



**CITY OF OREGON CITY
ENGINEERING STORMWATER REVIEW CHECKLIST
FOR PUBLIC WORKS CONSTRUCTION**

Project No. and Name: _____

Date : _____

LEGEND: X = O.K. blank = INCOMPLETE NA = NOT APPLICABLE

Disclaimer : This checklist does not prevent the designer from knowing all of the standards. This checklist is to be used as a guide, not a replacement for the Stormwater and Grading Design Standards or City Code Section 13.12. More information can be found within the standards.

I. STORMWATER AND GRADING STANDARDS

<https://www.orcity.org/1227/Stormwater-Grading-Design-Standards>

_____ Signed and Stamped by a professional civil engineer licensed in the State of Oregon

Stormwater Triggers:

_____ 5,000 square feet of new or replaced impervious surface; Or

_____ 500 square feet of new impervious surface within NROD; Or

_____ 1,000 square feet disturbance of ex. impervious surface within NROD; Or

_____ High Risk Development per 1.2.1.E

_____ Exemptions per 1.2.2 with appropriate description.

Report Includes In General:

_____ Grading, Fill, and Excavation Calculations and/or Discussion (3.1)

_____ Stormwater Mgmt Facility Design Calculations and/or Discussion (4.2)

_____ Stormwater Conveyance Calculations and/or Discussion (5.1)

_____ Source Controls Calculations and/or Discussion (6.1)

_____ Erosion Prevention and Sediment Control Exhibits and/or Discussion

_____ Operation and Maintenance Plan – Exhibits and/or Discussion

Report Includes Specifically:

_____ Cover Sheet With:

_____ Project Name

_____ City Planning File Number

- _____Project Engineer's Name, Address, Phone Number
- _____Applicant's Name, Address, Phone Number
- _____Table of Contents
- _____Vicinity Map
- _____Basin Maps
 - _____Project Boundaries
 - _____Offsite Contributing Basins
 - _____Onsite Drainage Basins
 - _____Approx. Locations of all Major Drainage Structures
 - _____Course of Stormwater from onsite to receiving body of water
 - _____Reference to the source of the topographic base map (e.g. USGS)
 - _____Map Scale
 - _____North Arrow
- _____Project Description
 - _____Size of Project
 - _____Location of Project (Address/Parcel Number)
 - _____Zoning
 - _____Proposed Land Use
 - _____Proposed Impervious Surfaces
 - _____Proposed Landscaped Surfaces (pervious)
- _____Required Permits
 - _____NPDES 1200-C
 - _____DEQ
 - _____USCOE
 - _____US Fish and Wildlife
- _____References to Relevant Reports
- _____Existing Conditions
 - _____Existing Soil Conditions (based on NRCS report or Geotech report)
 - _____Soil (Hydrologic Soil Group A, B, C or D)
 - _____Groundwater information (Depth, seasonal, aquifer, etc.)
 - _____Site topography
 - _____Describe Pre-Developed Hydrologic conditions
 - _____Points of Discharge
 - _____Offsite Drainage

- _____ NROD, Geohazard, or Floodplain Overlays
- _____ Locations of known wells on or within 250 feet of property
- _____ Locations of existing fuel tanks
- _____ Developed Site Drainage Conditions
 - _____ Describe the Stormwater Management Strategy being Implemented
 - _____ Emergency Overflow
- Downstream Analysis
 - _____ Drainage Basin Description
 - _____ Contributing Areas
 - _____ Description of impact to downstream conveyance systems or natural waterways post development

Appendices of Report Specifically Include (9.4.2):

- _____ Site Assessment and Planning Checklist
- _____ Soils Report (NRCS report or Geotech report) with infiltration rates or tests
- _____ BMP Sizing Tool Summary
- _____ On-site Hydraulic Design Computations
 - _____ Basin map (Proposed impervious area(s) & pervious areas)
 - _____ Runoff Calculations
 - _____ Conveyance System Capacity Calculations
- _____ Downstream Analysis Hydraulic Design Computations
 - _____ Drainage Basin map (including topography)
 - _____ Runoff Calculations (Pre-development vs Post-development)
 - _____ Conveyance System Capacity Calculations (Pre-development vs Post-development)
- _____ Curb and catch basin inlet sizing
- _____ Energy Dissipater Calculations
- _____ Operations and Maintenance Plan
- _____ Landscape Plan

SITE ASSESSMENT AND PRELIMINARY DESIGN (Chapter 2)

- _____ Level 1 – Onsite Retention (Fully infiltrate 10 year design storm within 72 hours)
- _____ Level 2 – Onsite stormwater management using LID
 - _____ Stormwater facilities sized using the BMP Sizing Tool
 - _____ Use “Forest” for Pre-Developed Site Cover
 - _____ Use correct Hydrologic Soil Group (Per NRCS report or geotechnical report)

- _____ Stormwater facilities sized using the Engineered Method (utilize the continuous runoff model or equivalent as approved by the City Engineer per 4.3.4.)
- _____ Level 3 – Offsite or Regional Facilities
- _____ Level 4 – Fee in Lieu

GRADING, FILL, AND EXCAVATION (Chapter 3)

- _____ All excavated slopes no steeper than 2:1, unless approved otherwise
- _____ Fill slopes shall not be constructed on natural slopes steeper than 2:1
- _____ Benched ground where natural slopes are steeper than 4:1 and the height is greater than 5 feet, at a minimum of 10 feet wide, unless approved otherwise
- _____ Delineation of Rock disposal (on grading plan)
- _____ Rock sizes greater than 6 inches in maximum dimension shall be 5 feet or more below grade
- _____ Describe Compaction needs
- _____ Describe any significant slope needs
- _____ Describe any fills supporting structures
- _____ Describe Stormwater Management Facility Berm Embankments
- _____ Embankment Soils
- _____ Compaction Standard
- _____ Excavation Standard
- _____ Anti-Seepage Collars
- _____ Embankments of 6 feet or less shall have minimum top width of 5 ft
- _____ 12 foot minimum width of top of berm when used for maint. access
- _____ Describe growing media for Stormwater Facilities
- _____ Top of cut slope shall be no closer to the boundary line than $\frac{1}{5}$ the vertical height of the cut, minimum 2 feet, maximum 10 feet
- _____ Toe of fill slope shall be no closer to the boundary line than $\frac{1}{2}$ the vertical height of the cut, minimum 3 feet, maximum 20 feet
- _____ Grading Plan
- _____ No smaller than 1 inch = 100 feet scale
- _____ Cover Sheet
- _____ Existing Topography
- _____ Finished Grade Contours
- _____ Site Water Resources (NROD, Floodplain, wetlands, etc)
- _____ Locations of Disturbed Areas
- _____ Quantities of Cut/Fill

- _____ Locations of Stormwater Features
- _____ Locations of Drainage Structures
- _____ Construction Information (information concerning construction methods, fill material specifications, source of fill material, compaction specifications, haul routes, and other construction information when known and applicable.)
- _____ Standard Grading Notes

STORMWATER MANAGEMENT FACILITY (Chapter 4)

Stormwater Facility Design

- _____ Infiltration testing & results (NRCS report or tests per Appendix D)
- _____ Growing media specifications (Per Appendix A:A.4)
- _____ Plantings (per plant list in Appendix A)
- _____ Unmitigated Area (without flow control) allowed when :
 - _____ Runoff joins pre-developed downstream drainage within ¼ mile
 - _____ Downstream analysis shows no adverse impacts
 - _____ Public easements obtained
 - _____ Cumulative Release Rate is less than pre-developed rate

Detention Pond Design

- _____ Maximum active storage depth = 4 feet
- _____ Bottom width = 10 feet for ponds 3 ft or less of active storage depth
- _____ Bottom width = 15 feet for ponds 3 ft or more of active storage depth
- _____ Interior Side Slopes = 3:1 max
- _____ Exterior Side Slopes = 4:1 max
- _____ Fenced with gate (when perimeter grades are steeper than 3:1; always required around public ponds)
- _____ Signage
- _____ Flow Control Structure detail (orifice and weir dimensions and elevation sized using BMP sizing tool)
- _____ Emergency Overflow (spillway) for Post developed 100 year storm
 - _____ Directs overflows safely toward the downstream conveyance system
 - _____ Invert is 6 inches above primary overflow elevation
 - _____ Minimum depth of 9 inches from top of berm
 - _____ Minimum 6 inches of freeboard during design storm

_____ Rip-rap per Table 5-5

General Maintenance Access

- _____ Maximum grade : 12 percent
- _____ Minimum width of surface = 12 feet
- _____ Paved surfaces = 2" asphalt over 6 " aggregate
- _____ Paved surfaces to within 10 feet horizontal and 3 feet vertical of openings of water quality and flow control structures

Detention Pond Interior Access

- _____ Maximum grade : 18 percent
- _____ Minimum width of surface = 10 feet
- _____ Minimum width of curve alignments = 15 feet
- _____ Bollards to limit access
- _____ Within 3 vertical feet and 10 horizontal feet of the lowest elevation of the pond
- _____ Landscape Block Surface
- _____ Access roads longer than 300 feet require a turnaround

STORMWATER CONVEYANCE (Chapter 5)

- _____ Points of Discharge
- _____ Overland Emergency Overflow Path
- _____ Pipe Sizing Calculations based on Design Event per Table 5-1
- _____ Describe Design Method (Rational, Hydrograph, etc.)
- _____ Minimum T/C (Time of Concentration) = 5 minutes
- _____ Rainfall Intensity per Figure 5-2
- _____ Use of proper Manning's "n" from Table 5-3
- _____ Capacity Analysis for Pressure Flow
- _____ Open Channel Design
- _____ Culvert Design
- _____ Public Pipe System Requirements
 - _____ Minimum 2 feet cover under collector and above roads
 - _____ May use Class 52 Ductile Iron or Class V concrete for 1 ft cover
 - _____ PVC and HDPE require 2 feet minimum cover
 - _____ Minimum velocity = 2.5 fps
 - _____ Maximum velocity = 15 fps
 - _____ Minimum 12" in size

- _____ Maximum pipe length = 400 feet
- _____ Minimum separation = 6" vertical, 3 ft horizontal from other utilities
- _____ Debris grates for 18" in diameter or larger
- _____ Minimum pipe slope = 0.5%
- _____ Manholes or curb inlets with manhole-type access at all pipe junctions exceeding 4 feet depth or 18" in size
- _____ Outfalls with energy dissipaters
- _____ Drainage easements = 15 feet
- _____ Foundation drains piped directly to storm system for commercial/industrial
- _____ Foundation drains piped to street for single-family residential

SOURCE CONTROLS (Chapter 6)

Solid Waste Storage Areas:

- _____ Have a permanent canopy, roof, or awning and drain to sanitary sewer; or
- _____ Hydraulically-isolated solid waste storage area directed to pretreatment facility (Oil/ water separator) or stormwater management facility prior to discharge to storm sewer.

Address applicable requirements to design source controls for the proposed site use.

- _____ Fuel Dispensing Facilities and Surrounding Traffic Areas (Section 6.3)
- _____ Above-Ground Storage of Liquid Materials (Section 6.4)
- _____ Solid Waste Storage Areas, Containers, and Trash Compactors (Section 6.5)
- _____ Exterior Storage of Bulk Materials (Section 6.6)
- _____ Material Transfer Areas/Loading Docks (Section 6.7)
- _____ Equipment and/or Vehicle Washing Facilities (Section 6.8)
- _____ Stormwater and Groundwater Management for Development on Land With Suspected or Known Contamination (Section 6.9)
- _____ Covered Vehicle Parking Areas for Industrial or Commercial Uses (Section 6.10)
- _____ Industrial and Commercial High Traffic Areas (Section 6.11) (ADT) of 2,500 vehicles
- _____ Land Uses Subject to Oregon Department of Environmental Quality (ODEQ) 1200-Z
- _____ Industrial Stormwater Permit Requirements (Section 6.12)
- _____ Informational Signage
- _____ Spill Control
- _____ Public Sanitary Sewer Discharge Permit

EROSION PREVENTION AND SEDIMENT CONTROL (Chapter 7)

_____ Erosion Control (required for disturbance of 1,000 square feet or greater; *Erosion Control plan reviewed separately by City's Erosion Control Officer*)

_____ DEQ 1200-C Permit (Disturbance of 1.0 acre or greater)

OPERATION AND MAINTENANCE OF STORMWATER FACILITIES (Chapter 8)

Operation and Maintenance Plan for Post Construction Runoff

_____ Facility Information

_____ Responsible Party Information

_____ Funding source

_____ Explain what controls were installed to mimic pre-development

_____ Hydrologic Function

_____ Regular Maintenance Procedures and Inspections (See Appendix C)

_____ Lifespan (i.e., when to replace growing media, plantings, and control structure elements)

Attachments:

_____ Site Plan

_____ Facility Details

_____ Maintenance Agreement/Covenant