



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 inletsizing
- 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 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 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 $\frac{1}{4}$ 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