CITY OF JEFFERSON
Public Works Design Standards

Division 1

General Requirements

DIVISION 1
GENERAL REQUIREMENTS

1.1 GENERAL

a. These Public Works Design Standards will be cited routinely in the text as the "Standards" or "PWDS". The term "Director" will be used routinely to refer to the "Public Works Director" *(see Public Works Director definition under PWDS 1.4 regarding other potential titles)*.

b. Wherever specific supplementary standards are indicated (ie. ASTM C-150), it shall be understood to mean the latest revision thereof.

c. Pronouns & Captions. In interpreting these Standards, it is understood that: (1) if the context so requires: (a) the singular pronoun shall be taken to mean and include the plural pronoun; (b) the masculine pronoun shall be taken to mean the feminine and the *gender neutral* pronoun as may be applicable; and (2) all captions used therein are intended solely for the convenience of reference and shall in no way limit any of the provisions of these Standards.

d. These Standards shall apply to all improvements within existing and proposed public right-of-way and utility easements, to all improvements to be maintained by the City, and to all infrastructure improvements for which the Municipal Code and/or the Development Code requires review and/or approval by the City. These Standards are to be guidelines for designers and developers in preparing their drawings and for City staff in reviewing drawings. Where minimum values are stated, greater values should be used whenever practical; where maximum values are stated, lesser values should be used whenever practical.

e. Requests submitted for variances to the requirements of these PWDS *(see PWDS 1.13)* shall be based on topography, right-of-way, geography or existing physical conditions which impose an unreasonable hardship on the applicant *(as determined by the Public Works Director)*. Requests for variances must demonstrate *(to the satisfaction of the City)* that the proposed variance meets the intent of the standards and will not compromise safety, will not disproportionally impact other properties *(as determined by the City)*, and will not cause an increase in maintenance by the City.

f. PWCS. The City currently has physical standards for the construction of streets and related work, sanitary sewers, storm drains and structures and waterlines which cover the standard construction requirements for these facilities within the City of Jefferson *(Oregon Standard Specifications for Construction – OSSC (ODOT/APWA), subject to the material, equipment and provisions specified in these PWDS)*. Standard Specifications are hereinafter referred to as Public Works Construction Standards (PWCS) and can be viewed at Jefferson City Hall or the Public Works Department, and can be purchased on-line through the link at: https://5207--62.myuplinxstore.com/franchise/index.htm.

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g. Conflicts or Discrepancies, Interpretations. In the case of conflicts between the text of these PWDS and the City standard details, between various provisions in the PWDS, or between the provisions of these PWDS and the PWCS, the more stringent as determined by the Public Works Director shall apply. Acceptable materials shall be as outlined in these PWDS

In the case of direct conflicts between the text of these PWDS and City land use ordinances or municipal code provisions, it is not the intent for the PWDS to over-ride adopted land use regulations or land use decisions.

However, in the event of discrepancies between the minimums in the PWDS standard details and the minimums in the City land use ordinances or municipal code provisions, the larger minimums will typically apply as determined by the City *(the same applies to differences in minimums required between the PWDS, land use ordinances and Oregon building codes, Oregon Fire Code, etc.)*.

In any provision of the PWDS is unclear, the correct interpretation of the provision will be determined by the Public Works Director *(in consultation with the City Engineer where applicable)*.

h. All other utility improvements, including telephone, electrical power, gas and cable TV shall meet the current standards of the appropriate agency as well as City standards.

i. Traffic Control Devices shall meet the standards of the current Manual on Uniform Traffic Control Devices, including Oregon amendments.

j. All other work not covered by the above standards shall conform to the Oregon Standard Specifications for Construction – OSSC (ODOT/APWA), most recent edition.

k. All applicant/developers are hereby notified that the requirements of the PWDS must be addressed during the design & construction of any improvements which are required due to land use decisions. This applies whether or not specific PWDS requirements are referenced during the land use approval process, noted in the land use findings or included in the land use approval conditions *(since land use approval conditions cannot incorporate or list every code or standard requirement that may be required for a particular project)*.

l. **PWDS are NOT Land Use Regulations**.

1) It is important to be aware that the PWDS requirements are not land use regulations *(similar to how the requirements of the Oregon Fire Code/OFC or building codes are not land use regulations)*, and thus the PWDS do not directly impact the decision of whether to approve or deny any land use application, and do not directly control what level of infrastructure improvements are required as land use conditions of approval for any particular development. Approval or denial of land use decisions should be based on the land use regulations, even though land use conditions may

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reference the PWDS & OFC provisions in order to clarify the specifics about improvements which may be required *(ie. those improvements required in order to provide service to or mitigate impacts from the development, or when such references are intended to make the applicant aware of specific design/construction standards that must be addressed during the design/construction phase of the development).*

2) Mandatory Adjustments Under SB 1537. While SB 1537 *(2024 session)* requires local governments to grant adjustments to certain housing development standards, the legislation explicitly states that this adjustment requirement does **NOT** apply to *(the following is not a complete list)* (**A**) requirements related to fire ingress or egress, (**B**) local tree codes, (**C**) fire code building code requirements, (**D**) water quality standards, (**E**) stormwater requirements, or (**F**) local requirements & standards which are not land use regulations *(which includes these PWDS, as noted above).*

Based on these explicit exemptions, the requirements of these PWDS are NOT subject to the adjustment requirements or the adjustment process under SB 1537 and ORS 197.038.

m. Land Use Approval & Public Works Review Sequencing. All applicable development code, zoning and related land use planning issues shall be addressed or verified prior to submitting an application for a Public Works construction permit, as summarized under PWDS G.1.j *(whether or not land use approval is required for a project).*

n. Completeness Determination. SB 974 *(2025 session)* established statutory timeframes within which the local government must complete the review of final engineering plans for residential development once the application is deemed complete. The procedures for completeness determination are explicitly addressed under PWDS G.7.b.

1.2 PURPOSE

a. The intent and purpose of these Standards *(PWDS & PWCS)* is to provide a consistent policy under which certain physical aspects of infrastructure and public utility design will be implemented. Most of the elements contained in this document are infrastructure and Public Works oriented and most are related to the development, land division and/or platting process.

However, it is intended that these PWDS apply to both public and private work designated and covered herein.

b. These Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. The Standards are also not intended to limit unreasonably any innovative or creative effort which could result in better quality, cost savings without sacrificing quality, safety or stability, or both. Any

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proposed departure or variance from the Standards will be judged *(by the City Engineer and the Public Works Director)* on the likelihood that such variance will produce a compensating or comparable result, in every way adequate for the user and City resident.

c. The objective is to develop Standards which will:

1) be consistent with current City Ordinances, municipal code and/or development code.

2) provide design guidance criteria to the private sector for the design of infrastructure and public improvements within the City of Jefferson.

3) provide infrastructure and public utility improvements designed in a manner to allow economical future maintenance.

4) Develop minimal franchise and/or private utility standards for systems which will impact or potentially impact public streets and/or public utility systems.

1.3 ENGINEERING POLICY

a. The engineering policy of the City of Jefferson requires strict compliance with ORS 672 & other state rules for professional engineers, as administered by OSBEELS *(Oregon State Board of Examiners for Engineering and Land Surveying)*. The following requirements shall be applicable to the evaluation and design of streets, grading plans, vehicular access & parking areas, sanitary sewers, storm drain systems *(including detention systems)*, and water distribution and associated facilities.

1) All engineering drawings, reports, or documents designated herein or intended to provide engineering design or engineering recommendations shall be prepared by a professional Civil Engineer registered in the State of Oregon, or by a subordinate employee under the engineer's direction, and shall be stamped with the engineer's seal *(and signed by the engineer for final documents)* to indicate responsibility for them and that they were prepared by or under the supervision and control of the licensed engineer *(the licensed engineer requirement may not apply to designs by franchise utility companies, unless otherwise required by OSBEELS)*.

Preliminary Drawing Indication. Per OAR 820-025-0015, stamped engineered designs which are not final *(and which are not signed by the engineer)* shall be "marked as "preliminary", "not for construction", . . . or with some similar wording to indicate that the documents are not intended to represent the final work product of the [engineer]."

2) It shall be the Design Engineer's responsibility to review any proposed extension, modification or improvement of infrastructure or a public utility system with the City prior to proceeding with final engineering and design work

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to determine any special requirements or whether the proposal is permissible. A preliminary review and/or approval of the drawings for construction for any project does not in any way relieve the Design Engineer of his/her responsibility to meet all requirements of the City or the obligation to protect life, health and property of the public. The drawings for any project shall be revised or supplemented at any time it is determined that the full requirements of the City standards have not been met.

3) Detail Sheet Stamping. Per interpretations issued by the OSBEELS Professional Practices Committee (December 2016), the design engineer shall seal and sign drawing sheets containing standard details *(whether prepared by the City or other agencies)*, since the details are incorporated into the larger design which is under the responsible charge of the design engineer. It shall be the Design Engineer's responsibility to review any and all standard details incorporated into the design *(whether prepared by the City or other agencies)*, and verify that they are applicable to and appropriate for the proposed design.

4) Any engineer having submitted to the City false or inaccurate information of a material nature will be warned of their conduct, and the OSBEELS may also be advised.

1.4 DEFINITIONS AND TERMS

a. Unless otherwise defined in these Standards, the following definitions, terms and abbreviations shall apply whenever used *(note that these definitions may differ from those in the development code, if they are used differently in the two documents)*. Other common construction definitions or acronyms may not be included below *(ASTM, APWA, AWWA. etc.)*.

1) ADA: Americans with Disabilities Act, including any amendments thereto, and all applicable federal rules, regulations and guidelines implementing the ADA, including but not limited to the current version of the Public Right-of-Way Accessibility Guidelines (PROWAG).

2) As-built Drawings: Drawings prepared by the Design Engineer *(and reviewed by the city representative)* and revised, if necessary based on the City's review, to accurately show all as-built conditions and construction details.

3) City: The City of Jefferson, Oregon.

4) City Engineer: The engineering firm retained by the City to provide design & review engineering services for and on behalf of the City.

5) Construction drawings: For Type B Public Works Permits, scaled drawings conforming to the requirements of the PWDS, prepared by a registered professional engineer, including site plans, plan and profile views of utilities, cross sections, detailed drawings, etc., or reproductions thereof, as reviewed and

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approved by the City Engineer, which show the location, character, dimensions and details for the work to be done. For Type A Public Works Permits, scaled drawings prepared by a Contractor *(or other similarly qualified person)* clearly defining the scope of the proposed work to be completed *(as well as any applicable City standard details)* as reviewed approved by the Public Works Director.

6) Definition of Words: Wherever, in these Standards, the words directed, required, permitted, ordered, designated or words of like importance are used, they shall be understood to mean the direction, requirement, permission, order or designation of the Public Works Director. Similarly, the words approved, acceptable, satisfactory, shall mean approved by, acceptable to, or to the satisfaction of the Public Works Director.

7) Developer: The individual or individuals, partnership, business, firm, company or corporation named as applicant in a permit, a permit application, or agreement with the City, who undertakes development and/or construction of property and/or infrastructure within the jurisdiction of the City *(including their agents, employees, representative and/or contractors)*. Also referred to as the development team. May be the same or different from the Owner.

8) Design Engineer: The engineer licensed by the State of Oregon as a Civil Engineer under whose direction plans, profiles and details for work are prepared and submitted to the City for review and approval.

9) Duplex: A single building designed for occupancy by two families, living independently of and separately from each other.

10) Dwelling Unit: A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking, eating and sanitation.

11) Easement: Areas along the alignment of streets, sidewalks or utilities which are outside of a dedicated street right-of-way. Easements to the City shall be prepared on standard City easement forms granting *(to the City)* access & easement rights along the utility line or facility, and formalizing the terms and conditions of the easement, and which shall be recorded in the County records by the development team after review & approval by the City.

12) Equal: Whenever any material, article, device, product, or fixture is indicated or specified by proprietary name, by name of manufacturer, or by catalog number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the material or process desired. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers which meet the criteria in this paragraph, and shall be deemed to be followed by the words "or approved equal" unless otherwise indicated in

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the specifications, on the drawings or by City standards. The decision relative to equivalency will be by the Public Works Director or his/her designee, and shall be final. A proposed item of material or equipment will be considered an "or equal" when, in the exercise of reasonable judgment, the Public Works Director or his/her designee determines that; (1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics, and 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed project as a functioning whole, and 3) it has a proven record of performance and availability of responsive service, and 4) it will not materially increase anticipated maintenance or operating costs by the City or require stocking of specialty tools, parts, equipment or materials not otherwise required, and 6) it is compatible and interchangeable with existing system components of the same type and function. Requests for review of "or equal" or "substitute" items shall be in writing, shall include all documentation for a complete review, and will not be accepted from anyone other than the Contractor performing the work.

13) Fire Chief: The chief officer of the local fire department or fire district serving the jurisdiction, or his/her authorized representative (OFC 202).

14) Fire Code Official: The fire chief or other designated authority charged with administration and enforcement of the Oregon Fire Code, or his/her authorized representative (OFC 202).

15) Fire Lane: A fire apparatus access road as defined in the Oregon Fire Code, including turnarounds where required (OFC 202).

16) Master Plan: Refers to the applicable master planning document adopted or used by the City of Jefferson *(most recent version)*, regardless of the actual title of the applicable document *(Water Master Plan, Sewer Master Plan, Transportation System Plan, Storm Drainage Master Plan, etc.)*.

17) Manufacturer's Name: Any manufacturer's name, specification, catalog number, or type used herein is specified by make in order to establish the standard requirements of the City. Other equivalent makes will be considered for approval, providing they are equal with this established standard, as determined by the City.

18) Multiple Family Dwelling: A single building or portion thereof designed for occupancy by four (4) or more families, living independently of each other.

19) Owner: Any individual, partnership, firm or corporation by whom the Design Engineer has been retained or who, as a property owner or representative of a property owner, is making arrangements with the City for development of property or infrastructure *(see also Developer)*.

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20) Person: Individual, firm, corporation, association, agency or other entity.

21) Plans: See Construction Drawings.

22) Preliminary Review: Review of the construction drawings by the City as outlined in these standards. All City comments and provisions of these PWDS must be addressed prior to final review and approval for construction.

23) PROWAG: Public Right-of-Way Accessibility Guidelines, see ADA.

24) Public Works Director *(Director)*: The director, superintendent or supervisor of the Public Works Department of the City of Jefferson or his/her authorized representative, regardless of the actual title used by the person(s).

25) Public Works Infrastructure: Any infrastructure constructed on public right-of-way or public easement which is immediately or eventually to be taken over by the City for maintenance and operation. This infrastructure includes, but may not be limited to, streets, sidewalks, curbs, public parking lots, drainage facilities, sanitary sewer systems, and water system works.

26) PWCS: Public Works Construction Standards, consisting of Oregon Standard Specifications for Construction (OSSC (ODOT/APWA)), subject to the material, equipment and provisions specified in these PWDS. See also PWDS 1.1.f.

27) PWDS: Jefferson Public Works Design Standards, consisting of this manual.

28) Residential User: The owner, lessee, or occupant of a single dwelling unit in one structure.

29) Right-of-Way: All land or interest therein which by deed, conveyance, agreement, easement, dedication, usage, or process of law is reserved for or dedicated to the use of the general public free of all encumbrances, within which the City, county or state shall have the exclusive right to install and maintain streets and public utilities.

30) Roadway: All of that portion of the right-of-way used, for vehicle movement, which exists between the curbs *(or the outside edge of shoulders where curbs do not exist)*. See also Street.

31) Shall: The term is considered a mandatory obligation, and synonymous with the phrase "has a duty to" when referring to a capable actor, and with the word "must" when referring to a requirement regarding an inanimate object or a status.

32) Single Family Dwelling: Any residential building designed to house one family.

33) Standard Details: The drawings of structures or devices commonly used for

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infrastructure work within the City and referred to on the construction drawings. Also sometimes referenced as Standard Plans or Standard Drawings.

34) Street or Road: Any public highway, road, street, avenue, alley, way, easement or right-of-way to be used for vehicle movement.

35) Substantial Completion *(standard Public Works definition)*: Substantial Completion is that degree of completion of the project's facilities and operating systems sufficient to provide the City and the public the full time, uninterrupted, and continuous beneficial use and operation of the work, and after **(i)** all required functional and acceptance testing has been successfully completed; **(ii)** all final Public Works, building, plumbing, mechanical and electrical inspections required have been completed and any identified critical defective or incomplete work replaced or corrected; AND **(iii)** all required record drawings and warranty/maintenance bonds have been submitted and accepted by the City. The terms "substantially complete" and "substantially completed" as applied to all or part of the work refer to Substantial Completion thereof.

36) Substantial Completion *(ie. prior to issuance of building permits in residential subdivisions, under HB 2306)*: Effective 1/1/2020, HB 2306 prevents a city from denying a building permit on the basis that the supporting infrastructure is not entirely completed in a subdivision. If a residential subdivision is built, the city must have a process to allow the builder to seek building permits upon *"substantial completion"* of the infrastructure required as a condition of development.

As defined in HB 2306, "*Substantial completion" means the city, county or other appropriate public body has inspected, tested and found acceptable under applicable code requirements, unless the parties agree to a lower standard: **(A)** The water supply system; **(B)** The fire hydrant system; **(C)** The sewage disposal system; **(D)** The storm water drainage system, excepting any landscaping requirements that are part of the system; **(E)** The curbs; **(F)** The demarcating of street signs acceptable for emergency responders; and **(G)** The roads necessary for access by emergency vehicles.*"

Per HB 2306 also allows the City to require (if all improvements are substantially complete but not entirely complete), "*The developer, declarant or owner, to secure the completion of the remaining public improvements included as conditions of development for the residential subdivision: **(A)** Obtains and maintains a bond; or **(B)** Undertakes an alternative form of financial guarantee, if any, that is acceptable to, but may not be required by, the city or county.*" This does **NOT** require the City to issue building permits prior to substantial completion as defined above, even if a bond or other financial guarantee is provided by the developer, declarant or owner prior to said substantial completion.

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Also per HB 2306, a city may decline to issue the certificate of occupancy *"for any residential dwellings if all conditions of development are not fully completed or the conditions for the release of the bond are not fulfilled."*

37) Substitute: If in the sole discretion of the Public Works Director or his/her designee, an item of material or equipment proposed by the Contractor does not qualify as an "or equal" item as defined above, or requires a change to the design or to the configuration of the project in order to be utilized, it will be considered as a proposed "substitute". The decision relative to acceptability of substitute items will be by the Public Works Director or his/her designee, and shall be final. In addition to the review criteria for "equal" items, the written request for review of a substitute item shall document whether use of the proposed substitute item will require any changes to adapt the design to the proposed substitute item *(and to what extent)*, and shall identify the timeframe required to complete such design changes, and that there will not be any cost or other impact to the City due to any such required design changes.

38) Survey Cut Sheets: Sheets of tabulated survey data, indicating stationing, structures, fittings, angle points, beginning of curve, points on curve, end of curves, staking offset, various elevations and offset utility cuts.

39) Traveled Way: That portion of the roadway for the movement of vehicles, exclusive of shoulder and auxiliary lanes.

40) Triplex: A single building designed for occupancy by three families, living independently of and separately from each other.

41) UGB: Urban Growth Boundary.

1.5 LOCATION OF UTILITIES WITHIN RIGHT-OF-WAY OR EASEMENT

a. The City standard details indicate the general required location for each utility within the public right-of-way.

b. In general, new franchise utilities are to be installed within street frontage PUEs where such easements exist or are proposed in conjunction with the development or project *(unless otherwise approved by the Public Works Director on a case-by-case basis)*.

c. General Separation Requirements. Installation of franchise or private utilities in a common trench with public water, sanitary sewer or storm drain mainlines is prohibited.

1) Horizontal Separation. Unless otherwise approved by the Public Works Director and the City Engineer, a minimum of 5 feet of horizontal clear separation must be maintained between City utilities *(ie. mainlines, as well as storm drainage, sewer or water service laterals within the ROW or City*

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easements) and private or franchise utilities except at crossings *(all crossings to be as close to perpendicular as possible)*, as well as between fire service lines and public, private or franchise utilities.

Horizontal separation between water service lines or fire service lines and sanitary sewer service lines located within a public right-of-way or within a City utility easement shall be a minimum of 5 feet *(see also PWDS 4.15.b & 5.15.b)*.

Note: Once private water, sewer and/or storm service lines exit the road right-of-way or are outside of the City utility easement limits, separation may be reduced to that allowed by the OPSC or other applicable regulations.

2) Vertical Separation. Unless otherwise required by the Public Works Director and the City Engineer, a minimum of 6-inches of clear vertical separation must be maintained between public sewer & storm mains, or between public and private or franchise utilities at crossings *(all crossings to be as close to perpendicular as possible)*, as well as between water or fire service lines and private or franchise utilities. Greater vertical separation is required between potable water mains and sanitary sewer mains, or between potable water mains and storm drain mains, as summarized elsewhere in these standards or per the standard details.

d. Franchise Utility Limitations in City Easements. Franchise utilities or private utilities shall not be placed in City utility *(ie. water, sewer or storm)* easements, unless specifically directed in writing to do so by the Public Works Director, subject to separation requirements in excess of minimums as dictated by Public Works.

e. Franchise Utility Plans & Crossings. Franchise utility plans shall be submitted to Public Works Director and the City Engineer for review prior to installation. All franchise utility street crossings shall be installed at right angles to the street centerline, and all crossings of water, sewer or storm mainlines or service laterals shall be as close to perpendicular as feasible.

1) Plowing In of Utilities Prohibited in ROW or City Easements. Use of cable/conduit plowing for installation of franchise or private utilities within public right-of-ways or City utility easements is prohibited, unless specifically authorized by the Public Works Director on a case-by-case basis. Any such authorization shall be based on a demonstration by the applicant that there are no existing City or franchise utilities crossing the proposed plow alignment, or within 10 feet parallel with the proposed plow alignment.

f. Utility service companies proposing to install major utility systems larger than typically required to serve local users and which cannot conveniently be relocated in the future will be required to prepare detailed drawings showing how the proposed system can be installed within the right-of-way without adversely affecting existing or proposed City utilities. Drawing requirements may include but not be limited to plan and profile of

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proposed systems based on a detailed topographic survey.

g. Utility/Infrastructure Modifications Required Due to Changes on Private Property.

1) If changes are made to private property which requires modifications to and/or relocation of City utilities/infrastructure which is installed on private property *(ie. changes including but not limited to changes in finish grade, changes in surface type, change in use of the property, construction of structures, etc.)*, such modifications and/or relocation shall be completed by the property owner or Developer at their sole expense, as directed by the City.

2) When modifications to and/or relocation of City utilities/infrastructure are required due to changes on private property, such modifications and/or relocation shall comply with current City standards, and shall be reviewed and approved in accordance with these PWDS.

1.6 PROVIDING FOR NEW & FUTURE DEVELOPMENT (To & Through)

a. All public improvements shall be designed as a logical part of the development of the surrounding area, as required or approved by the City Engineer and Public Works Director.

b. Storm drain systems and sanitary sewers shall be sized to accommodate the entire drainage basin which they will ultimately serve.

c. To & Through. Utilities and street improvements shall be extended to the boundaries of the development by the developer *(ie. to and through)* so as to provide for future extensions to *(or connections from)* the adjoining areas and prevent adjoining properties from becoming landlocked. All designs shall clearly show how such future connection and extension can be accomplished in accordance with City standards *(see PWDS 1.12.e.2 for clarification regarding extension of private utilities through other property)*.

In the case of utilities, this shall also include extension to the far side of streets fronting or adjacent to the development as required to avoid work within or under these streets in the future.

Where existing roadway improvements do not extend to the proposed development or the existing roadways to the proposed development are not adequate to serve the development or do not meet current City standards, the developer may be required to improve the roadways to the development, at the developer's expense.

d. Master Plan Sizing/Sizing for Future Growth. The City may require over-sizing of utility lines to accommodate future growth of the City. Water, sewer and storm drain mainlines shall be sized to comply with recommendations in the applicable master plan documents or maps.

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e. Upgrading Existing Utilities. Where existing City utility lines do not adjoin the proposed development or the capacity of existing lines is inadequate, or are smaller than the minimum size allowed under the PWDS, or where the size does not match the applicable utility master plan documents or maps, the developer is required to extend new utility lines to the development as necessary, and extend them through the property or across the full property frontage as required to provide for service to adjacent properties, at the developer's expense.

f. Connection of Existing Utilities. Existing City utilities crossed, intercepted by or in the vicinity of new utility lines or facilities shall be connected to the new City utility system at locations as required by the City Engineer and Public Works Director. Existing City utility lines which are parallel with, or which are replaced or superseded by the new utility lines *(as determined by the City)*, shall be abandoned or removed as part of the project *(and existing facilities or structures served by the abandoned lines shall be connected to the new system as applicable)*, as required by the City Engineer and Public Works Director.

g. SDC Credits & Oversizing Reimbursement, etc.

1) The requirement by City standards that offsite or oversized street and/or offsite or oversized utility improvements must be completed "at the developer's expense" does not preclude the developer from applying under any SDC credit, oversizing reimbursement or reimbursement district procedures which may be authorized by the City Council or otherwise provided for by City code.

However, applications for any reimbursements via SDC credits, oversizing reimbursements, reimbursement districts or other means shall be the sole responsibility of the developer, and the developer shall not rely on any such applications or verbal indications by any parties until any such applications have been approved in writing by the applicable decision making authority.

The developer is hereby put on notice that approvals regarding any credit or reimbursement eligible infrastructure improvements associated with this project should be formalized with the applicable decision making authority prior to issuance of Public Works permit(s). Any other approach taken or sequence followed shall be at the developer's sole risk.

2) Unless otherwise explicitly authorized by the City Council under the applicable provisions of the Municipal Code, such credits or reimbursement shall be limited to the actual documented material cost difference between the improvement actually constructed and minimum improvement otherwise required under the applicable City code or standards.

In the event of conflicts between these SDC provisions and the City's SDC ordinances or SDC Municipal Code provisions, the more stringent shall apply as determined by the City Manager or City Council, as may be applicable.

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1.7 TIME LIMITS FROM DRAWING APPROVAL TO CONSTRUCTION

a. The Developer shall obtain a City Public Works construction permit *(or construction authorization)* and begin construction within six (6) months from the time the civil/site/utility construction drawings are approved by the City Engineer and/or the Public Works Director *(see also PWDS G.6.d, e & f regarding this 6 month limit and findings required for an extension)*. If construction does not begin within this period, the City approvals of the construction drawings shall be null and void.

Renewal or extension of the City approval for the construction drawings may result in additional conditions to update the drawings to reflect current City standard details, meet new standards, changed conditions or new information discovered since the original approval.

1.8 PHASED DEVELOPMENT

a. In the case of a development approved to be constructed in phases, the construction drawings and infrastructure constructed for each phase shall be capable of standing alone.

b. Approval by the City of construction drawings for each phase of a phased development shall be independent of the approval for all other phases.

c. The intent of these requirements is that the construction drawing review requirements, and the time limits between approval of the construction drawings by the City and the time by which construction begins, shall apply to each phase independently.

1) Construction drawings shall be subject to the PWDS & City standard details, specifications, policies and procedures, construction drawing review, and Public Works permit fees of the Public Works Department in effect at the time the construction drawings are approved for construction *(ie. each phase shall be subject to the standards in effect at the time each such phase is ready for permit & start of construction)*.

2) Any updates to the PWDS and/or City standard details that occurs between phases of a development shall apply to all subsequent phases.

1.9 PRE-DESIGN CONFERENCE/MEETING (with Public Works).

a. Pre-design Conference: The developer and developer's engineer are required to schedule a meeting with the Public Works Director and the City Engineer after land use approval *(where land use approval is required, see also PWDS G.1.j)* and prior to submitting design drawings of the proposed or required improvements for detailed review by Public Works *(a predesign meeting is also required for cases where land use approval is not required but where a Type B Public Works permit is required)*.

Mandatory Attendance, Predesign Meeting. Attendance at the pre-design meeting by

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the developer's engineer-of-record and a representative of the developer is mandatory *(virtual attendance may be allowed at the sole discretion of the Public Works Director, on a case-by-case basis, only when in-person attendance is not possible and approved in advance)*. An invitation to attend the pre-design meeting shall be sent by the development team to the County and/or ODOT if either agency has jurisdiction over affected streets or over any of the proposed improvements.

Type of Projects Requiring a Pre-design Conference. This requirement shall apply for any project where a Type B Public Works permit is required *(including for new fire service lines, fire lanes, parking lots, common use/commercial/industrial/multi-family driveways, etc.)*, as well as for Type A Public Works permit projects where it is deemed appropriate and required by the Public Works Director.

The purpose of this pre-design meeting is to ensure, to the extent feasible, that the development team & developer's engineer understand applicable PWDS requirements relating to the civil design, including how applicable land use conditions might impact the design *(ie. the goal is to ensure that all parties are moving along the same path toward the same end goal, and share a common understanding of the project scope and design requirements)*.

1) Submittals Prior to Predesign Meeting. A minimum of 5 working days prior to the pre-design meeting, it shall be the responsibility of the developer or the developer's engineer to provide the City Engineer with copies of the following *(full size pdf copies to be emailed to City Engineer and Public Works Director)*.

   NOTE: Although formal engineered design drawings are NOT required at the pre-design meeting stage, see PWDS 1.11.b.1 for drawing sheet size requirements for civil design sheets, if provided.

   a) Base maps and topographic surveys showing existing streets and utilities within and adjacent to the property, and along proposed and/or required access, utility & infrastructure alignments *(on-site and offsite, limits as required by the PWDS)*, and;

   b) A plan and summary or notes detailing how each of the planning conditions of approval (*ie. land use conditions*) and how each of the infrastructure issues identified by Public Works comments *(prior to or during the land use process)* will be satisfied *(as applicable)*, and;

   c) Scaled and dimensioned plan view drawings showing existing and proposed lot layouts *(sizes and dimensions)*, proposed and/or required street, driveway or fire lane access, sidewalk and/or utility *(water/sewer/storm)* alignments and improvement limits and conceptual layouts, existing grade contours and designation of where significant cuts or fills will be required, general alignment of any proposed retaining walls, limits of proposed or required right-of-way

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dedications and easements *(on-site and offsite, addressing the requirements of PWDS, the development code, planning conditions of approval, and known agency requirements)*, and;

d) Preliminary profiles or invert/slope information along gravity sewer and storm alignments *(including proposed rim elevations for all manholes, catch basins, & other structures)*, demonstrating the ability to meet the depth and slope requirements of the PWDS, and;

e) Preliminary profiles or slope information along streets and/or access driveways or fire lanes, demonstrating the ability to meet the slope requirements of the PWDS and OFC, and;

f) Verification that the elevations shown are based on the vertical datum specified in the PWDS, as well as information on the drawings showing the location and limits of any flood plain or wetlands within the development or along offsite street/utility alignments *(as well as information on the status of any required wetland permits)*, and;

g) List of *(and justification for)* any known variances to the PWDS requirements which will be necessary based on the preliminary layout, street and utility drawings required above, and;

h) A current title report(s) covering ALL property where utility construction will occur (*which includes a list of all existing easements, restrictions, and other encumbrances, including copies of deeds, easements or other restrictive documents referenced in that report*) [a pdf copy of each title report with embedded hyperlinks to the referenced documents may be provided in lieu of a hard copy], and;

i) A geotechnical report is typically required for sites with existing or proposed fills,

j) Other information requested by the Public Works Director or the City Engineer.

2) Pre-Design Meeting Required Prior to Review of Building Permits *(commercial, industrial, public & multifamily projects)*.

a) For commercial, industrial, public & multifamily projects, City standards require that any necessary civil drawings for work required under a Public Works permit need to be approved by Public Works prior to issuance of building permits *(Note: single family residential projects require that the infrastructure improvements be substantially complete and accepted by the City prior to issuance of any building permits)*.

Therefore, in order to ensure that such building permit application

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drawings address *(or account for)* applicable infrastructure or utility requirements necessary under any such Public Works permit, building permit applications should not be submitted nor reviewed until after the pre-design meeting has been held *(for projects where a Type B Public Works permit and a pre-design meeting is required)*.

b) After the pre-design meeting is held for commercial, industrial, public & multifamily projects, the development team may submit building permit applications & building drawings for concurrent review by the building official for required building permits *(ie. building permit review in parallel with the civil drawings being reviewed by Public Works for any required Public Works permits)*, at the sole risk of the developer.

Any such parallel review of building drawings shall be subject to the condition that building permits shall not be issued until after the civil drawings have been approved by Public Works.

The development team will be responsible to make any modifications to the building permit drawings which may be required due to improvements shown by the final approved civil drawings *(prior to issuance of the building permits, as applicable)*.

1.10 DRAWING REVIEW PROCEDURE

a. Construction Drawing Preparation Requirements *(prior to formal review)*.

1) Development Code & Land Use Approval Requirements. See PWDS G.1.j regarding requirements for obtaining land use approval *(where required)* or confirmation of development code compliance prior to submittal of construction drawings for review by Public Works.

2) Completeness Determination. See PWDS G.7.b *(in addition to summary in paragraphs below)* regarding requirements for an application to be considered complete for purposes of final engineering plan review.

3) Type B Public Works Construction Permit. Construction drawings submitted for review to obtain a Type B Public Works Construction Permit must be prepared and stamped by a professional Civil Engineer registered in the State of Oregon *(and signed by the engineer for final documents)* as summarized under PWDS 1.3.

4) Type A Public Works Construction Permit. Construction drawings submitted for review to obtain a Type A Public Works Construction Permit may be **(A)** prepared by an engineer as summarized above, or **(B)** by a Contractor licensed in the in the State of Oregon *(or other qualified person)*.

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b. Public Works Review Fees Required Prior to Drawing Review. Drawing review fees shall be submitted to the City before any drawing review comments are provided to the development team, per PWDS G.7.a.8.

c. Site/street/utility/access/parking/fill/grading construction drawings *(plans)* and other engineering documents shall be submitted for review and approval by Public Works and/or the City Engineer prior to issuance of Public Works permits required by these Standards, and prior to issuance of building permits for structures served by such required infrastructure improvements.

Detailed provisions covering the review procedures and Public Works permitting requirements for street, grading, site and utility construction are contained in Appendix G of these standards. The following is an overview of these requirements.

d. Construction Drawings for Review: After the pre-design meeting, one pdf set of complete full size construction drawings, drainage calculations and all associated documentation *(addressing all PWDS requirements in addition to issues noted in the pre-design meeting)* shall be submitted to the City for preliminary review *(or provide three (3) full size paper copies if pdf copies are not available)*.

Submittal requirements are as outlined herein, and shall include a unit price engineer's estimate, unit price bid results or contractor estimates acceptable to the City Engineer and any required review fees (*see also PWDS G.7*).

PWDS Variance List. The review submittal package shall include a list of *(and justification for)* any requested variances to the PWDS requirements which will be necessary based on the proposed layout and the street and/or utility drawings submitted for review.

Incomplete engineering plan submittal packages will be returned without a comprehensive review *(ie. engineering plan submittals without all required drawings, without all required information shown or noted on the applicable drawing sheet(s), or without all required reports, supplemental information, etc. required by these PWDS, including the variance list noted above if applicable)*. Any delays in the project due to such incomplete submittals will be the responsibility of the design team.

Preliminary Drawing Indication. As noted under PWDS 1.3.a.1, engineered designs submitted for review which are not final *(and which are not signed by the engineer)* shall be marked as "preliminary", "not for construction", . . . or with some similar wording to indicate that the documents are not intended to represent the final work product of the engineer *(see OAR 820-025-0015)*.

Final Plans to be Stamped & Sealed. All engineering plans and supporting documentation submitted for final approval shall be stamped and signed by the design engineer.

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e. Review Comments, Resubmittals:

1) Upon completion of the preliminary review, the City will return one (1) set of drawings *(pdf or hard copy, as determined by the City)* outlining the required revisions (*including redline drawings, a review letter or memo, or email as applicable*).

2) In order to be entitled to further review, the applicant's engineer must address each comment of the prior review(s), and make all required corrections. All resubmittals and responses to comments must appear throughout to be a bona fide attempt to result in complete drawings fully conforming to City standards.

3) Return without Review. The City reserves the right to return, without review, revised drawings and/or submittals which have not been updated to address all previous review comments.

4) Resubmittals shall consist of a minimum of one complete pdf set of full size drawings and all associated documentation for follow-up review *(or provide three (3) full size paper copies if pdf copies are not available)*.

f. Franchise Utility Coordination by Developer's Engineer. Once the preliminary review has been completed by the City and required revisions made, the Developer's engineer shall circulate the drawings to all utility service companies within the City, and bring any conflicts to the attention of the City Engineer and Public Works Director. Prior to installation of any franchise utilities, all proposed drawings from utility service companies must be provided to the City for review.

g. Coordination of Other Agency Approvals by Developer's Engineer.

1) The Developer's engineer shall submit the drawings to all other agencies with jurisdiction as applicable, and bring any conflicts or discrepancies between City standards and review comments by other agencies to the attention of the City Engineer and Public Works Director *(City standards will control unless more stringent standards are applied by other agencies)*.

a) Submittal of drawings for review by other agencies prior to verification that all City standards are complied with *(or obtaining written preliminary approval of the drawings from Public Works)* will be at the sole risk of the development team. Any review or approval comments by other agencies does not automatically over-ride City standards, except where explicitly approved in writing by the Public Works Director.

2) Prior to final City approval of the construction drawings, approvals from other agencies with jurisdiction must also be received where applicable, including but not limited to the Oregon Health Authority – Drinking Water Services (OHA-DWS), Department of Environmental Quality (DEQ), Oregon Department of Transportation (ODOT), Marion County, fire districts and

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railroads wherein each has jurisdiction.

h. The applicant is responsible for the coordination with the various utilities and agencies during design and construction. The utilities and agencies may include those shown in the Appendix.

i. Full Size Drawing Sets Required for Approval Stamping. Upon final approval of the drawings for a Type B Public Works permit, submit the minimum number of copies of the final full size drawings to the City Engineer to be stamped as approved for construction, as required in Appendix G *(see PWDS G.8.b)*. Additional sets may be submitted for approval stamping at the developer's option.

1) No changes shall be made between the final verification set of drawings reviewed by the City and the drawing sets submitted to the City for approval stamping, without the express written approval from the Public Works Director & the City Engineer.

a) Any unauthorized changes introduced into the final drawings submitted for approval stamping will invalidate the final drawing approval *(regardless of whether or not the City Engineer or Public Works Director have signed the drawings as approved)*.

If unauthorized changes are subsequently discovered, a stop work order will be issued until the issue is resolved.

2) The development team may make additional copies of the stamped approved plans for dispersal to their team members as applicable.

j. Prior to issuance of the Public Works street or utility construction permits, the Developer shall provide the City with the following:

1) Copy of an approved *(by City Attorney)* Developer/City Construction Agreement signed and notarized by the Developer, the Developer's engineer and the Developer's prime contractor.

2) Any required permit fees.

3) Recorded copies of all required off-site easements *(with exhibit maps)* and off-site right-of-way dedications, as well as on-site easements and on-site right-of-way dedications, and any recorded maintenance agreements required by City standards, shall be submitted before construction permits are issued, with the following exception.

a) For subdivisions or partitions where all public utilities will be constructed prior to the recording of a final plat, the execution and recording of the on-site easement documents and on-site right-of-way dedications, as well as recorded agreements relating to on-site or off-site improvements, can be done in conjunction with the final plat.

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b) Split Permits, Easement Requirements. If the Public Works Director, at his/her sole discretion, approves a request by the development team to split the City Public Works construction permits into segments, so that the certain work can be commenced while the detailed civil/site/utility construction drawings for the remainder of the improvements *(offsite or onsite)* are completed and reviewed, such split permits shall not be issued until after any identified offsite easements have been acquired by the development team, and recorded copies of the easements have been provided to the City.

4) All easement documents *(as well as ROW dedications, easement quit-claim deeds, or similar documents)* shall include a legal description and a "to-scale" exhibit map *(containing the information required under PWDS 1.12)*, and easements to the City shall use the City's standard form. Legal descriptions and exhibit maps shall be submitted for review and approval by the City Engineer and/or the Public Works Director prior to recording.

5) Proposed Construction Schedule.

6) Certificates of insurance, minimum limits as outlined in Appendix E. City of Jefferson and City Engineer shall be covered as additional insured.

7) Evidence of Worker's Compensation coverage from contractor performing the work *(or documentation that Worker's Compensation coverage is not required for the contractor performing the work)*.

8) Any required Construction Deferral/Waiver of Remonstrance agreements.

9) Any required performance bonds.

10) Other submittals specific to this project, including any required approvals from applicable state agencies, such as DEQ *(sewer & 1200C erosion control as applicable)*, OHA-DWS *(water as applicable)*, DSL, ODOT, etc. The City reserves the right to require evidence that any and all such required approvals have been received *(and copies provided to the City as applicable)* prior to issuing final approval of the construction drawings and/or issuing a Public Works construction permit.

a) City Review Required Prior to Submittal to Certain Agencies. Prior to submittal of construction drawings to DEQ, ODOT or OHA-DWS *(as applicable)*, the drawings must have been reviewed by Public Works and the City Engineer, to the point where the layout, configuration and alignment of proposed infrastructure improvements are acceptable to the City *(this is to avoid repeated reviews by state agencies, as would be required if the drawings end up being changed to meet City standards, after being submitted to the state for their review)*.

This requirement does not limit the development team's ability to

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submit for wetland or other similar permits as early in the process as they desire, at their sole risk.

k. Approval of plans by the City Engineer or Public Works for issuance of a City Public Works street/site/utility construction permit does not relieve the developer, contractor or engineer from obtaining any and all reviews and permits required under the building, plumbing or electrical codes that any portions of the work may be subject to, or from any requirements under County, ODOT or other agency permits or approvals required for the project.

l. Delay in Resubmittal of Drawings. Projects under drawing review by Public Works that go for 6 months or more without resubmittal of a full set of drawings may be required to submit a new project permit application and pay subsequent plan review fees *(at the sole discretion of the Public Works Director)*, and will be re-examined as required to verify compliance with all current City standards.

1.11 CONSTRUCTION DRAWING REQUIREMENTS

a. Design Topographic Survey: *All topographic surveys shall be based from an official benchmark acceptable to the City, and be based on the NVGD 1929 datum to match the FEMA flood map elevations. Existing elevation benchmarks that are based on the NAVD 1988 datum shall utilize the appropriate conversion factor to convert to the NGVD 1929 datum. All temporary benchmarks for construction purposes are to be based off accepted City benchmarks.*

Based on the NOAA VertCon *(superseded by NGS Coordinate Conversion and Transformation Tool (NCAT))* website, the current conversion *(for this area)* from 1988 to 1929 datum is about 3.360 feet *(lower)* – see → https://geodesy.noaa.gov/NCAT/ for specific elevation conversions by location *(select Horizontal+Height option, as well as Orthometric Height option, & enter lat-long [or drag marker to desired location] & height value [elevation in US survey feet], and select input & output vertical datums, and submit).*

**All designs subject to a Type B Public Works Permit shall be based off of a complete topographic survey of the entire project site & work areas, adjacent right-of-ways *(full ROW width)*, areas adjacent to the project site and outside of adjacent to right-of-ways as necessary to provide all design elements required by these PWDS, and all offsite areas where improvements are proposed or required, including but not limited to the following.

1) Required Topographic Survey Limits.

a) In order to comply with requirements in the individual sections below, the minimum topographic survey area shall include the entire project property and all offsite work areas, as well as all areas adjacent and within 150 feet of these areas, unless approved in writing by the Public Works Director and the City Engineer on a case-by-case basis.

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b) Such a survey limit reduction shall be based on demonstration by the developer's engineer that there are no existing utilities, surface features or drainage elements within the reduction areas which might impact the project design.

2) **Surface features, including complete & accurate topographic information, extended to the full limits required by these PWDS.

a) In particular, this shall include extending the topographic survey upstream and up-gradient from the development or project property as required to clearly define locations where any upstream water flows onto the development or project site, including surface water runoff *(overland flow, swales or ditch flows)*, piped water or spring water which historically flowed onto the development or project property *(see also PWDS 1.11.i)*.

For purposes of this requirement, "historically flowed onto the development or project property" refers to conditions existing at the time a Public Works or building permit application is submitted for construction on the property.

3) **Subsurface features.

4) **Existing utilities *(public and private)* within and adjacent to the project site and/or limits of improvements.

5) **Property lines & all survey monuments within or adjacent to the limits of the required topographic survey *(including on both sides of adjacent street right-of-ways and offsite streets with required infrastructure improvements)*.

6) **Right-of-way lines *(including existing survey monuments on both sides of streets within survey limits)* & centerline monuments.

b. Construction Drawing Submittal: The drawing submittal shall include the following as applicable unless otherwise approved by the City Engineer. The following is a general overview of drawing requirements, but is not intended to be exclusive. All requirements of the individual divisions of the standards shall be satisfied.

Since projects subject to a Type B Public Works Construction Permit vary greatly in size and complexity, not all provisions in this section will apply to all projects. For instance, small projects in improved areas which do not involve any street improvements or extensions of water, sewer or storm drain mainlines will not need to provide profiles for these facilities. To assist the design engineer, the minimum elements required of all designs subject to a Type B Public Works construction permit are designated as summarized in the sentence below.

****The elements in this section 1.11 which are marked by an (**) are required to be included on the drawings for all projects subject to a**

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Type B Public Works construction permit (see PWDS G.5). All other elements not so designated are only required if the project involves improvements or infrastructure referenced in the non-designated paragraphs or sentences. If there are questions due to the unusual nature of a project, these should be discussed with the Public Works Director and City Engineer at the pre-design conference (PWDS 1.9.b).

1) **Drawing Sheet Size**. Construction drawings shall be submitted on 22" x 34" blackline sheets *(when plotted full size)* unless otherwise approved in writing by the City Engineer prior to drawing submittal.

   a) Plot Border Requirements. Drawing layouts shall be configured to provide adequate blank space around the sheet perimeter to allow full size and half size drawings *(ie. plotted to 50% scale)* to be printed on standard printers/plotters without cutting off any text or images, and to allow the entire border to be shown *(typically 0.5" minimum all sides for full size sheets)*.

   b) All drawings submitted for review and/or approval shall be stapled and bound into sets *(unless pdf submittals are allowed by Public Works & the City Engineer)*.

2) ** **Review Fees.** Payment of City Public Works plan review fees as required *(drawing review comments or other review feedback will not be provided prior to receiving any such required review fees)*.

3) **Variance/Deviation Summary Required**. A written summary of all proposed deviations from the PWDS requirements, and written justification for any proposed variance requests *(see section 1.13)*. It is the responsibility of the design engineer to submit a written request for any proposed deviations or variances from City standards or PWDS requirements *(see PWDS 1.13.a.3)*.

4) **Cover Sheet** *(with all information required under PWDS 1.11.d)*.

5) **Note Sheet(s)** with all applicable current standard City construction notes & standard testing table *(MS Word version of current standard City construction notes are available from the City Engineer, as well as a pdf copy of the standard testing table)*.

6) **Overall utility and street/site lighting plan**.

7) **Site grading plan** where applicable.

8) **Existing conditions plan** as defined below, to the full limits required by these PWDS.

9) **Site layout & dimensioning plan** with complete callouts and/or labels, including all property dimensions *(ie. required for subdivisions, partitions, commercial, industrial or public developments)*, as well as all parking areas,

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access driveways, fire lanes, ADA compliant pedestrian access routes *(from the fronting street(s) to the buildings, and from accessible parking to the building)*, as well as building locations, separations & setbacks, etc., and including other applicable information.

10) **Fire Access Plan**. Fire vehicle access plan as required to demonstrate compliance with OFC fire apparatus access requirements *(commercial, industrial, public, parking lot, private street, common driveway, flaglot, MHP, RV park, PUD, etc.)*, as well as information showing the access route around the building exterior as may be required by the Fire Code Official.

11) **Plan and profile** for the following public utilities:

a) Streets
b) Water as specified
c) Sanitary sewers
d) Storm drains *(profiles also required for piped detention systems and detention system outlet piping, whether public or private)*

Separate profiles shall be provided for water, sewer and/or storm where required to clearly show new pipeline configuration in relation to existing or new utilities, or to avoid confusion *(particularly when more than one pipeline is proposed at or near the same depth)*, as determined by the City Engineer and the Public Works Director.

All crossings of other utilities *(City utilities or private/franchise utilities)* shall be shown and labeled on the profiles, including required separation *(including horizontal separation between such utilities and any required straddle blocks or thrust blocks on waterlines or other pressure pipelines)*.

Closely Parallel Utilities to be Shown on Profiles. Other utilities along the same alignments *(as the primary utility shown on the profile view)* shall be shown in the background as necessary to illustrate the relative depth of closely parallel utilities, with those background utilities shown shaded back or using lighter lines as required to avoid confusion.

12) ****Erosion control plans** reflecting erosion control measures during construction *(and also reflecting a post construction site runoff plan)* as required by general City or County stormwater permits, or by project DEQ erosion control, stormwater or water quality permits ***(list DEQ 1200C Permit # on EC Plan Cover Sheet if 1200C permit is required))***.

List Total Disturbed Area to be Listed on EC Plans. The erosion control plans shall include a note listing the total disturbed area for the entire project *(including both on-site & off-site improvements)*.

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13) **<u>**Details shall be Included on Drawing Sets**</u>. All applicable City standard details shall be included on the construction drawing sheets.

a) <u>**City standard details shall be placed in numerical order**</u> on the detail sheets *(oriented from top left of each sheet to bottom right)*, for ease of reference during construction *(order to be based on City detail numbers)*.

b) <u>**Additional details**</u> proposed or required for the project *(including County or ODOT details, custom drawn details, etc.)* shall be included on the drawing sheets *(other agency details shall also be placed in separate numerical order, by agency)*.

c) <u>**Custom drawn details**</u> shall be to scale where required by the PWDS, and those which are not drawn to scale shall at least be drawn proportionally so that they accurately represent what is being proposed for construction.

14) **<u>**Drainage Calculations & Report**</u>. Stamped storm drainage calculations, including storm drainage basin maps, upstream flows onto the property, pipe capacity evaluation, remaining available downstream capacity verification, detention calculations, etc.

15) <u>**Geotechnical Report**</u>. A current geotechnical report for the development site and other impacted properties *(reflecting the pre-development conditions at the time the drawings are submitted for review)* is required for sites with **(A)** any existing or proposed fills, **(B)** existing slopes steeper than 3H:1V or proposed slopes steeper than 2½H:1V, **(C)** existing or proposed retaining walls on the development property or on contiguous properties, **(D)** if stormwater infiltration is proposed, or **(E)** where there are other geotechnical concerns identified by the City Engineer or the Public Works Director. The geotech report shall address existing conditions and include detailed geotechnical design recommendations based on existing conditions and the proposed development plans for the site *(including specific design recommendations regarding slope stability, slope erosion prevention and other applicable considerations for proposed cut or fill slopes)*.

16) <u>**Title Report**</u>. **A current title report which includes a list of all existing easements, restrictions, and other encumbrances on each property where construction will occur, including full copies of deeds, easements or other restrictive documents referenced in the title report (*a pdf copy of* each *title report with embedded hyperlinks to the referenced documents may be provided in lieu of hard copies*).

17) **<u>**Easements and/or Maintenance Agreements**</u>. Recorded copies of all easements, maintenance agreements and/or right-of-way dedications required in conjunction with the project, with the exception for onsite easements as noted

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under PWDS 1.10.j.3 for subdivisions or partitions *(where all public infrastructure and utilities will be constructed prior to the recording of a final plat)*. Easements shall be worded such that no trees, permanent structures or improvements including parallel fences or parallel utilities shall be placed or constructed on the easement.

Easements shall be a constant width between manholes, valves or other in-line structures, unless otherwise required by the Public Works Director and/or the City Engineer *(ie. for example, where required to avoid leaving a sliver of property between the easement boundary and adjacent property lines or right-of-ways)*. Easement width shall be based on the deepest portion of the line between such structures. See the Appendix for standard model easement forms.

18) **Proposed utility plans from all franchise utilities *(final review)*.

19) ****PWDS Infrastructure Cost Estimate*** *(preliminary estimate prior to plan review, final estimate prior to PW permit issuance)*. Engineer's unit price construction cost estimate, unit price bid results or contractor estimates acceptable to the City Engineer (*estimate to be submitted with initial review drawings and shall be updated as applicable when final review drawings are provided*). Cost estimates shall include all work covered under the PWDS *(excluding work covered by buildings permits for structures)*. In addition to all grading, streets, water/sanitary sewer/storm drainage, driveways, parking, etc. to be constructed with the project, estimates shall include line items for street lighting and franchise utility trenching & conduit, as well as trenching & installation of street lighting conduits, junction boxes and pole bases as applicable.

20) **Design Vehicle and Fire Vehicle Access Plan**. For all developments (*other than subdivisions and/or partitions consisting of only single family detached homes or duplexes*), provide a summary of the largest design vehicles (*including emergency/fire vehicles*) which will need to access the development (*including vehicle size, dimensions & turning radius*), as well an exhibit showing turning-radius wheel-path templates for the design vehicle and fire vehicles (*auto-turn or equivalent*).

    a) The development team shall be responsible to coordinate with the Fire Code Official regarding the size and turning radius of the largest emergency/fire vehicle which will need to access the site, and provide this information to Public Works and the City Engineer in conjunction with drawings submitted for review.

21) The submittal may also be required to include a traffic study and a traffic control plan.

22) The development team is responsible for submitting construction drawings & associated plans to other agencies with jurisdiction as may be required, in the

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format required by those other agencies.

c. General

1) ** Title Block. A title block shall appear on each sheet of the drawing set and shall be placed in the lower right-hand corner of the sheet, across the bottom edge of the sheet or across the right-hand edge of the sheet. The title block shall include the name of the project, the sheet title and number, the name of the engineering firm, engineer's stamp *(all drawings shall be **EITHER** signed by the engineer, **OR** marked as preliminary as noted under PWDS 1.3.a.1)*, plot or submittal date and revision blocks *(revision blocks with adequate space to list all revisions after the drawings are first signed)*.

2) Revision Blocks. Revision blocks shall be filled in on the cover sheet and on each drawing sheet containing revisions from previously submitted or previously reviewed signed drawings.

3) **A north arrow shall be shown on each sheet containing plan views and adjacent to any other drawing which is not oriented the same as other drawings on the sheet.

4) **Allowable Drawing Scales**. **The scale of drawings shall be 1"=10', 20', 40' or 50' horizontal and 1"=2', 4' or 5' vertical, for all drawings except structural or mechanical drawings. The scale of corresponding plan views and profiles shall be the same.

   a) ****In cases where streets or public utilities exist or will be reconstructed, plan view scales** *(and horizontal scale of corresponding profile views)* **shall not exceed 1" = 20'.**

   b) Regardless of the drawing scale utilized by the design engineer, all required information shall be shown in a clearly readable format *(as determined by the City Engineer and the Public Works Director)*, or a different drawing scale shall be selected *(unless larger scaled detail views are provided for all critical areas)*.

5) ** Plan/Profile & Detail Labeling. Each plan, profile and detail shall be labeled under the drawing.

   Scale Labeling. The horizontal & vertical scale for the plan, profile, or detail shall be noted under the title. Details not drawn to scale shall be so noted.

6) ** Legend. A complete legend of all symbols used shall be provided at the front of each drawing set or on the appropriate pages. In general, existing utilities shall be shown with a lighter line weight than proposed utilities.

7) ** Text Size. Letter size shall not be smaller than 0.10-inch high *(to allow text on half size drawings to be legible & readable)*.

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8) Shading or Hatching. Where shading or hatching is used to designate types of surfacing *(or to designate different types of improvements)*, different shading/hatching styles shall be used in order to clearly differentiate between different types of surfacing or different types of improvements to be constructed.

9) ** Details. All detail drawings associated with or referenced by the design, including applicable City standard detail drawings, shall be included on the drawing sheets, arranged in numeric order for ease of reference during construction *(oriented from top left of each sheet to bottom right)*.

10) Potholing/Vac-Ex to Verify Potential Conflicts, Other Investigative Work.

a) Where the construction drawings indicate that there are potential conflicts between existing utilities and proposed new utilities *(ie. and where there are not explicit callouts regarding relocation of such conflicting utilities)*, potholing or vacuum excavation shall be completed *(in conjunction with the design)* as necessary to verify the extent of such potential conflicts and to determine whether required clearances can be maintained.

b) See PWDS 3.18 & PWDS 4.17 for inspection and/or verification work which may be required in conjunction with work on or connection to existing storm drain or sewer mainlines.

c) Other investigative work may be required during design if it is determined *(at the sole discretion of the Public Works Director)* that there are concerns regarding potential conflicts with or impacts to existing infrastructure.

11) ****Lot Numbers & Addresses, Street Names, Other Labels, etc**. Lot or parcel numbers, street names and other identifying labels *(including tax lot and address numbers for all existing properties shown)* shall be included for all lots, streets, etc. shown on the various plan sheets. New street names are subject to the approval of the Public Works Director *(and City Planner, Fire District, etc. as applicable)*.

12) ****Sheet Titles**. All drawing sheets shall be labeled with descriptive sheet titles, indicating both the type of infrastructure or improvements shown on that particular sheet *(or other wording indicating the contents on the sheet)* **AND** the location of the improvements so shown as applicable *(street name or other descriptive location shall be included in the sheet title)*.

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d. Cover Sheet

1) The first sheet *(Cover Sheet)* of all drawing sets shall include the following as a minimum:

a) ** Plot or Revision Date. All drawing sets *(review, revision or final)* shall have the submittal date or revision date clearly listed on the cover sheet. The date shall be changed to match when resubmittal drawings are provided.

b) **Project name.

c) ****Land Use Docket Number****. The City Planning Department file or docket number shall be listed for projects which required land use approval *(under the project name)*.

d) **Design Engineer's name, address, telephone and fax number, and email address & website.

e) **Developer's name, address and telephone number, and email address.

f) **Vicinity Maps showing and labeling the location of the project in respect to the nearest major street intersection and a minimum of 500 feet around the site *(the names of all existing public and private streets shown on the vicinity map shall be labeled)*, as well showing and labeling the location of City Limits or the UGB *(where those boundaries are within this distance from the site)*.

g) **Legend including all symbols and line types used on the construction drawings. Where there is insufficient room on the cover sheet, the legend can be included on a subsequent sheet.

h) **Sheet index located near lower right corner.

(1) The Sheet index shall match the wording on the sheet titles *(and vice-versa)*.

i) **Infrastructure Summary Table**. Include a summary table listing the number of lineal feet of new public streets and new public mainline utilities to be constructed.

(1) Identify the length of new streets and/or new utilities under County or ODOT jurisdiction separately from those under City jurisdiction.

(2) Do not include existing streets or utilities that are being replaced as part of the project with the same length, or private streets or utilities.

(3) Do not include length of sewer or storm service laterals.

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j) **<u>Water Meter Table & Meter Sizing Summary Information</u>**. List the number, size and type *(domestic, irrigation, etc.)* of all water meters proposed *(for developments with building other than single family residential or duplexes on separate legal lots)*.

(1) On this or another civil sheet, provide a summary of the water meter sizing documentation *(for other than detached single family residential or dedicated irrigation meters)* as required under PWDS 5.20.a.5 *(ie. summary of plumbing fixtures & water fixture units served by each water meter)*.

(2) If the building layout and/or plumbing design is not available for reference during review of the site/utility drawings because the buildings are not being constructed in conjunction with the development project *(and a final fixture unit count summary is therefore not available)*, a note specifying whether or not flushometer valve fixtures *(toilets, urinals, etc.)* will be installed must be provided as a minimum.

(3) Any cost or time impacts due to water meter size changes required *(because of inadequate or inaccurate information provided during Public Works review of the site/utility drawings)* will be the sole responsibility of the development team.

k) **List of all required project elements which will be submitted as separate design packages *(ie. those elements which will not be included as an integral part of the civil design package submitted for review and approval, but which may be required to be submitted separately prior to Public Works approval of the civil drawings)*.

These may include but not be limited to irrigation/landscape plans, pole or pedestal signs, retaining wall structural designs, bridge structural designs, detailed fence & gate designs, buildings *(or canopies which extend over fire access lanes)*, detailed franchise utility designs, etc.

Any of these separate designs may be required to be submitted and approved prior to issuance of Public Works permits, as deemed applicable by the City.

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l) **<u>**City Standard Construction Notes**</u>. <u>Reference</u> to the drawing sheets containing the current version of the City standard construction notes and testing table matching format and content of notes in PWDS Appendix B shall be included on the drawing set *(MS Word version of current standard City construction notes are available from the City Engineer, as well as a pdf copy of the standard testing table).*

The current version of the notes available from the City Engineer shall be utilized, whether or not the current version has been published in an updated PWDS manual.

Since there is typically insufficient room on the cover sheet, the standard City construction notes and standard testing table shall be included on a subsequent sheet(s).

m) **<u>Mail Delivery Confirmation Note</u>**. If there will be no mail delivery to any buildings on the project, include a note to this effect on the cover sheet. Otherwise, the location of the mailbox and associated pedestrian access route where applicable shall be included on the drawings *(locations of new mailboxes must be approved by the local postmaster).*

n) **<u>Fire Sprinkler System Confirmation Note</u>**. Add a note as to whether a fire sprinkler system is or is not proposed for any project buildings shown on the construction drawings.

e. **<u>Overall Utility and Street/Site Lighting Plan</u>.

1) The overall utility plan & drainage plan shall show the following as a minimum:

a) ** <u>Benchmarks</u>. The location and elevation of a National Geodetic Survey, United States Geological Survey, State Highway, Marion County or City of Jefferson bench mark which the elevations shown are based shall be shown or noted. Temporary bench marks on or near the project site shall also be shown.

b) **<u>Right-of-way lines, property lines, easement lines</u> *(including those outside the project but intersecting or within 150 feet of the project boundaries).*

c) ** <u>Existing Easements, etc</u>. Show & label all existing easements and/or maintenance agreements affecting the project *(on-site & off-site, including recording reference numbers).*

d) ** <u>Proposed Easements, etc</u>. Show & label all proposed new easements and/or maintenance agreements *(including blanks for the recording references for proposed easements/agreements which are to be filled in at the as-built stage).*

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e) ** Streets, Sidewalks, Driveways, etc. Existing and proposed streets, curbs, sidewalks, handicap ramps and driveways within the project and within 150 feet of the project boundaries (*see exception allowed under 1.11.a.1 above*).

f) ** SS, SD, WL, etc. Existing and proposed sanitary sewers, storm drains, waterlines and appurtenances within the project and within 150 feet of the project boundaries (*see exception allowed under 1.11.a.1 above*).

g) ** Existing Franchise Utilities, etc. Existing franchise and private utilities within the project and within 150 feet of the project boundaries (*see exception allowed under 1.11.a.1 above*).

h) ** Survey Monuments. Location and description of existing survey monuments, including but not limited to street monuments, property monuments, section corners, quarter corners and donation land claim corners within or adjacent to the limits of the work area.

i) ** Relocated Utilities. Public and franchise/private utilities and other facilities to be relocated.

j) Lighting. Street light and site/parking light pole locations shall be clearly shown and labeled, **based on City spacing and location standards** or a photometric design acceptable to the City, and subject to City approval for location and maximum spacing, in consultation with the power company *(see PWDS 2.28.j & 2.32)*.

If street lighting locations are not clearly shown on this sheet *(as determined by the City Engineer)*, a separate street lighting drawing sheet shall be provided as part of the drawing set.

k) Drainage Methodology. Methodology proposed for individual lot drainage. Direction of drainage arrows and the following letter legend shall be used:

Symbol	Lot drains to:
C	Curb
P	Piped Storm Drain
S	Subsurface Disposal
→	Flow Direction

l) The location of all curb weepholes shall be shown unless otherwise

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clearly defined or noted on the drawings.

m) ** Existing Drainage Patterns. Existing drainage patterns within the project and within 150 feet of the project boundaries (*see exception allowed under 1.11.a.1 above*).

(1) NOTE: This distance can be reduced with written approval from the Public Works Director, but in all cases shall extend to the far side of right-of-ways and show property lines and improvements on the far side of the street along the entire property frontage, as well as showing enough of the adjacent upstream and downstream properties to clearly illustrate drainage patterns *(ie. including as required to illustrate and document any upstream or upgradient water which has historically flowed onto the development or project property)*, setbacks and utility issues.

For purposes of this requirement, "historically flowed onto the development or project property" refers to conditions existing at the time a Public Works or building permit application is submitted for construction on the property.

n) Floodplain, floodway and wetland boundaries, including floodplain elevation with FEMA map reference.

o) CBU Mailboxes. Show & label the location of CBU and other mailboxes *(location must be acceptable to the local postmaster)*, unless a note is added to the cover sheet confirming that there will be no mail delivery to the property *(commercial/industrial type projects only)*.

NOTE: Since a pedestrian curb ramp must be provided within the specified distance of the CBU location *(and since the ramp & sidewalk/pathway from the ramp to the CBU must be constructed in conjunction with the project infrastructure)*, the development team shall coordinate with the City to obtain address numbering *(and any other information required by the local postmaster)* as required to allow the CBU location to be determined and shown on the drawings.

p) Fire Flow Testing Note. A note that fire flow testing on all new fire hydrants must be completed and approved by Public Works and the fire district prior to issuance of any building permits.

This requirement & note may be modified for commercial / industrial / multi-family / public projects where alternate fire protection measures are approved in writing by the fire chief prior to the start of building construction *(any note modification on the drawings must be acceptable*

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to the Public Works Director and the Fire Code Official).

q) All Duplex/Triplex/etc. Lots to be Clearly Labeled. All residential lots designated or intended for construction of duplexes, triplexes, etc. shall be clearly labeled as such on the overall utility plan sheet(s) and other street & utility sheets *(in addition to showing the applicable number of water and sewer services required for such lots).*

f. Existing Conditions/Demolition Plans, Site Layout & Dimensioning Plans

1) **Existing Conditions/Demolition Plans.**

a) Separate existing conditions sheet(s) and demolition sheet(s) shall be included (*unless all applicable information is included on other drawing sheets showing and defining all existing conditions which are required to be shown).*

b) All existing utilities and existing improvements within or adjacent to the work areas shall be clearly shown AND labeled, as well as around and beyond the project site and offsite work areas to the limits defined above.

c) Unless the demolition information is clearly shown on other sheets, these sheets shall also define all proposed demolition or removal of existing utilities or improvements, existing trees, vegetation, etc.

2) **Site Layout & Dimensioning Plans**. A site layout & dimensioning plan is required for projects subject to site design review, as well as all commercial, industrial, public or multi-family developments. The site layout & dimensioning plans shall include the following as a minimum.

a) New Impervious Area. The site plan shall include a note listing the total new impervious area for the full project.

b) All property dimensions and lot/tract sizes *(ie. required for subdivisions, partitions, commercial, industrial or public developments)*,

c) All curbs, parking lot and site access improvements and dimensions, including parking space dimensions *(any reduced length parking spaces allowed based on curb overhang allowance under PWDS 2.28 shall be noted or labeled on the drawings)*,

d) Parking Summary. Provide notes listing the number of standard, compact *(# and %)* and accessible parking spaces provided, as well as number & % of existing, new and/or future EV spaces being provided,

e) All vehicular accesses (including fire lanes), ADA compliant

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pedestrian access routes (from the fronting street(s) to the building(s), and from accessible parking to the building),

f) Loading/delivery zones, ,

g) Building locations, separations & setbacks, etc.,

h) Other applicable information.

i) For subdivisions, all lots shall be numbered sequentially *(without skipping numbers)*, such that the lot numbering on the plans will match the lot numbering on the final plat.

j) Compact Parking Space Designation. All compact parking spaces shall be identified on the drawings, and noted to be permanently labeled *(signs or durable pavement markings)*.

k) Parking Lot, State Required EV Charging Infrastructure. Parking lot drawings shall identify which parking spaces are designated for service by the EV charging infrastructure *(required or proposed)*, as well as showing / dimensioning the alignment for the required conduit *(and showing location of proposed junction boxes per NEC standards)* to serve the parking spaces identified for EV charging.

Show & label conduit(s) *(# & size)* from the building *(or power service location adjacent to a transformer)* to the proposed or future level 2 EV charging stations to serve the designated parking spaces *(conduits shall terminate in junction boxes conforming to NEC standards)*.

Add a note summarizing the total number of parking spaces provided, as well as the number *(and percentage)* designated to be served by future EV charging station(s).

l) EV Charging Stations must be ADA Accessible to the extend required by State or Federal rules. The drawings shall include notes and/or design information addressing the ADA accessibility requirements for all parking spaces where EV charging stations are installed as part of the project or where conduits are stubbed for future EV charging use, per PWDS 2.28.p.

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g. Grading Plans.

1) A grading plan is required for subdivisions, multi-family, commercial, industrial or public developments, and for partitions involving street improvements or cuts/fills.

2) Grading Plan Drawing Scale. The scale of grading plans shall be 1"=40 or smaller, unless all required information can be shown clearly on 1"=50' scale *(as determined by the City Engineer and Public Works Director)*.

3) Elevations & Grade Contours. The grading plan shall show proposed finished grade and parcel corner elevations, with the existing and proposed contours shown *(and clearly labeled)* at maximum one (1) foot intervals and extended a minimum of 100 feet beyond the improvements *(unless lesser distance is approved by the City Engineer and Public Works Director on a case-by-case basis)*.

New Finish Grade Contours to Extend & Tie to Existing Grade Contours. The new finish grade contours shall be extended and tied to the existing grade contours around the site perimeter and onto the adjacent property, in order to clearly illustrate drainage patterns onto and off of the development site..

4) Contour Intervals on Flat Sites. Extremely flat sites will require contour intervals closer than 1 foot as necessary to clearly illustrate proposed grading and drainage slopes and limits, as well as to illustrate where upstream drainage may flow onto the development or project property.

5) Storm Drainage to be Shown. The grading plan shall show all drainage system pipes, structures and proposed erosion control facilities, including swales or other storm drainage improvements along property lines as required to intercept uphill surface runoff and convey it to an approved point of disposal.

6) Grading & Existing Slope Labels *(with slope direction arrows)* shall be included on grading plans using the standard slope ratio format of xH:yV *(ie. 2H:1V, 3H:1V, 4H:1V, 5H:1V, etc.)* for steeper slopes, and % slope format for slopes flatter than 5H:1V.

7) Storm Drainage to be Shown. The grading plan shall show *(as background)* all drainage system pipes, structures and proposed erosion control facilities, including swales or other storm drainage improvements along property lines as required to intercept uphill surface runoff and convey it to an approved point of disposal *(although detailed callouts for such storm improvements do not need to be included on the grading sheets)*.

a) Detention Overflow Route to be Defined. On this or another sheet, show and identify the route that overflow water from a detention

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system will take *(along the emergency overflow route)*, defining the water flow path if the primary overflow becomes blocked or restricted *(without flowing onto adjacent property without an easement or flowing into buildings)*. See also PWDS 1.11.i & 3.19.d.4.

8) Finish Grading vs. FEMA Flood Elevations. Unless otherwise allowed by the City under an applicable land use approval or otherwise required under an applicable development code provision, grading plans shall be designed such that all finish lot grades *(ie. ground surface after completion of grading work associated with a development permit)* within building envelope areas are a minimum of 1 foot above the FEMA 100 year flood elevations.

9) Geotechnical Engineer Design/Certification Required for Steeper Cut/Fill Slopes. Cut or fill slopes steeper than 2½H:1V shall be designed and stamped by a licensed geotechnical engineer, or a stamped report shall be provided from the project geotechnical engineer certifying that the cut & fill slopes shown on the drawings are designed based on his/her specific recommendations in the design geotech report.

A surface runoff collection system *(swales, pipes, inlets, etc.)* shall be provided at the top of cut or fill slopes as required to prevent surface runoff erosion on such slopes.

10) Retaining Wall Design. Any retaining walls required due to the proposed grading plan or which are required by City code *(including but not limited to retaining walls required along property lines of steeply sloped lots)* shall be constructed in conjunction with the development civil improvements, unless otherwise approved in writing by the City Planner *(or unless specifically deferred as part of the land use approval)*. A detailed structural design shall be provided for any retaining walls taller than 4 feet *(measured from the bottom of the footing to the top of the wall)* which are not approved to be deferred until future building construction.

The location, height and configuration of such retaining walls shall be noted and defined on the subdivision civil construction drawings *(for both deferred and non-deferred walls)*. Where there are utilities *(ie. City water/sewer/storm services, or other utilities)* which cross through or under the location of any such required retaining walls, the drawings shall include information to illustrate how potential conflicts between these utilities and the retaining wall will be addressed *(whether such walls are constructed as part of the development or in conjunction with future building construction)*.

a) Retaining Wall Offset from City Utilities. Retaining walls shall be offset a minimum of 10 feet from any parallel public water, sanitary sewer or storm drain mainline *(greater offset may be required for deep utilities or where there are geotechnical concerns)*.

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h. Fire Vehicle Access Plan *(plan view)*

1) Where fire lanes are required, provide fire vehicle access plan drawing(s) illustrating the fire truck routes along all fire lanes and turnarounds within the project, to all hydrants, and to within 150 feet of the exterior wall of any building *(OFC 503.1.1)* unless a distance exception is approved in writing by the Fire Code Official.

   a) Provide dimensions showing the distance from the end of designated fire lanes to the furthest point on the exterior wall of the building to illustrate compliance with this OFC requirement.

2) Include dimensions and widths along all fire lanes & turnarounds, as well as widths and dimensions for fire lane easements required along all designated fire lanes *(fire lanes to be paved per PWDS 2.31, with fire lane easement to be 5' minimum wider than fire lane & turnaround pavement widths required)*. Ensure that fire lane widths & clearances shown account for any bollards required or provided to protect hydrants, FDCs, buildings or other structures.

3) Show & label all vehicular gates to be provided, with notes to provide Knox boxes or other entry means approved by the Fire Code Official.

4) Show & label location of all fire lane/no parking signs and fire lane curb painting *(or other markings)*.

5) Show & label all fire hydrants *(public & private)* and FDCs *(and any associated bollards)*, as well showing or noting curb painting at fire hydrant & FDC locations *(ie. painted curb 10 feet each way from hydrants per Detail 503 & ORS 811.550(16), and painted curb length at FDC locations as required by the Fire Code Official, 20 foot minimum)*.

   Dimension the offset distance from buildings to FDC(s) and fire hydrant(s), as well as dimensioning the offset from the FDC to the fire hydrant serving the FDC *(in addition to conformance with PWDS requirements, FDC location and configuration must be approved by the Fire Code Official)*.

6) FDC Line Ball-Drip Valve, FDC Drain, Forward Flow Test Port, etc. The location of the FDC line ball drip valve *(at low point in FDC line, unless FDC line is sloped to drain out completely)* & associated drainage system shall be shown & defined on the drawings *(NFPA 13, 16.12.6.1 & NFPA 13, 16.12.7)*. The drawings shall also define the location of the forward flow test port *(for NFPA 13 & 25 tests) and any required drains*. See also Detail 559 & 563.

7) If the fire truck turning-radius wheel-paths are not included on the drawings, a separate worksheet exhibit shall be provided for review illustrating the fire truck turning-radius wheel-path templates *(autoturn or similar)* along all fire lanes and turnarounds within the project, based on the actual fire apparatus to be used *(draw based on design vehicle as directed by the Fire Code Official)*.

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i. Storm Drainage & Detention Calculations, Flow Control Manhole Schematic

1) ** Storm Drainage, Runoff & Detention Calculation Summary. A summary of drainage, runoff and detention calculations, including drainage basin maps, shall be presented in a clear, concise and complete manner on the site grading or drainage plan sheets, or on a separate sheet.

a) These calculations shall address all runoff into the drainage system and downstream capacity *(including flow along the detention system emergency overflow route, under emergency overflow conditions)*.

b) Where applicable, include a summary of information *(on the drawings as noted above)* such as:

- Storm Drainage Basin maps *(onsite drainage basins & offsite contributing drainage basins as applicable)*
- Design methodology *(rational or SBUH)*,
- Basin areas,
- Design storms, time of concentration (Tc) & design rainfall intensities used *(for both pre-development conditions and post-development conditions)*,
- Runoff coefficients used *(for both pre-development conditions and post-development conditions),* as well as the composite or weighted coefficients where applicable,
- Design flow and pipe capacity at key points along the storm system improvements, including new storm system being installed, as well as downstream of where the project flows enter the public storm system, and as well as where flow from upstream property enters the site *(if applicable),*
- Clearly Define Offsite Drainage Flowing Onto Site or To/Along Site Perimeter. If there is no existing or future upstream stormwater flow or surface runoff onto the development property or into the system being designed, the design engineer shall add a prominent note to the drawings documenting this fact,
  - Failure by the design team to adequately investigate and disclose *(to the City Engineer and on the design drawings)* upstream water *(surface runoff or piped runoff)* which historically flowed onto the development property or which will be blocked by the development improvements *(thereby not providing for the collection and disposal of such upstream drainage per City standards)*, will result in additional improvements being required *(at the developer's expense to design & construct)* in order to deal with such upstream drainage per City standards *(whether the omission comes to light during construction, at final inspection or during the*

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warranty period, or during subsequent building construction). See also PWDS 1.11.a.1.a.
For purposes of this requirement, "historically flowed onto the development property" refers to conditions existing at the time a Public Works or building permit application is submitted for construction on the property.

- Downstream capacity at the connection point of the project drainage system to the existing system, etc.,

--as well as key detention system information, such as:

- Detention volume required,
- Detention volume provided,
  - Where drain rock is used for detention storage, include the volume of rock, rock void ratio, and total volume of rock void space,
- Predesign flow rate & design storm(s) used for detention storage sizing,
- Post construction design runoff *(flowrate at design Tc)* to the detention system under the developed conditions & the design storm(s) used,
  - 25 year flows for detention storage sizing, and
  - 50 year flows for overflow system sizing,
- Design flow rate out of detention system & design storm(s) used,
- Orifice size & elevation,
- Orifice capacity, including head above orifice at design flow,
- Primary & emergency overflow elevation & location,
- Primary overflow capacity *(including water depth between primary overflow and emergency overflow)*,
- Overflow route and capacity *(ie. the route that water will take along the emergency overflow route shall be shown and identified on the drawings, showing the flow path for water if the primary overflow becomes blocked or restricted)*, etc.

c) If required by the City, areas contributing flow to each inlet must be computed separately and each inlet with contributing area shall be designated and shown on an accompanying contour map work sheet.

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2) **Flow Control Manhole Schematic Detail. Unless otherwise approved by the City Engineer and the Public Works Director on a case-by-case basis, the drawings shall include a schematic cross section detail ***(drawn to a standard engineering scale)*** of the flow control manhole, showing/labeling the following as a minimum *(showing how the various flow control components will fit in the manhole with the required clearances)*:
--finish grade around flow control manhole,
--MH lid casting & associated rim elevation *(ie. define if flow control MH rim is set above grade to meet required clearances)*,
--flat-top slab thickness & elevation of bottom of flat-top slab,
--design water surface elevation in upstream detention system,
-- top elevation of overflow riser pipe & clearance to bottom of flat-top slab *(6" minimum required)*,
--emergency overflow elevation for reference,
--invert elevations of all inlet & outlet pipes *(including underdrain pipes if applicable)*,
--elevation of orifice plate,
--note defining orifice diameter, and
--sump elevation or depth below orifice plate.

Approval to omit the schematic detail will be based on adequate depth clearly being available for the overflow manhole rim to be set at finish grade while meeting all clearances required *(as shown on storm pipe profiles included in the design drawings)*.

If the schematic detail is omitted, the elevation of the primary overflow, the orifice diameter, and the elevation of the emergency overflow shall be called out on the profile view of the flow control manhole/structure.

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j. Plan Views

1) Perpendicular and Parallel Alignments. Except where explicitly approved in writing by the Public Works Director and the City Engineer, all utilities installed within right-of-ways or easements shall be parallel or perpendicular to the ROW or easement boundary to the extent feasible *(as determined by the City)*. Utilities which angle across or which wander within the ROW or easements are not allowed.

2) General Requirements *(all plan views)*: **Information required on the overall utility plan shall be shown on the plan views as applicable, including property lines, tax lot & address numbers of all existing lots, existing parcels and buildings within or adjacent to the development *(including properties on the far side of streets fronting the development areas shown on the various plan view sheets)*. In addition, the following shall be shown:

a) **Unless shown & defined as being removed on another civil sheet, utilities and vegetation in conflict with proposed grading, or with the construction or operation of streets, driveways, fire lanes or City/ public utilities. Vegetation to include trees greater than 6 inches in diameter *(measured at 4½ feet above soil line-DBH)* and landscape plantings within the right-of-way and easement areas.

b) Public and franchise or private utilities to be relocated.

c) Provide match lines with sheet number references as applicable.

d) ** Survey Monuments. Show & label all existing survey monuments within or adjacent to project work areas *(offset all utilities from survey monument locations as required to avoid conflict with survey monuments per ORS 92.044.7)*.

e) Additional information as outlined below or as required by the City based on unique or unusual features of the project.

f) Show Future Curblines where Applicable. Where existing streets are not fully improved, or where less than full street improvements are being constructed, show the location & alignment of future curblines and intersection curb radii, so that the location of utilities being installed are clearly defined in relation to the future street improvements *(this requirement also applies to water/sewer/storm mainline improvements which are constructed without streets improvements, unless specifically waived by the City)*.

g) Maintenance Vehicle Access Lanes. Show, label and dimension all required maintenance vehicle access lanes *(for storm, sanitary sewer or water)* on the drawings, including standard details for rock, AC and/or

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other surface sections, as well as showing location of collapsible bollards or gates where required for access control, and also notes regarding gates and lock style on any existing or future cross fences *(see PWDS 4.15.d for specific requirements, see also PWDS 3.12.d & 5.15.d)*.

h) Show Property Lines, List Address & Tax Lot Number for All Existing Properties Shown. In addition to other identifying information *(property lines, lot or parcel numbers, etc.)*, all plan view sheets shall include tax lot & address numbers of all existing lots or existing parcels within or adjacent to the development *(including properties on the far side of streets fronting the development areas shown on the various plan view sheets)*.

It is acceptable to include a note that property lines shown on the far side of fronting streets are approximate only *(ie. to the extent that the property lines are not tied and verified by the project surveyor as part of the project topographic survey)*.

i) Show City Limits & UGB as applicable. If the project abuts the City Limits and/or the Urban Growth Boundary (UGB) *(including if the CL or UGB runs along an abutting street)*, these boundary lines shall be shown & labeled on the vicinity map on the cover sheet, as well as on applicable individual plan sheets.

j) Manner of Connection to Future Improvements or Extensions Shall be Shown & Defined. For utilities and/or street improvements which will be extended *(or connected to)* in the future, designs shall clearly show how such future connection and/or extension can be accomplished in accordance with City standards *(see PWDS 1.6)*.

3) Streets *(plan view)*

a) Street stationing shall be tied to existing property corners, centerline of intersections, and/or existing street monuments.

b) **Location, alignment, width and stationing of **existing streets and proposed street centerline and curb faces.

**Location of all curbs, driveways, edge of pavement, sidewalks, etc. shall be dimensioned from right-of-way centerline, easement boundary or other means so that its location is clearly defined.

c) Bearing of all street centerlines.

d) Horizontal curve data of street centerline and curb returns, including stationing of point of tangency and point of curvature, length of tangent, length of centerline curve, delta angle, radius point, and centerline radius.

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e) Location of existing and proposed street centerline monuments.

f) Show & label the centerline stationing at all intersecting streets, alleys, common use driveways, fire lanes, etc.

For improvements within an ODOT right-of-way, include the ODOT milepost and ODOT engineering station callouts at all such intersections, as well as at utility crossings or other structures which will need to be listed on an ODOT permit for construction *(show & label ODOT milepost & eng. station on the profile where applicable to match plan view callouts)*.

g) Curb return plan view details *(scale not to exceed 1" = 10', with all running slopes & cross slopes of sidewalks, pedestrian ramps & landings labeled, as well as the curb radius & R/W radius)* and separate curb return profiles *(showing gutter grades at face of curb, and location of pedestrian ramps shown & labeled)* for all curb returns with pedestrian ramps, to demonstrate compliance with PROWAG requirements.

Where centerline street grades and cross slope street grades of both intersecting streets is less than 1% *(including through the entire intersection)*, the City Engineer may allow plans to show only top of curb elevations along curb returns at quarter-points on the curb return detail views.

h) ODOT Pedestrian Ramp Upgrades. Any existing pedestrian ramps *(on the property frontage)* which are located within ODOT right-of-ways must be reconstructed to fully comply with current ODOT standards, unless written confirmation from ODOT is provided confirming that the pedestrian ramps are fully ADA compliant.

The drawings shall label the ODOT ramp position number as applicable.

i) Location of the low points of street grades and curb returns.

j) Crown lines along portions of streets transitioning from one typical section to another.

k) Cul-de-sac cross slopes from the center to the curblines.

l) Sidewalks. Location, alignment, width & dimensions of all street frontage sidewalks, including sidewalks to be constructed with the project and sidewalks which are deferred to a future date.

(1) Sidewalks to be constructed with the project and those deferred to the future shall be clearly designated, and all required

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sidewalk easements shown & labeled.

m) CBU Mailboxes. For residential projects or commercial/industrial/public projects, the location of proposed CBU mailboxes shall be shown *(location must be acceptable to the local postmaster)*, and the ADA access path to the CBU mailboxes must be designated per OSSC 1111, with a note designating that the CBU and the required ADA access path to the CBU must be constructed prior to City acceptance of the street or infrastructure improvements *(see PWDS 1.11.e.1 for design engineer responsibility to obtain information required in order to determine acceptable CBU location)*.

n) Full Street Design. Partial street improvements must be based on a full street design for a full urban improvement *(ie. provide full design as if the entire street were being constructed as part of project, including design of sidewalks & driveway approaches, reconnection to existing driveways, etc. on both sides, as well as storm drainage design for both sides of the street and associated intersections, etc.)*, with the portion actually to be constructed as part of the project being clearly designated on the plans.

Where partial street improvements cross or intersect with other public or private streets, the partial *(interim)* intersection design must be based on a full intersection design, including but not limited to showing proposed and future ADA compliant pedestrian ramps on all corners, storm drainage for the entire intersection, etc.

o) Future Street Plan View Beyond Work Limits.

(1) Where street improvements to existing streets will continue in the future beyond the project limits, show the projection of the future street improvement limits *(curb & lane alignments, configurations, etc.)* far enough beyond the work limits to illustrate how the current improvements will match with future required street improvements, all in compliance with City standards *(distance as determined by the Public Works Director and City Engineer on a case-by case basis, but not typically beyond the far side of the next intersection or 200 feet, whichever is less)*, with the portion actually to be constructed as part of the project being clearly designated on the plans. The drawings should include notes that the projected future improvements shown are preliminary only and subject to change in the future.

(2) Projected future street improvements shall be designed to be compatible with any improvements noted in the City TSP, or other anticipated improvements known to City staff.

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p) Design Vehicle Illustration. For streets which are anticipated to experience significant truck traffic (*as determined by the City Engineer or Public Works*), and for driveways or access points which will accommodate truck traffic and/or emergency/fire vehicles, design truck turning-radius wheel-path & vehicle-path templates shall be included with the drawings to demonstrate that the proposed improvements allow vehicular turning movements without encroaching onto sidewalks or crossing curbs outside of the defined driveway or vehicular access path.

q) Catch Basin & Culvert Locations to be Shown. Show & label all existing and proposed catch basins on street plan views *(also show on pedestrian ramp views where applicable)*.

Show & label all existing and proposed culverts as a minimum *(driveway culverts, cross culverts, etc.)*.

r) Downstream Drainage Patterns to be Illustrated. The longitudinal and cross slopes and drainage patterns for the existing grades located at and downstream from connection points for new descending streets, fire lanes, common driveways, etc. shall be clearly shown and illustrated on the drawings.

Failure to adequately shown and label existing slopes and/or drainage patterns may result in design changes being required during construction *(in order to address adverse drainage issues that come to light, and to avoid unauthorized drainage onto adjacent public or private property)*, at no cost to the City.

4) Storm Drains *(plan view)*

a) **Location, stationing, **size, pipe material & class of **existing and proposed storm drains and appurtenances. Show drainage facilities upstream and downstream of the project as required to illustrate conditions affecting the design.

Where profile views are not provided *(for private storm lines)*, the slope, rim/invert elevations and depth of cover, etc. shall be shown/labeled along all pipe alignments, in addition to the pipe diameter.

b) **Drainage facilities located outside of public right-of-ways shall be stationed from the downstream end. For all manholes, catch basins, etc., located in or adjacent to streets, drainage facility stationing shall correspond to the street stationing.

c) Mainline stationing of all storm drain service tees.

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d) **Location of all storm manholes, cleanouts *(including storm lateral cleanouts)*, junction boxes, pipelines, ditches, etc. shall be dimensioned from curblines, right-of-way centerline, easement boundary, property line or other means so that its location is clearly defined, including location in relation to required maintenance vehicle access lanes.

e) Separation from other parallel utilities shall be dimensioned.

f) All storm manholes and other structures shall be numbered *(or lettered)* with a designation unique to the project and stationed to facilitate checking the plan views with the profile.

g) ** Storm Drain Service Lateral Information. The following information shall be provided for all storm drain service laterals.

(1) Mainline stationing
(2) Alignment
(3) Pipe Size, Material & Class
(4) Length of storm drain service lateral *(ie. mainline to cleanout).*
(5) Pipe slope from mainline connection to property line cleanout.
(6) Cover depth below finish grade at property line(s) and/or easement line(s) crossed *(ie. cover depth to top of pipe at property line cleanout)*.
    (a) Where there are steep uphill grades immediately beyond the property line *(or easement line)* cleanout, also list the cover depth *(below finish grade)* at the end of the storm lateral pipe installed beyond the cleanout.
(7) Distance ties from property line cleanout to nearest property corner
(8) Location of property line cleanout.

h) Size, depth, pipe material and class, length of storm pipe, class of backfill and surface restoration shall be clearly shown or called out on the plan view, unless this information is shown on a profile view.

i) Detention System. Design for any detention system or stormwater quality system being provided, conforming with Division 3 requirements. Plan, profile/section and complete details for detention system, including complete callouts for location, size, configuration, materials, capacity, etc.

Callouts for specific geotextile fabric required per PWDS requirements for any underground detention isolator rows shall be included on the plan or profile views & details.

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5) Sanitary Sewer *(plan view)*

a) **Location, stationing, **size, pipe material & class of **existing and proposed sanitary sewers and appurtenances.

Where profile views are not provided *(for private sanitary lines)*, the slope, rim/invert elevations and depth of cover, etc. shall be shown/labeled along all pipe alignments, in addition to the pipe diameter.

b) All sanitary sewers shall be stationed from downstream manholes to upstream manholes.

c) **Location of all sewer manholes, cleanouts, pipelines, etc. shall be dimensioned from curblines, right-of-way centerline, easement boundary or other means so that its location is clearly defined, including location in relation to required maintenance vehicle access lanes.

d) Separation from other parallel utilities shall be dimensioned.

e) Mainline stationing of all sewer service tees.

f) All sewer manholes, cleanouts and other structures shall be numbered *(or lettered)* with a designation unique to the project and stationed to facilitate checking the plan views with the profile.

g) **Existing City sewer manholes numbers shall be used for all existing manholes or mainline cleanouts shown.

(1) Following acceptance by the City, each new sanitary sewer manhole and new mainline cleanout shall be identified on the as-builts with a number provided by the City. The design ID number or letter shall remain on the as-builts next to the City assigned number *(use parenthesis to differentiate)*.

h) Existing Sewer Laterals to be Shown. The location of all existing sewer service laterals stubbed to the property shall be shown and labeled on the drawings, including both those laterals proposed for continuing use and those which must be disconnected and capped at the mainline per City standards *(ie. any laterals which do not meet current City standards for size, material or condition)*.

Notes shall be included *(on the drawing sheet(s) showing laterals to be abandoned)* regarding the requirement for Public Works to be present and inspect the abandoned lateral capping work prior to backfilling.

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i) ** Sanitary Sewer Service Lateral Information. The following information shall be provided for all sanitary sewer service laterals which will provide service *(including (A) new sanitary sewer service laterals, (B) existing sanitary sewer service laterals proposed for continuing use, OR (C) existing sanitary sewer service laterals which must have property line cleanouts added).*

(1) Mainline stationing
(2) Alignment
(3) Pipe Size & Material
(4) Length of sewer service lateral *(ie. mainline to cleanout).*
(5) Pipe slope from mainline connection to property line cleanout.
(6) Cover depth below finish grade at property line(s) and/or easement line(s) crossed *(ie. cover depth to top of pipe at property line cleanout).*
   (a) Where there are steep uphill grades immediately beyond the property line *(or easement line)* cleanout, also list the cover depth *(below finish grade)* at the end of the sewer lateral pipe installed beyond the cleanout.
(7) Distance ties from property line cleanout to nearest property corner
(8) Location of property line cleanout.

j) Size, depth, pipe material and class, length of sanitary sewer pipe, class of backfill and surface restoration shall be clearly shown or called out on the plan view, unless this information is shown on a profile view.

k) Grease Interceptor Vault.

(1) Where grease (FOG) removal is required by any user(s) within the project limits *(see PWDS 4.19)*, the location and configuration of the required gravity grease interceptor vault(s) shall be shown and called out, and shall include details of the vault *(including notes regarding compliance with IAPMO / ANSI Z1001, as referenced by OPSC 1014.3.3 & OPSC Chapter 17)*, AND details of the outlet sampling port required by City standards.

(2) Drawings shall show piping upstream and downstream of the grease interceptor vault location, including the sanitary sewer pipe connection downstream of the grease interceptor vault *(to ensure that sanitary sewer flows from toilets, urinals and similar fixtures do not flow through the grease interceptor, per OPSC 1014.3.2.1)*, including notes specifying the type of fixtures allowed to discharge to each sewer pipe *(ie. which fixtures cannot be connected to the grease interceptor).*

(3) Drawings shall also show & identify the maintenance access

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route for the pumper truck.

(4) A note shall be included on the drawings referencing the required grease interceptor maintenance agreement, including a blank for the recording reference number.

6) Water Distribution *(plan view)*

a) **Location, callouts, stationing *(where applicable),* **size, pipe material & class of **existing and proposed water mains and appurtenances, fittings, bends, thrust blocks, straddle blocks, retainer glands or other restraint devices, couplings, domestic water or fire service lines, meter boxes, backflow devices or vaults, etc.

Fire Service drawings shall conform with the requirements listed under PWDS 5.19.d.2.c.

Where profile views are not provided *(for private water lines and/or fire lines)*, the slope, rim/invert elevations and depth of cover, etc. shall be shown/labeled along all pipe alignments, in addition to the pipe diameter.

b) Each valve and fire hydrant shall be identified and stationed to facilitate checking the plan views with the profile.

c) **Location of all waterlines, hydrants, water meters, backflow devices, etc. shall be dimensioned from curblines, right-of-way centerline, easement boundary, adjacent property corner or other means so that its location is clearly defined, including location in relation to required maintenance vehicle access lanes.

d) Separation from other parallel utilities shall be dimensioned *(as well as horizontal separation between any required straddle blocks and utilities crossing the waterline alignment)*.

e) Where conduit & wire is required to serve meter vaults or backflow assemblies *(per City standard details)*, the general alignment for such conduits shall be shown or noted on the applicable plan view sheets.

f) Waterline stationing shall be independent of the street stationing, unless otherwise approved by the City Engineer on a case-by-case basis where waterline profiles are not required.

g) Size, depth, pipe material and class, length of water pipe, class of backfill and surface restoration shall be clearly shown or called out on the plan view, unless this information is shown on a profile view.

h) Waterline-Sanitary Sewer Crossings. Where a water mainline crosses below or within 18-inches vertical separation above a sanitary sewer

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main or sewer service lateral, notes calling out a full length of waterline pipe centered at point of the sewer crossing shall be included on the plan view.

i) Existing Water Services & Meter Boxes to be Shown. The location of all existing water services and meter boxes along or adjacent to improvement alignments shall be shown and labeled on the drawings. This shall include, but is not limited to, **(A)** water services to be replaced from a new water mainline to the meter *(typical requirement along new waterlines unless otherwise approved in writing by the Public Works Director on a case-by-case basis)*, **(B)** water service pipe approved for reconnection to a new water mainline *(where approved in writing by the PW Director)*, and **(C)** those water services which must be disconnected and capped at the mainline per City standards.

Abandoned Water Service Note. Notes shall be included regarding the requirement for Public Works to be present and inspect the abandoned water service capping work prior to backfilling *(on the drawing sheet(s) showing water services to be abandoned)*.

k. Profile Views

1) General Requirements *(all profile views)*: Profile views shall conform to the requirements and show the information outlined under this section as applicable *(see PWDS 1.11.b.10 above for potential need for separate water, sewer and/or storm profiles)*:

a) Profile views shall be to the same horizontal scale **AND ON THE SAME SHEET** as the corresponding plan view.

b) Provide match lines with sheet number references as applicable.

2) Streets *(profile view)*

a) Original ground & finish grade profile along the centerline and curbs as appropriate. For off-set or super-elevation cross-sections, both curbs shall be profiled.

Ditch invert profiles shall be shown where curbs are not to be constructed.

Profiles at intersections or cul-de-sacs shall be extended to the back of the far side PUE as a minimum, or to the top/bottom of cut or fill slopes where applicable, whichever distance is greater.

b) Stationing, elevations and percent slopes for centerline or top of curb profiles.

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c) Show & label the centerline stationing at all intersecting streets, alleys, common use driveways, fire lanes, etc., as well as showing & labeling the face of curb extension location for streets intersecting the profiled street.

d) Vertical Curves. Beginning point of all vertical curves, points of vertical intersection, end of vertical curve, length of vertical curve, K-value and design speed, and low point of vertical curve if a sag curve.

e) Street Profile Extension Beyond Work Limits.

(1) Future Streets. Show the projection of the profile of streets that may be extended or reconstructed in the future. The projected profile for future streets shall extend a minimum of 200 feet beyond the proposed work limits.

The City may require profiles to be extended further where necessary due to topography or to demonstrate ability to tie to existing streets *(or to illustrate specific grade issues or concerns)*.

(2) Projected profiles shall be designed to be compatible with the constraints of the terrain and existing improvements.

(3) Existing Streets. Show the profile of existing streets being connected to, as required in order to demonstrate that proposed new street grades match with existing street grades and any existing vertical curves. Unless longer lengths are required by the City Engineer, the profile along existing streets shall extend a minimum of 50 feet beyond the proposed street connection point.

f) Cul-de-sac Curb Profiles. The top of curb profiles for all cul-de-sac curblines, including vertical curves for any grade changes exceeding 1%, with a K-value not less than 3.

g) Separate curb return profiles (*showing gutter grades at face of curb*) for intersection curb returns in accordance with requirements under PWDS 1.11.k.2.g. The location of all pedestrian ramps shall be indicated and labeled on the curb return profiles to demonstrate that the design grade along the gutter pan is less than 2% at the pedestrian ramp throat.

h) Street Cross Section Profiles. Unless otherwise approved or required by the City, cross sections showing existing and proposed finish grade shall be shown at 50 foot minimum intervals to demonstrate that the proposed street grades match the surrounding grades and address drainage concerns, as well as to determine the need for slope easements, as well as cross section profiles at existing driveways or other access ways,

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drainage areas, etc.

(1) Cross section profiles shall also be provided where fire hydrant leads or fire service lines cross roadside ditches *(if these do not already have profile views)*, in order to illustrate adequate clearance under the ditch culverts required for the access path for fire department access to fire hydrants located on the back side of ditches, and to illustrate adequate cover along other pipelines at ditch crossings.

(2) Unless otherwise approved by the City *(ie. in existing developed areas)*, the cross sections shall extend a minimum of 50 feet beyond the right-of-way line where existing cross slopes are less than five percent (<5%) and a minimum of 25 feet beyond the right-of-way line where existing cross slopes are greater than five percent (>5%).

(3) For clarity and to avoid confusion, cross section profiles shall be labeled to indicate which side of the street is on the left and right of the section view *(ie. development side/offsite side, east/west side, north/south side, or similar)*.

i) Partial Street or Turnpike Street Profiles & Roadside Ditch Profiles.

(1) Profiles for partial or turnpike street improvements shall include information for both the turnpike construction, as well as future street curb profiles. .

(2) Provide cross section profiles *(locations & intervals as noted above)* showing both the full street design and the partial street design.

(3) Roadside ditch profiles shall be included on the street profile, with ditch depths conforming to the minimum depths shown on Detail 102 *(unless otherwise approved in writing by the City Engineer)*, as well as showing any culverts along such ditch/swale alignments.

j) Catch Basin Locations to be Shown. Show & label all existing and proposed catch basins on street profiles, including catch basin location in relation to vertical curves.

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3) Storm Drain *(profile view)*

a) Profiles. Storm mainline profiles shall be provided for all public storm mainlines *(along existing or new right-of-ways or within easements)*, as well as private storm drain mainlines serving more than one legal lot of record *(unless otherwise approved by the City Engineer & Public Works Director on a case-by-case basis)*, as well as along detention system piping or other underground structures *(also including outlet piping from the detention system to the connection point to the public storm system)*.

b) Profile of existing and proposed ground surface along centerline of storm main pipes, as well as the rim and pipe inverts at each manhole, catch basin, junction structure, etc.

(1) Fall Across MHs, CBs, etc. The rim and invert elevations shown for manholes, catch basins, junction structures and other appurtenances shall include the required fall across those structures, including the requirement to match crowns for different size pipes.

(2) Rim & Invert Information & Listing Order.

(a) Rim & inverts shall be listed on the profile, including the elevation, size and orientation *(ie. pipe compass direction at structure connection)* of each pipe connection.

(b) Elevations shall be listed in order, from highest to lowest elevations.

(c) Each pipe elevations shall be noted whether the pipe is an outlet *(out)* or inlet *(in)*.

c) Labeling & Numbering of MHs, CBs, etc. Manholes, catch basins, junction structures and other appurtenances shall be numbered *(or lettered)* with a designation unique to the project and stationed to match the corresponding plan view. Size/diameter of each manhole, CB or junction structure shall also be labeled.

d) Storm Pipe & Backfill Labeling. Pipe size, pipe slope, pipe material and class, length of storm pipe and class of backfill between consecutive manholes, catch basins, junction boxes or cleanouts shall be listed for each pipe run.

e) Crossings. All existing or proposed public and franchise or private utilities crossing the profile and any existing utilities which potentially are in conflict with construction of the improvements.

f) Existing drainage facilities, including offsite facilities upstream and downstream which affect the design *(ie. size, capacity and/or slope of*

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upstream and downstream system).

g) Profiles for ditch and creek flow lines shall be extended as appropriate to illustrate conditions affecting the design beyond the project, both upstream and downstream. Existing channel cross sections and typical new channel cross sections shall also be shown.

h) Storm Profile Extension. Where mainline storm cleanouts are approved for storm lines which will be extended in the future, plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole or catch basin shall be included *(without mainline grade breaks between structures).*

i) Underground Detention Systems. Profile & section views shall be provided for underground detention systems and pipes to the approved point of discharge *(including showing/defining connections to upstream & downstream structures, any required vent pipes, access points for hydo-cleaners & TV cameras, etc.).*

j) Ditch & Swale Profiles. Profile of existing and proposed ground surface along centerline of new ditches and swales, unless otherwise approved by the City Engineer on a case-by-case basis.

4) Sanitary Sewer *(profile view)*

a) Profiles. Sanitary sewer mainline profiles shall be provided for all sanitary sewer mainlines *(along existing or new right-of-ways or within easements).*

b) Profile of existing and proposed ground surface along centerline of sewer pipe, as well as the rim and pipe inverts at each manhole, cleanouts, etc.

(1) Fall Across MHs, etc. The rim and invert elevations shown for manholes, junction structures and other appurtenances shall include the required fall across those structures, including the requirement to match crowns for different size pipes.

(2) Rim & Invert Information & Listing Order.

(a) Rim & inverts shall be listed on the profile, including the elevation, size and orientation *(ie. pipe compass direction at structure connection)* of each pipe connection.

(b) Elevations shall be listed in order, from highest to lowest elevations.

(c) Each pipe elevations shall be noted whether the pipe is an outlet *(out)* or inlet *(in).*

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c) Labeling & Numbering of MHs, etc. Manholes, cleanouts and other appurtenances shall be numbered *(or lettered)* with a designation unique to the project and stationed to match the corresponding plan view. Size/diameter of each manhole shall also be labeled.

d) Sewer Pipe & Backfill Labeling. Pipe size, pipe slope, pipe material and class, length of sewer and class of backfill between consecutive manholes or cleanout shall be listed for each pipe run.

e) Crossings. All existing or proposed public and franchise or private utilities crossing the profile and any existing utilities which potentially are in conflict with construction of the improvements.

f) Sanitary Sewer Profile Extension. Where mainline sanitary sewer cleanouts are approved (see PWDS 4.16.b.1), plan and profile showing the alignment and depth of the anticipated future extension from the proposed cleanout to the next manhole shall be included *(without mainline grade breaks between manholes)*.

Where a proposed future sewer extension will result in a future sanitary sewer within an easement *(ie. outside of a street right-of-way)*, plan and profile showing the alignment and depth of the anticipated future sewer extension shall be included, to the next manhole which will be located within an existing or anticipated future street right-of-way.

5) Water Distribution *(profile view)*

a) Profiles. Waterline profiles shall be provided for all waterlines within existing right-of-ways or within easements, as well as waterlines along alignments paralleled *(within 15 feet)* or crossed by existing public utilities.

Waterline profiles will not be required for new waterlines *(less than 12-inches diameter)* within new right-of-ways unless required *(in the judgement of the Public Works Director or City Engineer)* to illustrate existing utility crossings, or to illustrate and prevent conflicts with proposed utilities *(all waterlines 12-inch or larger in diameter shall be profiled, as well as new waterlines within existing public right-of-way or City easements)*.

b) Profile of existing and proposed ground surface along centerline of pipe, as well as existing and proposed pavement surface of adjacent streets *(where applicable)*.

c) Show the location of valves, fittings, fire hydrants and other appurtenances, with all valves and fire hydrants numbered and stationed to match the corresponding plan view.

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d) Water Pipe & Backfill Labeling. Size, pipe material and pipe class, depth of cover and class of backfill and surface restoration.

e) Crossings. All existing public and private utilities crossing the profile and any existing utilities which potentially are in conflict with construction of the improvements.

f) Waterline-Sanitary Sewer Crossings. Where a water mainline crosses below or within 18-inches vertical separation above a sanitary sewer main or sewer service lateral, the profile shall show and callout a full length of waterline pipe *(and sanitary sewer pipe)* centered at point of the sewer crossing.

1.12 EASEMENTS, ETC.

a. ****City Easements**. Easements to the City *(in a form acceptable to the City and conforming to the PWDS requirements)* shall be provided and recorded for any City utilities *(or fire lanes)* outside of public street right-of-ways *(see requirements in following section for private easements)*.

As noted in Appendix D, the actual easement or agreement form *(for easements or agreements to the City)* for signature & recording by the property owner will be prepared by Public Works staff *(with input from other City staff as applicable)*, including modifications to the sample forms in Appendix D as deemed appropriate by the City, and with attachments prepared by the developer or others as applicable.

1) City Easement Widths. The minimum utility easement widths and property line offset requirements are referenced in subsequent PWDS sections for Storm Drain, Sanitary Sewer and Water. The developer's engineer shall verify that widths and extents of easements *(to the City)* fully comply with standards per PWDS 5.15.d *(water)*, PWDS 4.15.d *(sewer)*, PWDS 3.12.d *(storm)* or PWDS 2.31.c *(common driveways/fire lanes, etc.)* based on the final approved design.

2) Use of City Approved Forms Required. Other recorded easements and/or instruments affecting City access and/or interests *(ie. fire lane easements, detention system easements & maintenance agreements, grease interceptor maintenance agreements, common driveway maintenance agreements, etc.)* shall also be in a form acceptable to the City and conforming to the PWDS requirements *(see select sample easement and agreement forms in PWDS Appendix D)*.

3) **See also Easement Procedure Summary on cover page of Appendix D.**

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b. **<u>**Legal Description & Exhibit Map Required**</u>. All recorded easements *(including private easements required by City standards)* or right-of-way dedication documents shall include a <u>legal description</u> of the easement or ROW area *(with the exception that those written as "blanket" easements affecting the entire property do not need a metes & bounds legal description of the easement boundaries)* <u>**AND** a "to-scale" exhibit map</u> *(with the exhibit map scale clearly noted)*, **EXCEPT FOR easements created by a plat**, in which case the recorded easement documents may reference the easement as shown on the plat.

1) <u>Exhibit Maps</u>. The easement or ROW boundary & area shall be clearly shown and labeled on the exhibit map, and include all information/callouts required to illustrate the information contained in the legal description, including point of beginning, bearings and distances if applicable, distances along property lines from the nearest property corner(s) to the easement alignment shall be shown on the exhibit map, etc., <u>as well as deed callouts or lot/parcel numbers</u> *(for the property containing the easement)* and street names as required to clearly show the location of the easement in relation to affected property(s) *(including showing & labeling the property benefitted by the easement)*.

   a) <u>In addition to</u> deed callout or lot/parcel numbers, exhibit maps <u>shall also list the **(A)** legal property owner name, as well as **(B)** tax lot number & **(C)** address</u> of the properties shown *(both grantor property, <u>and</u> grantee property as applicable)* <u>as supplemental information</u> for reference & orientation only.

   b) <u>In order to comply with ORS 93.600, use of a tax lot number as the ONLY means to describe property is not considered to be legally adequate as a legal description of property for use in a recorded document *(similarly, use of an address only is NOT sufficient as the sole legal description of property)*</u>.

2) <u>Submittal for Public Works Review Required</u>. Legal descriptions and exhibit maps shall be submitted for review and approval by the City Engineer and/or Public Works Director prior to recording. This requirement <u>includes submittal of the final subdivision or partition plat</u> for review by Public Works prior to recording.

   For cases where easements <u>to the City</u> are created on/by a subdivision or partition plat, the Developer should be aware that a separate easement document must <u>also</u> be recorded using the City standard easement form(s), in order to formalize the terms and conditions of the City easement *(see Appendix D cover sheet for additional information & procedures)*.

3) Exhibit maps which are **(A)** not drawn and plotted to scale, or **(B)** not containing all of the information required above, or **(C)** which do not match the utility or access alignments shown on the final approved construction drawings, or **(D)** which do not match the widths required to meet City

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standards, will be returned for revision.

c. **Prohibited within Easements Granted to the City**. Property owners shall not plant, build, construct, or create *(nor permit others to plant, build, construct, or create)* any fills, trees, buildings or other structures, including fences or parallel overhead or underground utilities *(ie. anything other than perpendicular crossings)*, on or within an easement granted to the City which might interfere with the use by the City of the easement for the defined purposes, or which might interfere with the normal operation, inspection, access to or maintenance of the utilities within the easement, including excavation for repairs or replacement if necessary. In addition to permanent structures, prohibited structures shall include sheds, decks, footings or overhanging portions of structures *(including but not limited to eaves, balconies, patio or entry covers, etc.)* which are located outside of the easement.

1) Access Gates on Fences Across City Easements, Key Pattern. Access gates acceptable to the Public Works Director shall be installed in fences which the City allows to be constructed across an easement granted to the City *(any locks on gates so approved shall be keyed to City pattern, double locked with a City padlock, or the City shall be provided with keys if directed)*.

2) The property owner shall not construct trenches, cuts or fills within or on the easement area without express written approval by the City, since this will interfere with the use of the easement for the purposes for which it was granted. Fills will make the utilities less accessible for inspection and/or maintenance, and cuts may result in inadequate cover over said utilities, and either will result in access points *(manholes, inlets, valves, cleanout or meter boxes, etc.)* no longer being at the proper grade. Any such approval by the City *(which approval may be granted or withheld at the City's sole discretion)*, shall be contingent on the property owner performing all work required by the City in order to mitigate impacts due to such trenches, cuts or fills *(for reasons of maintenance and safety, side slopes steeper than 3H:1V are not allowed within the easement without explicit written authorization by the Public Works Director)*, including reconstructing or resetting the utilities and appurtenances as directed by the City, backfilling any trenches to City standards, all at the property owner's expense. It is understood and agreed that the City may remove *(or require removal by the Grantor)* any physical obstructions including buildings, overhangs, fences, trees, shrubbery or fill material, and abate any use of the easement if the City finds that the physical obstruction or use will interfere with the City utility or the City's ability to access, maintain or repair the City utility, and that such removal or abatement may be completed *(including if removal by property owner is required)* without recompense to the property owner(s) *(except to the extent that such recompense or reimbursement may be specifically included in the recorded easement documents)*.

3) The City acknowledges that the property owner may generally use the easement area for access driveways and/or permitted parking *(except that*

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parking is not allowed in fire lane easement areas), or similar uses which are allowed by the City.

d. **<u>**Street Frontage PUE**</u>. Where PUEs do not already exist, projects shall include minimum eight (8) foot public utility easements (PUE) for franchise utilities along all lot lines fronting public or private streets *(except where a narrower PUE is approved by the City for specific areas in order to avoid conflicts with existing or proposed building locations approved by the City Planner)*.

PUEs shall also be designated as easements for fire hydrants, sewer & storm drainage property line cleanouts & water meters where set behind the sidewalk, cluster mail box pads, and sidewalks at driveway crossings *(when they must be widened or jogged back to meet ADA standards)*, pedestrian ramps at intersections, city street light poles, etc. which may be located behind sidewalks and just outside of the public right-of-way.

PUEs are typically <u>NOT</u> required along alleys, unless required to accommodate existing or proposed franchise utilities located outside of the alley right-of-way *(including as where required to provide required separation from City utilities located along the alley)*.

The requirement for PUEs may be waived or reduced by the City on a case-by-case basis where the right-of-way widths are adequate to accommodate all existing and future franchise utilities <u>OR</u> where zero or reduced setback buildings are allowed on the property by City code or land use approval.

1) <u>Required PUE Note Wording on Plat</u>. PUEs created by a plat shall include wording similar to the following *(granting specific easement rights to the City, in addition to rights granted to franchise utility companies)*, with the PUE plat wording to be acceptable to the both Public Works and the County Surveyor. Written approval from the Public Works Director is required for alternate wording *(failure to provide this wording on a plat will result in a requirement for the development team to record a supplemental easement document addressing the PUE provisions below, as directed by the PW Director and/or the City Engineer)*.

"We hereby create a utility easement as shown along the public right-of-ways for franchise utilities, and also grant to the City of Jefferson a waterline, sanitary sewer, storm drain and public sidewalk easement over the same area occupied by said utility easement."

2) Construction of a building or a structure <u>within</u> the PUE is prohibited, including footings or overhanging portions of structures located outside the easement. If the City allows a retaining wall or a fence to be constructed within or across a PUE, an encroachment license agreement shall be executed and recorded against the property stipulating that the property owner will be responsible for any restoration costs associated with removal and

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reconstruction of said retaining wall or fence if such removal is required to service, maintain or repair utilities installed within the PUE, whether by the City or by any franchise utility company.

3) Construction of private water/sewer/storm pipes parallel with and within the PUE is not allowed, as this conflicts with the purpose for which the PUE is granted.

4) Where easements for City water, sewer or storm drain mainlines are proposed or exist along and parallel with street frontages, new PUEs shall be located outside of *(and separate from)* City utility easements *(except at crossings)*, to prevent future installation of franchise or private utilities parallel with City pipelines within the City easements *(all crossings to be as close to perpendicular as possible)*.

e. ****Private Easements**. Unless alternate widths are approved by the Public Works Director, private utility easements a minimum of ten (10) feet wide *(centered on the utility pipe and offset from common property lines)* shall be provided for all private or franchise utilities, private water, sanitary sewer and storm drains, as well as ditches or channels outside of public right-of-ways and outside the boundaries of the property being served, or which are extended across the development property in order to provide service to other properties.

Private access easements shall also be provided for any driveway, sidewalk or path crossing property other than the one being served.

Private easements shall include provisions defining who is responsible for repair and/or maintenance costs for the subject improvements *(see language below)*.

Acquisition of such private easements shall be the sole responsibility of the entity requesting or installing the private utilities, pipes, ditches or channels, sidewalks or pedestrian paths, or driveways and other access routes.

1) Extension of private water, sanitary sewer and storm drain laterals across adjacent private property is typically only allowed where it is the only feasible method of providing utility service to a development property.

2) To & Through Clarification. Any proposal for extension of private water, sanitary sewer and storm drain laterals across adjacent private property instead of from a street frontage shall not be allowed as a substitute for the PWDS requirement to extend mainline utilities across the frontage of development property *(ie. to & through)* in order to provide for such services and to allow for future extension, as required under PWDS 1.6.c, d & e.

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3) Required Language and/or Attachments for Certain Private Easements. While the City does not dictate the specific form required for use on the private easements noted above *(ie. including both required utility easements for the private portion of City utilities, and private driveway/private road access easements required by City code or the PWDS)*, the easement forms used for private easements required by City standards shall include the following *(note: these requirements also apply to agreements affecting private property which are required by the City or require approval from the City in conjunction with a development project)*:
(A) define which properties the private easement is to the benefit of *(by legal description & also as shown on the exhibit map)*,
(B) define who is responsible for repair and/or maintenance costs associated with the easement *(or explicitly reference that all easement maintenance & repair responsibilities and costs are to be shared equally per ORS 105.175)*.
(C) include provisions that the easement cannot be extinguished without explicit written authorization from the City,
(D) include language addressing potential unity of ownership at the time of easement creation, as well as addressing automatic future recreation of the easement following extinguishment due to the doctrine of merger *(unless the properties are consolidated into a single legal lot of record)* similar to the wording included in City easements, PWDS Appendix D, and
(E) include a legal description AND exhibit map defining and showing the easement boundaries and the associated properties *(including the property benefitted by the easement)*, as summarized in the general requirements above for legal descriptions and exhibit maps.

f. ** Submittal of Recorded Copies to PW Required. Recorded copies of all required easements, dedications and/or agreements *(both public & private)* shall be submitted to the City Engineer and the Public Works Director prior to start of construction, with the exception noted under PWDS 1.10.j.3 for subdivisions or partitions where all public utilities will be constructed prior to the recording of a final plat. All recording costs shall be borne by the Developer.

g. CAD File Required When Requested by PW. When requested by Public Works or the City Engineer, a digital drawing *(ACAD format)* shall be submitted containing the final alignment & boundaries of all new easements associated with the development. The easement limit/boundary drawing shall be in Autocad format, and shall include lot lines, right-of-way lines and easement lines each on separate layers.

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1.13 PUBLIC WORKS VARIANCES TO DESIGN STANDARDS

a. Request for Public Works Variance from PWDS Requirements

1) Public Works variances to specifications or PWDS requirements may be requested as outlined below.

a) This Public Works variance process can NOT be used to approve a variance to requirements under adopted land use regulations or land use approval decisions *(variances to land use regulations or land use approvals must be granted through the applicable land use process)*.

2) In considering Public Works variance requests, the City, at its sole discretion, will seek input from individuals and/or agencies which may have information that would be relevant to the decision making process.

3) It is to be noted that if the requested variance involves public safety, the City will rule in favor of safety.

4) Written Variance Requests Required. It is the responsibility of the design engineer to submit a written request for any proposed deviations or variances from City standards or PWDS requirements.

a) Failure by the City to detect a deviation from *(or the need for a required variance of)* the PWDS requirements during drawing review or approval does not constitute a default approval of said variance, unless the variance was requested in writing as outlined below and approved by the City.

b. Public Works Variance Process

1) Submittal

a) Requests for Public Works variance shall be submitted in writing to the City Engineer.

(1) This written request shall state the desired Public Works variance, the reason for the request and a comparison between the specification/standard and the variance as far as performance, etc.

Cost alone is not an acceptable justification for a variance to adopted standards.

(2) The Public Works variance request shall also include a confirmation that the variance will not result in any land use regulation being superseded or violated.

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b) Any variance of these Standards should be documented and referenced to a nationally accepted specification/standard. The use thereof shall not compromise public safety or intent of the City's Standards.

2) City's Review

a) The Public Works variance request shall be reviewed by the City Engineer who shall make one of the following decisions:

(1) Approve as is,
(2) Approve with changes, or
(3) Deny with an explanation.

b) Approval of a request shall not constitute a precedent.

c) For Public Works variances which will result in increased maintenance or increased future costs by the developer *(or the future property owners)*, the variance request must be concurred with in writing by the developer/property owner prior to final approval by the City.

3) Appeal

a) Applicant may appeal the City Engineer's decision to the City Council.

c. Criteria for Variance from PWDS Requirements

1) The City Engineer may grant a Public Works variance to the adopted specifications or PWDS requirements when ALL of the following conditions are met:

a) Topography, right-of-way or other geographic conditions impose an unreasonable economic hardship on the applicant *(as determined by the Public Works Director)* and an equivalent alternative is proposed which can accomplish the same intent. As noted above, cost alone is not an acceptable justification for a variance to adopted standards.

Variances to self-imposed hardships shall not be allowed. The variance requested shall be the minimum variance which alleviates the hardship.

b) Demonstration that the requested Public Works variance is a minor change to a specification or standard required to address a specific design or construction problem which, if not enacted, will result in an undue hardship *(note: additional cost or time required in order to provide the specific pipe, fittings or equipment required by City standards shall not typically be a justification for a variance request)*.

c) An alternative design is proposed which will provide a plan equal or superior to these Standards. In considering the alternative, the City Engineer and/or Public Works Director shall consider appearance,

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durability, cost of maintenance by the City or property owner(s), stability, public safety and other appropriate factors.

1.14 PRECONSTRUCTION CONFERENCE

a. Following approval of the civil/site/street/utility drawing package by applicable agencies with jurisdiction, a preconstruction conference shall be scheduled with the City before issuance of the Public Works construction permits, at a location in Jefferson approved by the City. The purpose of the conference is to discuss the construction schedule and timing of the civil/site/street/utility work which requires coordination, as well as to provide the opportunity for parties from the construction team and various agencies/entities involved to meet and coordinate as may be necessary, and answer contractor questions regarding the work shown on the approved drawings.

b. Mandatory Attendance, Preconstruction Conference. In addition to a City representative, the meeting is to include the following parties from the development team *(the development team is responsible for inviting these parties)*:

- Developer's representative.
- Developer's engineer of record during construction.
- Prime contractor.
- Street/site/utility subcontractor(s) *(if different than the prime contractor)*.

c. Development/Construction Team Contact List. The development team is responsible for providing the City with a written list of the names and full contact information *(including mailing addresses, email addresses & cell phone numbers)* of all persons attending the preconstruction conference on behalf of the development, design or construction teams.

d. **Notification by Development Team** of Agency & Utility Companies. The development team shall be responsible for notifying the franchise and private utility companies *(as well as the County Public Works and ODOT if applicable)* of the time and location of the preconstruction conference, and requesting that a representative of each agency and utility be present. The Developer may be required to submit proof of notification to the City prior to the preconstruction conference. Copies of notification letters or emails sent to the utility companies are acceptable.

e. Minimum Information to Provide at Precon. The developer, prime contractor and/or the street/site/utility subcontractor shall provide the following prior to or at the preconstruction conference *(ie. prior to issuance of Public Works permit & commencement of work)*.

- Overall bar-chart project schedule *(for the street/site/utility work)*
- Listing of supervisory personnel and two emergency after hours contact persons.
- Materials testing lab *(and outside inspection entity if applicable)*.
- List of subcontractors & major materials suppliers to be utilized by the prime contractor and the street/site/utility subcontractor for work under the Public

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Works Permit.

- Certificates of insurance from the contractor performing the site/street/utility work, minimum limits and format as outlined in PWDS Appendix E. The City and Westech Engineering *(as City Engineer)* shall be covered as additional insured. The City is to be named as the certificate holder.
- Evidence of Worker's Compensation coverage from the contractor or subcontractor(s) performing the site/street/utility work.
- Performance bond if required by City codes.

1.15 CONSTRUCTION OBSERVATION, INSPECTION & TESTING

a. General

1) Periodic Inspection/Construction Observation. All infrastructure construction associated with development shall be inspected or periodically observed by a professional engineer licensed in the State of Oregon *(or a qualified individual under the engineer's supervision)* as required in the Developer-City Construction Agreement.

The City reserves the right to inspect any and all work at its discretion. The Contractor shall be responsible to notify the City prior to all testing, to allow City staff to be present at said testing.

Copies of all test reports shall be submitted to the City as soon after completion of testing as is feasible. Failure to provide test reports in a timely manner may result in the issuance of a stop work order by the City, until such reports are provided.

City designed & funded projects may be inspected by Public Works or the City Engineer *(or their authorized designees)* as applicable and as determined by the City.

2) An engineer whose firm, or any member of the firm, has a corporate, partnership or any form of real property interest in the development for which the improvements are required cannot be designated engineer-of-record. The engineer-of-record's relationship to the project must be solely that of a professional nature.

3) It shall be the policy of the City not to provide full time inspection services for non-public funded public improvements, including public access parking lots and fire lanes.

4) It shall be the Developer's responsibility to provide an engineer to perform periodic inspection and/or construction observation services for improvements which are designed and permitted under these PWDS, at the developer's expense.

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5) These inspection and construction observation requirements are not applicable to individual sidewalk, driveway or service lateral permits for single residences. If the project scale is such that the retention of an independent engineer-of-record is not warranted, the Developer may request that the City provide these services.

If the City agrees to provide these services *(at the City's sole discretion)*, the Developer shall be responsible to reimburse the City for any costs incurred for these inspection and/or construction observation services.

b. City Activities

1) Services provided by the City shall include:

a) Liaison between the engineer-of-record and the City;

b) Monitoring of work progress and performance testing as deemed desirable;

c) The performance of administrative and coordination activities as required to support the processing and completion of the project;

d) The issuance of stop work orders upon notifying the engineer-of-record and/or the Contractor of the City's intention to do so.

e) Operate all valves, including fire hydrants, on existing waterlines *(City Public Works staff shall be present during any fire flow testing, system flushing, or similar activities)*.

2) In addition, Public Works shall be notified a minimum of 48 hours *(2 business days)* prior to the following tests and inspections so that a Public Works representative may be present to witness the connections or tests and perform required inspections. Work required to be witnessed by Public Works staff, inspections and testing shall be started and completed during normal City business hours.

a) Streets *(public streets, private streets/fire lanes, common driveways)*

(1) Curb inspection;
(2) Subgrade testing and/or proof-rolls;
(3) Base rock testing and proof-rolls;
(4) AC pavement placement and testing;
(5) Sidewalk, pedestrian ramp or driveway approach form inspections.

b) Sanitary Sewers

(1) Witnessing of sewer connections to existing mainlines *(including taps)*, and inspection of connection & service lateral pipe prior to backfilling *(coupons from mainline taps shall be labeled and*

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given to Public Works staff).

(2) Mandrel testing of sewer mainlines;

(3) Air testing of sewer mainlines and sewer service laterals;

(4) Vacuum testing of sewer manholes *(after paving or final surface restoration)*;

(5) Video inspection of sewer mainlines *(after completion of manhole channeling)*;

c) Storm Drains

(1) Witnessing of storm connections to existing mainlines *(including taps)*, and inspection of connection & service lateral pipe prior to backfilling *(coupons from mainline taps shall be labeled and given to Public Works staff).*

(2) Mandrel testing of storm drain mainlines;

(3) Video inspection of storm mainlines *(after completion of manhole channeling)*;

d) Water Distribution System

(1) Witnessing of water connections to existing mainlines *(including taps)*, and inspection of connection & service pipe prior to backfilling *(coupons from mainline taps shall be labeled and given to Public Works staff).*

(2) Pressure tests of water mainlines, including service lines to meters or backflow devices, hydrant leads, fire service lines, etc.;

(3) Disinfection of water mainlines, all service lines, hydrants, etc. *(see App. B notes for procedures).*

(4) Bacteriological Testing *(see App. B notes for procedures).*

(5) Witnessing any fire flow tests, water system flushing, etc. requiring the operation of existing valves or hydrants.

c. Developer's Engineer-of-Record's Activities

1) The engineer-of-record must be registered to practice engineering in the State of Oregon. Material testing which is not performed by the engineer-of-record must be accomplished by a recognized testing firm or another registered engineer.

2) ***The engineer–of-record must personally perform all activities marked by an (*) and must supervise all individuals performing other delegated activities.**

3) The following minimum activities are required of the developer's engineer-of-record:

a) *Execute a form accepting responsibility and verifying that he/she has been retained as engineer-of-record during the construction of the project *(ie. the Developer-City Construction Agreement)*:

b) *Attend the preconstruction conference and ensure that approved

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construction drawings are distributed to contractor, subcontractors and franchise utility companies.

c) Obtain and use a copy of City-approved construction drawings and specifications during construction;

d) Coordinate to ensure that the City is notified 48 business hours *(2 business days)* before the start of construction or resumption of work after shutdowns, except for normal resumption of work following Sundays or holidays.

e) Call to the City's attention within two (2) working days all drawing discrepancies and/or required modifications, material changes, stop work orders or errors or omissions in the approved drawings or specifications.

f) Maintain records which contain at least the following information and submit copies to the City on a weekly basis:

(1) Any Site Visits during the previous week

(a) Date and time of site visits
(b) Weather conditions, including temperature
(c) A description of construction activities

(2) Statement of directions to modify drawings, specifications, stop work, reject materials or other work quality actions;

(3) Public agency contacts which result in drawing modifications or other significant actions;

(4) Perceived problems and action taken;

(5) Results of final and staged inspections and testing *(notify & coordinate with City to allow City representative to attend any testing during regular business hours)*;

(6) Copies of all material, soil and compaction test results.

g) Construction Staking. The engineer of record shall either (1) provide all surveying services necessary to stake the project prior to and during construction, and as necessary to prepare as-built drawings when the project is complete, or (2) confirm that these surveying services are being provided separately *(by the developer or by the contractor)*, all in conformance with City Standards.

(1) Construction staking shall be adequate to ensure that all streets, sidewalks, water, sewer, storm drainage and other improvements & utilities are properly installed to design alignments & grades, as well as with respect to easements, right-of-ways and property

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lines.

(2) All construction staking shall be clearly marked *(with elevations, offsets, etc.)* on lathe in the field *(or painted on the surface in the case of PK nails in asphalt)* for reference by the Contractor, inspectors, etc. during construction.

Even when GPS is used during construction, adequate field staking shall be provided to allow verification of locations, alignments, depths, etc. during construction and inspection.

h) Review and approve all pipe, aggregate, concrete, A.C. and other materials submittals to ensure their compliance with City Standards, and provide any submittal review comments to the City Engineer and/or Public Works;

i) *Approve all drawing or specification modifications in writing and obtain City approval prior to the performance of the work;

j) Periodic Inspection/Construction Observation. Provide periodic construction observations of construction activities as required to ensure all finished work meets City standards and specifications, and is constructed in substantial conformance with the approved construction drawings, and as required to allow the engineer-of-record to sign any required certification/verification forms required by the City or applicable state agencies;

k) *Review material, compaction and other tests required to ensure City specifications are met;

l) Periodically check that curb, storm drain work and pavement grades are in substantial conformance with approved drawings;

m) For pavement construction, perform the following stage construction observations and record the date that each is verified:

(1) Curbs are built to line and grade;
(2) Subgrade meets grade and compaction specifications;
(3) Base rock meets grade and compaction specifications;
(4) Leveling course meets grade and compaction specifications;
(5) Wearing course meets grade and compaction specifications.

n) For sanitary and storm drain construction, perform the following stage construction observations and record the date that each is verified:

(1) Sewers are installed to proper line and grade;

(2) Trenches are properly backfilled and compacted;

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(3) Air testing and video inspections are performed according to standard procedures.

o) For grading, verify that the grading plan, as staked, will result in acceptable slopes along exterior property lines, proper onsite and offsite drainage, and erosion control.

p) Revisions or Modifications to Approved Drawing.

(1) After drawing approval or during construction *(ie. following issuance of a Type B Public Works construction permit)*, any revisions, modifications or changes proposed to the approved drawings and/or design must be requested in writing by the engineer-of-record, submitted to the City Engineer and Public Works Director.

The request shall include revisions to applicable drawing sheets as required to illustrate the proposed modifications, as well as a narrative summarizing the proposed revisions and why they are necessary.

(2) While field discussions, email correspondence and/or telephone calls may occur between the City and Contractor and/or Development personnel regarding the feasibility or allowability of proposed modifications, any changes proposed must be formalized through the engineer-of-record *(in writing and cc'd to Public Works and the City Engineer)* prior to being constructed or incorporated into the work.

(3) Any coordination required with other permitting agencies affected by the proposed design changes will remain the responsibility of the development team *(even if the City Engineer and/or Public Works Director also contact these parties for verification discussions during their review)*.

q) Request from Engineer-of-Record for Final Public Works Inspection. When the engineer-of-record believes that the project is complete and all work shown, noted or referenced on the approved drawings has been substantially completed *(based on his/her detailed inspections with the Contractor)*, the engineer-of-record shall notify the City that the project is ready for final inspection. The request shall be accompanied by the following.

(1) Written or email statement/notification by the engineer-of-record that he/she considers all project work to be substantially complete in accordance with the definition under PWDS 1.14 for "Substantial Completion *(standard Public Works*

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definition)".

(2) Punchlist Prepared by Engineer-of-Record. In conjunction with this notification and request for final Public Works inspection, the engineer-of-record shall also provide the City with a complete and detailed summary of any items which remain to be completed *(current as of the date of the completion statement/notification and request for final inspection)*.

(3) Draft As-Builts for Review. A complete set of black-line as-built drawings for review by Public Works and the City Engineer in conjunction with request for final inspection *(see as-built requirements under PWDS 1.17)*.

r) Punchlist Verification by Engineer-of-Record. Prior to requesting followup inspections, the engineer-of-record and contractor shall provide the City with written/email verification that all items on any previous checklists/punchlists have been completed *(submittal of a hand annotated copy of the previous checklist/punchlist is acceptable)*.

s) Completion Report by Engineer-of-Record. File a completion report which contains:

(1) Completion Letter. A project completion letter from the engineer-of-record verifying that the work under the Public Works permit was completed in substantial conformance with the approved construction drawings;

(2) Final As-Builts. A complete set of final as-built drawings to Public Works and the City Engineer *(see following "As-Built Drawings" section for specific requirements.)*;

(3) Test Results. Include copies of the results of storm, sewer and manhole tests, video inspections, waterline tests, as well as material tests, compaction tests *(trench backfill, subgrade, baserock & pavement compaction test results)* and site fill compaction results & soil study/final geotech report as applicable.

As noted above, all test reports are to be submitted to the City as soon as feasible after testing is completed, but the completion report is to contain copies of all test reports compiled into a single package.

(4) ADA Verification. Written verification that all installed ADA ramps, sidewalks and exterior pedestrian access routes *(those covered under the Public Works permit)* have been checked

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and comply with current ADA and City standards.

(5) Sanitary Sewer System. A copy of any required forms and/or certifications required by DEQ for sanitary sewer improvements *(for the City's records)*.

(6) Water System. A copy of any required forms and/or certifications required by OHA-DWS for water system improvements *(for the City's records)*.

(7) Other Permits. A copy of any required completion forms and/or certifications submitted to agencies in relation to any county/state/federal permits *(ie. County permits, ODOT permits, railroad permits, wetland permits, etc.)* required for the project *(for the City's records)*.

t) Survey Monument Installation & Verification.

(1) New Survey Monument Installation. Any new survey monuments required in conjunction with the development *(including any post-monumentation required in conjunction with a subdivision or partition plat)* shall be installed prior to final inspection by Public Works, and a pdf copy of the survey map or plat showing the new monument locations provided to Public Works.

(2) Existing Survey Monument Verification. The development team shall provide written verification from the project surveyor that they have verified that **(A)** any existing survey monuments within or adjacent to the work areas were not disturbed, OR **(B)** any existing survey monuments disturbed during construction were reset by a licensed surveyor, and that applicable documents have been filed with the County Surveyor *(provide copies of documentation filed with the County Surveyor, for the City's records & reference)*.

u) Cost Information for Warranty/Maintenance Bonding. Provide information summarizing the cost of the improvements which must be covered under any required warranty/maintenance bonds *(see PWDS G.15 for bond amounts & bond periods)*.

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1.16 WARRANTY INSPECTIONS :

a. Warranty inspections will be performed by Public Works staff or the City Engineer near the end of the warranty period *(typically during the last month of the warranty period, unless circumstances dictate otherwise)*.

b. If requested by the City, the developer shall arrange for re-inspection of the sanitary sewer and storm drainage systems by cleaning & TV inspection within the last month of the warranty period. Based on the results of the TV inspections and/or the City's warranty inspections, additional warranty tests may include mandrel testing or low pressure air testing. The results of these test(s) may be used by Public Works to determine if final acceptance of the system is warranted and what corrective work is required prior to final acceptance. The cost of these re-inspections, retesting *(where required by the City)* and any corrective work shall be the responsibility of the Developer.

c. The warranty period will not be considered to be complete, and warranty/maintenance bonds will not be released until after all warranty inspections are finished and any resulting corrective work is completed.

1.17 AS-BUILT DRAWINGS

a. Required Scope *(on-site & offsite)*. As-built or record drawings prepared by the design engineer *(or engineer-of-record)* are required for all projects which include new or modified public improvements *(as well as for private improvements designed under the provisions of the PWDS)* and shall show or describe all revisions to the construction drawings previously approved by Public Works.

b. Complete Sets Required. As-built or record drawing sets shall include all drawing sheets which were included in the original construction drawing set(s) approved by Public Works for all work covered under the PWDS *(including copies of architectural site plans or other drawing sheets which were included as part of the original public and/or private construction drawing set(s) approved for Public Works permits)*, plus any additional sheets required to illustrate and document approved changes.

c. The engineer-of-record shall utilize information from the Contractor's field record drawings, the engineer's field inspections, and the as-built survey as applicable to ensure that the as-builts accurately reflect as-built conditions.

d. As-Built Survey, Minimum Requirements. Unless otherwise approved by the City Engineer, as-built drawings for sanitary sewer systems and public storm drains shall be based from an as-built survey *(rim, invert, slope, alignment, etc.)* completed by a licensed land surveyor registered in the State of Oregon.

This requirement includes structures, pipes, channels and berms *(side slopes, top*

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elevation & width) relating to stormwater detention and/or stormwater quality systems, including inlets, outfalls and/or overflows.

This requirement also includes private storm drainage improvements designed under the provisions of the PWDS which serve private streets or private storm drain improvements constructed within public right-of-way, as well as storm pipes which convey parking lot drainage from the parking areas to the public storm system.

1) The as-built survey shall also include ties for any other utilities or improvements which were constructed differently from that shown on the approved construction drawings.

2) The Public Works Director and/or the City Engineer may require additional as-built survey information be provided if there appear to be discrepancies between the draft as-built drawings submitted and the constructed improvements.

e. As-built Elevation & Slope Information to be Shown Adjacent to/Over/Under Design Information. As-built rim, invert elevations & slope information for gravity sewer and storm systems shall be listed adjacent to or over/under the design information *(which is to be crossed or lined out)*, illustrating the difference from the design values.

f. Franchise & Private Utilities to be Shown. Show & label all below grade franchise or private utility vaults and all franchise utility street crossing, as well as location of all above grade transformers, utility pedestals, etc.

g. Distance Ties to Sewer & Storm Cleanouts. The location of all cleanouts on service lines shall be shown on the as-builts *(sanitary sewer and storm drain)* based on distance ties from two permanent points. The tie points shall be immovable structures, such as property pins, street monuments or the center of manholes.

h. City Numbers for Sewer Manholes, Cleanouts, etc.

1) Since the inspection reports, TV inspection reports, etc., will reference the design street names and design sewer manhole numbers, the as-builts need to retain the design information *(in addition to showing the new City sewer manhole numbers and as-built street names)* to allow reference to the construction report documents.

2) Sanitary Sewer Manholes & CO's. The new sanitary sewer manholes and/or mainline cleanouts will be assigned City numbers by the City at the as-built stage. City sewer manhole numbers shall be shown on the as-built drawings in parenthesis next to the design manhole designation *(ie. design manhole & CO designations shall be retained on the as-builts, see below)*.

3) Street Names.

a) Street Names. If street names are changed, the new street name shall be shown on the as-built drawings in parenthesis next to the original

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design street names. See explanation above.

i. Recording References on As-Builts. The recording references for the easement documents for all existing or required public and private easements shall be included on the as-built drawings *(as well as listing the beneficiary of each easement)*, as well as recording references for construction deferral agreements, maintenance agreements, etc.

j. Draft As-Builts Required Prior to Final Inspection.

1) At least a week prior to the final walkthrough inspection, legible black-line copies of the draft as-built drawings *(and a pdf copy)* shall be submitted to Public Works and the City Engineer *(unless submittal of pdf sets only of draft as-builts is approved by the City Engineer & Public Works Director on a case-by-case basis)*.

2) Draft as-builts shall be marked as "draft", "preliminary" or similar.

k. Final As-Builts.

1) After the final walkthrough AND after review of preliminary *(draft)* as-builts by the City Engineer and/or Public Works, submit the following approved full size as-built drawings *(complete sets with all sheets from the approved construction drawings, including both on-site and offsite improvements as noted above):*

a) Two full-size sets on archive grade paper to the Public Works Director, and

b) Full-size as-builts in electronic format (pdf) to the Public Works Director and the City Engineer.

c) Additionally, one full-size paper set of final as-builts shall be submitted to the City Engineer.

2) Sheet layout, size, configuration and formatting requirements for as-built drawings are the same as summarized for construction drawings submitted for review.

3) Subject to approval in writing by the Public Works Director *(on a case-by-case basis)*, as-built or record drawing sets for projects which include private improvements only *(ie. private improvements designed under the provisions of the PWDS)* may be provided as full size pdf sets only, other than sets including pipes & channels relating to stormwater detention systems, outfalls and/or overflows *(for which hard copy sheets are required as noted above)*.

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1. CAD File Information Required, Digital Parcel/Lot/Space/ Easement/ROW Map.

   1) In addition to the final paper as-builts, a digital map shall be submitted to the City Engineer on a USB storage device *(or download link)* showing the final configuration of lot lines and right-of-way lines within or fronting the development, as well as easement boundary lines *(for manufactured home parks, PUDs, RV parks, apartments, commercial industrial developments, etc., include vehicle access routes & space boundaries, etc.)*.

   2) The drawing shall be in Autocad format, with lot lines, right-of-way lines, easement lines, etc. each on separate layers.

   3) Other than lot lines and right-of-way lines *(& other information noted above)*, the only other information shown shall be limited to street names and the name of the development.

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