a sewer line or service or four (4) feet horizontally from all other utilities. Vertical separation of 18 inches shall be maintained between water taps and sewer lines or services.
- 10) The private portion of the service shall meet the City portion of the service in as straight a line as possible (90 degrees to the street). No bends will be permitted within ten (10) feet of the curb box.
- 11) For taps and services with multiple branches, a curb stop with a curb box shall be installed on each branch, by the property owner's plumber, in a location where it can be determined

which curb stop shuts off water service to the unit the branch serves. All branch box locations shall be approved by the Department of Public Utilities prior to installation.

- 12) Any relocations, adjustments, or repairs to damaged services shall be paid for by the Developer. The City will not maintain any portion of the service during construction or in the future.
- 13) The Contractor shall be responsible for restoration for taps. The City will be responsible for restoration at the curb stop; restoration by the City of Toledo will take place after all services are retapped.
- 14) The taps and curb stops and stationing of all taps and curb stops shall be shown on the "As Built" plans. The recorded street names shall also be shown on the "As Built" plans.
- 15) The Developer shall be responsible for any unauthorized use of the water from any of the taps.

4/4/14

New Private Water Main

City & Non-Master-Metered Areas

APPENDIX 13

CITY OF TOLEDO LARGE WATER TAP AND INSPECTION FEES (4-inch and larger)

Refer to DPU Rules and Regulation for fee schedule (TMC Part Nine, Title Three, Appendix C, Attachment 1) available at [http://www.amlegal.com/nxt/gateway.dll/Ohio/toledo/toledomunicipalcode?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:toledo_oh](http://www.amlegal.com/nxt/gateway.dll/Ohio/toledo/toledomunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:toledo_oh)

**APPENDIX 14
CROSS CONNECTION
SURVEY**

City of Toledo
Department of Public Utilities
Water Distribution

**Non-Residential Cross-Connection Survey
(New Service)**

Facility Name: _____

Facility Address: _____

Mailing Address: _____

Contact Person: _____ Phone Number: _____

Type of facility to occupy property (e.g. restaurant): _____

Type of service (check one): Industrial Commercial Government Other

Will the facility have backflow prevention incorporated immediately following the water meter? Yes No

Will the property be 100% occupied by the facility? Yes No

Will the facility require non-interrupted water service? Yes No

Will a second water source be available to the facility (e.g. well)? Yes No

Will any process water be in use at this facility? Yes No
If yes, will backflow protection be incorporated? Yes No

Will the facility use potable water in a fire protection system? Yes No
If yes, will backflow protection be incorporated? Yes No

Will the facility have hot water boilers or steam boilers? Yes No
If yes, will backflow protection be incorporated? Yes No

Will the facility have air conditioning cooling towers? Yes No
If yes, will backflow protection be incorporated? Yes No

Will a water saver be utilized on condensing lines or cooling tower? Yes No
If yes, will backflow prevention be incorporated on make-up supply line? Yes No

To be Signed by Person Making Application for Water Service:

I hereby certify that I am acting as agent for the owner of the property listed, with full knowledge and consent, and that all information furnished is complete and correct. As owner's agent, I further acknowledge that incomplete or incorrect information may result in denial of water service.

Signature of Applicant: _____ Date: _____

Name of Applicant: _____ Phone Number: _____

Company Name of Applicant: _____

Company Address of Applicant: _____

Return survey to: Backflow Prevention Coordinator, Water Distribution, 401 S. Erie St., Toledo, OH 43602

