



**CITY OF REDMOND**  
Engineering Department

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**2010 PUBLIC WORKS STANDARDS & SPECIFICATIONS**  
**SPECIAL PROVISIONS**

**DATE: 1-1-16 – Check City website for most current version**

Note changes in **bold** print

**DEVELOPMENT PROVISIONS**

Section 04.4.00 Engineering Fees: Revise to read as follows: Engineering fees for City inspection and plan review of public improvements are required as established by the City of Redmond Fee Schedule and must be paid before the construction plans can be approved and signed by the Public Works Director. The plan review portion of this fee is for services already provided and is non-refundable. The inspection portion of this fee is based on project valuation and is non-refundable ~~and is considered a deposit subject to cost accounting.~~ A cost estimate shall be submitted by the Design Engineer for review by the Engineering Department to determine project valuation. ~~Upon completion of construction activities, if the actual cost of inspection and testing services exceeds the amount of deposit received, payment for the remaining balance will be due prior to project acceptance by the City. Conversely, upon project acceptance by the City Engineer, any remaining balance from the deposit amount that exceeds the actual inspection and testing costs shall be refunded. A non-refundable final warranty inspection fee will be charged against the inspection deposit at the time of account closeout to cover future inspection services to be performed within the one year warranty period. In addition, any costs associated with the shut down or separation of improvements left abandoned and not completed may be charged against the inspection deposit as well.~~

Section 23.2.00 Plans and Specifications: Revise to read as follows: A comprehensive site grading and drainage plan prepared by a licensed Registered Professional Engineer shall be required for development of private property that proposes five **thousand** (5000) or more square feet of new roof, pavement, compacted gravel, concrete or other impervious surface improvements.

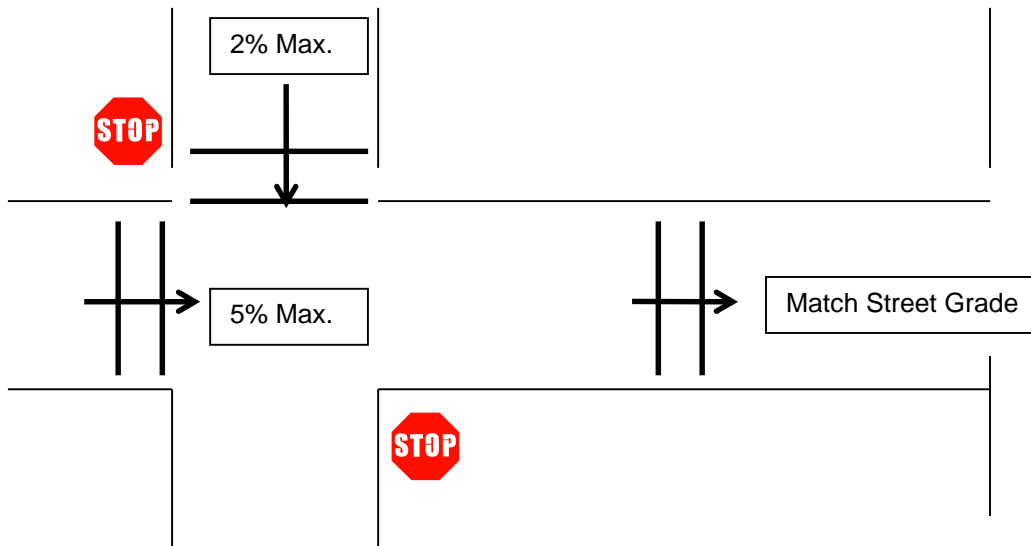
Add the following: **Where less than 5,000 s.f. (but more than 500 s.f.) of new impervious surface areas are proposed, a site plan shall be required that demonstrates on-site drainage will be maintained on site, any proposed retention area or storm drainage facility has design capacity for the required 50 year/24 hour storm event runoff volume (2 inch rainfall) and any necessary erosion control measures will be taken.** Note that this paragraph is not new, it has been moved from Section 23.3.00

Section 23.3.00 Subdivision Site Grading: The last sentence has been moved to Section 23.2.00: Mass site grading and drainage plans required as part of subdivision land use approval

shall be reviewed, approved, constructed, inspected and accepted through the public improvement construction process described in Sections 04 – 22. Design parameters and drawings requirements are as described in Section 23.2.00 above. ~~Where less than 5,000 sq.ft. (but more than 500 sq.ft.) of new impervious surface areas are proposed, a site plan shall be required that demonstrates on-site drainage will be maintained on site, any proposed retention area or storm drainage facility has design capacity for the required 50 year/24 hour storm event runoff volume (2 inch rainfall) and any necessary erosion control measures will be taken.~~

## DESIGN STANDARDS

Section II.A.2 Slope: Add the following to the second paragraph: **Note that Draft Public Rights of Way Accessibility Guidelines (PROWAG) specify maximum cross slopes of pedestrian street crossings which will control the longitudinal grade of the street at intersections. In accordance with PROWAG Section 302.6, the maximum cross slope of the pedestrian crossing for stop or yield controlled streets shall be 2 percent. For streets without stop or yield control, the maximum cross slope is 5 percent (R302.6.1). Cross slopes of midblock pedestrian street crossings are permitted to match the grade of the street (R302.6.2).**



Change the third paragraph to read as follows: “To insure that cross slopes are not exceeded during sidewalk ramp construction, maximum slope through intersections shall be 2% in accordance with Standard Drawing 2-27. Detailed slope and elevation information shall be provided for sidewalk ramps and curb returns and shall conform to Draft Public Rights of Way Accessibility Guidelines (PROWAG) published by the Department of Justice. Note that the minimum continuous and unobstructed clear width of a pedestrian access route shall be four feet (PROWAG **R302.3**). The maximum cross slope of the walkway shall be two percent (PROWAG **R302.6**). Pedestrian access routes running parallel to a street may run at the same grade as the street, but cannot exceed the street grade (PROWAG **R302.5**). Options for ramp layout at intersections are provided in the standard drawings. Slopes and widths of landings, wings and other components must comply with Section **R304** of PROWAG. It is recommended that design slopes be set lower than the PROWAG maximum to allow for discrepancies during construction.

Section II.A.11: Revise to read as follows: Minimum distance between offset intersections shall be **165 feet**...

Section II.A.20: Add the following section:

## **20. Pavement Taper**

When street transitions to a different pavement width, the edge of the pavement shall be tapered as follows:

Travel Lane Transition: 1:Design speed. Example: for a street with 25 mile per hour design speed, length of transition equal 25 feet for every foot of width difference.

Other than Travel Lane: 1:10

Section II.A.21: Add the following section:

## **21. Driveway Spacing from Intersections**

The distance from the right of way to the nearest edge of a driveway shall be in accordance with Development Code Section 8.3035(9) which includes the following table:

<b>Roadway Classification</b>	<b>Minimum Access Driveway Spacing</b>	<b>Minimum Access Clearance Corner</b>	<b>Intersection Spacing</b>
Local Street	No Restrictions	30 feet	165 feet
Minor Collector	80 feet	80 feet	330 feet
Major Collector	165 feet	165 feet	330 feet
Minor Arterial	330 feet	330 feet	¼ mile
Major Arterial	ODOT Standards	ODOT Standards	ODOT Standards

Refer to Development Code for additional details and the most current standards.

Section II.B.2.a: Add the following: Pre-development condition is defined as the condition of the site before any proposed development activities. For example; a proposed retail center may be constructed on a site that has an existing house, gravel driveway and lawn. The pre-development runoff coefficient calculations can take into account existing structures and driveways. Runoff rates and volumes from the proposed retail center site cannot exceed the rates and volumes for the house, driveway and lawn for the 50-year storm event. The flow must be discharged in a location similar to what existed before the retail development and the routing for the 100-year flow must be demonstrated.

Section II.B.2.j: Add the following: Drywell Spacing: Minimum spacing between drywells shall be 20 feet.

Section II.B.3.h: Revise as follows: Storm pipe with cover to finish grade greater than 30 inches shall be:

- PVC meeting the requirements of ASTM D3034 (for pipes less than 18 inches in diameter) or F679 (for pipes 18 inch diameter and larger) -or-
- **Polypropylene with smooth interior, annual exterior corrugations and gasketed integral bell and spigot joints meeting the requirements of ASTM F2736 for diameters of 12 to 30 inches. –or-**
- **Polypropylene with smooth interior and exterior, inner annual corrugations and gasketed integral bell and spigot joints meeting the requirements of ASTM F2764 for diameters of 30 to 60 inches.**

Storm pipe with cover to finish grade less than 30 inches shall be PVC meeting the requirements of AWWA C900 or C905.

Section II.B.4.b.1).ii: Revise to read as follows:

ii. Infiltration Rate: For drywells with a convenient hydrant, fill the drywell with water from a metered source and adjust the flow rate to maintain the level of water at the top of the barrel section or the base of the inlet pipes (whichever is lower). Measure and record the flow rate at 10 minute intervals. Maintain the flow rate necessary to keep the drywell at the top of the barrel section or pipe invert for one hour. After the one hour period, turn off the water supply and record the depth to the water surface every 10 minutes for one hour. If the drywell cannot be filled, measure the depth to the water surface and record depth and flow rate at 10 minute intervals. Stop filling after 60 minutes and measure and record the depth to the water surface every 10 minutes for one hour. If a hydrant is not readily available, a water truck is required. Place four water truck loads (3,500 to 4,000 gallons **each**) in the drywell within a 2-hour period. After the water has been placed, let the drywell drain and record the depth to the water surface every 10 minutes for one hour.

Section II.C.3. Sewer Services: Delete the second sentence in the first paragraph, dual services are not allowed: All single family residential sewer service laterals shall be a minimum of four (4) inches in diameter and have a clean out at the property line. ~~Where residential services are located at a common lot line, a six inch service, including clean out and 6x4 wye with clean out, may be used as an option to serve two separate lots.~~

Section II.C.7. Sampling Manholes: Revise to read as follows: A sanitary sewer sampling manhole located at a point accessible at all hours to City personnel is required for each commercial, industrial, or institutional user's service lateral. The sampling manhole shall be constructed upgradient from any discharge into the public sewer system. The manhole shall conform to Standard Drawing 3-6. The sampling manhole shall be constructed, owned and maintained by the property owner. The manhole may be located at the sewer connection within public right of way. Privately owned sampling manholes within public right of way are subject to revocable right of way approval [City Code 4.337(1)]. At the option of the property owner, the sampling manhole may be located on private property within an easement that provides unobstructed access to City personnel. If manholes cannot be located in the pavement, then a six inch thick concrete pad 5 foot square centered on the manhole cover must be provided.

Section III.A. SUBMITTAL: Revise to read as follows: For information concerning the process of submitting plans, see Section ~~03~~ **04** of the Development Provisions.

Section III.C.1.n: Revise to read as follows:

- 1) Provide the following notes on all public improvement plan sets.
  - a. City Engineers signature does not grant approval for construction to begin.
  - b. Inspection of public and site grading/drainage improvements will be performed by the City of Redmond Engineering Department with the exception of plumbing code/permit improvements.
  - c. Excavation shall conform to the provisions of OAR 952-001-0090.
  - d. All materials and workmanship shall conform to the current City of Redmond Public Works Standards and Specifications requirements.
  - e. Contractor is required to notify the City of Redmond 24 hours in advance of commencing construction and to coordinate inspections until project is deemed complete by the Engineering Department.
  - f. Access to existing properties/residences affected by construction activities shall be maintained at all times by the contractor. Emergency access and coordination of Redmond Emergency Services shall be required.

- g. Survey monuments, controls or property corners which are disturbed or destroyed by construction activities shall be re-established, restored and/or replaced at the contractor's expense.
  - h. Public street lights and utility layout shall be installed per approved construction plans. Public street lights shall be constructed, installed and completed prior to City acceptance of project.
  - i. Contractor shall coordinate installation of public street lights with the local power company. All costs related to street light installation including but not limited to base, pole, conduit and wiring shall be provided by the property owner/project developer.
  - j. Contractor is responsible for contacting the Oregon Utility Notification Center or LOCATE prior to excavation. Contractor shall verify location and elevation of existing utilities.
  - k. The location of proposed drywells/UICD's shall not conflict with existing domestic water wells or existing and planned City municipal water wells.
  - l. Topography survey is based on City Datum \_\_\_\_\_ located at \_\_\_\_\_.
  - m. All necessary changes to design plans, revealed during construction, must be approved by the Design Engineer and City of Redmond.
  - n. Plan approval does not assume liability or responsibility for errors and omissions in the design and/or construction plans.
- 2) Provide the following on all private improvement plan sets.
- a. Inspection of public and site grading/drainage improvements will be performed by the City of Redmond Engineering Department with the exception of plumbing code/permit improvements.
  - b. Contractor is required to notify the City of Redmond 24 hours in advance of commencing construction and to coordinate inspections until project is deemed complete by the Engineering Department.
  - c. Where applicable, all materials and workmanship shall conform to the current City of Redmond Public Works Standards and Specifications requirements.
  - d. Access to existing properties/residences affected by construction activities shall be maintained at all times by the contractor. Emergency access and coordination of Redmond Emergency Services shall be required.
  - e. Survey monuments, controls or property corners which are disturbed or destroyed by construction activities shall be re-established, restored and/or replaced at the contractor's expense.
  - f. Topography survey is based on City Datum \_\_\_\_\_ located at \_\_\_\_\_.
  - g. All necessary changes to design plans, revealed during construction, must be approved by the Design Engineer and City of Redmond.
  - h. Plan approval does not assume liability or responsibility for errors and omissions in the design and/or construction plans.

## STANDARD SPECIFICATIONS

GENERAL CONDITIONS: Delete and replace with the attached section.

Section 203.1.00 Description: Modify to read as follows:

CLEARING AND GRUBBING shall include, but not be limited to, the removal and disposal of all concrete including curbs, sidewalks and walls; all vegetative growth such as trees, snags, down timber, vines, shrubs, brush, stumps; fences, guard rails, irrigation pipe and street structures, pavement, debris and rubbish of any nature; and other similar items not specifically covered by unit price. All debris shall be broken up and removed from the site. The work also includes preserving vegetation and objects designated to remain in place and cleanup of the work area.

Section 204.1.00 Description: Modify to read as follows:

This work consists of excavation and grading the roadway, side streets, sidewalk and planting areas, alleys, cuts, embankments, slopes, roadway ditches, side streets, driveway and alley approaches and all other earth moving work required in the construction of the project including disposal of all surplus material. The term "earthwork" will be used as a general term to designate the work included within the scope of this section.

Section 205.1.00 Description: Modify to read as follows:

This work consists of furnishing and applying water, or combinations of water and additives for compacting and preparing excavations, embankments, backfills, subgrades, subbases, surfacings or for dust control, clean-up, or other purposes as determined by the Engineer. Excluded from this section is water used in Portland cement concrete construction and water used for testing purposes.

Section 207.1.00 Description: Modify to read as follows:

This work consists of furnishing and placing, spreading, compacting, and fine grading aggregate base material for streets, driveways, sidewalks, pathways, and other structures.

Section 207.2.05 Grading Requirements: Eliminate the Base Aggregate Gradation for Local Streets table.

Section 211.1.00 Description: Modify to read as follows:

This work consists of furnishing and placing asphalt concrete pavement as designated on the plans. **Where not specified herein**, asphalt concrete paving materials and construction shall be in accordance with applicable sections of Part 00700 of the *Oregon Standard Specifications for Construction*, current edition including all ODOT supplements.

Section 212.1.00 Description: Modify to read as follows:

**Where not specified herein**, the provisions of Section 00495 of the *Oregon Standard Specifications for Construction*, current edition shall apply.

Section 213.1.00 Description: Modify to read as follows:

This work consists of furnishing, placing and finishing commercial grade concrete curbs, gutters, combination curb and gutter, combination curb, gutter and sidewalk, islands, and traffic separators, hereinafter collectively referred to as structures.

An incidental item included in this work shall be to stamp an "S" or "W" in the concrete curb at all locations where a sewer or water service line crosses under the curb.

The work included in CURB BACKFILL provides for the placing of clean backfill material behind the curbs, between the curb and sidewalk, behind sidewalks, and behind walls, at the grades and slopes shown on the plans.

Section 214.1.00 Description: Modify to read as follows:

This work consists of forming, furnishing, placing and finishing Portland cement concrete driveways and approaches only. Asphalt concrete driveways shall be covered under Section 212 as ASPHALT PATCHING.

Driveways are considered to be that portion of paved vehicular access that lies behind the sidewalk or driveway entrance. Approaches shall also be referred to as aprons and are generally a transition section 5 feet in width between the grade of the gutter and the grade of the top of the curb.

Section 214.1.01: Revise third paragraph to read as follows: The distance between an intersection and the first driveway shall be in accordance with Development Code Section 8.3035(9). See Design Standards II.A.21 for additional information.

Section 214.3.05: Revise Construction of the Sand Laying Course as follows:

2. The sand laying course will be spread evenly over the area to be paved and screeded to a level that will produce the ½ inch thickness when the paving stones have been placed and vibrated.

**3. Apply granular pre-emergent herbicide over the prepared level bed according to the manufacturer's instructions.**

4. Once screeded and leveled, this sand laying course will not be disturbed in any way.

Section 215.1.00 Description: Modify to read as follows:

The work covered in this section consists of forming, placing, and finishing standard Portland Cement Concrete sidewalks and pathways in accordance with standard drawings 2-12 to 2-18. This section also covers colored Portland Cement Concrete and interlocking paver downtown sidewalks in accordance with standard drawings 2-19 to 2-22. The construction of asphalt concrete pathways and sidewalks shall conform to specifications Section 211.

Section 215.2.02: Revise to read as follows: Portland cement concrete shall conform to the requirements of Section 213.2.01 and the following; color shall be Davis color #641 (Sequoia Sand, 1 lb. per sack of cement).

Section 221.1.00 Description: Modify to read as follows:

This work consists of furnishing and installing landscaping and irrigation facilities in public rights-of-way, including downtown sidewalks.

Add the following section: **Section 304.3.03 Sewer Service Abandonment: Sewer services are to be abandoned by cutting and capping service at edge of pavement or back of curb when possible. If sidewalk is curb-tight, cut and cap at back of sidewalk. Remove the cleanout and service line on property side. When converting split services to a single service, remove the 6x4 wye and replace/restore cleanout. Obtain plumbing permit for service abandonment on property.**

Section 306.2.03: Add the following: **Flexible sealant between manhole frame, Infra-Risers and grade rings suitable for metal concrete and rubber such as Hi-Tec Project 1 4000 Series Modified Poly Sealant or equal.**

Section 306.3.02B: Add the following: **Concrete grade rings may be used to bring the manhole frame and cover to grade, but the distance from the top of the flat top or cone**

section to the bottom of the manhole cover cannot exceed 18 inches. Grade rings shall be set in a bed of mortar that covers the full surface of the grade ring at a depth of ½ inch or less. Minimum grade ring thickness is 3 inches. Infra-risers or equal shall be used between the manhole frame and concrete with beveled risers used to adjust to the slope of the pavement. Apply a mastic between the grade ring, cone or flattop and the Infra-riser, between layers of Infra-risers and between the Infra-riser and manhole frame.

Section 402.3.06H: Add the following to the first paragraph: **All service lines shall be installed prior to testing and corp stop at main open during testing.**

Section 402.3.08 (9): Revise to read as follows: **Meter boxes shall not be installed in driveways or closer than 5 feet from the edge of the driveway apron. In residential areas, meter boxes shall be set directly behind the sidewalk or directly behind the curb where there is no sidewalk. In commercial areas with sidewalks that occupy all of the space between the building and curb, meter boxes may be placed in the sidewalk unless there is a landscape or paver strip, in which case meter boxes shall be placed in these areas. Meter boxes are not to be located in sidewalks or driveways.**



## STANDARD DRAWINGS

Standard drawings have been revised as noted below and posted to the City website.

Standard Drawing 1-2 Water Line & Sewer Line Separation: Corrected reference in Note 1 to Design Standards II.C.

Standard Drawing 2-1 Typical Minimum Street Cross Section Dimensions: Added Note Q referring to Design Standards for asphalt concrete specifications.

Standard Drawing 2-3 Typical Minimum Partial Street Improvement Standard: Clarified  $\frac{3}{4}$  right of way width.

Standard Drawing 2-4 Cul de sac Standard: Removed ADA ramps at start of cul de sac. Added Note 4 regarding right angle elbow cul de sacs.

Standard Drawing 2-5 All Weather Service Road and Multi-Use Path: Revised width of multi-use path from 10 to 12 feet. Added 2 foot aggregate shoulder/soft path.

Standard Drawing 2-8 Concrete Driveway Approach & Curb Cut: Revised sidewalk transition grade Note.

Standard Drawing 2-12 Typical ADA Ramp Type 1: Curbed section between ramps replaced with sloped.

Standard Drawing 2-13 Typical ADA Ramp Type 2: Changed ramp width from 4.5 to 5 feet in Section A-A.

Standard Drawing 2-14 Typical ADA Ramp Type 3: Directional ramp details replaces previous center ramp.

Standard Drawing 2-15 Typical ADA Ramp Type 4: Changed ramp width from 4 to 5 feet and separated ramps.

Standard Drawing 2-20 Typical Downtown Sidewalk: Changed sand thickness from 1½" to ½".

Standard Drawing 2-24 Typical Stop & Street Sign Combination: Revised Option A drawing and Note 4.

Standard Drawing 2-25 Typical Street Sign Anchor: Provided range for base installation.

Standard Drawing 2-27 T Intersection Alignment Standard: Revised minimum curb radius at return for Local-Collector from 25 feet to 20 feet..

Standard Drawing 2-28 Decorative City Street Light Installation: New standard drawing.

Standard Drawing 2-29 Decorative City Street Light Base Installation: New standard drawing.

Standard Drawing 2-30 Typical Mailbox Support: New standard drawing.

Standard Drawing 3-2 Typical Sewer Service & Cleanout: Added note for lateral pipe size to match tap size.

Standard Drawing 3-3 Standard Sewer Manhole: Added Infra-Riser to drawing, eliminated use of 2-inch grade ring and added Note 4.

Standard Drawing 3-4 Standard Outside Drop Sanitary Sewer Manhole: Revised cross section.

Standard Drawing 3-5 Pressure Sanitary Sewer Manhole: Revised base, eliminated drain hole and gravel, added Note 11

Standard Drawing 3-6 Sampling Manhole: Changed cover to sewer manhole, eliminated 2-inch grade ring, revised Note 2 and added Note 3.

Standard Drawing 3-8 Standard Pre-Cast Drywell: Added Notes 11 and 12, revised Note 9.

Standard Drawing 3-13 Storm Sewer Manhole: Added Notes 2 through 6.

Standard Drawing 3-14 Typical Storm Water Swale Section: Revised Note 5.

Standard Drawing 3-15 Sedimentation Manhole: Added Notes 1, 5 and 6

Standard Drawing 3-16 Typical Storm Water Detention Pond Section: Added requirement for grate over pipes larger than 12" in diameter

Standard Drawing 4-2 Typical Valve & Box Installation: Added to allowed valve box suppliers.

Standard Drawing 4-5 Typical ¾" and 1" Water Service: Revised sidewalk to property-tight and added dimension from curb to meter box.

Standard Drawing 4-6 2" Typical 1½" and 2" Water Service: Added meter setter with bypass.

Standard Drawing 4-10 8" Water Meter Vault: Revised Note 7.

Standard Drawing 4-11 2" Meter Setter with Bypass: Reformatted dimension text.

Standard Drawing 4-12 Fire Hydrant: Called out restrained joints requirement with thrust block to be used only if restrained joints not feasible.

Standard Drawing 4-13 Standard Fire Hydrant Setbacks: Provided property-tight sidewalk setbacks in addition to curb-tight, provided dimension from back of concrete pad to hydrant, added Notes 4 and 5.

Standard Drawing 4-14 Fire Hydrant Pad and Bollards: Removed typical roadside hydrant detail.

Standard Drawing 4-22 Fire Service Vault – Detector Double Check Valve Assembly: Added detector assembly.

Standard Drawing 4-22A Fire Service Vault – Detector Double Check Valve Assembly: New standard drawing provides an alternate layout for private fire hydrants on fire line.

Standard Drawing 4-24 Typical 2” Blowoff Installation: New standard drawing.