

# City of Monroe


## Design, Construction and Operations Standards



April 2022


**City of Monroe Public Works  
Design, Construction and Operations Standards**

**Prepared by the  
Monroe Public Works Department**



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April 2022

**CITY OF MONROE PUBLIC WORKS  
DESIGN, CONSTRUCTION AND OPERATIONS STANDARDS**

**SECTION 1  
GENERAL CONSIDERATIONS**

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# **CITY OF MONROE PUBLIC WORKS DESIGN, CONSTRUCTION AND OPERATIONS STANDARDS**

## **SECTION 1 GENERAL CONSIDERATIONS**

### **1.1 AUTHORITY**

Monroe Municipal Code (MMC) Chapter 23.10.030 authorizes the Public Works Director to prepare design, construction, and operations standards and specifications for utility work, work in public rights-of-way or in easements, landscaping, and other private or public work performed within the Monroe City Limits or utility service area.

### **1.2 PURPOSE**

The purpose of these Design, Construction and Operations Standards (herein referred to as Standards) is to ensure that all development activity in the City of Monroe meet appropriate standards for safety, construction, maintenance, and water quality. These standards accomplish the following:

- Provide clear and consistent design standards for development.
- Implement and administer the development regulations contained in the Monroe Municipal Code and Comprehensive Plan.
- Ensure that development activity in the City of Monroe complies with all applicable laws, regulations, and standards of good engineering practice.

### **1.3 APPLICABILITY**

These Standards, shall apply when public or private work is performed within the Monroe City Limits or the City of Monroe utility service area. This includes work performed by private parties at their own expense under authority granted by ordinance of the city council or permit process. When these Standards do not provide guidance the design, construction and materials shall conform to the current edition of the applicable reference(s) found in Section 1.6.

### **1.4 ADMINISTRATIVE INTERPRETATIONS AND REVISIONS**

It is recognized that administrative interpretation of these Standards will be required from time to time. Such interpretations are refinements or explanations of meaning or intent issued by the Director. Requests for administrative interpretations must be submitted in writing to the Director. The Director is authorized to revise these Standards in accordance with MMC 23.10.030, and sound engineering practices. Such revisions will be issued as necessary to keep the document current. Suggestions for future revisions may be submitted in writing to the Director.

### **1.5 DEVIATION FROM STANDARDS**

These Standards represent appropriate practice under most conditions, based on past experience in the City of Monroe and other jurisdictions. They are intended to provide facilities that are safe and appropriate for use in the City of Monroe.

Engineering design is an endeavor that examines alternative solutions to real world situations. These standards are not intended to limit the introduction of new ideas. Situations will arise where alternatives to these Standards may better accommodate

existing conditions, overcome adverse topography, or allow for more cost-effective solutions without adversely affecting safety, operations, maintenance, or aesthetics.

Accordingly, requests for deviations from these Standards will be considered by the Director. Such requests must be submitted, in writing, to include supporting information demonstrating compliance with the following criteria:

- A. The deviation will achieve the intended result with a comparable or superior design and quality of improvement; and
- B. The deviation will not adversely affect safety or operations; and
- C. The deviation will not adversely affect maintenance and its associated cost; and
- D. The deviation will not adversely affect the aesthetic appearance; and
- E. The deviation will not impact future expansion, development, or redevelopment.

It is recognized that the need for and timing of a deviation request may not be predictable. Requests should be submitted as soon as the need becomes known. No deviation request will be considered until an application for a permit or other approval has been submitted. Known requests that affect lot yield or scope of development must be decided prior to any public hearing or official decision on the application. This is necessary for public notice and participation in the decision process. Deviations that affect engineering design, to the extent they are known, must be decided prior to submittal of construction plans. This will prevent wasted effort in the preparation of plans with nonstandard features that cannot be approved.

The Director is the final authority on all deviation requests. The Director reserves the right to direct or deny a deviation from these Standards at any time in the interest of public health, safety, and welfare.

## **1.6 REFERENCES**

These Standards were developed using the currently adopted provisions of the following publications:

- A. Monroe Municipal Code
- B. DOE Stormwater Management Manual for Western Washington
- C. DOE Criteria for Sewage Works Design
- D. State of Washington Shoreline Management Act
- E. State and National Environmental Policy Acts
- F. International Building Code
- G. International Residential Code
- H. National Electrical Code
- I. Uniform Plumbing Code
- J. International Mechanical Code
- K. WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction
- L. WSDOT/APWA Standard Plans for Road, Bridge and Municipal Construction
- M. WSDOT Design Manual
- N. WSDOT Traffic Manual
- O. WSDOT Utilities Manual
- P. WSDOT Construction Manual
- Q. AWWA Standards

- R. Manual on Uniform Traffic Control Devices (MUTCD)
- S. Highway Capacity Manual
- T. American Association of State Highway And Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets
- U. AASHTO Guide for the Development of Bicycle Facilities
- V. Institute of Traffic Engineers (ITE) Trip Generation and Design Manual
- W. Illuminating Engineering Society (IES) Design Manual
- X. Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)
- Y. Americans with Disabilities Act (ADA), Pedestrian Right-Of-Way Accessibility Guidelines (PROWAG)
- Z. Washington state Department of Health Water System Design Manual

## 1.7 DEFINITIONS

For the purpose of these Standards, the terms, phrases, words, and their derivations have the following definitions. When not inconsistent with the context, words used in the present tense include the future tense and words in the plural form include the singular form. The word “must” is mandatory. The word “may” is permissive. Definitions from the MMC also apply to these Standards. The Public Works Director has the authority to interpret definitions.

### Appurtenances

Machinery, appliances, or auxiliary structures attached to main structure, but not considered integral for purpose of enabling it to function.

### APWA (“American Public Works Association”)

Professional association of public works agencies, private companies, and individuals dedicated to professional excellence and public awareness through education and advocacy.

### Arterial

Road or street primarily for through traffic, such as roads or streets that are considered collectors. This does not include local access roads limited to access for neighboring properties.

### Auxiliary Supply

Water source or system, other than the City’s water system, that may be available in a building or premises.

### Backflow

Flow in direction other than its intended direction, of water, gas, or substances into the distribution system of a public utility system. Back pressure means backflow caused by pump, elevated tank, boiler, or other means that could create pressure within system greater than City’s supply system pressure. Back siphonage is a form of backflow due to negative or sub-atmospheric pressure within a utility system.

### Backflow Prevention Assembly

Assembly approved by Washington State to protect against cross-connection.

### BMP (“Best Management Practice”)

Schedule of activities, prohibition of practices, procedure, or structural or managerial practice approved by the City, Ecology, or another governing body, that prevents or reduces the release of pollutants and other adverse impacts to the environment.

### Bike Lane

A portion of a roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicycles.

### Bioswale

Long, gently sloped, vegetated ditch designed to remove pollutants from stormwater.

### Bioretention

Stormwater best management practice consisting of shallow landscaped depression designed to temporarily store and promote infiltration of stormwater runoff. Standards for bio-retention design are specified in the Department of Ecology's Stormwater management Manual for western Washington.

### Bollard

Post used to prevent vehicular access. A bollard may or may not be removable.

### Buffer Zone

Area contiguous to a critical area required for the continued maintenance, functioning, or structural stability of a critical area.

### BSBL ("Building Setback Line")

Line measured parallel to property, easement, drainage facility, or buffer boundary that delineates the area (defined by the distance of separation) where buildings or other structures are prohibited. Wooden or chain link fences and landscaping are allowable within a building setback line.

### Certified Erosion and Sediment Control Lead (CESCL)

Individual with erosion and sediment control training that meets minimum standards established by Ecology. A CESCL is knowledgeable in practices of erosion and sediment control and must have the skills to assess site conditions and construction activities that could impact the quality of stormwater and the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges. Certification is obtained through an Ecology approved erosion and sediment control course.

### Civil Engineer

Person licensed by the State of Washington as a professional engineer in civil engineering.

### Clearing

Removal of existing vegetation.

### Commercial Project (or land use)

Project or land use requiring commercial building permit, or site where permit would be required for construction of a building, including industrial projects or land uses and mixed-use, commercial, or multifamily projects or land uses. Agricultural projects included only if they require commercial building permit. Single-family residential projects not included.

### Community Development Director

Community Development Director or their designee.

### Conveyance System

Drainage facilities and features, both natural and constructed, that provide for collection and transport of surface water or stormwater runoff. Natural elements of conveyance



system include swales and small drainage courses, streams, rivers, lakes and wetlands. Constructed elements of conveyance system include gutters, ditches, pipes, catch basins, channels and most flow control and water quality facilities.

#### Critical Area

Any of the following areas or ecosystems: aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, streams, and wetlands, as defined in MMC 22.80.

#### Critical Area Report

Report evaluating probable impacts of development proposal on critical areas regulated under MMC 22.80.

#### Culvert

Pipe or concrete box structure that drains open channel, swale, or ditch under roadway or embankment, typically with no catch basins or maintenance holes along its length.

#### Cut Slope

Slope formed by excavating overlying material to connect the original ground surface with a lower ground surface created by the excavation.

#### Dedication of Land

Assigning ownership for a portion of a property for a specific use or function.

#### Design Engineer

Professional engineer who prepares analysis, design, and plans for Development permit or approval submittal.

#### Detention

Release of surface and stormwater runoff from site at slower rate than collected by drainage facility system, with the difference being held in temporary storage.

#### Detention Facility

Facility that collects water from developed areas and releases it at slower rate than it enters. Excess of inflow over outflow is temporarily stored in pond or vault and is typically released over hours or days.

#### Developer

Property owner, public agency, public or private utility, person, contractor, or entity named in writing by property owner on an application for a development, permit, or approval to act as applicant.

#### Development

Activity upon land consisting of construction or alteration of structures, earth movement, dredging, dumping, grading, filling, mining, removal of sand, gravel, or minerals, driving of piles, drilling operations, bulk heading, clearing of vegetation, activities associated with construction of structures or infrastructure, or other land disturbance or building activities. Includes storage or use of equipment or materials inconsistent with existing use. Also includes approvals issued by City binding land to specific patterns of use, including but not limited to subdivisions, zone changes, conditional use permits, and binding site plans.

#### Development Review Engineer

Responsible for conditioning, review, inspection, and approval of right-of-way use permits and road and drainage improvements constructed as part of development

permits administered by the City.

#### Development Services

Interdisciplinary project and permit review team consisting of staff from the Community Development, Fire, and Public Works Departments.

#### Director

The Public Works Director of the City of Monroe or their designee.

#### Ditch

Constructed channel to collect and convey stormwater.

#### Drainage Facility

Constructed or engineered feature that collects, conveys, stores, treats, or otherwise manages stormwater runoff or surface water. Includes, but is not limited to, constructed or engineered stream, lake, wetland, or closed depression, or a pipe, channel, ditch, gutter, flow control facility, flow control BMP, water quality facility, erosion and sediment control facility, and any other structure and appurtenance that provides for drainage.

#### Easement

Legal right to use parcel of land for particular purpose. Does not include fee ownership, but may restrict owner's use of the land.

#### Ecology

The Washington State Department of Ecology.

#### Embankment

Structure of earth, gravel, or other material raised to form pond bank or foundation for road.

#### Energy Dissipater

Means by which total energy of flowing water is reduced. Usually mechanism that reduces velocity prior to or at discharge from an outfall in order to prevent erosion. Includes rock splash pads, drop maintenance holes, concrete stilling basins or baffles, and check dams.

#### Erosion

Process whereby wind, rain, water, and other natural agents mobilize and transport particles.

#### Erosion Hazard Area

Areas as defined in MMC 22.80 or as identified by Department of Agriculture National Resources Conservation Service as having "moderate to severe," "severe" or "very severe" rill and inter-rill erosion hazard or those areas containing soils which, according to the USDA Soil Conservation Service Soil Classification System, may experience severe to very severe erosion hazard.

#### Existing Conditions

Conditions of access, utilities, development, vegetation, and impervious cover at time of analysis.

#### Fill Slope

Slope formed by placing and compacting material to create a slope and surface that is higher than the original ground surface.

### Fire Marshall

Fire Marshall or their designee.

### Franchise Area

Area defined within individual franchise agreement entered into by City and another party for specified purpose, generally including street rights-of-way.

### Geotechnical Engineer

Civil engineer, licensed by the Washington State, with at least four years of professional employment as a geotechnical engineer specializing in the design and construction aspects of earth materials.

### Grading

Shaping, excavating, or filling of ground surface.

### Groundwater

Water in a saturated zone or stratum beneath the surface of land or a surface water body.

### Illicit Discharge

Non-stormwater discharge to stormwater drainage system causing or contributing to violation of state water quality, sediment quality, or ground water quality standards, including but not limited to sanitary sewer connections, industrial process water, interior floor drains, car washing, and gray water systems.

### Improvement

Permanent, man-made, physical change to land or real property including, but not limited to, buildings, streets, driveways, sidewalks, crosswalks, parking lots, water mains, sanitary and storm sewers, drainage facilities, and landscaping.

### Infrastructure

Basic public installations such as roads, transportation systems, parks, and utilities.

### Land Disturbing Activity

Activity that results in a change in existing soil cover (vegetative, non-vegetative, or existing soil topography) to include demolition, construction, clearing, grading, filling, excavation, and compaction. Does not include tilling conducted as part of agricultural practices, landscape maintenance, or gardening.

### Land Surveyor

Person licensed by the State of Washington as a professional land surveyor.

### Low Impact Development (LID)

Stormwater and land use management strategies that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices integrated into project design.

### LID Principles

Land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

### Maintenance

Usual activities taken to prevent decline, lapse, or cessation in use of currently

serviceable structures, facilities, BMPs, equipment, or systems if there is no expansion of any of these, and there are no significant construction impacts. Maintenance includes repair or replacement of non-functional facilities and BMPs, and the replacement of existing structures with different types of structures, if the repair or replacement is required to meet current engineering standards or is required by one or more environmental permits and functioning characteristics of original facility or structure are not changed.

#### Multifamily Project or Land Use

Project or land use requiring commercial building permit or commercial site development permit for development of residential dwelling units, not detached single family or duplex dwelling units.

#### National Pollutant Discharge Elimination System (NPDES)

Part of Clean Water Act which requires point source discharges to obtain permits administered by Ecology, and referred to as NPDES Phase I or Phase II Permit.

#### Outfall

Point where collected and concentrated surface and stormwater runoff is discharged from a pipe system or culvert.

#### Owner

Individual(s) or entity having legal title to land or other real property.

#### Permeable Pavement

Pervious concrete, porous asphalt, permeable pavers or other forms of pervious or porous paving material intended to allow passage of water through pavement section. Often includes aggregate base providing structural support and acting as stormwater reservoir.

#### Pervious Surface

Surface material that allows stormwater to infiltrate into ground. Examples include lawn, landscape, pasture, and native vegetation areas. Note for purposes of threshold determination and runoff volume modeling for detention and treatment, vegetated roofs and permeable pavements are to be considered impervious surfaces along with lawns, landscaping, sports fields, golf courses, and other areas that have modified runoff characteristics resulting from the addition of underdrains.

#### Pipe System

A network of stormwater pipes, catch basins, maintenance holes, inlets, and outfalls designed and constructed to convey surface water.

#### Plat

Map or representation of subdivision showing division of tract or parcel of land into lots, blocks, streets, or other divisions and dedications, as defined in MMC 22.12.

#### Preapplication

Form and/or meeting used by Developer for development permit to present initial project intentions to Development Services. Preapplication is not the same as application.

#### Project

Proposed action to alter, develop, or redevelop a site or building that may also require permitting and engineering review.

### Project Area

Portion of site and offsite areas subject to proposed project activities, alterations, and improvements, as defined in MMC 22.12.160.

### PSE

Puget Sound Energy.

### Public Works Director

Public Works Director or their designee.

### PUD

Snohomish County Public Utility District No. 1

### Receiving Bodies of Water

Creeks, streams, rivers, lakes, and other bodies of water into which surface waters are directed, either naturally or in manmade ditches or piped systems.

### Record Drawings (“As-builts”)

Engineering plans that have been revised to reflect changes to plans that occurred during construction.

### Residential Access Street

Neighborhood or local access street.

### Riprap

Facing layer or protective mound of stones placed to prevent erosion or sloughing of a structure, construction entrance, or embankment due to the flow of surface and stormwater runoff.

### Sediment

Fragmented material which originates from weathering and erosion of rocks or unconsolidated deposits, and which is transported by, suspended in, or deposited by water.

### Shared Use Path

A path or way which is physically separated from motorized vehicular traffic by an open space or barrier and is either within the road right-of-way or within an independent right-of-way. Shared use paths may be used by pedestrians, bicycles, skaters, joggers, wheelchair users and other non-motorized users.

### Short Subdivision / Short Plat

Division of land into nine or less lots, tracts, parcels, sites, or subdivisions for purpose of sale, lease, development, or financing, as defined in MMC 22.12.190.

### Sidewalk section

Portion of driveway approach lying between back edge of the sidewalk and apron, including end slopes, measured at front edge of sidewalk.

### Sight Triangle

Unobstructed line of sight along both approaches of both roads at an intersection, at driveaways, and across included corners for distance sufficient to allow the operators of both vehicles, approaching simultaneously, to see each other in time to prevent a collision.

### Slope

Gradient in a ratio of horizontal feet per vertical feet, or expressed as percentage. Side

slopes ratios of drainage facilities are referred to with the horizontal dimension first.

#### Snohomish PUD

Snohomish County Public Utility District No. 1.

#### Storm Drain

Enclosed conduits that transport surface and stormwater runoff toward points of discharge (sometimes called storm sewers).

#### Storm Drain System

System of gutters, pipes, streams, or ditches used to carry surface and stormwater from surrounding lands to streams, lakes, or Puget Sound.

#### Stormwater

Water produced during precipitation or snowmelt, which runs off, soaks into ground, or dissipates through evapotranspiration.

#### Stormwater Runoff

Stormwater that flows over or below the surface. Stormwater runoff contributes to and becomes surface water or groundwater.

#### Surface Water

Water existing on land surfaces before, during, and after stormwater runoff such as water found on ground surfaces and in drainage facilities, rivers, streams, springs, seeps, ponds, lakes, wetlands, and Puget Sound. It also includes shallow groundwater.

#### Swale

Shallow drainage conveyance with relatively gentle side slopes, generally with designed flow depths less than 1-foot.

#### Temporary Erosion and Sediment Control (TESC) Measures

Erosion and sediment control measures implemented before final stabilization of site to reduce erosion, control siltation and sedimentation, and prevent discharge of sediment-laden water from site.

#### Tract

Legally created parcel of property designated for special non-residential and non-commercial uses.

#### WSDOT

Washington State Department of Transportation.

#### Zero-Rise Floodway

A calculated upward rise in the base flood elevation, equal to or greater than 0.01 foot, resulting from a comparison of existing conditions and changed conditions directly attributable to alterations of the topography or any other flow obstructions in the floodplain. "Zero-rise floodway" is broader than that of the FEMA floodway but always includes the FEMA floodway.

## 1.8 LEGAL RELATIONS AND RESPONSIBILITIES

The contractor at all times shall comply with all federal and state laws, local laws and ordinances, and any regulations which in any manner affect the project.

The developer and contractor shall release, indemnify and promise to defend and hold

harmless the city, its officers, employees and agents from and against any and all liability, loss, damage, expense, actions and claims, including costs and reasonable attorneys fees incurred by the city in defense thereof, asserting or arising directly or indirectly on account of any violation of laws, ordinances or regulations whether such violations are by the contractor, his subcontractors, his employees, or his agents.

## **1.9 SUBMITTAL**

### **1.9.1 Permits**

Permits, approvals or agreements may be required by the City or other jurisdictions prior to initiating any activities subject to these Standards. Questions regarding such permits, approvals or agreements should be directed to the Director.

### **1.9.2 Professional Qualifications**

Professionals in the fields of engineering, architecture, landscape architecture, or surveying who prepare or are responsible for the preparation of plans, drawings, specifications, calculations, technical reports, etc., for the purpose of obtaining City permits or approvals, shall be registered or authorized to practice in the State of Washington in accordance with Title 18 RCW. Registration or authorization to practice shall be in the specific technical area pertinent to the documents being prepared. Exceptions to this requirement are specified in Section 18.43.130 RCW.

### **1.9.3 Plan Review**

For developer-constructed projects, all plans, reports, drawings and specifications that support permit or land use applications are to be submitted in PDF format to the Community Development Department. Copies of such supporting documentation are forwarded to the appropriate city staff for review. Construction drawings are to accurately display existing site information as well as detailed information on all proposed work. See MMC 212.68.040(C) for typical construction drawing submittal requirements and the relative sections of these Standards.

### **1.9.4 Financial Securities**

#### **Performance Financial Securities**

Before any permit is issued, the Applicant must pay the appropriate permit fees. Work within existing city rights-of-way or easements shall provide financial security prior to issuance of a permit for that work as outlined in MMC 12.36.140 – Right-of-Way Disturbance Permits, performance deposits and warranty guarantee. For final plat and final short plat approvals, financial guarantees as defined in MMC 22.68.040(D) – Final Subdivision Process for Preliminary and Short Subdivisions, are required.

#### **Maintenance Financial Securities**

A two-year maintenance bond, or other surety acceptable to the City, is required at the time of final acceptance of the constructed public works improvements or recording of the final plat, whichever is later, per MMC 22.68.040(D). The maintenance financial security must be in place before the City releases the

performance security set in place at the start of construction.

### **Insurance**

Before the issuance of construction permits, if work is within public rights-of-way or easements the Developer must provide a Certificate of Insurance on forms approved by the City. See MMC 12.36.150. The insurance must not be cancelable without 30 (thirty) days of written notice to the City.

## **1.9.5 Record Drawings**

Engineering record drawings must be submitted upon completion of construction and prior to final inspection approval. In some cases, these drawings will be required during the inspection process to approve facilities before the next phase of construction can proceed. Record drawings must be submitted prior to final acceptance of any private or public construction project. The record drawings must show changes in final locations and elevations of curb and gutter, storm drain lines, water lines, sewer lines, catch basins, manholes, fire hydrants, valves, new and existing utilities and all other miscellaneous items included in the work. Strikethrough the outdated data and report the accurate data beside the strikethrough.

Initial submittal of record drawings is limited to PDF copies of the construction drawings. After approval is received, the City requires the following for the final record drawing submittal:

- AutoCAD drawing, with the data tied to NAD 1983/1991 Washington State Plane North coordinates. Elevations must be based on NAVD 88 vertical datum.
- ArcGIS .shp file
- Multi-page PDF of the complete plan set.
- Individual TIFF images (each sheet as a separate image) using the state's requirements for producing digital images for archive purposes. Please see WAC Chapter 434-663.
- Bond paper copy of the record drawings.

## **1.10 CONSTRUCTION**

### **1.10.1 Preconstruction Conference**

The developer must schedule and attend a pre-construction conference with the city prior to beginning working on the site. The contractor, developer, certified erosion and sediment control lead, and design engineer must be in attendance.

### **1.10.2 Inspection**

The Director shall have authority to enforce these Standards as well as other applicable specifications. The Director shall appoint personnel as appropriate to inspect work completed pursuant to these Standards; they shall exercise such authority as the Director may delegate. It is the responsibility of the developer, contractor or their agents to have an approved set of plans and permits at the job site wherever work is being accomplished. If the plans cite these Standards without providing the specific text, drawings or details, then a copy of these



Standards must also be present at the job site. It is the responsibility of the developer, contractor or their agents to notify the City in advance of the commencement of any authorized work, in accordance with permit requirements. If requested by the City, the applicant/developer may be required to provide tests to substantiate the adequacy and/or placement of construction materials.

**1.10.3 Construction Noise**

Pursuant to MMC 6.04.055, there must be no sound made by the construction, excavation, repair, demolition, destruction, or alteration of any building or property or upon any building site, including the moving and idling of construction machinery, outside the following hours:

Monday through Friday	7 a.m. to 8 p.m.
Saturday	9 a.m. to 8 p.m.
Sunday	9 a.m. to 8 p.m.
Legal holidays (RCW 1.16.050)	9 a.m. to 8 p.m.

If a holiday falls on a Saturday, it will be observed on the Friday before. If a holiday falls on a Sunday, it will be observed on the Monday after.

Exceptions and Extensions to the above are:

- Construction on residential property relating to temporary projects for the maintenance or repair of homes, grounds, or appurtenances is allowed between 7 a.m. and 9 p.m. any day of the week.
- Exemptions may be allowed in accordance MMC 6.04.055.

These guidelines will not limit or prohibit more restrictive hours for work authorized under a permit issued by the City if conditions warrant, nor is it intended to replace MMC 6.04.055, which shall govern and take precedence should discrepancies exist.

**1.10.4 Erosion and Water Quality Control**

Temporary erosion and water quality control measures shall be required in accordance with the latest edition of the DOE Stormwater Management Manual for Western Washington, SWPPP, WSDOT Standard Specifications for Road, Bridge and Municipal Construction, and the Drainage Design and National Pollutant Discharge Elimination System (NPDES) Permit.

On-site grading shall be done in a manner to minimize off-site erosion and sedimentation in conformance with all statutory requirements, permits and approved plans. Roads, bridges, bikeways, and pedestrian facilities shall be kept free of dirt, debris or any obstructions. At no time will silt and debris be allowed to drain into an existing or newly installed drainage or sanitary sewer facilities. Special provisions may be required of the Developer to prevent erosion of stockpile materials onto the roadway, ditches, storm system, or private property. Stockpiles must not impede public travel unless specifically approved by the

Director.

The Developer may be required to obtain a Construction Stormwater General Permit from the Washington State Department of Ecology (DOE). When required, this permit shall be in place prior to starting construction activity.

Release of construction dewatering greater than 25 NTU is not permitted. Dewatering above that threshold may be stored or processed within settling basins and/or mechanical filtration tanks to reduce turbidity to NTU compliant thresholds.

#### **1.10.5 Right-of-Way and Site Maintenance**

The Developer shall schedule and control work so as to comply with all applicable provisions of City of Monroe land use codes and applicable state and federal codes, to prevent any hazards to public safety, health and welfare. On existing roads, two-way traffic for vehicles, bicycles and pedestrians shall be maintained at all times unless detour plans or lane closures have been approved in advance by the Director. Pedestrian and vehicular access to occupied buildings shall be maintained.

The Developer is responsible for all traffic control in accordance with the WSDOT/APWA Standard Plans for Road, Bridge and Municipal Construction (all applicable "K" plans) and/or the Manual on Uniform Traffic Control Devices (MUTCD). The Developer must apply for and obtain a Right-of-Way Disturbance Permit (ROWD).

No construction work shall commence until all approved traffic control is in place. The developer must provide a minimum of 48 hours advance notice to the City by emailing [roads@monroewa.gov](mailto:roads@monroewa.gov).

#### **1.10.6 Protection of Property and Utilities**

The Developer shall protect all private and public property on or in the vicinity of the work. The Developer must restore all damaged or destroyed property to its former condition.

The Developer shall protect private and public utilities, including telephone and telegraph lines, power lines, sewer and water lines, railroad tracks and appurtenances, highway lighting and signal systems, and similar facilities. The Developer must call 811 Dial-A-Dig before beginning any excavation. Local utilities shall be notified of locate requests at least two business days before the scheduled excavation per RCW 19.122. Utility service interruptions must be coordinated through the City of Monroe. The Developer must submit a request for utility interruptions to the city inspector a minimum of two weeks prior to proposed construction.

## **1.11 Underground Utilities**

### **1.11.1 General**

The WSDOT/APWA Standard Specifications apply unless modified herein by the Monroe Standards.

Soil treatment including but not limited to fly-ash and cement, may not be used as fill or trench backfill without Public Works written approval and any proposal for such work must include written specifications by a licensed geotechnical engineer that includes mixing proportions, equipment used, testing, inspection and stormwater runoff water-quality testing and control.

When trenching through existing pavement, the open cut must be a neat line made by either saw cutting, jackhammering, or ground on a continuous line. Saw cutting will be required unless the cut is made prior to reconstruction or an overlay.

Temporary pavement patching must be accomplished by using cold mix, 1/2" HMA, steel plates, or the product Easy Street or equal. Steel plates must have cold mix or HMA ramps along the edges and appropriate advance warning signage.

Where trench excavation equals or exceeds a depth of 4 feet, the Developer must provide, construct, maintain, and remove, as required, safety systems that meet the requirements of the Washington Industrial Safety and Health Act, RCW 49.17, including WAC 296-155. The trench safety systems must be designed by a qualified person, and meet accepted engineering requirements (see WAC 296-155-650-66411).

The Developer must furnish, install, and operate all necessary equipment to keep excavations above the foundation level free from water during construction, and must dewater and properly dispose of the water so as not to cause injury to public or private property or nuisance to the public. Sufficient pumping equipment, in good working condition, must be available at all times for all emergencies, including power outage, and must have available at all times competent workers for the operation of the pumping equipment. Portable power generators shall be of the quiet/whisper type. Storage tanks must be available if the situation dictates their need to meet water quality standards.

Compaction tests will be required to ensure adequate compaction on all lifts. All compaction tests must be conducted by a licensed testing laboratory at the expense of the Developer. Provide written documentation of test results to the City.

Water jetting or water settling of backfill in trenches is not permitted.

### **1.11.2 Requirements to Underground Utilities Associated with Developments**

In accordance with MMC 22.2.050 all new utilities in new developments are required to be installed underground.

### **1.11.3 Trench Excavation**

#### **Dimensions**

The length of trench excavation in advance of pipe laying must be kept to a minimum and shall not exceed 150 feet. The maximum permissible trench width between the foundation level to the top of the pipe must be 40 inches for pipe 15

inches or smaller inside diameter, or 1 ½ times the pipe inside diameter, plus 18 inches for pipe 18 inches or larger (see Standard Detail 102). If the maximum trench width is exceeded without written authorization from the City, the Developer will be required to provide pipe of higher strength classification or provide a higher class of bedding.

### **Interferences**

The Developer must not interfere with any existing utility without the written consent of the utility owner. If it becomes necessary to remove or relocate an existing utility, this must be completed by the owner of the utility or their designated contractor. No utility owned by the City may be moved to accommodate the Developer unless the cost of such work is borne by the Developer. The cost of moving privately-owned utilities must be similarly borne by the Developer unless other arrangements have been made with the person, company or entity owning the utility. The Developer must support and protect by timbers or appropriate methods all pipes, conduits, poles, wire, or other apparatus which may be in any way affected by the excavation work, and do everything necessary to support, sustain, and protect them under, over, along, or across the work. In case any of the pipes, conduits, poles, wires, or apparatus should be damaged, they must be repaired by the agency, person, company or entity owning them, and the expense of such repairs will be charged to the Developer, and its bond will be liable therefor. The Developer will be responsible for any damage done to any public or private property by reason of the breaking of any water pipe, sewer, gas pipe, electric conduit, or other utility, and its bond will be liable therefor. The Developer shall take all actions necessary to determine the existence and location of all underground utilities and protect the same against damage.

### **Protection of Adjoining Property**

The Developer must at all times, and at its own expense, preserve and protect from injury any adjoining property. Where in the protection of such property it is necessary to enter upon private property for the purpose of taking appropriate protective measures, the Developer must obtain written permission from the owner of such private property for such purpose. The Developer must, at its own expense, shore up and protect all buildings, walls, fences, or other property likely to be damaged during the progress of the excavation work and will be responsible for all damage to public or private property or highways resulting from the Developer's failure to properly protect and carry out the work. Whenever it may be necessary for the Developer to trench through any lawn area, the sod must be carefully cut and rolled and replaced after ditches have been backfilled and properly compacted. All construction and maintenance work must be completed in a manner that shall leave the lawn area clean of earth, rocks and debris and in a condition equal to or better than that which existed before such work began. The Developer must not remove, even temporarily, any trees or shrubs which exist in parking strip areas or easements across private property without first having notified and obtained the consent of the property owner, or in the case of public property, the City of Monroe.

### **Fences, Barriers**

The Developer must erect such fence, railing, or barriers about the site of the work as to prevent safety hazards to persons using city streets or sidewalks, and such protective barriers must be maintained until the work is completed or the danger removed. One-half hour prior to sunset, there must be placed upon such place of excavation and upon any excavated materials or structures or other obstructions to streets suitable and sufficient warning lights, flashing or continuous burn, whichever

is appropriate, and which must be maintained throughout the night for the entire construction period. It is unlawful for anyone to remove or tear down the fence or railing or other protective barriers or any lights provided there for the protection of the public.

#### **Removal of Attractive Nuisance**

It is unlawful for the Developer to allow or permit to remain unguarded, at the place of excavation or opening, any machinery, equipment, or other devices having the characteristics of an attractive nuisance likely to attract children and be hazardous to their safety or health.

#### **1.11.4 Trench Backfill**

Trench backfill must conform to Standard Detail 102.

Unsuitable backfill material must be removed from the site and hauled to an appropriate disposal site.

Imported material must meet the requirements of Gravel Borrow, Crushed Surfacing Top Course, or Crushed Surfacing Bottom Course as specified in the appropriate materials section of the WSDOT/APWA Standard Specifications.

#### **1.11.5 Compaction**

Trench backfill must conform to Standard Detail 103 and be spread in layers and compacted by mechanical tampers of the impact type. The backfill material must be placed in successive layers with the first layer not to exceed 18" above the pipe, and the following layers not exceeding 12 inches in loose thickness, with each layer being compacted to the density specified below:

Improved areas such as street and sidewalks must be compacted to at least 95 percent of maximum dry density in the top 4 feet of the backfill. Backfill 4 feet and deeper must be compacted to at least 90 percent of maximum dry density.

Unimproved area or landscape areas must be compacted to at least 90 percent of maximum dry density.

#### **1.11.6 Trenching Longitudinal to Roadway**

All utilities that are within the roadway section and longitudinal to the roadway, must be backfilled according to the requirements listed in Standard Detail 102 to the pavement patch level or subgrade, whichever applies.

When groundwater levels are encountered within 3 feet of finished grade, a 4-inch diameter, rigid PVC perforated pipe drain must be installed parallel to all proposed mains in the same trench. This perforated pipe must be bedded in a minimum 6 inch depth of clear crushed rock. Crushed rock backfill must further be placed to a minimum height of 6 inches above the pipe. The pipe must be installed a minimum of 3 feet below finished grade. Drain pipes must connect to the City storm system at their low point. If no City storm system is available for connection, in lieu of installing the drain pipe system described above, the entire trench section must be backfilled with Crushed Surfacing Base Course.

Pavement restoration of longitudinal trenching for all underground utilities must be

completed according to Standard Detail 317. The limits of paving will be as determined by the City on a project specific basis, and will require full lane width grinding and overlays unless otherwise approved by the City.

#### **1.11.7 Trenching Transverse to Roadway**

Utility trenching that crosses transversely to the roadway alignment will not be permitted unless it can be shown that alternatives such as jacking, boring, or tunneling are not feasible or unless the utility can be installed just prior to reconstruction or overlay of the road. Should an open cut be approved, the trench must be backfilled according to the requirements listed in Standard Detail 102. One lane must remain accessible to emergency vehicles at all times unless other arrangements have been previously approved in a Right-of-Way Disturbance Permit. When high groundwater levels are encountered within 3 feet of finished grade, a four (4) inch diameter, rigid PVC perforated pipe drain must be installed parallel to all mains. This perforated pipe must be bedded in a minimum six (6) inch depth of clear crushed rock. This crushed rock fill must further be placed to a minimum height of 6 inches above the pipe. The pipe must be installed a minimum of 3 feet below finished grade. Drain pipes must connect to the City storm system at their low point. If no City storm system is available for connection, in lieu of installing the drain pipe system described above, the entire trench section must be backfilled with Crushed Surfacing Base Course.

Pavement restoration of transverse trenching for all underground utilities must be completed according to Standard Detail 317. The limits of paving shall be determined by the City on a project-specific basis.

#### **1.11.8 Jacking, Boring, or Tunneling**

As a condition of permit approval, in certain situations, the City may require jacking, boring or tunneling under pavements, buildings, railroad tracks, etc. The Developer will install the pipe by jacking, boring, or tunneling, or installing the pipe in a casing pipe by a combination of these methods. The Developer will be liable for damage to any existing facilities as a result of the jacking, boring, or tunneling installation work. Approvals from other agencies or companies may be required for the proposed work.

The Developer must obtain all necessary permits, approvals, and easements as may be necessary, and must provide copies to the City during the permit review process.

When use of a casing pipe is required, the Developer must select the appropriate gauge and size for the intended application, unless otherwise indicated on the approved plans. During jacking or tunneling operations, particular care must be exercised to prevent caving ahead of the pipe which will cause voids outside the pipe. When the carrier pipe is installed within a casing pipe, the carrier pipe must be skidded into position in an acceptable manner and to the line and grade as designated. The annular space between the casing and the pipe must be filled with controlled density fill or as otherwise approved.

Prior to jacking or tunneling activities, the Developer must submit shop drawings to the City for approval describing the activities, including dimensioning of pit length, the size of underground borings, and a complete description of shoring.

### **1.11.9 Seepage Barriers**

Utility trenches where seepage is observed or likely to occur must have in-line trench dams or have "Seepage Barriers" installed periodically in the trench according to the following criteria:

If the roadway slope that contains the utility trench is equal to or greater than 7 percent but less than 10 percent, seepage barriers must be installed at 200-foot intervals;

If the roadway slope that contains the utility trench is equal to or greater than 10 percent but less than 15 percent, seepage barriers must be installed at 150-foot intervals;

Seepage Barriers must consist of Controlled Density Fill (CDF) or an alternative approved by the City, must include a rigid perforated PVC pipe drain encased within drain rock, and must connect to an adjacent catch basin.

## **1.12 TRAFFIC CONTROL**

### **1.12.1 General**

All work within the City rights-of-way must first obtain a Right-Of-Way Disturbance Permit.

Traffic control for all projects shall comply with Chapter 6 of the Manual on Uniform Traffic Control Devices (MUTCD). It shall be the Developer's responsibility to furnish and maintain all required labor and materials as needed to the satisfaction of the Director. A Traffic Control plan must be submitted a minimum 72 hours before the proposed work. Call 24 hours before work to schedule a field inspection to approve installation.

The Developer shall keep existing streets adjacent to or within the limits of the project open and maintained in a safe condition for traffic at all times. The Developer shall remove any deposits or debris and shall repair any damage resulting from his operations.

Construction shall be conducted so as to cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses and buildings along the line of work shall be maintained. Access shall also be maintained to fire hydrants, water valves and other utility control valves and structures, and postal service to mail receptacles.

Sign material shall meet MUTCD standards for applicable shape, material and legibility. No hand painting of signs will be allowed. Signs shall be placed so as not to impair the use of sidewalks and travel lanes, or create hazards thereto. Signs and supports shall be removed from display when not needed as part of the development activity.

Steel plates over the roadway must use proper signage per MUTCD, including "Motorcycles Use Extreme Caution" per RCW 47.36.200.

### **1.12.2 Detours and Road Closures**

Approval must be received from the Director for all detours and road closures. The Developer shall submit a traffic control plan complying with the MUTCD to the Director for review and approval.

During construction that impacts signalized locations, an off-duty, uniformed police officer may be required at all times when the signal is temporarily taken out of service. Officers may also be required for new traffic signal work. If a uniformed police officer is required, the contractor shall obtain this service by contacting the City of Monroe Police Department at (360) 794-6300 at least five days in advance of the need.

### **1.13 ERRORS AND OMISSIONS**

At the discretion of the Director, any significant errors or omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of the approvals and/or stoppage of any or all permitted work. It shall be the responsibility of the Developer to show cause why such work should continue, and make such changes in plans that may be required by the Director before the plans are reapproved.

### **1.14 PENALTIES**

Failure to comply with these Standards will be cause for withholding or withdrawing approval of plans or drawings; withholding of bonds, final inspection approval or occupancy certificates; and/or other penalties as provided within the Monroe Municipal Code.



## 1.15 STANDARD GENERAL DRAWINGS

Drawing #	Description
101	Typical Utility Locations
102	Trench Backfill
103	Trench Compaction