

## **CHAPTER 1**

### **Administrative Procedures**

#### A. Introduction

This design manual establishes uniform standards for the design and construction of public improvements. These standards will promote consistent construction practices, and safeguard the interests of the City of Oak Creek by ensuring that all improvements are designed and constructed in conformance with sound engineering principles and accepted standards.

#### B. Title

This document shall be referred to as the "Engineering Design Manual of the City of Oak Creek."

#### C. Authority

The Common Council has authorized this manual and its revisions by Resolution No. 9049-070595.

#### D. Jurisdiction

The review and approval of engineering designs, plans, and specifications by the city for certain improvements are not exclusive. Other public agencies have review jurisdiction, including but not limited to Wisconsin Department of Natural Resources, Milwaukee County Department of Public Works, Wisconsin Department of Transportation, Milwaukee Metropolitan Sewerage District, Department of Industry, Labor, and Human Relations, Oak Creek Water and Sewer Utility, and Army Corps of Engineers. This design manual is not a substitute for the requirements of other public agencies having review jurisdiction.

The design engineer must conform not only to the requirements of the city, but to the legal requirements of all public agencies who may have review jurisdiction and issue permits or require bonds or other securities in order to construct public improvements. This manual does not relieve the design engineer of the responsibility to use acceptable engineering principles or to comply with all Federal, State, and Local laws and codes.

All public improvements shall be designed and constructed to the standards established in this design manual. This manual takes precedence over all design standards in the State and Standard Specifications.

E. Definition of Terms

AASHTO	Refers to all the publications of the American Association of State Highway Transportation Officials, and specifically, <u>A Policy on Geometric Design of Highways and Streets</u> , current edition.
ASTM	American Society for Testing and Materials.
Arterial Street	A public street or highway used or intended to be used to connect and serve collector streets, residential, commercial, or industrial land uses. Arterial streets and highways include freeways and expressways, state trunk and county trunk highways, and other high use streets.
As-Built Drawings	Design plans reviewed in the field and revised to show actual construction dimensions and quantities.
Base Course	The layer or layers of specified or selected material of designed thickness placed on a subbase or subgrade to support a surface course.
Berm	A man-made mound of earth with a height in excess of two vertical feet used as a shield or buffer from noise or vision, or to control the direction of surface water flow.
Bond	Any form of security approved as to form and amount by the city, including a cash deposit, surety bond, letter of credit, collateral, or other instrument of credit.
Building or Structure	Anything constructed or erected, the use of which requires more or less permanent location on ground, or attached to something having permanent location on the ground. This does not include public utility fixtures and appurtenances.
Change Order	City Engineer's written approval on any changes, additions, or deletions to the approved contract documents.
City	The City of Oak Creek, Wisconsin, and where appropriate, its Common Council, commissions, committees, and authorized officials.
City Engineer	A professional engineer, registered in the State of Wisconsin, who has been appointed as the City Engineer, or the City Engineer's authorized agent.

Concept Plat or Plan	A preliminary drawing, made to approximate scale, of a proposed land division for discussion purposes.
Collector Street	A street that carries traffic from a local or minor street to an arterial or major street system. This includes the principal entrance street of developed areas and the primary circulating streets within a developed area.
Common Council	The six aldermen and Mayor of the city.
Construction Site Best Management Practices Handbook	Refers to the manual of the same title, current edition, published by the Wisconsin Department of Natural Resources.
Contract Documents	Includes the notice to bidders, instructions to bidders, bid proposal, affidavit of organization and authority, listing of subcontractors, bid bond, contract, performance bond, detailed specifications, general specifications, standard specifications, state specifications, construction plans, special provisions, wage rates, agency permits, addenda, and notice to proceed. Also included are any contract change orders and agreements that are required to complete construction in an acceptable manner, including any authorized extensions, all of which constitute one instrument.
Contractor	An individual, company, firm, or other party or organization who contracts to construct all or a portion of a project.
Critical Duration	The rainfall duration that creates the highest peak runoff. The critical duration shall be determined by the procedures outlined in the storm water master plan. Prior to the approved storm water master plan the critical duration shall be SCS - Type II - 24-hour rainfall for major drainage systems and SEWRPC I-D-F tables with a 10-minute duration for minor drainage systems.
Cul-de-sac	A short street having one end open to traffic and the other end permanently terminated in a vehicular turnaround.
Dead-End Street	A street permanently or temporarily closed at one end, with or without turnarounds.
Design Engineer	A qualified professional engineer registered in the State of Wisconsin responsible for the design and preparation of contract documents.

Developer	Any person, firm, corporation, agent, partnership, or entity that seeks to improve land in accordance with the city's development regulations.
Development	A man-made change to improved or unimproved real estate.
Easement	The area of land set aside or over or through which a liberty, privilege or advantage in land, distinct from ownership of the land, is granted to the public or some particular person or part of the public.
Engineering Inspector	An individual or firm appointed or employed by the city as the authorized representative of the City Engineer assigned to inspect construction and to ensure compliance with approved plans and specifications.
Erosion Control	Any method or means of controlling sediment or runoff from a construction site, as specified in the "Construction Site, Best Management Practices" Handbook, a Department of Natural Resources publication.
Final Plat	The final map, drawings, or chart on which the subdivider's plan of subdivision is presented for approval and which, if approved, will be submitted to the County Register of Deeds.
FDM	Refers to the Wisconsin Department of Transportation <u>Facilities Development Manual</u> , current edition.
Flood Fringe	Those floodlands, outside the floodway, subject to inundation by the 100-year recurrence interval flood. The unobstructed flood fringe does not provide for conveyance of floodwaters, but does provide flood storage area during a flood event.
Floodplain	That land which has been or may be hereafter covered by the flood water during the "regional flood" or 100-year recurrence interval flood. The floodplain includes the floodway and the flood fringe, and may include other flood plain designations for regulatory purposes.
Floodway	A designated portion of the 100-year floodplain that will safely convey the regulatory flood discharge with small, acceptable upstream and downstream increases, limited in Wisconsin to 0.01 foot unless special legal measures are provided. The floodway, which includes the channel, is that portion of the floodplain not suited for human habitation

Frontage	All the property on each side of a street between two intersecting streets (crossing or terminating) or property lines measured along the line of the street. If the street is dead-ended, frontage is all property abutting on each side between an intersecting street and the dead end of the street.
Gradient or Percent of Grade	The vertical rise in feet per 100 feet of horizontal distance. (A 1% grade is a rise of 1 foot in 100 feet, for example.)
Local or Minor Street	A street of little or no continuity designed to provide access to abutting property and leading into collector streets.
Lot	A designated parcel, tract, or area of land established by plat, subdivision, or as otherwise permitted by law, to be used, developed, or built on.
General Specifications	General Specifications of the City of Oak Creek, Engineering Division, Latest Edition.
Major Drainage Systems	A drainage system designed for less frequent, long duration storms, i.e. natural streams, channels, ponds, lakes, retention and detention facilities, large pipes, and culverts.
Manual	This document, entitled "City of Oak Creek Engineering Design Manual".
Minor Drainage Systems	A drainage system designed for more frequent short duration storm events that collects and conveys runoff generated by to a major drainage system, i.e. swales, small ditches, gutters, and storm sewer.
MUTCD	Manual on Uniform Traffic Control Devices. United States Department of Transportation, Federal Highway Administration Manual that establishes uniform standards for traffic control devices, such as signs, signals, markings, and construction signage, current edition.
Owner	Any government, firm, association, partnership, private corporation, public or quasi-public corporation, or a combination of any of them, or other legal entity having sufficient proprietary interest in the land to be subdivided to commence and maintain proceedings to subdivide.
Parcel	A lot or tract of land.

Pavement Structure	The combination of sub-base, base, and surface courses placed on a subgrade to support the traffic load and distribute it to the roadbed.
Plan Commission	The Plan Commission created by the Common Council pursuant to Section 62.32 of the Wisconsin Statutes.
Plans	The approved plans, profiles, typical cross sections, working drawings, supplemental drawings, or exact reproductions that show the location, character, dimensions, and details of the work to be done.
Plats	See concept plat, preliminary plat, or final plat.
Ponding	The creation of pockets or depressions that have no outlet for surface drainage provided, or in the event of failure or overload of inlets or storm sewers, will contain standing water. Any surface waters that are flowing will not be considered as ponding.
Preliminary Plat	The map or drawing indicating the proposed subdivision layout to be submitted to the city for its preliminary consideration as to compliance with the Comprehensive Development Plan, this manual, and the regulations as outlined in Chapter 14 of the Municipal Code, along with required supporting data.
Public Improvement	Public sewers, water mains, storm water relief provisions, highways, parkways, sidewalks, street lighting, and all other public improvements to be required by the Common Council or the Plan Commission.
Punch List	A list of deficiencies requiring corrective action before final payment or acceptance of the project.
Release Rate	The controlled rate at which storm water is discharged from a storm water-holding reservoir.
Right-of-Way	A public way dedicated to the public (City, County or State-owned) for its intended use (i.e., roads, waterway, walk).
Road or Roadway	The paved and shoulder areas, or paved and curbed areas within the street ROW.
Roadbed	The graded portion of a roadway prepared as a foundation for the pavement structure and curb and gutter or shoulders.

Standard Specifications	Refers to the <u>Standard Specifications for Sewer and Water Construction in Wisconsin</u> , current edition and its revisions, prepared by a committee of municipal engineers, consulting engineers, suppliers, and contractors for the purpose of suggesting standards for the design and construction of sanitary sewer, storm sewer, and water main.
State Specifications	Refers to the <u>Standard Specifications for Highway and Structure Construction, State of Wisconsin, Department of Transportation</u> , current edition and its supplements.
Subdivider	Any person, firm, corporation, agent, partnership, or other entity that divides or proposes to divide, by plat or certified survey, or re-plat land in any manner. This includes such heirs and assigns as may be responsible for the obligations of the subdivider under the provisions of Chapter 14 of the Municipal Code.
Subdivision	Subdivision is a division of a lot, parcel, or tract of land by the owner or the owner's agent for the purpose of sale or of building development where:  A. The act of division creates five or more parcels, lots, or building sites of 1½ acres each or less; or  B. Five or more parcels, lots, or building sites of 1½ acres each or less in area are created by successive divisions within a period of five years.
Subgrade	The top surface of the roadbed on which the pavement structure, curb and gutter, and/or shoulders are constructed.
Utility Commission	The Board of Water Works and Sewer Commissioners of the city.
Utility Engineer	A professional engineer, registered in the State of Wisconsin, who has been appointed as the utility engineer of the city, by the utility commission.
Watershed	That land area from which all precipitation runoff would eventually reach the point in question by flowing over the surface of the ground or through existing public improvements.
Wisconsin Administrative Code	The rules of administrative agencies having rule-making authority in Wisconsin, published in loose-leaf, continual revision system, as directed by Section 35.93 and Chapter 227 of the Wisconsin Statutes.

F. Pre-Design Conferences

Before the development of any parcel of land or the preparation of detailed plans, the design engineer shall meet with the City Engineer to review the city's requirements and the proposed project. The request for the preliminary design conference shall be initiated by the design engineer, his/her representative, or the developer.

G. Construction Specification Requirements

The detailed construction specification requirements for all public or site improvements will be outlined in the contract documents. Technical specifications, as discussed in this document, are requirements of the city and must be adhered to in the preparation of engineering drawings. The design engineer must also follow the appropriate specific sections of the most recent editions, including but not limited to:

- State Standard Specifications for Highway and Structure Construction in Wisconsin, State Specifications
- Standard Specifications for Sewer and Water Construction in Wisconsin, Standard Specifications
- American Society for Testing and Materials, ASTM
- Milwaukee Metropolitan Sewerage District, MMSD
- American Water Works Association, AWWA
- Manual of Uniform Traffic Control Devices, MUTCD
- Construction Site Best Management Practices

H. Required Documents for Review Approval

The design engineer must submit the following documents to the City Engineer, along with a letter of transmittal listing the items being submitted and requesting review and approval of the project. The design engineer may supplement the documents with any additional data necessary to help the City Engineer review a proposed development. Should the design engineer want or need any document returned for his/her files, an additional set must be included and marked "for return to the design engineer."

The city requires that all engineering plans be neat and clean, readable, and well organized. Engineering plans shall be coordinated as follows:



Title Sheet	Including location map, north arrow, legal description, project name, project number, city datum benchmarks, index of sheets, legend, developer's name, and engineer's seal and signature.
Subdivision Plat	In accordance with preliminary plan and final engineering.
Development Plan	Indicating all proposed underground and surface public improvements, easements, and building outlines with dimension to the property line.
Grading Plan	Indicating all information specified in this manual.
Plan and Profile Sheets	Indicating all information specified in this manual.
Street Lighting and Traffic Control Plan	Indicating all information specified in this manual for street lighting and traffic control signs.
Detail Sheets	Indicating all construction details, notes, and specifications.
Erosion Control Plan	Indicating all information specified in this manual.
Storm Water Management Plan	Indicating all information specified in this manual.

The design engineer must submit all documents for review and approval to the city in two parts. The first (preliminary) submittal shall be sent to the City Engineer for review and comment. The second shall be the revised plans submitted for approval. The following documents must be included in the first (preliminary) submittal:

Engineering Plans	4 sets
Construction Documents and Specifications	4 sets
Design Computations	2 sets
Plat of Subdivision (if applicable)	4 sets
Soil Boring Report (if borings taken)	2 sets
Preliminary Construction Cost Estimate	2 sets
Storm Water Management Report	2 sets
Miscellaneous Data (system plans, exhibits)	2 copies

After reviewing the first submittal, the City Engineer will send to the design engineer comments on any items that do not meet the city requirements or that require revisions, additions, or clarifications to the engineering plans and contract documents. The design engineer must then revise the engineering plans and make a second submittal to the city for review and approval purposes.

The second submittal shall include the following documents:

Final Engineering Plans	4 sets
Engineering Specifications	4 sets
Detailed Cost Estimate	2 sets
Revised Design Calculations	2 sets
Permit Application	As required by the public agency
Final Storm Water Management Plan	2 sets

Once the final plans are revised, the City Engineer will request the signed and sealed original mylars for city signature. The design engineer is responsible for plan set reproduction for record copy, bidding, and construction purposes. The design engineer shall make all submittals to the other agencies not requiring a city signature. Any agency application that requires a city signature shall be prepared by the design engineer, delivered to the city, and sent to the agency by the city.

I. Plan Revision

Once the plans are approved, any deviations shall require a written change order signed by the City Engineer. Any revisions that occur because of field construction conditions must be reported to the City Engineer by the design engineer, developer, or engineering inspector immediately after they are discovered. Should the City Engineer consider the required changes to be major, the City Engineer shall issue a stop work order until revised drawings are submitted and approved. If the City Engineer considers the changes to be minor, work may proceed under the verbal authorization of the City Engineer pending written documentation of the change.

J. Project Completion and Acceptance

Following project completion, the design engineer, developer, or contractor shall initiate the acceptance of those public improvements by notifying the City Engineer. The notification must be made in writing.

The City Engineer will conduct a final inspection, prepare a punch list of the deficiencies, and send it to the design engineer, the developer, or contractor.

Final subdivision inspections are only scheduled between April 1 and November 15 of each year.

All public improvements should be in an approvable state when the final inspection is requested. If there are five unique deficiencies noted during the final inspection, the inspection may be terminated. A re-inspection will not be allowed for at least 30 days.

After receiving a punch list, the noted deficiencies shall be remedied to meet the city's requirements. If the deficiencies are not resolved within three months, the list will become null and void, and a new list will be prepared.

When the items have been corrected, the City Engineer shall recommend final plat approval to the Common Council.

**K. Application of New or Revised Standards**

When new or revised standards and/or specifications have been adopted by the City, construction on public improvements not begun within 6 months of the date of the plans or permit approval or within 6 months of the change, shall be made to the new or revised standards and/or specifications.