

**NETARTS OCEANSIDE SANITARY DISTRICT (NOSD)  
Public Works Design Standards**

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**Division 1**

**General Requirements**

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# 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 "Superintendent" will be used routinely to refer to the "NOSD Superintendent".
- 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 NOSD, and to all infrastructure improvements for which review and/or approval is required by the NOSD. These Standards are to be guidelines for designers and developers in preparing their drawings and for NOSD 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 NOSD Superintendent*). Requests for variances must demonstrate (*to the satisfaction of the NOSD*) that the proposed variance meets the intent of the standards and will not compromise safety, will not disproportionately impact other properties (*as determined by the NOSD*), and will not cause an increase in maintenance by the NOSD.
- f. PWCS. The NOSD currently has physical standards for the construction of sanitary sewers and related structures which cover the standard construction requirements for these facilities within the Netarts Oceanside Sanitary District (*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 purchased on-line through the link at:  
<https://5207--62.myuplinxstore.com/franchise/index.htm>.
- g. Conflicts or Discrepancies, Interpretations. In the case of conflicts between the text of

these PWDS and the NOSD 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 NOSD Superintendent shall apply. Acceptable materials shall be as outlined in these PWDS.

In any provision of the PWDS is unclear, the correct interpretation of the provision will be determined by the NOSD Superintendent (*in consultation with the NOSD 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 NOSD 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.

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

## 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 NOSD sewer system 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 proposed departure or variance from the Standards will be judged (*by the NOSD Engineer and the NOSD Superintendent*) on the likelihood that such variance will produce a compensating or comparable result, in every way adequate for the user and NOSD resident.
- c. The objective is to develop Standards which will:
- 1) be consistent with current NOSD Ordinances.
  - 2) provide design guidance criteria to the private sector for the design of infrastructure and public improvements within the Netarts Oceanside Sanitary District.
  - 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 Netarts Oceanside Sanitary District 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 NOSD prior to proceeding with final engineering and design work 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 NOSD 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 NOSD 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 NOSD 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 NOSD or other agencies*), and verify that they are applicable to and appropriate for the proposed design.

- 4) Any engineer having submitted to the NOSD 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 NOSD 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) As-built Drawings: Drawings prepared by the Design Engineer (*and reviewed by the NOSD representative*) and revised, if necessary based on the NOSD's review, to accurately show all as-built conditions and construction details.
  - 2) District: The Netarts Oceanside Sanitary District, Tillamook County, Oregon.
  - 3) CGB: Community Growth Boundary.
  - 4) Construction drawings: For Type B Sewer Construction 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 approved by the NOSD District Engineer, which show the location, character, dimensions and details for the work to be done. For Type A Sewer Construction 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 NOSD standard details*) as reviewed approved by the NOSD Superintendent.
  - 5) 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 Superintendent. Similarly, the words approved, acceptable, satisfactory, shall mean approved by, acceptable to, or to the satisfaction of the Superintendent.
  - 6) Developer: The individual or individuals, partnership, business, firm, company or corporation named as applicant in a permit, a permit application, or agreement with the NOSD, who undertakes development and/or construction of property and/or infrastructure within the jurisdiction of the NOSD (*including their agents, employees, representative and/or contractors*). Also referred to as the development team. May be the same or different from the Owner.
  - 7) 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 NOSD for review and approval.

- 8) District Engineer: See NOSD Engineer.
- 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 for sewers shall be prepared on standard NOSD easement forms granting (*to the NOSD*) 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 NOSD.
- 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 the specifications, on the drawings or by NOSD standards. The decision relative to equivalency will be by the NOSD Superintendent 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 NOSD Superintendent 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 NOSD 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 NOSD (*most recent version*), regardless of the actual title of the applicable document (*Sewer 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 NOSD. Other equivalent makes will be considered for approval, providing they are equal with this established standard, as determined by the NOSD.
- 18) NOSD Engineer: The engineering firm retained by the NOSD to provide design & review engineering services for and on behalf of the NOSD (*also referred to as District Engineer*).
- 19) Multiple Family Dwelling: A single building or portion thereof designed for occupancy by four (4) or more families, living independently of each other.
- 20) 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 NOSD for development of property or infrastructure (*see also Developer*).
- 21) Person: Individual, firm, corporation, association, agency or other entity.
- 22) Plans: See Construction Drawings.
- 23) Preliminary Review: Review of the construction drawings by the NOSD as outlined in these standards. All NOSD comments and provisions of these PWDS must be addressed prior to final review and approval for construction.
- 24) 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.
- 25) PWDS: NOSD Public Works Design Standards, consisting of this manual.
- 26) Residential User: The owner, lessee, or occupant of a single dwelling unit in one structure.

- 27) 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 NOSD, county or state shall have the right to install and maintain streets and public utilities.
- 28) 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.
- 29) 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.
- 30) Single Family Dwelling: Any residential building designed to house one family.
- 31) Standard Details: The drawings of structures or devices commonly used for infrastructure work within the NOSD and referred to on the construction drawings. Also sometimes referenced as Standard Plans or Standard Drawings.
- 32) Street or Road: Any public highway, road, street, avenue, alley, way, easement or right-of-way to be used for vehicle movement.
- 33) Substantial Completion (standard NOSD definition): Substantial Completion is that degree of completion of the project’s facilities and operating systems sufficient to provide the NOSD 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 NOSD, 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 NOSD. The terms “substantially complete” and “substantially completed” as applied to all or part of the work refer to Substantial Completion thereof.
- 34) Substantial Completion (ie. for building permits in residential subdivisions, under HB 2306, reference only): Effective 1/1/2020, HB 2306 prevents a city or county 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 or county 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 or County 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.

Also per HB 2306, a city or county 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.*”

- 35) Substitute: If in the sole discretion of the NOSD Superintendent 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 NOSD Superintendent 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 NOSD due to any such required design changes.
- 36) Superintendent: The Superintendent of the Netarts Oceanside Sanitary District or his/her authorized representative (*also referred to as District Superintendent*).
- 37) 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.
- 38) Traveled Way: That portion of the roadway for the movement of vehicles, exclusive of shoulder and auxiliary lanes.

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

40) UGB: See CBG.

## 1.5 LOCATION OF UTILITIES WITHIN RIGHT-OF-WAY

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

b. General Separation Requirements. Installation of franchise or private utilities in a common trench with public sanitary sewer mainlines is prohibited.

1) Horizontal Separation. Unless otherwise approved by the NOSD Superintendent and the NOSD Engineer, a minimum of 5 feet of horizontal clear separation must be maintained between public sewer and private utilities or franchise except at crossings (*all crossings to be as close to perpendicular as possible*), as well as between sewer service lines and public, private or franchise utilities.

Note: Once private sewer service lines exit the road right-of-way or are outside of the NOSD 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 NOSD Superintendent and the NOSD Engineer, a minimum of 6-inches of clear vertical separation must be maintained between NOSD sewers and public or private or franchise utilities at crossings (*all crossings to be as close to perpendicular as possible*), as well as between sewer 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.

c. Franchise Utility Limitations in NOSD Easements. Franchise utilities or private utilities shall not be placed in NOSD sewer easements, unless specifically directed in writing to do so by the NOSD Superintendent, subject to separation requirements in excess of minimums as dictated by NOSD.

d. Franchise Utility Plans & Crossings. Franchise utility plans shall be submitted to NOSD Superintendent and the NOSD 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 sewer mainlines or service lines shall be as close to perpendicular as feasible.

1) Plowing In of Utilities Prohibited in NOSD Easements. Use of cable/conduit plowing for installation of franchise or private utilities within NOSD utility

easements is prohibited, unless specifically authorized by the NOSD Superintendent on a case-by-case basis. Any such authorization shall be based on a demonstration by the applicant that there are no existing NOSD utilities crossing the proposed plow alignment, or within 10 feet parallel with the proposed plow alignment.

- e. 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 NOSD utilities. Drawing requirements may include but not be limited to plan and profile of proposed systems based on a detailed topographic survey.
- f. 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 NOSD 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 NOSD.
  - 2) When modifications to and/or relocation of NOSD utilities/infrastructure are required due to changes on private property, such modifications and/or relocation shall comply with current NOSD 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 NOSD Engineer and NOSD Superintendent.
- b. 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 NOSD standards (*see PWDS 1.12.d.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, 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 NOSD may require over-sizing of utility lines to accommodate future growth of the NOSD. Sewer mainlines shall be sized to comply with recommendations in the applicable master plan documents or maps.
- e. Upgrading Existing Utilities. Where existing NOSD 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 NOSD utilities crossed, intercepted by or in the vicinity of new utility lines or facilities shall be connected to the new NOSD utility system at locations as required by the NOSD Engineer and NOSD Superintendent. Existing NOSD utility lines which are parallel with, or which are replaced or superseded by the new utility lines (*as determined by the NOSD*), shall be abandoned or removed as part of the project (*and facilities or structures served by the abandoned lines shall be connected to the new system as applicable*), as required by the NOSD Engineer and NOSD Superintendent.
- g. Oversizing Reimbursement, etc.
  - 1) The requirement by NOSD standards that offsite or oversized sewer 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 NOSD Board.

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 NOSD sewer permit(s). Any other approach taken or sequence followed shall be at the developer's sole risk.

- 2) Unless otherwise explicitly authorized by the NOSD Board, 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 NOSD code or standards.

In the event of conflicts between these SDC provisions and the NOSD's SDC ordinances or SDC code provisions, the more stringent shall apply as determined by the NOSD Superintendent or Board of Directors, as may be applicable.

## **1.7 TIME LIMITS FROM DRAWING APPROVAL TO CONSTRUCTION**

- a. The Developer shall obtain an NOSD sewer construction permit (*or construction authorization*) and begin construction within six (6) months from the time the sewer construction drawings are approved by the NOSD Engineer (*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 NOSD approvals of the construction drawings shall be null and void.

Renewal or extension of the NOSD approval for the construction drawings may result in additional conditions to the drawings to reflect current update NOSD 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 NOSD 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 NOSD and the time by which construction begins, shall apply to each phase independently.
  - 1) Construction drawings shall be subject to the PWDS & NOSD standard details, specifications, policies and procedures, construction drawing review, and permit fees of the NOSD 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 NOSD standard details that occurs between

phases of a development shall apply to all subsequent phases.

## 1.9 PRE-DESIGN CONFERENCE/MEETING (with NOSD Staff).

- a. **Pre-design Conference:** The developer and developer's engineer shall schedule a meeting with the NOSD Superintendent and the NOSD 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 the NOSD (*a predesign meeting is also required for cases where land use approval is not required but where a Type B NOSD sewer permit is required*).

Mandatory Attendance, Predesign Meeting. Attendance at the pre-design meeting by 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 NOSD Superintendent, 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 NOSD Type B sewer permit is required, as well as for NOSD Type A sewer permit projects where it is deemed appropriate and required by the NOSD Superintendent.

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 NOSD Engineer with copies of the following (*full size pdf copies to be emailed to NOSD Engineer and NOSD Superintendent*).

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 & sewer alignments (*on-site and offsite, limits as required by the PWDS*), and;
- b) Copy of any applicable Tillamook County land use approvals.

A plan and narrative summary or notes detailing how each of the NOSD conditions of service and/or planning conditions of approval (*ie. land use conditions*) 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 sewer (*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 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 alignments (*including proposed rim elevations for all manholes & other structures*), demonstrating the ability to meet the depth and slope requirements of the PWDS, and;
- e) 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;
- f) 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;
- g) 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;
- h) A geotechnical report is typically required for sites with existing or proposed fills,
- i) Other information requested by the NOSD Superintendent or the NOSD Engineer.

## 1.10 DRAWING REVIEW PROCEDURE

### a. Construction Drawing Preparation Requirements.

- 1) See PWDS G.2.e regarding requirements for obtaining land use approval (*where required*) prior to submittal of construction drawings for review by the NOSD.
- 2) Type B NOSD Sewer Construction Permit. Construction drawings submitted for review to obtain a Type B NOSD Sewer 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.
- 3) Type A NOSD Sewer Construction Permit. Construction drawings submitted for review to obtain a Type A NOSD Sewer 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*).

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

### c. Sewer system construction drawings (*plans*) and other engineering documents (*including site/street/utility/access/parking/fill/grading plans along or near sewer alignments*) shall be submitted for review and approval by the NOSD Superintendent and/or the NOSD Engineer prior to issuance of NOSD permits required by these Standards.

Detailed provisions covering the review procedures and NOSD 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 and all associated documentation (*addressing PWDS requirements in addition to all issues noted in the pre-design meeting*) shall be submitted to the NOSD 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 detailed unit price engineer's estimate, unit price bid results or contractor estimates acceptable to the NOSD Engineer and any required review fees (*see also PWDS G.7*).

Variance List. The review submittal 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 submittal packages will be returned without a comprehensive review** (*ie. 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*). Any delays in the project or increases in the review time required for the project due to such incomplete submittals shall 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*).

All plans and supporting documentation submitted for final approval shall be stamped and signed by the design engineer.

e. Review Comments, Resubmittals:

- 1) Upon completion of the preliminary review, the NOSD will return one (1) set of drawings (*pdf or hard copy, as determined by the NOSD*) 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 NOSD standards.
- 3) Return without Review. The NOSD 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 NOSD and required revisions made, the Developer's engineer shall circulate the drawings to all utility service companies within the NOSD, and bring any conflicts to the attention of the NOSD Engineer and NOSD Superintendent. Prior to installation of any franchise utilities, all proposed drawings from utility service companies must be provided to the NOSD Superintendent 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 NOSD standards and review comments by other agencies to the attention of the NOSD Engineer and NOSD Superintendent (*NOSD 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 NOSD standards are complied with (*or obtaining written preliminary approval of the drawings from the District Engineer and NOSD Superintendent*) will be at the sole risk of the development team. Any review or approval comments by other agencies does not automatically over-ride NOSD standards, except where explicitly approved in writing by the NOSD Superintendent.
  - 2) Prior to final NOSD approval of the construction drawings, approvals from other agencies with jurisdiction must also be received where applicable, including but not limited to the Department of Environmental Quality (DEQ), Oregon Department of Transportation (ODOT), Tillamook County, Fire Districts and water districts 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 Appendix C.
- i. Full Size Drawing Sets Required for Approval Stamping. Upon final approval of the drawings for a Type B NOSD permit, submit the required number of sets of the final full size revised drawings to the NOSD 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 NOSD and the drawing sets submitted to the NOSD for approval stamping, without the express written approval from the NOSD Superintendent and the NOSD 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 NOSD Engineer or NOSD Superintendent 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 utility construction permits, the Developer shall provide the NOSD with the following (*see also Appendix G*):

1) Copies of the final revised (*approved*) plans for approval stamping by the NOSD as follows:

- Type A permit, 6 sets
- Type B permit, 6 sets

The District will keep four (4) sets of approved construction drawings and return the remainder to the Developer. Additional sets may be submitted for approval stamping at the developer's request.

2) Copy of an approved Developer/District Construction Agreement signed and notarized by the Developer, the Developer's engineer and the Developer's prime contractor.

3) Material submittals to be reviewed by the NOSD prior to start of construction.

4) A performance bond or an Irrevocable Letter of Credit in the amount of 110% of the cost of construction of the sanitary sewer system improvements. Construction cost shall be based on a detailed unit price estimate provided by the design engineer. The NOSD reserves the right to obtain a third party cost estimate which will be used as a basis for comparison. Final estimated costs of the sanitary sewer system improvements shall be acceptable to the NOSD. The estimate costs shall be on a detailed unit cost basis prepared with supporting documentation.

5) Any required permit fees.

6) Recorded copies of all off-site easements, as well as recorded agreements, shall be submitted before construction permits are issued, with the following exception.

- a) For subdivisions or partitions where on-site sewer improvements will be constructed prior to the recording of a final plat, or in other cases required by the NOSD Superintendent, the recording of the sewer easement documents can be done in conjunction with the final plat.
- b) However, executed and notarized reviewed & approved copies of the sewer easement documents (*both public & private*) and any required maintenance agreements shall be submitted to the NOSD prior to final approval of the drawings and obtaining a sewer construction permit.
- c) Separate easement documents will be required in all cases (*in addition to easement designation on the plat*).

- 7) All easement documents shall include a legal description and a “to-scale” exhibit map (containing the information required under PWDS 1.12), and easements to the NOSD shall use the NOSD’s standard form. Legal descriptions and exhibit maps shall be submitted for review and approval by the NOSD Engineer and the NOSD Superintendent prior to recording.
- 8) Proposed Construction Schedule.
- 9) Certificates of insurance, minimum limits as outlined in Appendix E. Netarts Oceanside Sanitary NOSD and NOSD Engineer shall be covered as additional insured.
- 10) 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)*.
- 11) Any required Waiver of Remonstrance agreements.
- 12) Any required performance bonds.
- 13) Other information specific to the project as the NOSD Superintendent or the NOSD Engineer shall find necessary for the determination of whether a permit should be issued therefor, including evidence that all applicable federal and state laws and regulations have been or will be complied with, including approvals from other agencies with jurisdiction as outlined in PWDS 1.9.f.
- 14) Other submittals specific to this project, including any required approvals from applicable state agencies, such as DEQ *(sewer & 1200C erosion control as applicable)*, DSL, ODOT, etc. The NOSD reserves the right to require evidence that any and all such required approvals have been received *(and copies provided to the NOSD as applicable)* prior to issuing final approval of the construction drawings and/or issuing a NOSD construction permit.
  - a) NOSD 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 the NOSD Superintendent and the NOSD Engineer, to the point where the layout, configuration and alignment of proposed infrastructure improvements are acceptable to the NOSD *(this is to avoid repeated reviews by state agencies, as would be required if the drawings end up being changed to meet NOSD standards, after being submitted to the state for their review)*.

This requirement does not limit the development team’s ability to 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 NOSD Engineer or NOSD for issuance of a NOSD Sewer 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 the NOSD 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 NOSD Superintendent*), and will be re-examined as required to verify compliance with all current NOSD standards.

**1.11 CONSTRUCTION DRAWING REQUIREMENTS**

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

Based on the NOAA VertCon (*superseded by NGS Coordinate Conversion and Transformation Tool (NCAT)*) website, the current conversion from 1929 to 1988 datum at this location is about 3.451 feet (*higher*) for Netarts and about 3.445 feet (*higher*) for Oceanside – 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 Sewer 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 NOSD Superintendent and the NOSD Engineer on a case-by-case basis.
  - 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.
  - 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 NOSD 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.
- 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 NOSD 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 NOSD & the NOSD Engineer*).
  - 2) For new developments, drawings submittal shall consist of a complete drawings package including all streets and utility systems within the development. The NOSD reserves the right to withhold final drawing approval until approval of streets and other utility systems is obtained by the developer.
  - 3) **Review Fees.** Payment of NOSD plan review fees as required (*drawing review comments or other review feedback will not be provided prior to receiving any such required review fees*).

- 4) **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 NOSD standards or PWDS requirements (*see PWDS 1.13.a.3*).
- 5) **Cover Sheet** (*with all information required under PWDS 1.11.d*).
- 6) **Note Sheet(s)** with all applicable current standard NOSD construction notes & standard testing table (*MS Word version of current standard NOSD construction notes are available from the NOSD Engineer, as well as a pdf copy of the standard testing table*).
- 7) **Overall utility and street/site lighting plan.**
- 8) **Site grading plan** where applicable.
- 9) **Existing conditions plan** as defined below, to the full limits required by these PWDS.
- 10) **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, access driveways, fire lanes, ADA compliant pedestrian access routes, as well as building locations, separations & setbacks, etc., and including other applicable information.
- 11) **Plan and profile** for the following public utilities:
  - a) Streets
  - b) Sanitary sewers

Separate profiles shall be provided for sewer 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 District Engineer and the District Superintendent.

All crossings of other utilities (*County 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 County stormwater permits, or by project DEQ erosion control, stormwater 1200C permit or other 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)*.

- 13) **Details shall be Included on Drawing Sets.** All applicable NOSD standard details shall be included on the construction drawing sheets.

**NOSD standard details shall be placed in numerical order** on the detail sheets *(oriented from top left of each sheet to bottom right)*, for ease of reference during construction.

**Additional details** 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)*.

**Custom drawn details** 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) **Geotechnical Report.** 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 NOSD Engineer or the NOSD Superintendent. 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)*.
- 15) **Title Report.** 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 photocopies 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)*.

- 16) **Easements and/or Maintenance Agreements.** Copies of all easements, including slope easements, or maintenance agreements for all utilities to be constructed. Easements shall be executed and notarized for all public utilities which are constructed outside of platted right-of-ways. 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 NOSD Superintendent and/or the NOSD 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 Appendix D for standard model easement forms.

- 17) Proposed utility plans from all franchise utilities (*final review*).
- 18) **PWDS Infrastructure Cost Estimate** (*preliminary estimate prior to plan review, final estimate prior to NOSD sewer permit issuance*). Engineer's unit price construction cost estimate, unit price bid results or contractor estimates acceptable to the NOSD 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 associated with sewer improvements covered under the PWDS. In addition to sewer mainlines, manholes, laterals, etc. to be constructed with the project, estimates shall include grading & paving along maintenance access routes outside of street right-of-ways as applicable, as well as other sewer system related improvements required for the project.
- 19) The submittal may also be required to include a traffic study and a traffic control plan.
- 20) The development team is responsible for submitting construction drawings & associated plans to other agencies with jurisdiction as may be required, in the 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. 1"=10' vertical scale shall be acceptable if approved in writing by the NOSD Superintendent. 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 NOSD Engineer and the NOSD Superintendent*), 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) Letter size shall not be smaller than 0.10-inch high (*to allow text on half size drawings to be legible & readable*).
- 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 NOSD 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 sewer mainlines.
- c) Other investigative work may be required during design if it is determined (*at the sole discretion of the NOSD Superintendent*) that there are concerns regarding potential conflicts with or impacts to existing infrastructure.

- 11) **\*\*Lot Numbers, 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 County and/or other agencies as applicable.

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 County 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 as showing and labeling the location of the NOSD service boundary or the CGB (*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) All drawing sheets shall be labeled with descriptive sheet titles, indicating both the 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*).
  - (2) The sheet titles shall match the wording on the Sheet index (*and vice-versa*).
- i) **Infrastructure Summary Table**. Include a summary table listing the number of lineal feet of new public mainline sanitary sewers to be constructed.

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

Do not include service laterals.

- j) **\*\*NOSD Standard Construction Notes**. Reference to the drawing sheets containing the current version of the NOSD 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 NOSD construction notes are available from the NOSD Engineer, as well as a pdf copy of the standard testing table*).

The current version of the notes available from the NOSD 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 NOSD construction notes and standard testing table shall be included on a subsequent sheet.

e. Overall Utility and Street/Site Lighting Plan.

- 1) The overall utility plan & drainage plan shall show the following as a minimum:
  - a) Benchmarks. The location and elevation of a National Geodetic Survey, United States Geological Survey, State Highway, Tillamook County or Netarts Oceanside Sanitary District 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) Right-of-way lines, property lines, easement lines (*including those outside the project but intersecting or within 150 feet of the project boundaries*).
    - (1) NOTE: This distance can be reduced with written approval from the NOSD Superintendent, 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.
  - c) Existing Easements, etc. Show & label all existing easements and/or maintenance agreements affecting the project (*on-site & off-site, including recording reference numbers*).
  - d) **\*\*** Proposed Easements, etc. 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*).
  - 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.
  - 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.
  - g) Existing Franchise Utilities, etc. Existing franchise and private utilities within the project and within 150 feet of the project boundaries.
  - 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 area light pole locations shall be clearly shown and labeled.
- k) Existing Drainage Patterns. Existing drainage patterns within the project and within 150 feet of the project boundaries.
- l) Floodplain, floodway and wetland boundaries, including floodplain elevation with FEMA map reference.

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*). All existing utilities shall be clearly shown AND labeled within the limits (*as defined above*) around and beyond the project site and offsite work areas.
  - b) 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 show 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 (*provide notes listing the number of standard, compact and accessible parking spaces provided, as well as number of existing and/or EV spaces being provided*),

- d) All vehicular accesses (*including fire lanes*), ADA compliant pedestrian access routes (*from the fronting street(s) to the building(s), and from accessible parking to the building*),
- e) Loading/delivery zones, ,
- f) Building locations, separations & setbacks, etc.,
- g) Other applicable information.
- h) 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.

g. Grading Plans.

- 1) A grading plan is required for subdivisions and PUDs, multifamily, 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 NOSD Engineer and NOSD Superintendent*).
- 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 NOSD Engineer and NOSD Superintendent 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) 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.

- 6) 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 which lie above or below NOSD sewer alignments.

- 7) Retaining walls shall be offset a minimum of 10 feet from any parallel public water, sanitary sewer or storm drain mainline.

h. Plan Views

- 1) Perpendicular and Parallel Alignments. Except where explicitly approved in writing by the NOSD Superintendent and the NOSD 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 NOSD*). 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 NOSD/ 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 NOSD

based on unique or unusual features of the project.

- f) 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 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*).
  - g) 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*).
- h) Show CGB as applicable. If the project abuts the Community Growth Boundary (CGB) (*including if the CGB 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.
  - i) Manner of Connection to Future Improvements or Extensions Shall be Shown & Defined. For sewer main 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 NOSD standards (*see PWDS 1.6*).
- 3) Streets (plan view)
- a) Except as otherwise specified, conform to requirements of Tillamook County or other agency with jurisdiction. The following information shall be shown for all streets within which sanitary sewer improvements are to be constructed, as well as utility access roadways required along easements.
  - b) Street stationing shall be tied to existing property corners, centerline of intersections, and/or existing street monuments.

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

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

- d) Location of existing and proposed street centerline monuments.
- e) 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*).

- f) Location of the low points of street grades and curb returns.
- g) Where fire lanes are required, provide a fire protection site plan with the drawings illustrating the fire truck turning-radius wheel-path & vehicle-path templates (*autoturn or similar*) routes along all fire lanes and turnaround 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 District. Ensure that clearances shown account for any bollards provided to protect hydrants, buildings or other structures.

4) Storm Drains (plan view)

- a) Except as otherwise specified, conform to requirements of Tillamook County or other agency with jurisdiction.
- b) Sufficient information must be provided to the NOSD to determine potential conflicts with existing or proposed utilities.
- c) The location of all storm sewer lateral stubs which are within 30 feet of sanitary sewer lateral stubs shall be shown and labeled to prevent accidental cross connection.

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 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. Separation from other parallel utilities shall be dimensioned.

For improvements within an ODOT right-of-way, include the ODOT milepost and ODOT engineering station callouts at all such road intersections, as well as at utility crossings or other structures which will need to be listed on an ODOT permit for construction.

- d) Mainline stationing of all service tees.
- e) All 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. Existing NOSD sewer manholes numbers shall be used for all existing manholes or mainline cleanouts shown.
- (1) Following acceptance by the NOSD, each new sanitary sewer manhole and new mainline cleanout shall be identified on the as-builts with a number provided by the NOSD. The design ID number or letter shall remain on the as-builts next to the NOSD assigned number (*use parenthesis to differentiate*).

- f) 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 NOSD standards (*ie. any laterals which do not meet current NOSD 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.

- g) 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) Size
  - (4) Length of sewer service lateral *(ie. mainline to cleanout)*.
  - (5) Cover depth below finish grade at property line(s) and/or easement line(s) crossed *(ie. pipe depth 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.
  - (6) Distance ties from property line cleanout to nearest property corner
  - (7) Location of property line cleanout.
- h) 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.
- i) 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 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) Except as otherwise specified, conform to requirements of Netarts Water District and Oceanside Water District or other agency with jurisdiction.

Where profile views are not provided (*for water 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, to illustrate potential conflicts with sewer mains or laterals.

- b) Sufficient information must be provided to the NOSD to determine potential conflicts with existing or proposed utilities.

- i. 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) Except as otherwise specified, conform to requirements of Tillamook County or other agency with jurisdiction. The following information shall be shown for all utility access roadways required along easements.
- b) Original ground profile along the centerline or roadway edge as appropriate.
- c) Stationing, elevations and percent slopes for centerline or edge of roadway profiles.
- 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. Show the projection of the profile of access roadways 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 NOSD may require profiles to be extended further where necessary due to topography or to demonstrate ability to tie to existing streets or access roadways (*or to illustrate specific grade issues or concerns*). Projected profiles shall be designed to be compatible with the constraints of the terrain and existing improvements.

3) Storm Drain (profile view)

- a) Except as otherwise specified, conform to requirements of Tillamook County or other agency with jurisdiction.

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 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, 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) 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) Except as otherwise specified, conform to requirements of Netarts Water District and Oceanside Water District or other agency with jurisdiction.

## 1.12 EASEMENTS, ETC.

- a. **\*\*NOSD Easements**. Easements to NOSD (*in a form acceptable to the NOSD and conforming to the PWDS requirements*) shall be provided and recorded for any NOSD sewer outside of public street right-of-ways.

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

- 1) NOSD Easement Widths. The minimum NOSD utility easement widths and property line offset requirements are referenced in subsequent PWDS sections. The developer's engineer shall verify that widths and extents of easements (*to the NOSD*) fully comply with standards per PWDS 4.15.d (*sewer*) based on the final approved design.
- 2) Use of NOSD Approved Forms Required. Other recorded easements and/or instruments affecting NOSD access and/or interests (*ie. grease interceptor maintenance agreements, private sewer ejector maintenance agreement, etc.*) shall also be in a form acceptable to the NOSD 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.**

- b. **\*\*Legal Description & Exhibit Map Required.** All recorded easement documents (as well as easement quit-claim deeds, easement rescissions or similar documents, including private easements required by NOSD standards) shall include a legal description AND a “to-scale” exhibit map.
- 1) Exhibit Maps. 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., as well as deed callouts or lot/parcel numbers (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) In addition to deed callout or lot/parcel numbers, exhibit maps shall also list the (A) legal property owner name, as well as (B) tax lot number & (C) address of the properties shown (both grantor property, and grantee property as applicable) as supplemental information for reference & orientation only.
    - b) 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).
  - 2) Submittal for NOSD Review Required. Legal descriptions and exhibit maps shall be submitted for review and approval by the NOSD Engineer and NOSD Superintendent prior to recording.
  - 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 NOSD standards, will be returned for revision.

c. **Prohibited within Easements Granted to the District (NOSD).** 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 NOSD which might interfere with the use by the NOSD 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 NOSD Easements, Key Pattern. Access gates acceptable to the NOSD Superintendent shall be installed in fences which the NOSD allows to be constructed across an easement granted to the NOSD (*any locks on gates so approved shall be keyed to NOSD pattern, double locked with a NOSD padlock, or the NOSD 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 NOSD, 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 NOSD (*which approval may be granted or withheld at the NOSD's sole discretion*), shall be contingent on the property owner performing all work required by the NOSD 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 NOSD Superintendent*), including reconstructing or resetting the utilities and appurtenances as directed by the NOSD, backfilling any trenches to NOSD standards, all at the property owner's expense. It is understood and agreed that the NOSD 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 NOSD finds that the physical obstruction or use will interfere with the NOSD utility or the NOSD's ability to access, maintain or repair the NOSD 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 NOSD acknowledges that the property owner may generally use the easement area for access driveways and/or permitted parking (*except that parking is not allowed in fire lane easement areas*), or similar uses which are

allowed by the NOSD.

- d. **\*\*Private Easements.** Unless alternate widths are approved by the NOSD Superintendent, private utility easements a minimum of fifteen (15) feet wide (*centered on the utility pipe and offset from common property lines*) shall be provided for all private or franchise utilities, private sanitary sewers outside of public right-of-ways and 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 sewer pipes.

- 1) Extension of private sanitary sewer 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 sanitary sewer 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 sewer 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.
- 3) Required Language and/or Attachments for Certain Private Easements. While the NOSD 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 NOSD utilities, and private driveway/private road access easements required by the PWDS*), the easement forms used for private easements required by NOSD standards shall include the following (*note: these requirements also apply to agreements affecting private property which are required by the NOSD or require approval from the NOSD 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 NOSD,
  - (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 NOSD 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.

- e. **\*\* Submittal of Recorded Copies to PW Required.** Recorded copies of all required off-site easements (*with exhibit maps*) and agreements shall be submitted to the NOSD and the NOSD Engineer prior to final approval of the drawings and start of construction.
- 1) For subdivisions or partitions where on-site sewer improvements will be constructed prior to the recording of a final plat, executed and notarized copies of the NOSD easement documents (*with exhibit maps*), any private sewer easements required to cross property other than that being served, and any required maintenance agreements shall be submitted to the NOSD prior to final approval of the drawings and obtaining a sewer construction permit. Sewer easement documents will be required in all cases (*in addition to sewer easement designation on the plat*).
  - 2) All recording costs shall be borne by the Developer.
- f. **CAD File Required When Requested by NOSD.** When requested by the NOSD Superintendent or the NOSD 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.
- g. **\*\*Street Frontage PUE.** PUEs are required along all new streets or roadways (*public or private*) containing NOSD sewer mainlines and/or sewer laterals, in order to ensure that franchise utilities (*now and in the future*) can be installed with adequate clearance from parallel NOSD sewers. PUEs shall be minimum eight (8) foot public utility easements (PUE) for franchise utilities along all lot lines fronting public or private streets.
- 1) Where easements for NOSD sewer mainlines exist or are proposed along and parallel with street frontages (*but outside the street right-of-way*), the new PUEs (*where required*) shall be located outside of the NOSD sewer easements (*except at crossings*), to prevent future installation of franchise or private utilities parallel with NOSD pipelines within the NOSD easements.
  - 2) Required PUE Note PUE Wording on Plat. PUEs created by a plat should include wording similar to the following, with the PUE plat wording to be acceptable to the both NOSD and the County Surveyor.

*"We hereby dedicate to the Netarts Oceanside Sanitary District along any*

*PUE shown along roadways on the plat, a sanitary sewer easement for sewer laterals, cleanouts and appurtenances.”*

### **1.13 SEWER VARIANCES TO DESIGN STANDARDS**

#### **a. Request for Variance from PWDS Requirements**

- 1) Variances to specifications or PWDS requirements may be requested as outlined below.
- 2) In considering variance requests, the NOSD, 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 NOSD 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 NOSD standards or PWDS requirements.
  - a) Failure by the NOSD 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 NOSD.

#### **b. Variance Process**

##### **1) Submittal**

- a) Requests for variance shall be submitted in writing and in duplicate to the NOSD Superintendent.
  - (1) This written request shall state the desired 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 NOSD variance request shall also include a confirmation that the variance will not result in any land use regulation being superseded or violated.
- 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 NOSD's Standards.

2) NOSD's Review

- a) The variance request shall be reviewed by the NOSD Superintendent and NOSD 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 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 NOSD.

3) Appeal

- a) Applicant may appeal the NOSD Superintendent's decision to the NOSD Board of Directors.

c. Criteria for Variance from PWDS Requirements

- 1) The NOSD Superintendent may grant a 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 NOSD Superintendent*) 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 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 NOSD 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 NOSD

Superintendent shall consider appearance, durability, cost of maintenance by the NOSD 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 NOSD before issuance of the NOSD sewer construction permits, at a location (*in NOSD*) as approved by the NOSD. The purpose of the conference is to discuss the sewer construction schedule and timing of the work which requires special 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 NOSD 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/sewer subcontractor(s) (*if different than the prime contractor*).
- c. Development/Construction Team Contact List. The development team is responsible for providing the NOSD 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 NOSD 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 NOSD 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 NOSD sewer construction permit.
- Certificates of insurance from the contractor performing the sewer work, minimum limits and format as outlined in PWDS Appendix E. The NOSD and Westech Engineering (*as NOSD Engineer*) shall be covered as additional insured. The NOSD is to be named as the certificate holder.
- Evidence of Worker's Compensation coverage from the contractor or subcontractor(s) performing the sewer work.
- Performance bond if required by NOSD codes.

## 1.15 CONSTRUCTION OBSERVATION & INSPECTION

### a. General

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

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

Copies of all test reports shall be submitted to the NOSD 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 NOSD, until such reports are provided.

- 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) Full Time NOSD Inspector. It is the policy of the NOSD to provide full-time inspection services for public sanitary sewer improvements, at the developer's expense. It shall be the Developer's responsibility to reimburse the NOSD for all costs associated with such full time inspection services, including any related engineering services requested by the NOSD in conjunction with public sanitary sewer construction.
  - a) It shall be the responsibility of the Developer to coordinate with the NOSD far enough in advance of sewer construction to allow the NOSD to retain a qualified sewer inspector to perform the required full-time NOSD inspection, and to ensure that the full-time inspector can be

utilized efficiently and effectively (*start & stop work on public sanitary sewers is not acceptable*). Failure by the Developer to adequately coordinate with the NOSD to ensure a full-time inspector is present during any public sewer construction will result in the sewer construction being delayed until a NOSD inspector is available and present.

b. NOSD Activities

- 1) Inspection services provided by the NOSD shall include:
  - a) Liaison between the design engineer and the NOSD;
  - b) Review all pipe, aggregate, manholes and other materials to ensure their compliance with NOSD Standards.
  - c) Monitoring of work progress and performance testing as deemed desirable;
  - d) Review material, compaction and other tests required to ensure NOSD specifications are met;
  - e) The performance of administrative and coordination activities as required to support the processing and completion of the project;
  - f) The issuance of stop work orders upon notifying the engineer-of-record and/or the Contractor of the NOSD's intention to do so.
- 2) In addition, the NOSD shall be notified a minimum of 48 hours (*2 business days*) prior to the following tests and inspections so that a NOSD representative may be present to witness connections or tests and perform required inspections. Work required to be witnessed by NOSD staff, inspections and testing shall be started and completed during normal NOSD business hours.
  - a) 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 given to NOSD 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*);
  - b) Video Inspection of Sewer Mainlines (*after completion of manhole channeling*)
    - (1) Video inspection of all sewer mainlines will be performed by NOSD, after cleaning & mandrel testing of sewers by the

Contractor.

- (2) A minimum of 72 hours' notice is required prior to such TV inspection.
- (3) Failure to completely clean all new mainlines will result in cancelation of the TV inspection trip.
- (4) All debris shall be removed from the main & manholes, and not flushed into the downstream sewer

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 NOSD or 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-District Construction Agreement*):
  - b) \*Attend the preconstruction conference and ensure that approved construction drawings are distributed to contractor, subcontractors and franchise utility companies.
  - c) Obtain and use a copy of NOSD- approved construction drawings and specifications during construction;
  - d) Coordinate to ensure that the NOSD is notified a minimum of 72 business hours (*3 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 NOSD'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) 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 NOSD 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 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.

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

h) Periodic Inspection/Construction Observation. Provide periodic construction observations of construction activities as required to ensure all finished work meets NOSD 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 NOSD or applicable state agencies;

i) Revisions or Modifications to Approved Drawing.

(1) After drawing approval or during construction (*ie. following issuance of an NOSD sewer 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 NOSD Engineer and NOSD Superintendent.

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 NOSD 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 the NOSD Superintendent and the NOSD 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 NOSD Engineer and/or NOSD Superintendent also contact these parties for verification discussions during their review*).
- j) Request from Engineer-of-Record for Final Sewer System Inspection by NOSD. 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 NOSD 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 definition*)”.
  - (2) Punchlist Prepared by Engineer-of-Record. In conjunction with this notification and request for final sewer system inspection, the engineer-of-record shall also provide the NOSD 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 the NOSD Superintendent and the NOSD Engineer in conjunction with request for final inspection (*see as-built requirements under PWDS 1.17*).
- k) Punchlist Verification by Engineer-of-Record. Prior to requesting followup inspections, the engineer-of-record and contractor shall provide the NOSD with written/email verification that all items on any previous checklists/punchlists have been completed (*submission of a hand annotated copy of the previous checklist/punchlist is acceptable*).

l) 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 NOSD permit was completed in substantial conformance with the approved construction drawings;
- (2) Final As-Builts. A complete set of final as-built drawings to NOSD and the NOSD Engineer (*see following "As-Built Drawings" section for specific requirements.*);
- (3) Test Results. Include copies of the results and report forms of sewer and manhole tests and video inspections, as well as compaction tests (*trench backfill, baserock & pavement compaction test results*) as applicable.

As noted above, all test reports are to be submitted to the NOSD 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) Sanitary Sewer System. A copy of any required forms and/or certifications required by DEQ for sanitary sewer improvements (*for the NOSD's records*).
- (5) 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, wetland permits, etc.*) required for the project (*for the NOSD's records*).

m) 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 NOSD, and a pdf copy of the survey map or plat showing the new monument locations provided to NOSD.
- (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 NOSD's records & reference*).

- n) 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*).

#### **1.16 WARRANTY INSPECTIONS:**

- a. Warranty inspections will be performed by NOSD staff or the NOSD 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 NOSD, the developer shall arrange for re-inspection of the sanitary sewer 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 NOSD'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 NOSD 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 NOSD*) 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 and shall show or describe all revisions to the construction drawings previously approved by the NOSD.
- 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 the NOSD 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 sewer 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 NOSD Engineer, as-built drawings for sanitary sewers systems shall be based from an as-built final proof survey completed by a licensed land surveyor registered in the State of Oregon. The final proof survey shall include all mainline sewers and manholes, including all rim and invert elevations, horizontal alignments, grades and lengths.
- 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 NOSD Superintendent and/or the NOSD 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. The as-built drawings shall include service laterals tied to property corners at the road right-of-way boundary or easement line as well as tied to the distance between the manholes, the length from the mainline to the end of lateral, and the service lateral depths at the property line.
- f. Distance Ties to Sewer Cleanouts. The location of all cleanouts on sewer service lines shall be shown on the as-builts 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.
- g. 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.
- h. 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.
- i. NOSD 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 NOSD 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 NOSD numbers by the NOSD at the as-built stage. NOSD 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 design street names. See explanation above.
  
- j. 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.
  
- k. 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 the NOSD and the NOSD Engineer (*unless submittal of pdf sets only of draft as-builts is approved by the NOSD Engineer & NOSD Superintendent on a case-by-case basis*).
  - 2) Draft as-builts shall be marked as “draft”, “preliminary” or similar.
  
- l. Final As-Builts.
  - 1) After the final walkthrough AND after review of preliminary (*draft*) as-builts by the NOSD Engineer and/or NOSD Superintendent, 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 NOSD Superintendent, and
    - b) Full-size as-builts in electronic format (*pdf*) to the NOSD Superintendent and the NOSD Engineer.
    - c) Additionally, one full-size paper set of final as-builts shall be submitted to the NOSD Engineer.
  - 2) Sheet layout, size, configuration and formatting requirements for as-built drawings are the same as summarized for construction drawings submitted for review.
  
- m. 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 NOSD 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.