City of Warrenton

Public Works Department

Engineering Specifications & Design Criteria

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Don Snyder
Public Works Director

Adopted by City of Warrenton Commission on
June 25, 2013

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City of Warrenton Engineering Specifications &Design Criteria

INTRODUCTION

This manual provides criteria for design of Public Facilities to comply with of the Warrenton Municipal Code (WMC) Chapters 16.116, 16.120,16.136 and 16.152, and Ordinance 1058-A (the City's adoption of the Development Code). Several of the Standards from the WMC are incorporated into this manual to provide a single source of information for design professionals. With any conflicts between this manual and the (WMC), the WMC will apply.

The criteria in this document applies to all new development, subdivisions, partitions, local improvement districts, and redevelopment projects that meet the criteria of substantial improvement per definitions in WMC Chapter 16.12.3, and construction that will affect the existing lot grading or storm water discharges. Single and multi-family residential Improvement criteria are described on page 2 of this manual.

The Public Works Director, or designee, is authorized to interpret the criteria and grant variances where particular application would cause undue hardship to an applicant. Refer to "Interpretations/Variances/Appeals" section of this manual for procedure and appeals form.

This document adopts by reference the latest edition of the APWA State of Oregon Specifications and Details. When discrepancies exist between the APWA and City Engineering Design Criteria, the City standards and details will prevail.

SINGLE AND MUTI-FAMILY RESIDENTIAL IMPROVEMENTS

New residential units must meet the development standards found in the WMC applicable to the pertinent land use district. Some new construction will require permitting through the Public Works Department (PWD).

Most lots within a subdivision will already comply with the development standards and no addition PWD permitting is required. New residential construction in a subdivision with existing roadway curbs will require sidewalks adjacent to the property if not provided by the original developer.

To meet current development standards, partitioned lots and other residential properties not created through the subdivision process may need to provide improvements in the right-of-way (ROW) that will require a plan approval and a permit from the PWD. If pertinent, PWD requirements include but are not limited to installation of the following:

- Utility connections to public water and sewer systems. System Development Charges apply to these connections. New connections to water lines will only be approved if 20 psi can be maintained at the service meter(s). All new connections require an approved *Residential Water & Sewer Availability Statemen*t from the Public Works Department.
- Street lighting improvements.
- Paved connection to the nearest public or private access ROW or easement for vehicular access. These improvements may also include curbs, gutters and sidewalks along newly constructed roadways.
- Signage for traffic safety with any access extensions.
- Curbs, gutters and sidewalks adjacent to the adjoining ROW. When matching existing curbs with new sidewalk, score marks must line up with the existing curb score/joints – and also be placed equal distance at 5-foot intervals or intervals closely matching the width of the sidewalk.
- Drainage ditches and culverts for roadway drainage adjacent to the property adequate to provide drainage for the ROW and to protect the property from runoff from the ROW, This may require submittal and approval of a grading & drainage plan in conjunction with the building permit application.
- Fire hydrant connected to the public water system.

ENGINEERING SUBMITTAL - PLAN REVIEW

The most common procedure for engineering plan submittal to the Public Works Department for approval and permitting to comply with the requirements of WMC Title 16 and the Engineering Standards in this manual is listed below.

1. Applicants may request a pre-application conference with the Planning Director. Pre-application conferences are required for Type III development applications (See WMC 16.208.050 for more details). In response to this conference a representative from Public Works will provide information for basic site improvement requirements to be incorporated by a representative of the applicant into an engineering plan set. The more complete project planning is at this stage the more comprehensive the comments for site improvements will be. For more complex projects, allow for two weeks for a set of comments from the City regarding improvement requirements for the development.

2. Submit two sets of civil plans to the Building/Planning Department with the submittal for approval of development permits. The first review by the Public Works Department reviewer will take between 10 and 15 working days. Plan review fees will be collected along with permit fees when the applicant is issued the permit(s). These fees are outlined in Appendix “A” of this manual.

3. General Notes and other discipline notes shall be listed on the engineering plans submitted for City review.

4. Engineering plans are to be submitted on 24” x 36” sheets (22” x 34” is acceptable if to scale). Submit water, sewer, onsite grading and drainage, underground fire lines, sidewalk/street/paving plans (including storm drains), and street lighting if not included with paving plans. All plans must be legible at 50% reduction (half-sized prints).

5. All utilities on or adjacent to site must be placed underground including those crossing streets per WMC Section 16.136.060. This standard applies only to proposed land divisions and large-scale developments.

6. Refer to special districts (Urban Renewal and Downtown Commercial) for special design requirements. Maps of these districts are shown in this manual.

7. All onsite storm water for the 100-year event must discharge from the site at the predevelopment rate.

8. A drainage plan is required for all developments. All driveways, parking areas, aisles and turn-a-rounds shall have on-site collection and conveyance or infiltration of storm water runoff to eliminate sheet flow of such waters into ROWs

or abutting property. A drainage report prepared by a qualified Professional Engineer is required for all large developments.

9. All developments disturbing more than one acre shall meet the storm water pollution prevention plan (SWPPP) requirements of the Oregon Department of Environmental Quality. The SWPPP is the responsibility of the applicant and will not be reviewed by the City.

10. After all comments have been successfully addressed, the design engineer will be notified by the Planning Department that the permits are ready to be issued. After the permits have been issued the General Contractor or applicant shall notify the PWD that construction has started. PWD will then provide the inspections required for final acceptance of the engineering work as the construction proceeds.

11. Any new easement, dedication or agreement for a large scale development or not shown on a plat or subsequent to plat recordation is required to be prepared via separate instrument. Before recording an easement, the instrument/document shall be reviewed by City staff and shall be done after receiving proof of property ownership and a legal description of the easement prepared by a registered land surveyor at the applicant's expense. The final document must be signed by the property owner and notarized prior to submitting to the City for final review. After review the documents will be returned to the applicant who will record it with the Clatsop County Recorder. The entire original recorded packet with the County Recorder's label shall be returned to the City prior to final project approval by the Public Works Director, or designee.

12. When sidewalks are required, they shall meet the provisions of the Americans with Disabilities Act. This includes sidewalks that are affected by existing driveways. Sidewalks and driveways shall be brought up to current codes and standards.

13. New sewer services for commercial projects shall be a minimum of 6" diameter. All other underground utilities that cannot be located using surface features shall include a minimum 12 gauge metallic tracer wire.

14. Projects with water or sewer construction require completion of approvals both for construction and for operation from *Oregon Public Health Division, Office of Environmental Public Health, Drinking Water Program*.

15. Show and label dimensions for all topography in the City right-of-way including pavement, driveways, curb, gutter, sidewalk, poles, medians, traffic signal equipment, street lights, etc. and how each will be affected by new construction.

16. Be sure to comply with all City comments for the pre-application conference, when applicable, prior to formal engineering plan submittal.
17. Refer to the following sections of this manual for all Plan Criteria.

CIVIL PLAN DEVELOPMENT PROCESSING FLOW CHART

1. Submit preliminary concept plan for Pre-Application Meeting through the Planning Department

    a. Collect preliminary development requirements form Public Works Department for offsite and public improvements.

2. Submit 2 sets of civil plans to Building Department along with building permit application.

    a. Civil Plans are routed to Public Works Department internally

    b. Comments on 1 plan set are directed back to the applicant.

    c. Address Plan review comments & resubmit 2 sets of civil plans directly to PWD for re-review.

3. When civil plans have met all Public Works design requirements an internal approval is returned to the Building Permit

    a. The building permit may now be issued

    b. Permits for all work associated with the civil plans are applied for and issued through the Public Works Department.

4. Developer's Engineer is responsible for construction oversight and quality assurance.

    a. When project is substantially complete, Engineer submits final inspection reports along with as-built plans

    b. City will perform a final walk-through of the project and may generate an additional list of corrective items for contractor. This final inspection may be coordinated in conjunction with Engineer's final inspection(s) and issues addressed during the course of construction.

5. Upon City's acceptance of the Public Infrastructure improvements an internal release is forwarded to the Building Department authorizing a release for the issuance of a Certificate of occupancy.

6. No person shall do work affecting the public right-of-way without first obtaining a permit from the Public Works Department. Work affecting the right-of-way includes, but is not limited to, construction, reconstruction, grading, oiling, repair, opening or excavation of a sidewalk, street, curb, driveway, culvert or ditch in a

public right-of-way, but does not include the construction of improvements performed under City contract. (Ord. 1150-A § 4, 2010)

TYPICAL PLAN CRITERIA FOR ALL SUBMITTALS

Listed below are typical requirements for all engineering discipline submittals. Refer to the sections following for the specific criteria and requirements for each section.

A. **GENERAL**

1. Allow at least two (2) weeks for review of the first submittal and if required allow two (2) weeks for review of 2nd submittal, and five (5) days for all subsequent submittals. Note that these are target turnaround times only.

2. Each submittal shall have two stapled sets of engineering plans and two copies of stormwater management plan (commercial and multi-family projects). Each resubmittal shall have two complete stapled sets of corrected prints of engineering plans and two copies of reports plus the City's red lines of the previous submittal. All plans must be clear and legible at 50% reduction, i.e. half-size plans.

3. Where a conflict exists between the most current edition of the City of Warrenton Public Works specifications, American Public Works Association specifications, American Water Works Association specifications or Oregon Department of Transportation Construction specifications, the Public Works Director shall determine which of the above shall be used.

B. **REQUIREMENTS**

1. Include a complete legal description as it appears on the property's deed and the Clatsop County Tax Lot Number on the cover sheet.
2. Vicinity map showing the property in relation to that of the nearest major streets intersection on the cover sheet.
3. Include north arrow, pointing to right or top edge of sheet.
4. Include owner's name or names as appears on the deed (property, business, developer, etc.) and mailing addresses.
5. Include "Contact" name, address and phone number of person to whom plans should be returned.
6. Include legal address of property, if assigned.
7. Include applicable City of Warrenton notes (General, Site, Paving, Sewer and Water, On-site Drainage, Street Lighting). See the back of this manual for all notes.
8. Include completed Utility Company Submittals on cover sheet. See *Utility Company Plan Submittals* of this manual.
9. Include a sheet index on the cover sheet.

10. Show location of and distance to closest fire hydrant.
    a. Fire hydrants shall be provided to within 150' of any point on the first floor of any building.
    b. A fire hydrant shall be provided within 150' of any fire department connection.
11. Show size of all new, existing and proposed to be abandoned water service meters, including gpm needed, on the Civil plans and locate them using centerline station and offset or dimension from property line.
12. Show size of all sewer taps (new, existing and proposed to be abandoned) on the Civil plans and locate them using centerline station and offset or dimension from property line. New sewer services shall be a minimum of 6" diameter for all commercial projects.
13. Sidewalks are required adjacent to both sides of all city streets. Sidewalks shall be a minimum of 5 feet wide.
14. Street lights are required for all new developments. Show proposed street light locations and submit plan to Pacific Power & Light for circuit design.
15. Include an elevation benchmark on cover sheet, and note which datum (NAVD or NGVD) is being used. Use NAVD-1988 datum whenever possible.
16. Tie property to at least two official record survey control corners, preferably section and/or quarter corners.
17. Show all lot dimensions, widths of easements, and ROW, including bearings and distances.
18. Show and label dimensions of the parking lot layout, drainage pattern, proposed spot elevations and existing topography of site and 100 feet onto adjacent properties.
19. Show finished floor elevations. Commercial: minimum of 8" above lot outfall and 12" above 100-year flood high water level. New residential: minimum 14" above lot outfall.
20. Show, identify and dimension all topography in City right-of-way including pavement, driveways, curb, gutter, sidewalk, poles, medians, traffic signal equipment, street lights, etc. and how each will be affected by new construction.
21. All utilities on or adjacent to site must be placed underground, including those crossing street, per WMC 16.136 , except for transmission lines (greater than 50kv). This provision applies only to proposed land divisions and all large scale developments as defined in the WMC.
22. Show and label dimensions of all existing utilities (water, gas, power, irrigation, sewer, storm drain, etc.) and locate by tying to property line and/or street centerline.
23. Distinguish between all existing and proposed construction and clearly show any planned phasing.

24. Show and label dimensions of all existing and proposed curb cuts for driveways. Driveway entrances may not be required on roll curb streets for single-family dwellings. Driveway curb cuts shall not be located within 100' of the point of intersection of property lines at arterial/arterial or arterial/collector street intersections.
25. Vertical curbs and gutters are required at all street frontages with the exception of single-family dwellings where the existing curb is other than vertical curb.
26. Show, label dimensions of all existing streets, sidewalks, driveways, medians and median openings within 125' of the project boundaries on both sides of the street.
27. Clearly indicate drive aisle widths & turning radii. Drive aisles and parking spaces must comply with WMC Figures 16.128.030.C. and D.
28. Show and label dimensions of proposed and existing perimeter walls, wall heights, spot grades on both sides of walls, and adjacent building faces near property line.

    Signature block as follows (lower right-hand corner of cover/first sheet):

    APPROVAL FOR OFFSITES AND DRAINAGE ONLY

    _____ _____

    PUBLIC WORKS DIRECTOR DATE

29. Include the most current local Oregon “Call Before You Dig” logo block on the cover sheet of the plan set.
30. Use 1" = 30' maximum engineering scale and show a bar scale.
31. Show net area of site in square feet or acres.
32. When it is determined that there may be a problem with storm water draining due to the proposed development, the applicant may be required to have a registered engineer verify that the amount and pattern of surface water draining will not be changed in a manner which is detrimental to other property owners or the City’s drainage system.
33. On-site storm water retention or infiltration may be required for handling of additional runoff caused by the development in accordance with City Standards.
34. Culverts and other drainage facilities shall be large enough to accommodate potential runoff from the entire upstream drainage area, whether inside or outside the development.
35. Where a development is traversed by a watercourse, wetland, drainage way, channel or stream, the City may require a dedication of a storm water easement or drainage right-of-way conforming substantially with the lines of such watercourse and such further width as will be adequate for conveyance and maintenance.
36. Show positive grade breaks at all property and ROW lines.

37. Show existing and proposed landscaping in water, sewer, and storm drain easements. Add the following note to plans that have a public water line or sewer line easement: "No deep-rooted shrubs, trees, lights, poles, structures, etc. are allowed in easements."
38. Include the Oregon Registered Professional Civil Engineer's seal, signature, date signed, and expiration date on each sheet.
39. Call out all applicable standard specifications and standard details (City of Warrenton, ODOT, APWA, etc.) on the plans.
40. A boundary survey and/or a title report less than three months old may be required.
41. Show all underground electric circuits, conduit, traffic signal poles, pole foundations, pull boxes, and other traffic furniture. Show locations of any required street lights to be installed with project. Call out the correct type of street lights per the City's requirement. Locate all street lights from the center line of roadway and/or the nearest property line.
42. Provide title block on each sheet showing project name, type of drawing (water, sewer, paving, grading and drainage, etc.) sheet number and township, range and quarter section.
43. Plan check approval is valid for one year from application date. One 6 month extension is allowed if requested prior to the expiration of the one year period at an additional cost of 25% of the total plan review fee. The approval expires if permits have not been picked up and paid for or extended within the six month period. An additional 100% of the plan review fees will be charged for all renewals after the expiration date and all expired permits will be issued using the fee structure effective at the of re-issue time.
44. Show all proposed utilities (electric, telecommunications, television, gas, data/communication, etc.) on civil plans or on separate plans. Profiles are required for bores. A miscellaneous trenching permit is required for utility construction and shall be obtained *directly* through the PWD.
45. Provide copies of private cross-access & cross-drainage easements/agreements, where applicable.
46. Address all applicable Pre-Application Meeting Site Plan Review comments.
47. Provide an estimate of quantities of construction items may be required. See following sheet for list.

ESTIMATED QUANTITIES

The following is a list of quantities currently used by the City. Select all applicable items and show on the first sheet of the plans showing actual quantities for your project (complete the following table, selecting only the items applicable to your project. Add any special items as appropriate for the plan set.)

Item	Unit	Quantity
Water Main	LF	
Water Services	EA	
Fire Hydrant	EA	
Driveway or Alley Entrance	EA	
Concrete Curb & Gutter	LF	
Sidewalk	LF	
Valley Gutter and Apron	EA	
Paving	SY	
Storm Drains	LF	
Catch Basins	EA	
Manholes	EA	
Sewer Lines – testing inspection	LF	
Sewer Services	EA	
Sewer Manholes	EA	
6” Machine-Drilled tap	EA	
Street Light Pole Inspection	EA	

PLAT REQUIREMENTS

SUBDIVISION AND PARTITIONS, PRELIMINARY PLAT - INFORMATION ON PRELIMINARY PLAT.

The requirements for Preliminary plats are found in the WMC 16.216. The information in this document reflect the requirements of Public Works for minimum engineering plan requirements related to public improvements and rights-of-way dedications.

A. General Information required

1. Preliminary plat shall be to a scale of one (1) inch equals 50 feet or better except tracts over ten (10) acres which may be to a scale of one (1) inch equals 100 feet, and shall be clearly and legibly reproduced

2. The locations, names, widths, approximate radii of curves and grades of all existing and proposed streets and easements in the proposed subdivision and along the boundaries thereof, and the names of adjoining platted subdivisions and portions of the subdivisions as shall be necessary to show the alignment of streets and alleys therein with the streets and alleys in the proposed subdivision

3. Show all proposed improvements
   a. Public and private streets, tracts, driveways, open space and park land; location, names, right-of-way dimensions, approximate radius of street curves; and approximate finished street center line grades. All streets and tracts which are being held for private use and all reservations and restrictions relating to such private tracts shall be identified;
   b. Easements. Location, width and purpose of all easements;
   c. Lots and private tracts (e.g., private open space, common area, parks or street): approximate dimensions, area calculation (e.g., in square feet), and identification numbers for all lots and tracts;
   d. Proposed uses of the property, including all areas proposed to be dedicated to the public or reserved as open space for the purpose of surface water management, recreation, or other use;
   e. Proposed improvements, as required by WMC Division 3 Design Standards, and timing of improvements (e.g., in the case of streets, sidewalks, street trees, utilities, etc.);
   f. The proposed source of domestic water;
   g. The proposed method of sewage disposal and method of surface water drainage (shall comply with WMC 16.140). Water quality treatment areas, if required;
   h. The approximate location and identity of other utilities, including the locations of street lighting fixtures;

i. Proposed railroad crossing or modifications to an existing crossing, if any, and evidence of contact with Oregon Department of Transportation (ODOT) related to proposed railroad crossing(s);

j. Changes to navigable streams, shorelines or other water courses. Provision or closure of public access to these areas shall be shown on the preliminary plat, as applicable;

k. Identification of the base flood elevation. Evidence of contact with the Federal Emergency Management Agency to initiate a floodplain map amendment shall be required when development is proposed to modify a designated 100-year flood plain;

l. Evidence of contact with ODOT for any development requiring access to a highway under the state's jurisdiction; and

m. Evidence of contact with the applicable natural resource regulatory agency(ies) for any development within or adjacent to jurisdictional wetlands and other sensitive lands. The City may require a wetland delineation concurrence from DSL when applicable.

4. The approximate location and character of all existing and proposed easements and public utility facilities except water and sewer lines in the subdivision or adjacent thereto.

B. Supplemental Information. The City may require any of the following to supplement the preliminary plat

1. Approximate center line profiles with extensions for a reasonable distance beyond the limits of the proposed subdivision showing the finished grade of streets and the nature and extent of street construction.

2. A plan for domestic water supply lines and related water service facilities.

3. Proposals for sewage disposal, storm water drainage and flood control, including profiles of proposed drainage ways.

4. If an area is to be graded, a plan showing the nature of the cuts and fills and evidence provided in a site investigation that such a grading will be stable.

5. Proposals for other improvements such as electric, utilities and sidewalks.

6. Geologic investigations as required by the Community Development Director and City Engineer. Where such an investigation indicates the potential for erosion, an erosion control plan shall also be submitted.

SUBDIVISION, FINAL PLAT - INFORMATION ON FINAL PLAT.

A. Requirements. The requirements for final plats are found WMC 16.216.070.

B. Public Works Director Review

1. The Community Development Director shall forward a copy of the plat and other data to the Public Works Director, who shall examine it to determine that the subdivision as shown is substantially the same as it appeared on the preliminary plat, as approved; that all provisions of the law and this ordinance applicable at the time of approval of the preliminary plat have been complied with; and that the plan is technically correct.

2. The Public Works Director may make checks in the field as he may desire to verify that the plat is sufficiently correct on the ground and he may enter the property for this purpose.

3. If the Public Works Director determines that full conformity has not been made, the Public Works Director shall advise the subdivider of the changes or additions that must be made for these purposes, and shall afford the subdivider an opportunity to make the changes or additions. If the Public Works Director determines that full conformity has been made, he shall so certify on the plat and shall transmit the plat to the Community Development Director for further review

PAVING & STREET DESIGN CRITERIA

A. GENERAL

1. In addition to this section refer to the section labeled "*TYPICAL PLAN CRITERIA FOR ALL ENGINEERING SUBMITTALS"*, in this manual.

2. Street design should also be consistent with and comply with the guidelines in the current issue of **American Association of State Highway and Transportation Officials** (AASHTO's) "A Policy on Geometric Design of Highways and Streets" local and collector road & streets section.

3. Include all applicable standard specifications and standard details on the plan.

4. Include a vicinity map.

5. Benchmark shall be on North American Vertical Datum of 1988 (NAVD-1988). Horizontal control will be the same as the subdivision plat datum.

6. Show a north arrow on each sheet of plans pointing up or to the right.

7. Include an index map showing sheet numbers on the title sheet.

8. If any streets are located within the jurisdiction of the State or County, a permit from that jurisdiction is required.

9. All plans must be submitted on 22" x 34" sheets and be legible at 50% reduction.

B. LAYOUT OF STREETS & ALLEYS

1. New streets and alleys require platting. Show street names, locations, widths, and easements; they shall agree with the final plat.

2. The alley and street drainage shall agree with the approved drainage plan.

3. All cross-sections, ROW widths, and dimensions of streets and alleys shall meet city standards found in the WMC Table 16.136.010.

4. Valley gutters are not permitted across collector or arterial streets.

5. Curb returns shall have:
   a. A 25' radius where a local or residential collector street turns 90°.
   b. A 30' radius where two arterials intersect.
   c. All others 20' radius.
6. Cul-de-sacs: A dead-end street shall be no more than 200 feet long, shall not provide access to greater than 18 dwelling units, and shall only be developed when environmental or topographical constraints, existing development patterns,

or compliance with other standards in this manual preclude street extension and through circulation.

a. All cul-de-sacs shall terminate with a circular turnaround. Circular turnarounds shall have a radius of no less than 40 feet from center to edge of pavement except that turnarounds that contain a landscaped island or parking bay in their center shall have a minimum radius of 45 feet. When an island or parking bay is provided, there shall be a fire apparatus lane of at least 20 feet in width; and
b. The length of the cul-de-sac shall be measured along the centerline of the roadway from the near side of the intersecting street to the farthest point of the cul-de-sac.
c. For cul-de-sac dimensions, the minimum radius to the face of curb is 45' and the radius for the right-of-way is 55.

7. All dead-end streets serving more than three (3) lots shall be provided with temporary connections to an approved access roadway/street or turn-arounds.

8. Location of driveways and dimensions shall be shown. Use street alignment stationing to locate driveway centerlines or locate from nearest property line. Include driveways width dimensions consistent with WMC Section 16.120.020.K.

9. Alleys shall conform to the standards in Table 16.136.010 (WMC). While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have a radius of not less than 12 feet.

10. Dead end alleys are prohibited.

11. All new and existing survey monuments shall be shown on the plans and are required at all street intersections, P.C.'s, P.T.'s, P.I.'s, section corners, quarter corners, sixteenth corners, and subdivision corners if applicable. After all improvements have been installed, an Oregon Registered Land Surveyor shall check the location of monuments and certify their accuracy and compliance.

12. Street names shall conform to the existing City grid and the requirements of the WMC Chapter 12.24.

13. Maximum block length shall not exceed 1,000 feet between street corner lines unless it is adjacent to an arterial street or unless the topography or the location of adjoining streets justifies an exception. The maximum length of blocks along an arterial is 1,800 feet. A block shall have sufficient width to provide for two tiers of building sites unless topography or location of adjoining streets justifies an exception.

14. Minimum 15' X 15' property line cutoffs are required at all angles and intersections of alleys.

15. 15' X 15' property line corner cutoffs are required at local street intersections and where local and collector streets intersect. 20' x 20' cutoffs are required at collector street intersections and where local and collector streets intersect arterial streets. 30' x 30' cutoffs are required at all arterial intersections.

16. Where two streets intersect with a common local or collector street and those streets are offset from each other, the minimum offset shall be 125'. Where the common street is an arterial street, the minimum offset shall be 300'.

17. All intersections with arterial streets shall be at 90 degrees, except where topography requires a lesser angle or where a reduced angle is necessary to provide an open space, pocket park, common area or similar neighborhood amenity. In addition, the following standards shall apply:
    a. Streets shall have at least 25 feet of tangent adjacent to the right-of-way intersection unless topography requires a lesser distance;
    b. Intersections which are not at right angles shall have a minimum corner radius of 20 feet along the right-of-way lines of the acute angle; and
    c. Right-of-way lines at intersection with arterial streets shall have a corner radius of not less than 30 feet.
18. Local street intersections shall vary no more than 15 degrees from a 90-degree angle.

19. Intersecting street center lines with an angle between them at more than 10 degrees but less than 90 degrees shall be connected by a minimum centerline radius of 600' for collector streets or 200' minimum radius for local streets.

20. Where a local street intersects a collector or arterial street, provide minimum tangent approach distance of 150' (measured from the right-of-way line of the major street) or a minimum radius of 400'.

21. Provide 100' minimum tangent distance between reverse curves on local and collector streets.

C. DESIGN OF PAVING, CURB, GUTTER, & SIDEWALK

1. The project design engineer shall provide sufficient cross-sections and profiles of existing and proposed improvements. Include typical sections and pavement structural sections.

2. Pavement design must comply with the *ODOT Department of Transportation Pavement Design Guide* as applicable limited to coastal criteria. Use 744 Specification for equipment and mix designs and ASHTO Low Volume design.

3. All pavement design must comply with either:

a. For questionable soil criteria all street construction requires that a soils investigation be performed. The soils investigation will be performed by a Geotechnical Engineer registered in the state of Oregon. Pavement design must be based on geotechnical reports for questionable soil types.

b. City standard cross-sections for standard soil types.

c. Use Level 3 design mix for ALL City Streets.

4. Collector and arterial streets shall use 19 mm (3/4") dense hot mix asphalt concrete (HMAC) for the base course(s) and a 12.5 mm (1/2") dense mix for the surface wearing course.

   a. The full street section shall be a minimum of 3 inches thick.
   b. The minimum lift thickness for 19 mm dense HMAC is 2 inches. The maximum lift thickness is 3 inches.
   c. The minimum lift thickness for 12.5 mm dense HMAC is 1 ½ inches. The maximum lift thickness is 3 inches.

5. Local streets shall be a minimum of 2-inches of dense HMAC.

6. Roadway structure shall be a minimum of twelve inches of 1" or ¾" – 0" inch compacted base rock.
   a. Use only dense graded aggregate base materials unless a high water table is a known problem. The top 100 mm (4 inches) of aggregate base materials must be 25 mm – 0 or 19 mm – 0 (1"-0 or ¾"-0).
   b. An additional 12" layer of 3" cobble sub-base with geotextile layer may be used during wet weather or winter construction periods.

7. Local streets serving single-family residential development shall have 4" roll curb and gutter, arterial streets shall have 7" vertical curb and gutter and all other streets shall have 6" vertical curb and gutter.

8. Provide sufficient information showing existing upstream and downstream construction to justify the design.

9. The proposed paving grades shall match existing or proposed improvements both upstream and downstream.

10. The design grades shall match the existing or proposed improvements on the opposite side of the street.

11. Wing-type driveway entrances shall be located on all streets except for local residential streets with roll curb in front of single-family homes and where approved by the PWD.

12. Sidewalks are required adjacent to both sides of all city streets and shall be 8' wide along arterial streets, minimum 5' wide on local streets, and minimum 6'-0" wide for all other streets.

13. Select material used in accordance with City Details for base course shall be verified by soil tests.

14. A soil report shall be submitted to verify the designed pavement section.

15. All drainage ditches shall be tiled with rubber gasket reinforced concrete pipe (RGRCP) or smooth bore high density polyethylene pipe (HDPE). If an engineered drainage report verifies that open ditching is necessary to provide storm water storage for a tidal influenced discharge to a waterway, an open-ditch system may be approved.

16. All pavement termination or extent of overlay shall be determined in the field by the Public Works Director, or designee.

17. Excessive downhill gradient from an existing or proposed street intersection to a point where minimum gradient is used along the remainder of the street length will not be permitted. A straight grade must be used unless it will create a difficult problem in terms of grading or drainage.

18. Minimum street grade shall be 2% slope. Where practicable street gradients shall exceed minimums. Grades shall not exceed 10% on arterials, 12% on collector streets, or 12% on any other street (except that local or residential access streets may have segments with grades up to 15% for distances of no greater than 250 feet).

19. The minimum length for a vertical curve is 100'.

20. Minimum cross slope shall be 2.5% for all streets and alleys.

21. Minimum longitudinal slope across valley gutter shall be 2%.

22. Minimum elevation difference from radius point of cul-de-sac to highest gutter shall be 0.5'.

23. Minimum slope on paved alley shall be 2%.

24. Minimum slope on aggregate base course (A.B.C.) surfaced alleys shall be 1.5%.

25. Show all proposed valley gutters, aprons, catch basins, scuppers, and other drainage structures.

26. All roadway design must comply with the latest adopted State Standards of the Americans with Disabilities Act (ADA) and the Latest Edition of *ADA Standards for Accessible Design*.

27. Handicap sidewalk ramps with red truncated domes are required at all intersections.

28. Show all curb transitions.

29. Show taper lengths and locations in both plan and profile.

30. Show invert elevations, pipe size, slope, stationing, and material for all proposed storm drains.

31. All catch basins are to be curb opening type (2.5' minimum length.) No grate-only type catch basins shall be used. Leaf Inlets (combination curb-opening/grate) and curb opening inlets are acceptable. Slotted drain with angled slots may be used in combination with catch basins.
    a. Use Oregon Standard Detail RD371.
    b. Use Oregon Standard Detail RD372 for the catch basin lid.

32. No drainage grates are allowed in public sidewalks.
    a. For onsite residential drainage, provide drainage pipes behind the sidewalks with piped ties underneath the sidewalk and curb to the nearest catch basin.

33. Scuppers are not preferred. Replacement of existing scuppers with catch basins is encouraged. Scuppers may be used with special approval in some cases where existing and significant drainage pathways exist along ROWs with proposed curb and gutter installation and a pipe drainage system is impractical.

34. Call out all applicable specifications or detail (ODOT, APWA Oregon Chapter, or City of Warrenton) in the construction notes or show "special" detail on plan.

35. Show all underground electric circuits, conduit, traffic signal poles, pole foundations, pull boxes, and other traffic furniture approved by City of Warrenton Public Works Department (and/or ODOT if the project has ODOT frontage).

36. Saw cuts of existing pavement when approved by the Public Works Director, or designee, shall be a neat straight edge.

STREET NAME REQUIREMENTS

A. To name or rename any or all streets, the order shall begin at each base line and progress in the following manner:

   1. All streets shall bear numbers starting at zero at the base line and continuing north and south and east and west. Places shall bear the same number as the preceding avenue.

   2. All proposed streets west of Main Avenue shall have a tree or plant life name; and all proposed streets between Highway 101 and Main Avenue shall have a “nautical” name.

   3. All proposed streets shall have directional prefixes as part of the street name (i.e., E., W., N., S., NE, SW).

A. All proposed streets east of Highway 101 shall follow the street naming procedure as outlined below:

   1. Proposed street names shall be submitted as part of a subdivision or partition application to the Planning and Building Department. The request shall include the proposed name(s), the specific street location and brief but complete background information on the name and how it meets the street name policy. If the new street name is indicated on the proposed plat at the time of the land use application it shall be labeled “proposed,” such as “(proposed) SE Willener Court.”

   2. Streets shall generally be named after people, places, events, and things related to the City and the citizens of Warrenton. Proposed names should meet one of the following criteria:

      a. To honor and commemorate noteworthy persons associated with the City of Warrenton, Clatsop County, and the State of Oregon;

      b. To commemorate local history, places, events or culture;

      c. To strengthen neighborhood identity; or

      d. To recognize native wildlife, flora, fauna or natural features related to the community and the City of Warrenton.

B. Consideration should be given to names of local area or historic significance. Names of living persons should be used only in exceptional circumstances. Only a person’s last name should be used as a street name unless additional identification is

necessary to prevent duplications of existing street names in Warrenton and Clatsop County.

C. Names to Avoid.

1. Street names being a duplicate of an existing street in the City of Warrenton or in Clatsop County shall be avoided.

2. Similar sounding names such as Beach Avenue and Peach Avenue, Maywood Court and Maywood Lane shall be avoided.

3. Cumbersome, corrupted or modified names, discriminatory or derogatory names, from the point of view of race, sect, color, creed, political affiliation or other social factors shall be avoided.

4. Names for public streets that could be construed as advertising a particular business shall be avoided.

5. The reuse of a former street name should be discouraged because of the confusion this causes in property records management and fire and police protection.

D. Street Type Designations. Depending on roadway function, length and configuration, suffixes exist to define the character of a street. The following designations shall be used:

1. Avenue. A public or City right-of-way that runs in a north-south direction (except for the Hammond area, which has avenues going east-west).

2. Street. A public or City right-of-way that runs generally in an east-west direction.

3. Boulevard. A major landscaped arterial that carries moderate to heavy volumes of traffic at moderate to high speeds.

4. Court. A local road that is of short length, which carries a low volume of traffic at low speeds, with no cross streets and generally terminates in a cul-de-sac.

5. Drive, Parkway, Trail. A meandering collector or arterial that carries low, moderate or high volumes of traffic at low, moderate or high speeds.

6. Lane. A local road that is of short length, which carries a low volume of traffic, at low speeds, and generally terminates in a cul-de-sac.

7. Place, Way. A local road that is of a short length and carries low volumes of traffic at low speeds.

8. Terrace, Gardens, Grove, Heights. For low volume, short length streets. (Ord. 1120-A § 4, 2008

SEWER DESIGN CRITERIA

A. GENERAL

1. Provide a signature block for the approval of the Oregon Department of Environmental Quality for the sewer system.
2. Show or include references to all applicable standard specifications and standard details on the plan.
3. Include the current general notes on the plan.
4. Include the completed utility approval block on the plan.
5. Include the permit and as-built information block.
6. Benchmark shall be on North American Vertical Datum of 1988 (**NAVD 88**). Horizontal control will be the same as the subdivision plat datum. Each project shall have two mathematical ties to an approved NAVD 88 datum.
7. Show a north arrow on each sheet of plans pointing up or to the right.
8. Include an index map showing the sheet numbers, pipe sizes, pipe type, manholes, and cleanouts on the cover sheet if more than two sheets are used.
9. Include a site plan/location map showing pipe sizes, pipe type, manholes, direction of flow, and cleanouts (see page 8 for additional requirements).
10. Based upon centerline stationing and offsets show, locate, and dimension all existing and proposed utilities on the plan.
11. Show dimensions of rights-of-way features and all easements.
12. Public sewers shall be located in either the right-of-way or a minimum 20-foot wide exclusive sewer easement. When located in an easement, the sewer line shall be centered in the easement. Wider easements may be required based upon pipe diameter, depth of cover or location of adjacent utilities.
13. If any lines are located within the jurisdiction of the State or County then their permit is required.
14. Plan and profiles are required for all public sewers showing existing and proposed surface grades, all other utilities, and other appropriate information (buildings, hardscape, landscape, drainage, etc.).

15. Provide a service stub for each lot in the subdivision and extend it to property line or easement line. Show centerline station, offset location, and elevation for each service. Residential services shall be 4 inches in diameter. Commercial services shall be a minimum of 6 inches in diameter. Each property must have an individual service. Individual services are not allowed into a public manhole.

16. Access to all sewer mains for maintenance purposes shall be provided.

17. All plans must be submitted on 22" x 34" sheets and be legible and scalable at 50% reduction.

18. All sheets shall be stamped, signed, and dated by an Oregon Registered Professional Engineer.

19. Provide an estimate of quantities of construction items.

20. Provide an estimate of the sanitary sewer average discharge rate for the development in gal/day.

21. The maximum scale for sewer plans is 1" = 30'; show a bar scale on each plan sheet.

22. Provide title block on each sheet showing project name, type of drawing, sheet number, and quarter section.

23. Provide the applicable legend and notes on each sheet.

24. Provide a key map on each sheet showing page location within the overall plan.

25. The following requirement must be met when an existing sewer tap, which is not currently in use, is to be utilized in design. A sealed/signed statement from the design engineer must be submitted with the plans indicating that the existing sewer tap has been physically located and has been flow tested, TV'd, etc. to ensure the sewer tap's serviceability. This must be received prior to City plan approval and prior to any permit issuance.

B. PIPES

1. All taps shall be machine drilled only. Individual single-family residential taps may be 4 inch. All others shall be a minimum of 6 inch diameter.

    a. Service saddles shall be at least 24 inches from the manhole wall or adjacent service.

    b. Design service laterals within 5 feet of the center of the property being served.

2. Any taps larger than 6 inch will require individual design of the tie-in.
3. Sewer lines shall be deep enough to have a minimum of 4 feet of cover at the property line.
4. Profiles for services may be required (based on the additional underground infrastructure in the area) from the site to the sewer.
5. No individual direct service taps to lines larger than 12 inch diameter will be allowed.
6. Determination will be made on a project specific basis whether public sewer in lieu of private sewer will be allowed onsite.
7. Public sewer lines should be a minimum of 20 ft. away from any trees.
8. Public sewer lines should be a minimum of 16 ft. away from any foundations.
9. Additional appurtenances are required based on use to satisfy the Fats, Oils and Grease (FOG) requirements in WMC 13.08.050. These appurtenances shall be installed on private property only. Contact City of Warrenton Public Works Department at (503) 861-0914 for further information and requirements.
10. All bored street crossings shall be encased in a sleeve.

C. **MANHOLES**

1. The maximum distance between manholes is 500 ft. for all sewer mains.
2. Show all rim elevations and pipe invert elevations at manholes.
3. Maintain an invert drop of 0.1', minimum for angle deviations 45° or larger across each manhole.
4. All changes of gradient or direction shall occur with a manhole at the point of change.
5. A manhole shall be provided for all sewer intersections 8" or larger.
6. Use drop manholes only when absolutely necessary with drop section constructed on the outside of the manhole shaft.
8. No service taps are allowed into public manholes or cleanouts.
9. The maximum distance from a cleanout to the nearest manhole is 150'.
10. Use a 30" manhole cover where the sewer is larger than 24".

11. Use a 30" manhole cover where the sewer is more than 10' deep.

12. Use a 24" manhole cover on all lift stations.

13. All manholes shall be 4' diameter with steps.

14. All manhole installations shall be complete in place including all excavation, backfill, sweeps, and conduits necessary to complete the installation of the manhole and connections to the mainline conduits.

SANITARY SEWER PUMP STATIONS DESIGN CRITERIA

August 3, 2009

A) **General Requirements**:

1. The following specifications describe the general requirements for the design and construction of sanitary sewer pump stations and wetwells. Details may vary, depending upon site specific conditions. Plans and specifications will be submitted to the City for review and approval, prior to submission of plans to the Department of Environmental Quality (DEQ).

2. Submittals will include calculations for initial sewage flows and final "build-out" sewage flows, size and description of the drainage basin. Provide a system pump curve illustrating the varying range of flow conditions from initial flows to build-out, along with the changes in pipe 'C' roughness.

3. Pressure and/or leakage tests of the wetwell and piping shall be required, complying with industry standard testing requirements.

4. Completion of work and final acceptance by the City will require the submission of three complete sets of pump curves, electrical data, alternator, power monitor, operating and maintenance instructions, as-built plans, final O&M Manual, certification of completion from the design engineer, and warranties from the equipment suppliers to the City of Warrenton. As-built information shall be bound in three ring binders and delivered to the owner before final acceptance of the project. As-built plans shall be in paper and digital (AutoCad .dwg and Adobe .pdf) format. Construction pictures should also be provided in a digital format. All digital information will be submitted on a CD, DVD or thumb drive.

B) City Water:

1. Provide a 2" water service for wash down of the pump station site.

2. Include a 2-inch RPBP assembly Watts #009. RPBP will be installed in a "Hot Box", size number LB3000, mounted on a 4" concrete slab sized for the hot box.

3. A 25-foot long, 2-inch fire hose to be included.

4. Wash down connection shall be installed no more than 10 feet from the wet well.

C) **Vault For Pigging Equipment**:

1. A concrete vault shall be included for the purpose of accessing the pressure sewer line(s) to clean with pigging equipment and for connection to the City's emergency pumping equipment (screw sucker portable pump).

2. The vault shall be a Utility Vault model 644-LA, with a 64-352P lid.

3. The vault lid shall be 4 inches to 6 inches *above* the finish grade.

4. Install a "Y" connection in the horizontal run with blind flange. The blind flange will include a 4-inch threaded tap connect to a 4-inch nipple, a 'Dixon' 4-inch Type-B quick disconnect cam lock and a Type-DP cap. Place the "Y" near the end of the vault to allow adequate room for the future installation of a flow meter.

5. A 4-inch *gravity* drain shall be placed at the low end of the vault, connected to the wet well with a check *valve.*

D) **Vault For Discharge Pipe Valves**:

1. A concrete vault shall be included (if necessary) for the purpose of placing gate valves and check valves.

2. The vault shall be a Utility Vault model 644-LA, with 64-352P lid.

3. The vault lid shall be 4 inches to 6 inches above the finish grade.

4. A 4-inch gravity drain shall be placed at the low end of the vault, connected to the wet well with a check *valve.*

E) **Automatic Transfer Switch**:

1. An automatic transfer switch shall be provided to allow for electrical service from a natural gas powered generator, in the event of the loss of electrical service.

2. The automatic transfer switch shall be of a make and model compatible with the manufacturer of the natural gas power generator.

F) **Manual Transfer Switch:**

1. If the City determines that an automatic transfer switch is not needed then a manual transfer switch shall be provided inside the control building in order to connect to a portable emergency generator.

2. Provide an Appleton Powertite Style-2 ADJA1034200RS Receptical" on the outside of the building, connecting to the transfer switch, for the purpose of connecting the City's portable generator.

G) **Control Panels**:

1. The control system shall be designed to operate two (2) submersible pumps (duplex control pumps as indicated on the drawings.

2. The control function shall provide for the operation of the pumps under normal conditions and shall alternate the pumps on each pump down cycle to equalize the run time. In the event the incoming flow exceeds the pumping capacity of the lead pump, the lag pump shall automatically start to handle the increased flow. As the flow decreases, the pumps shall cut off at the elevations of existing floats.

3. The control shall function as described below. The equipment listed below is a guide and does not relieve the panel supplier from supplying a system that will function as required.

4. The control enclosure shall be a NEMA 4X Fiberglas rated, UL approved. The enclosure shall be the smallest necessary to house the specified devices, shall be a wall mount type. The door shall open a minimum of 180 degrees. A dead front shall be mounted using a continuous hinge and a lexan window for viewing dead front mounted devices, the sub-panel shall contain cut outs for mounted equipment and shall provide protection from live internal wiring. Breakers shall be mounted to allow operation of breakers without entering the compartment. Control panels enclosures shall include an electrical heater with thermostat control.

5. All control switches, indicator lights, elapsed timers, duplex receptacle and other operational devices shall be mounted on the external surface of the dead front. All devices shall be permanently identified and same identification shall be made on the "As-built" drawings.

H) **Electrical Supply**:

1. The basic supply power shall be three (3) phase. Each location shall be site specific as to 230-VAC or 460-VAC supplied. All connections shall be 'fused' as per local codes.

2. Circuit breakers shall be heavy duty thermal magnetic or motor circuit protectors and shall be adequately sized to meet the pump motor operating characteristics. Three (3) circuit breakers shall be installed to provide for the control circuit, duplex receptacle; alarm circuit shall be individually controlled by adequately sized circuit breakers.

3. Motor starters shall be VFD, constant torque or designed with a pump de-clogging feature to prevent motor damage at start-up, rated with individual overload protection in each leg. Hertz settings shall be a maximum of 60-htz and the minimum of 40-htz. Follow Manufacturer’s recommendations for the “Down Ramp” from 60 to 40-htz’s. and, provide “Up Ramp” at pump start at 40-htz.

4. Control transformers shall be provided as required for 120-VAC and/or 24 VAC control circuits. Transformer shall be fused on the primary and secondary circuits.

5. A line voltage rated adjustable phase monitor shall be installed to sense low voltage, loss of power, reversed phasing and loss of a phase. Control circuit shall de-energize upon sensing any of the faults and shall automatically restore electrical service upon return to normal power.

6. Provide a remote mounted "Alarm" light ,, which shall be a weatherproof, shatterproof, red light fixture with a 40-watt, 120-VAC, bulb. The alarm light

shall be energized by the high level, overflow alarm level control, and phase monitor.

7. Pumps and connected electrical cable shall be explosion-proof.

l) **Control System**:

1. The control system shall be designed to operate two (2) submersible pumps. A Variable Frequency Drive (VFD) and a Submersible Liquid Level Transducer will control the pumping operation.

2. The control function shall provide for the operation of the pumps as the water level in the wetwell increases and decreases. The submersible level transducer and the Variable Frequency Drive (VFD) will control operation of the pumps. As the water level rises the pump/motor speed will increase and the pumping rate will increase until pumping down to shut-off.

3. The electrical control equipment will be housed in the existing brick building adjacent to the wetwell. The Contractor will provide adequate lengths of electrical cable(s) to reach between the pump and the disconnect panel to be located on the outside wall of the building. The installation contractor will provide the disconnect panel on the outside of the building.

4. The electrical control equipment shall be placed inside the brick or fiberglass building. The control equipment can be wall mounted if they are specifically designed for wall mounting. Otherwise the electrical controls shall be housed within UL approved enclosure(s). The enclosure(s) shall be the smallest necessary to house the specified devices. The enclosure shall be a wall mount type. The door shall open a minimum of 180 degrees. A dead front shall be mounted using a continuous hinge and a lexan window for viewing dead front mounted devices, the sub-panel shall contain cut outs for mounted equipment and shall provide protection from live internal wiring. Breakers shall be mounted to allow operation of breakers without entering the compartment. Control panels enclosures shall include an electrical panel heater with thermostat control.

5. All control switches, indicator lights, elapsed timers, duplex receptacle and other operational devices shall be mounted on the external surface of the dead front.

6. All devices shall be permanently identified and same identification shall be made on the “As-built” drawings.

7. The control system shall provide for the automatic and manual control and alternation of the pumps to maintain a pumped down condition of the wet well. Levels shall be sensed by mercury float switches adjusted to the levels shown on the plan. The four float switches shall be "off', "lead', "lag" and "alarm".

8. As the level in the wet well rises, the lead pump as determined by the alternator, shall start and pump the station to the "off” position. In the event the incoming flow exceeds the capacity of the lead pump, the "lag" pump shall start and both

pumps shall run to the "off' level. The alternator shall switch when the "off" level is reached.

9. If the level should continue to rise in the wet well to the "alarm" level, alarm functions shall be activated.

10. Dead front door shall have mounted, for each pump, a three position Hand/Off/Auto switch, green "Run" indicator, three (3) elapsed time meters to record pump operation for each pump and for dual pump operation (6 digits and tenths, non-re-settable) and red seal failure indicator, if provided, with pumps selected.

11. The alternator shall be solid state with Lead/Lag/Auto and Test switches. The unit shall be 120-VAC and provide DPDT ten (10) amps rated dry contracts as required.

12. Panel shall be built by a **UL** listed shop for industrial controls, per all governing codes, and tested to assure proper operation of all components before shipping.

13. All component parts in the control panel shall be permanently marked and identified as they are indicated on the "as-built" drawings. All wiring shall be identified with wire markers at each end as close as practical to the end of the wire.

14. Pumps and connected electrical cable shall be explosion-proof.

15. A typical pump wiring diagram (drawing #80109A) and control panel wiring

J) Power Generator:

1. A natural gas generator shall be provided for electrical power to operate the pumps and telemetry, in the event of the loss of electrical service.

2. The generator shall be sized for the KW required for the operation of the sewer pump station at maximum dual pumping operation conditions.

3. Installation of all gas piping shall be in accordance with installation practices of Northwest Natural Gas Company.

4. The natural gas generator will be placed inside the control building or at the exterior wall of the control building, on a minimum 4-inch thick concrete slab, protected with a cyclone fence and gate. The placement of the generator will be determined by the City based on the characteristics of the pump station site.

K) Control Building:

1. A brick or fiberglass control building, minimum 8'x8' with 8-foot high eaves, shall be included, to house the sewer pump electrical panel, telemetry, the automatic transfer switch, and protect maintenance personnel and equipment during inclement weather conditions. The roof shall include a 2x6 framed "hip" style,

19/32" sheathing, 15-lb. building paper, architectural grade 3-tab 20-year roofing, vinyl gutters and downs.

2. All electrical control boxes placed on the exterior of the control house shall be
3. Color scheme for the building and roofing shall be submitted to the City, for approval.
4. The interior is open, no wall or ceiling covering.
5. The control equipment can be wall mounted if they are specifically designed for wall mounting.
6. All wiring between the control building and the wetwell, transformers, vaults, and other appearances will be placed underground, in conduits. Conduits will enter the building up through the concrete slab floor, at the wall line.
7. A 'red' warning light will be placed on the exterior of the building, under the soffits, visible from the public street.
8. Three (3) **110**-volt duplex outlets will be provided within the building.
9. Access to the control building will be made through a single 3-0x6-8 exterior door, solid core, vinyl, three hinges, outside swing. Additional blocking and/or framing shall be included to reinforce the door casing from possible vandalism.
10. Door lock shall be keyed for the City's use.

L) Wet well:

1. Size will vary depending upon final "build-out" flow conditions.
2. The concrete wet well shall be a minimum of 6-foot in diameter. A *36"x48"* Flygt 'Safe Hatch' shall be cast into the concrete lid, prior to delivery to the site.
3. All joints and penetrations of the wet well shall be water-tight. Penetrations with the gravity sewer pipe will be made with the use of "Kor-n-seal" boots.
4. The concrete base shall be a minimum 12-inches thick and of sufficient size to prevent floatation. The wetwell shall be placed on a base, utilizing a minimum of 12-inches of 3 inch rock.

M) Site Requirements:

1. The site will be graded to provide surface water drainage away from the wetwell and control building.
2. Bollards may be required to protect the equipment from traffic.
3. A street "address" is required.

4. The site around the wetwell and control building, and the access to the wetwell and control building from the street, will be constructed of either concrete or asphalt pavement, designed to support maintenance equipment.

5. The pump station shall be on a sufficient size piece of property to allow for access to the site by maintenance equipment. The pump station will not be within public right-of-way. The pump station site will be on property to be owned by the City; or, on private property with an exclusive easement to the City for continued operation and maintenance of the sewer pump station.

N) **Pumps, Piping. and Controls**:

1. The submersible pumps shall be specifically designed to pump sanitary sewerage waste solids at heavy consistencies without plugging or dewatering of the solids. The initial pumps to be installed will be two (2) submersible pumps described as follows:

2. Each pump shall have minimum two (2) cutting vanes, manufactured with hard-iron cutting surfaces formulated with a minimum 20% chromium content

3. Pumps shall be UL listed explosion proof, Class 1, group D, Division 1.

4. All electrical motors shall be three (3) phase operating at a minimum 1750-rpm.

5. The pumps will be designed to be removed by a lifting chain or cable. Both the chain and cable will be constructed of stainless steel (316-stainless steel for the chain). Both the lifting chain and the lifting cable will be equipped with stainless steel circular rings near the base, top of the chain, and two additional rings evenly spaced along the run. Or, the lifting rings may be replaced with similar equipment, meeting with the approval of the Engineer

6. The pump power chord shall be suspended from the underside of the lid with the use of cradle with rounded edges, not from a cable or wires that will cause wear. The minimum length of the power chord shall be 30-feet

7. Cards will be suspended from a stainless steel rack attached with stainless steel bolts.

8. The pump power chords shall be suspended from the underside of the lid with the use of cradle with rounded edges, not from a cable or wires that will cause wear. A plastic waterproof electrical splice box will be placed at the outside edge of the wetwell lid to allow for removal of the pumps. The power chords from the splice box to the control building will be placed in conduit. Sealant will be placed in the conduit, to prevent the passage of fumes between the wetwell and control building.

9. A leakage sensor shall be available to detect water in the stator chamber. When the sensor is activated the pump motor will stop and an alarm shall be enabled.

10. A Submersible Level Transducer/Transmitter (similar or equal to a Siemens A1000i) will be used for the control of the pumps. Float switches will be used as backup for the transducer to warn of high water alarms and high water controls of the pumps to override in case of a transducer failure. A plastic waterproof electrical splice box will be placed at the outside edge of the wetwell lid to allow for removal of the floats. The chords for the floats between the splice box and the control building will be placed in conduit. Sealant will be placed in the conduit, to prevent the passage of fumes between the wetwell and control building.

11. Pump Manufacturer or Agent shall provide start-up and test of each pump and float switches after receiving notification that electrical service has been completed.

12. The discharge piping within the wetwell and through the vaults shall be ductile iron. All elbows and mechanical fittings will be ductile iron, restrained with the use of mega-lugs.

O) Telemetry Equipment:

1. The City is developing telemetry specifications.

SEWER PUMP POWER WIRING

Under development

[Insert schematic]

CONTROL PANEL WIRING

Under development

[Insert schematic]

WATER DESIGN CRITERIA

A. GENERAL

1. Call out or show all applicable standard specifications and standard details on the plan.
2. Include the current *General Site Plan* notes on the plan.
3. Include the completed utility approval block on the plan.
4. Include the permit and as-built information block.
5. Include approval blocks for the Regional Engineer of the *Oregon Public Health Division, Office of Environmental Public Health, Drinking Water Program* (if required) and the Public Works Director.
6. Include a site plan/location map showing valves, hydrants, meters, back flow preventers, easements, and pipe sizes (see page 10 for additional requirements).
7. If any lines are located within the jurisdiction of the State or County, a permit is required.
8. Benchmark shall be on an official NAVD-1988 datum. Horizontal control will be the same as the subdivision plat datum. Each project shall include two mathematical ties to an approved NAVD-1988 datum benchmark.
9. Show a north arrow on each sheet pointing up or to the right.
10. Include an index map.
11. Based upon centerline stationing and offsets, show, locate, and label dimension of all existing and proposed utilities on the plans.
12. Show dimensions of rights-of-way features and all easements, existing and proposed.
13. For public water lines not located within the Public right of way, exclusive public water easements are required and shall be a minimum of 20 ft. wide centered on the pipe. (Wider easements may be required based on pipe diameter and depth of cover)
14. For water services not located within the Public right of way, exclusive public water easements are required for the service lines from the main up to and including the water meter.
15. The maximum scale for water plans is 1" = 30'; show a bar scale on each plan sheet.

16. Each lot in a subdivision shall be supplied with water in sufficient volume and pressure for domestic use and fire protection. Locations of all taps shall be dimensioned on the plans.

17. All plans must be submitted on 22" x 34" sheets and be legible at 50% reduction.

18. All sheets shall be stamped, signed, and dated by an Oregon Registered Professional Engineer in compliance with the latest Oregon Board of Technical Registration requirements.

19. Provide an estimate of quantities of construction items.

20. For new water services, provide an estimate of flow rate in gallons per minute for average day water demand.

21. Provide the applicable legend and notes on each sheet.

22. On each sheet show the Public Works Private Development Number (assigned during first plan review) and the address in the lower right hand corner in the bottom margin. Use 36 pt. lettering.

23. Provide title block on each sheet showing project name, type of drawing (water), sheet number, and quarter section (use ½ or full section ID if project spans more than one ¼ section).

24. Provide a key map on each sheet showing page location within the overall plan.

25. Water meters and fire hydrants shall be located within a recorded exclusive waterline easement contiguous with the water main system. Backflow preventers shall be located on private property & outside of the public right-of-way or outside of public easements.

26. Isolation valves at branch connections in the looped water line system should be provided. The number of valves as required shall provide a means for isolating every branch by closing one or more valves. Typically this will require one valve less than the number of branches.

B. PIPE

1. All public mainline water pipes shall be C900 PVC pipe with a pressure class of DR14 or ductile iron Class 52.

2. If soil conditions warrant additional corrosion protection for iron pipe, the plans shall note to encase the pipe in high-density polyethylene in accordance with APWA Oregon Standard Specification 01140.43.

3. All section and mid-section water lines, or arterial street water lines, shall be a minimum of 12" diameter. All sixteenth section lines, or collector street water lines, shall be a minimum of 8" diameter.

4. Water lines smaller than 12" shall have a minimum cover of 30".
   Water lines 12" and larger shall have a minimum cover of 48".

5. Provide a minimum of 2 feet vertical clearance to all other utilities; except sewer shall be per *Department of Environmental Management, Office of Water Resources rule*. Requirements shall be specified on the plans for water line and sewer line encasement when a sewer line that is located from edge to edge of pipes less than 10' horizontally and 18" vertically under a water line.

   a. In situations where it is impossible to obtain proper horizontal and vertical separation as stipulated above, the following protection shall be provided:

      i. Encasement of the sewer pipeline in concrete (min. 6 inch thickness) or a carrier pipe for at least 10 feet either side of the area not complying with the minimum horizontal and vertical separation, or

      ii. The design and construction of the sewer pipeline must meet the requirements applicable to water lines (any AWWA-approved material for potable water conveyance), and pressure tested in accordance with AWWA specifications, or

      iii. In instances of conflict with sanitary wastewater structures mentioned above, relocate the water line to achieve either a 10 foot horizontal or 18 inch vertical separation.

6. Fire protection water flows may increase line sizes and require line looping.

7. All fire hydrant valves shall be flanged to the tee or 90^0 elbow.

8. Main line valves shall be spaced every 500' to 600' and placed in locations, which allow appropriate water main isolation.

9. All valve boxes shall be per Oregon Standard Drawing RD258.

10. Main line valves at line intersections shall be flanged directly to the tee or cross fittings.

11. Control data:

   a. Show coordinates (NAVD-1988 datum), bearings, and distances, or street centerline station and offset dimensions to:

      i. All fire hydrants and fittings (i.e. valves, tees, ells)

      ii. Main at all changes in alignment.

      iii. All horizontal control points (i.e. centerline intersects, pc, pt).

   b. Show centerline station and offset to each service tap; size of tap; water meter and meter size; and dimension to nearest side property line.

c. Show centerline station, offset and elevations to all changes in vertical alignment (i.e. dips, bends, etc. required to avoid conflicts with other utilities).

12. Install a fire hydrant on the end of all dead-end lines unless otherwise approved by the Public Works Director, in which case use a 2-inch curb stop with flushing pipe.

13. All single-family residential water service taps and meters shall be installed by the City of Warrenton, except in new residential subdivisions.

14. New residential subdivision developments, and commercial development water service taps may be installed by the contractor/developer or by the City of Warrenton, upon pre-payment of prevailing fees. The contractor/developer shall install the water meter box/vault and shall extend the pipe through the box/vault in preparation of the residential water meter installation. The City of Warrenton only shall install, remove or relocate water meters. Duplex and multi-family residential units are considered to be commercial. Townhome and condominium complexes are considered to be commercial.

    a. Commercial properties making connections to the City infrastructure shall provide and install Master Meter dual body compound water meters with 3G Mobile AMR radio read registry system in Armorcast meter boxes and 20k traffic rated lids.

    b. The tag on the meters should be delivered to City of Warrenton Public Works, 45 SW 2nd St., Warrenton, upon installation.

15. No water services are permitted on dead-end lines unless a blow off is provided at the end of the main.

16. All bored street crossings require City Engineer approval and shall be encased in a sleeve.

17. Service taps shall not be closer than 5' on any water main.

18. Meter size will be based on the design flow rate, latest meter technology and capability.

19. Service taps at the main and copper service lines to the meter location for a residential ¾-inch meter shall be 1-inch to allow for future meter upsizing.

20. Separation of public water and sewer lines shall comply with OAR 333 regulations governing horizontal and vertical separation between water and sanitary sewer facilities. Horizontal distance between pipes shall be 10 ft. edge–edge minimum. Vertical distance shall be 1.5 feet minimum. (Wider separation may be required based on pipe diameter and depth of cover.)

21. Public water lines should be 16 ft. minimum away from any foundations or 20 ft. minimum away from any trees.

22. In all cases the public water line shall be above any crossing (other public utilities, onsite private utilities, and other non-structural appurtenances).

23. Water lines should be centered in paved drive aisles when located on private property.

24. Permanent overhead structures will not be allowed above public water or sewer easements unless the vertical clearance is greater than 30 ft.

25. Appropriate backflow prevention devices are required based on onsite use (Landscape, domestic midrise, high-rise, internally boosted, etc.)

26. Public water easements are required for service lines from the main up to and including the water meter. Easements shall me a minimum of 10 feet wide for service lines. Easements for main lines shall be a minimum of 12 feet wide, with 15 feet wide being desirable.

C. FIRE HYDRANTS AND SPRINKLER LINES

1. Fire hydrants shall be Mueller Super Centurion 250 Model A-423 or an approved equal with a recirculation oil lubrication system.

2. All fire hydrant locations shall be approved by the City of Warrenton Fire Chief.

3. Fire hydrant spacing for one and two family dwellings shall not be over 500' measured along street lines with a minimum fire flow of 1000 GPM and a residual pressure of 20 psi for the most remote location.

4. Fire hydrant spacing for multi-family developments shall not be over 375' apart, or 150' to any opening in the building.

5. Fire hydrant spacing for commercial and industrial areas shall not be spaced over 375' apart, or 150' to any opening in the building.

6. Fire Department connections (FDC's) for sprinkler systems should be located at or near the main entry of the building and shall be located within 150' of a fire hydrant. FDC's are to be shown on Fire Sprinkler Plans and are shown on Civil Plans for reference only. Remote FDC's are not allowed.

7. Along arterial streets, hydrants shall be spaced 500' (maximum) apart on both sides of the street and arranged in an alternating pattern.

8. The number of hydrants available to a building complex or subdivision (other than one- and two-family subdivisions) shall not be less than that determined by the spacing requirements of Table 1.

9. The minimum fire flow for buildings other than one and two family dwellings shall be not less than that specified in Table 2 of the adopted version of the International Fire Code Appendix B.

10. For fire sprinkler lines and new fire hydrants off of existing mains, three-valve clusters will be required for hospitals, high rise buildings, schools, and other high density areas as determined during plan review.

11. Fire sprinkler lines off new looped mains will be required to be properly isolated, which may require a three-valve cluster if there is not an adjacent valve in the loop.

12. Fire suppression system connections must be isolatable at the main from supporting fire hydrants. (This may require cut in tees with three valve clusters and/or INSTA Valves.)

13. A fire hydrant must maintain a minimum clear distance of 2' from back of sidewalks and curbs.

14. Pipe between the valve on the main line and the fire hydrant must be ductile iron pipe.

TABLE 1
CITY OF WARRENTON PREFERRED NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

Fire Flow Requirement (GPM)	Minimum No. of Hydrants	Maximum Spacing Between Hydrants (in feet)[1,2,3]
500 - 1000	1	375
1250 - 2225	2	375
2500 - 2750	3	375
3000	3	375
3250 - 4250	4	350
4500 - 5000	5	300
5250 - 5750	6	300
6000 - 6250	6	250
6500 - 7000	8	250
over 8000	1/1000 GPM	250

1. Reduce spacing by 100' for dead end fire apparatus access roadways.
2. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500' on each side of the street and be arranged on an alternating basis up to a fire flow requirement of 7000 GPM and 400' for higher fire flow requirements.
3. Where new water mains are extended along a street where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided

PEDESTRIAN, BICYCLE, TRANSIT DESIGN CRITERIA

This section is under development

DRAINAGE DESIGN CRITERIA

A) GENERAL

1. Refer to the WMC, Chapter 16.140 for general requirements for **Stormwater and Surface Water Management,** available online at http://www.ci.warrenton.or.us/. Excerpts from the WMC are included in this section along with specific criteria that are a requirement of the Public Works Department improvements to public drainage systems.

2. Natural Drainage System Maintained to Extent Feasible (WMC 16.140.010).

a. To the extent practicable, all development must conform to the natural contours of the land and natural and pre-existing man-made drainage ways must remain undisturbed.

b. To the extent practicable, lot boundaries created by partition or subdivision must coincide with natural and pre-existing man-made drainage ways to avoid the creation of lots that can be built upon only by altering such drainage ways.

3. **Developments Must Drain Properly (WMC 16.140.020)**

a. All developments must provide an adequate drainage system to prevent the undue detention or retention of stormwater or surface water on the development site. Stormwater or surface water will not be regarded as unduly detained or retained if:

(1) The detention or retention results from a technique, practice or device deliberately installed as part of an approved sedimentation or stormwater runoff control plan prepared by an engineer; or

(2) The detention or retention is not substantially different in location or degree than that experienced by the development site in its predevelopment state, unless such detention or retention presents a danger to health or safety.

b. No stormwater may be channeled and directed into a sanitary sewer line.

c. Whenever practicable, the drainage system of a development must coordinate with and connect to the drainage systems or drainage ways on surrounding properties or streets.

d. All developments must be constructed and maintained so that adjacent properties are not unreasonably burdened with stormwater runoff as a result of the developments.

4. **Surface Water Management (WMC 16.140.030)**

All developments must be constructed and maintained so that impacts to natural and man-made drainage ways do not unreasonably burdened upstream or downstream properties with surface water flooding as a result of the developments. More specifically:

a. No development may be constructed or maintained so that the development unreasonably impedes the natural flow of water from higher adjacent

properties across the development, resulting in substantial damage to the higher adjacent properties; and

b. No development may be constructed or maintained so that stormwater from the development is collected and channeled into natural or man-made drainage ways, such that the volume and/or rate of flow is substantially greater than the pre-development volume and/or rate.

c. No development may be constructed such that the flow of water through natural or existing man-made drainage ways is obstructed. Bridges and culverts constructed to allow the flow of water through a development must be designed to pass flow during a 100-year storm event.

5. **Erosion and Sediment Control (WMC 16.140.040)**

   a. For projects that disturb over one acre, applicants must apply to Oregon Department of Environmental Quality (DEQ) for a National Pollutant Discharge Elimination Control System (NPDES) 1200(C) permit.

   b. Erosion and sediment control plans are required by the City as a component of the site plan or construction plans for all projects which require site plan review. Erosion control plans must be designed to the specifications as outlined in this chapter.

   c. Disturbance of the land may not begin (and no building permits may be issued) until the City-appointed engineer approves the erosion control plan.

   d. For purposes of this section, “disturb” means any use of the land by any person in any development, and/or road construction and maintenance that results in a change in the natural cover or topography that may cause or contribute to sedimentation. Sedimentation occurs whenever solid particulate matter, mineral or organic, is transported by water, air, gravity or ice from the site of its origin

6. **Stormwater System Design (WMC 16.140.050)**

   a. Storm sewers constructed within the street will be sized by the developer’s engineer and will consider all potential runoff requirements within the site and upstream of the site.

      (1) The storm sewer will be sized for a 100-year design recurrence criteria for storm drainage facilities.

      (2) The minimum size of storm sewer mains is eighteen inches in diameter.

      (3) The minimum size of storm sewer laterals to catch basins is twelve inches in diameter

      (4) Spacing of catch basins along the street must conform to published engineering recommendations, which consider profile of the street and street width.

   b. On-site detention shall be required for new development where downstream deficiencies exist or are anticipated to exist. The square footage considers the total development of the property including the future potential impervious surface. Required design recurrence criteria for a commercial or residential

storm drainage detention facility is a 10-year interval. Development that has less than 5,000 square feet of impervious surface is exempt from detention requirements.

c. Pervious pavement, and pavement and roofs that drain to an infiltration facility will not be counted when sizing a detention facility to handle the stormwater design.

7. A storm water management plan (SWMP) shall be provided for every Large Scale Development, Manufactured Dwelling Development, Planned Unit Development, Street Development and Subdivision, as defined in WMC Development Code 16.12.010. Runoff calculations and pipe sizing performed by a registered engineer may be required by the Public Works Director, Building Official, City Engineer, Planning Commission, or Planning Director and shall be based on anticipated build-out. All future anticipated impervious surfaces in the development such as streets, walkways, driveways, roofs, patios, etc. shall be accommodated when designing storm water improvements.

8. All on-site driveways, parking areas, aisles and turn-a-rounds shall have on-site collection or infiltration of surface waters to eliminate sheet flow of such waters onto public rights-of-way and abutting property. Surface water facility plans shall be prepared by a qualified person and constructed in accordance with City standards (WMC 16.120, 16.136.040.)

9. In areas where storm sewers exist within 200 feet of the proposed development, or when otherwise required by the Public Works Director, the storm sewer shall be extended by the developer to serve the new development. The City will accept maintenance of new storm sewers installed within dedicated street rights of way, provided that construction is in accordance with City standards.

10. Runoff from streets and other impervious surfaces may not be directed to the surface of the ground or to a natural drainage channel, without prior approval of the Public Works Director. If approved, runoff directed to natural drainage channels shall be pre-treated using a pollution control structure or biofiltration method. Rip rap or other energy dissipation facilities may be required at stormwater discharge points to prevent erosion.

B) PIPES AND CATCH BASINS

1. All pipes shall be rubber gasket reinforced concrete pipe (RGRCP) or smooth bore high density polyethylene pipe (HDPE).

2. Minimum main size for storm drains in public ROW shall be 18 inches.

3. Minimum pipe size for catch basin laterals shall be 12 inches.

4. Publically maintained storm drains or ditch systems shall be located in a right-of-way or a minimum of a 20-foot wide exclusive drainage easement. Easements for open ditches shall be wide enough to include a 12-foot wide access path adjacent to the ditch for access to maintain the ditch.

5. All catch basins are to be curb opening type (2.5' minimum length.) Grate type catch basins may be used in combination with a curb inlet. Slotted drain with angled slots may be used in combination with catch basins. Consideration of grates in the roadway must consider the safety of pedestrian and bicycle traffic.

    a. Use Oregon Standard Detail RD371.
        (1) Sumps are allowed with concrete bottoms in catch basins.
        (2) Subdrains are allowed
        (3) Federal 1200-C permits require silt bags in catch basins.

    b. Use Oregon Standard Detail RD372 for the catch basin lid.

6. Scuppers are not preferred. Replacement of existing scuppers with catch basins is encouraged. Scuppers may be used with special approval in some cases where existing and significant drainage pathways exist along ROWs with proposed curb and gutter installation and a pipe drainage system is impractical.

7. Call out all applicable specifications or detail (ODOT, APWA Oregon Chapter, or City of Warrenton) in the construction notes or show "special" detail on plan.

STREET LIGHTING CRITERIA

Standard street light requirements

A. **GENERAL REQUIREMENTS**

Developers of residential, commercial, and industrial properties are responsible for the design and installation of street lighting in accordance with the standards contained herein. As a part of normal plan processing through the City of Warrenton, street lighting plans shall be forwarded to the Public Works Department for review and approval.

The plans shall include, but are not limited to, street lighting poles, pole foundations, mast arms, luminaries, receptacles, conduits, pull boxes (J-boxes), and all hardware associated with new or existing street lighting systems. The developer shall provide and install all required street lighting poles, foundations, mast arms, luminaries, receptacles, conduits, associated hardware and pull boxes (J-boxes) as specified. All necessary work shown on the approved plans shall be complete and all lighting systems functional; and all fees and connection charges shall be paid by the developer prior to the utility energizing the system.

1. **DESIGN CRITERIA**

a. Design wind speed – 105 MPH; 1.3 gusts; 30 feet above ground

b. Lighting Levels, Roadway width – variable,
Two-sided - staggered opposite side or median (dual mast arm)
Minimal average foot candles - 1.2 f.c.
Uniformity ratio - 4.1.

2. LOCATION

a. Residential Subdivisions - average spacing of 400 feet. Poles to be located 2 feet back of curb or sidewalk on public right-of-way.

b. Commercial Developments - average spacing of 250 feet. Poles to be located 2 feet back of curb or sidewalk on public right-of-way.

B. PROCEDURES

1. PLAN SUBMITTAL REQUIREMENTS

a. DEVELOPER

I. Submit two (2) sets of scaled site plans or approved preliminary plat to the Public Works Department showing the proposed street lighting locations. The plans shall include street layout, lot lines, driveways, and all utilities.

II. Plans shall include the nearest adjacent street lights to the development and the distance to those lights will be noted on the plans, using standard symbols.

III. Upon receipt of preliminary approval of the street light locations from the Public Works Department, work with the appropriate utility and make payment to the utility for utility design fees for preparing circuit plans. (Utility to design the street lighting electrical circuits). Submit one utility circuit design plan set to the Public Works Department and distribute sufficient sets of plans to potential contractors for bid preparation.

b. CITY

I. Upon initial receipt of the plans from the developer, the Public Works Department shall review the submittal for compliance with City codes and standards and provide for final approval.

II. Upon receipt of the plans from the utility, approval of the plans by Public Works Department, and payment of all fees by the developer, Public Works Department shall issue appropriate permits.

c. UTILITY

I. Upon receipt of the approved street lighting plan, the utility shall design the street lighting circuits and assign street identification numbers for each proposed street lighting structure.

II. The utility shall then provide to the developer, 8 sets of the completed street lighting circuit designs for distribution.

2. UNDERGROUND REQUIREMENTS

a. DEVELOPER

I. The developer shall perform all the trenching, excavating, and backfilling per current utility company, City of Warrenton, and APWA Oregon Specifications.

II. The developer shall provide and install all conduit with pull wire per current utility company specifications for underground street lighting conductor systems; and bear the cost for the electrical conductor installation and design expenses.

III. The developer shall install a pull box (provided by the utility company) as near to the base of each pole as practical.

IV. The developer shall provide and install all the necessary conductor for a complete installation from the pull box to the luminaire, including pole foundations.

b. UTILITY

I. The utility shall install the conductors from the source of feed to the pull box as required to serve the specific street lighting plan.

II. The utility shall make all necessary connections within the pull box. *Note: The point of delivery for underground electric energy service will be at the pull box.*

3. **OVERHEAD REQUIREMENTS** (Special approval required)

a. DEVELOPER

I. A minimum length of 18" of conductor will be coiled and left by the developer, from the luminaire arm, at the pole attachment.

II. On joint-use pole installations, the developer shall adhere to current conductor and equipment clearance standards as specified in the National Electrical Safety Code.

b. UTILITY

I. The utility shall install all conductors from their source of feed to the base of the mast arm and make all necessary connections.

II. The point of delivery for overhead electric energy service shall be at the base of the mast arm.

4. ADDITIONAL REQUIREMENTS

a. DEVELOPER

I. The street lighting shall be installed by the developer concurrent with other required off-site and on-site improvements prior to occupancy or final plat approval. Plans submitted to the City will indicate street lighting and will include street light location, luminaire type, lamp type/size, mounting height, and pole type. Street light locations may be adjusted not more than 20' in the field without approval from the Public Works Department. If the approved pole locations require modifications in excess of 20', 2 copies of the revised plans showing new pole locations will be submitted to the Public Works Department for review, and approval. It should be noted, however, that any adjustments or modifications, whether they be in the field or submitted for approval, may incur additional costs from the utility company.

II. Street lighting structures shall use high-pressure sodium full cutoff luminaries, controlled by individual photocells, mounted on fiberglass poles (provide by the Power Company). The spacing of the poles will be based on light level requirements, type of street, mounting height, type of luminaire, and illumination level requirements contained herein.

III. All installations shall be in accordance with the National Electrical Code and National Electrical Safety Code, and shall also conform to city laws and codes governing such work.

IV. Street lights shall be fully shielded in such a manner that light emitted by the fixture, either directly from the lamp or indirectly from the luminaire, is projected below a horizontal plane running through the lowest point on the fixture where light is emitted.

V. It is the developer's responsibility to call for rough inspection by the City Engineering inspector, on items for which power is requested. The City shall then give the utility company authorization to energize these street lights.

VI. All street lights shall be connected (by the utility) to the permanent power supply and function properly prior to the final acceptance of the off-site improvements. *Note: Additional costs may be incurred by the developer should the utility company be unable to facilitate the connection for power due to deficiencies in materials and/or workmanship provided by the con*tractor.

VII. For standard type street lighting and architectural type street lighting systems, the developer shall coordinate all trenching requirements with the utility.

VIII. Conduit under existing streets shall be installed by boring or jacking.

IX. On each approved set of street lighting plans, all street lighting locations shall be marked with an identifying address and street station. Address numbers will be provided to the developer by the City. These numbers are to be used in conjunction with the project name.

X. The developer is required to install identifying index letters and/or numbers on the street side of each pole (this does not apply to the antique type poles). All letters and numbers shall be 2" high and mounted vertically on each pole with the bottom number placed a minimum of 7' above the base of the pole. The letters/numbers shall be stenciled on the pole using black enamel based paint.

XI. Prior to energizing, test all circuits and grounds for continuity, operate contactors, and control circuits. All systems shall test free of shorts and grounds and shall be free of mechanical and electrical defects. Demonstrate that all equipment furnished and installed and/or completed functions in the required manner.

XII. It is the developer's responsibility to restore all property (private or public), landscaping, sidewalks, etc. to meet or exceed the original condition that is disturbed during street lighting construction.

XIII. Street lighting connection charges – if any - shall be paid by the developer concurrent with off-site permit fees payable to the City of Warrenton, and submitted to the Public Works Department for issuance of permits.

XIV. The developer shall provide and submit to the Public Works Department, accurate "As-Built" plans on the approved set of construction plans, prior to receiving "Occupancy" approval or final plat approval.

XV. The developer shall warranty all workmanship for a period of not less than one full year from the date of acceptance by the City.

b. CITY

I. Should the developer require major modification to pole locations, he/she shall submit two copies showing the modifications to the City for approval. The City shall then submit two copies of the approved revised plans to the utility company for circuit re-design where necessary.

II. The City shall provide to the utility written authorization for the connection and energizing of new street lights that have been properly installed and have been approved.

III. The City will accept the street lighting system upon verification by the utility, approval by the City Public Works Department inspector, and successful energizing of the system.

c. UTILITY

I. All connections to the permanent power source and the energizing of power to each street light shall be made by the utility serving the area.

II. The utility shall verify the operation of each street light at the time of connection and energizing.

VARIANCE / INTERPRETATIONS / APPEALS

The Public Works Director is authorized to interpret the criteria of this manual and grant variances where particular application would cause undue hardship to an applicant.

An applicant can appeal the decision of the Public Works Director to the City Commission upon filing a written notice of appeal with the Public Works Director within fifteen days of mailing of notice of interpretation or denial of variance to the address on file for applicant. Applicant shall pay an appeal fee of $40.00 to the City of Warrenton upon filing of the Notice of Appeal.

The City Commission upon receipt of a Notice to Appeal shall set a hearing on the appeal and may grant, deny, or remand the decision with directions to the Public Works Director.

VARIANCE / INTERPRETATIONS REQUEST FORM

PUBLIC WORKS-ENGINEERING DESIGN CRITERIA

Project Name: _____ Project Address: _____

Owner: _____ Telephone Number:_____

Applicant: _____ Title: _____

Description of Variance/Interpretation Request:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Originator: _____ Organization: _____

Title: _____ Telephone Number: _____

For City Use Only:

Staff Recommendation: _____ Approval _____ Rejection

By: _____ Department/Division, _____

Public Works Foreman Recommendation, _____ Approval, _____ Rejection

By: Date: _____ Date: _____

Public Works Foreman

Public Works Director Action: _____ Approved _____ Rejected

By: _____ Date _____

Public Works Director

Applicant Notified By: _____ Date: _____

GENERAL SITE PLAN NOTES

1. No person shall do work affecting the public right-of-way without first obtaining a permit from the Public Works Department. Work affecting the right-of-way includes, but is not limited to, construction, reconstruction, grading, oiling, repair, opening or excavation of a sidewalk, street, curb, driveway, culvert or ditch in a public right-of-way, but does not include the construction of improvements performed under City contract. (Ord. 1150-A § 4, 2010)

2. Construction shall conform to the Oregon Specifications and Standard Drawings for Construction and as revised by the City of Warrenton. All work on the subdivision shall be constructed to the satisfaction of the Public Works Director. Any condition not described in the permit shall be per submitted plans and to all applicable requirements of APWA, AWWA, DEQ, EPA, DSL, and ODOT Construction Standards. (Ord. 1150- A § 7, 2010)

3. The contractor is responsible to call 1-800-332-2344 for locates prior to excavation. Any damage to City or Private services shall be repaired by the contractor with own repair materials

4. All project elements shall be constructed per project engineering drawings; specifications; federal, state and local permits; and preconstruction meeting notes

   a. Project: _____

   b. Contractor: _____

   c. Right Of Way: _____

5. Project Inspection on private projects is the responsibility of the owner. The City Warrenton requires the project engineer to monitor construction standards and workmanship

6. Infrastructure through neighboring property is allowed only when recorded access easements are granted by owners. Recorded easements shall be submitted to Public Works prior to the start of the warranty period.

7. All TV recording of sanitary and storm lines shall be accomplished by the contractor and viewed by Public Works for approval prior to final paving.

8. All TV recording of sanitary and storm lines shall be in digital format with a written report. Written reports shall include the City Basin and Manhole numbering scheme.

9. Camera of sanitary and storm sewer mains shall pan and view up each service lateral. The video shall examine the joint transition from one material to another,

service tee connections, centerlines and joints, service alignment, manholes and manhole to public main pipe connections. The video shall be started no greater than 2 feet from the center of the beginning manhole.

10. The City requires copies of event logs, test reports, camera and still photos. Water shall be added to the storm and sanitary lines prior to TV recording to verify grade slope consistency. Still photos shall be taken of all water valve junctions including fire hydrant tees. Fire hydrants shall have gpm flow rate and pressure recorded and submitted.

11. Tracer wire installation shall be Blue for water, Green for sewer and storm sewer. All tracer wire shall be 12 gauge. Tracer wire shall be extended into and looped inside all valve boxes, manholes at the rim not pipe penetrations, and catch basins.

12. Underground wire caps approved by Public Works shall be used on all connections.

13. Contractor shall check and verify locate continuity for all infrastructure prior to final paving.

14. Subdivision projects are required to have utility location plan.

15. All DSL, DEQ, ODOT, and OSHDWD permits and regulations will be the responsibility of the developer.

16. All public, private and franchise utilities shall be in place prior to project final approval and acceptance, e.g. all street lights must be in and operational.

17. Grading and Fill/Excavation Permits or Private Service Plumbing Permits shall be required when work is performed on private property. Owner, Engineer, or Contractor must contact the City of Warrenton Planning and Building Department 225 S. Main Ave, 97146-0250, prior to construction

18. Water used during construction for dust control or other procedures shall be with a permit and fee to City requirements. Certain hydrants are available, permits for connection and flow are required from the Public Works Department, and backflow devices shall be present.

19. Warranty Bond and Period shall be standard one year with an 11th month warranty inspection. The Performance Bond, if required for platting prior to construction, is the total of the average of the lowest 3 bidders if available plus an additional 20% or the engineers estimate plus an additional 20%.

20. A written request by the project owner to the City is required for infrastructure Permit Approval and to start the warranty period.

21. A written request by the project owner to the City is required for infrastructure Permit Acceptance at the end of the warranty period work and completion.

22. As built drawings for site infrastructure are required at the conclusion of all projects. Prior to final approval, a letter of Intent to Provide As builts shall be submitted to the City. As built drawings shall consist of one copy digital in State Plane Oregon North Zone coordinates, one copy paper, one CD disc, , and be submitted to the City Public Works Office within 30 days of beginning the warranty period.

EROSION CONTROL NOTES

A Erosion Control per SHMC 13.06
All sites shall submit an erosion control plan for review, regardless of size. New developments impacting areas of 10,000 square feet or greater must obtain an Erosion Control Permit.

B Erosion Control Plan shall include:

1. The methods and/or facilities to be used to prevent erosion and pollution created from the development both during and after construction.

2. Limits of clearing by flagging boundaries in the field before starting site grading or construction. Staging areas shall be included.

3. An analysis of source controls, such as detention and storage during construction as an alternative method to control erosion from storm water runoff.

4. A drainage plan during construction.

5. Show existing contours as well as all sensitive areas, creeks, streams, wetlands, and open areas.

6. A description of historic localized flooding problems resulting from surface water runoff, FEMA or flooding problems known to the community or the City.

7. Erosion control plan shall include a schedule for implementation of erosion measures. The schedule shall include:

    d. Measures to cover bare soil within 14 days following final grading.

    e. Implementation of wet weather measures between October 1st and April 30th, unless otherwise approved by the City.

    f. On sites where vegetation and ground cover have been removed, City approved ground cover shall be re-established by seeding and mulching on or before September 1st with the ground cover established by October 15th . As an alternative to seeding and mulching, or if ground cover is not established by October 15th , the open areas shall be protected through the wet season with straw mulch, erosion blankets, or other approved methods, where appropriate, with long term maintenance plan.

8. Water containing sediment shall not be discharged into the surface water management system, wetlands or streams without first passing through an approved sediment filtering facility or device. Discharge from temporary sedimentation ponds or detention facilities used for sedimentation during

construction shall be constructed to City standards to provide adequate sediment filtration.

C A site-specific plan prepared by a registered professional engineer shall be required and additional erosion control measures may be required for sites having one or more of the following characteristics:

1. Sites greater than five (5) acres disturbed;
2. Sites with slopes greater than 15 percent on any portion of the site;
3. Sites with highly erodible soils;
4. Sites adjacent to sensitive areas;
5. Sites where grading and clearing activities are likely between October 1st and April 30th

D Additional erosion control measures may include one or more of the following:

1. Limited area cleared at any one time;
2. Additional drainage requirements during construction;
3. Filtering or treatment of runoff;
4. Additional water quality;
5. Additional erosion control to cover portions of the site;
6. Maintaining a vegetated buffer strip between site and sensitive area;
7. Additional facilities to reduce volume and velocity of water runoff;
8. If there are no workable alternatives, limit clearing and grading in some areas between October 1st and April 30th.
9. All disturbed land areas that shall remain unworked for 14 days or more shall be physically covered in the wet weather season

E Site cleanup and debris removal. Contractor to remove excessive soil and debris deposited onto streets or into the City storm drainage system. Street cleanup on streets every day and upon completion of work or as required by the City.

F Dust control on streets accessible and used by residents is required.

G Minimum Erosion control measures shall include but are not limited to the following. Sediment fences along the downgrade slope of the project perimeter. Filter bags at catch basin inlets. Street cleaning of debris or material dropped in transit. Installation of water quality erosion control BMP's per project plans.

PAVING PLAN NOTES

1. All existing streets and sidewalks to be cleaned and or protected daily. City has the right to enforce cleaning and safety issues. If not the contractor can be fined or charged for Public Works time and Material. Trench excavation on existing roadways need to be cold patched and kept smooth with existing asphalt at end of each day.

2. Standard monolithically poured 6" curb and 18" gutter section shall be constructed. Sub-grade ASHTO-99 compaction tests completed every one hundred feet with test reports given to Public Works.

3. The full street section shall have a minimum of 4" Asphalt Concrete in two 2" lifts. The top layer shall be 12.5 mm (1/2") dense mix for the surface wearing course with the lower lift either 19 mm (3/4") dense hot mix asphalt concrete (HMAC) or 12.5 mm (1/2") dense mix.

4. Roadway structure of twelve inches of 1" or ¾" – 0" inch compacted base rock. An additional 12" layer of 3" cobble sub-base with geotextile layer may be used during wet weather or winter construction periods.

5. All cuts in asphalt paving, Portland cement paving, concrete curbs, gutters and side-walks shall be saw cuts at least three inches deep unless excepted as a condition of the permit.

6. Trench compaction of 1" or ¾"-0" backfill in public utilities. Street saw cut and restoration are required. Tack coating and sand sealing of edges of pavement cut is required.

7. Mailbox units mounted in sidewalk shall have a sweep provided behind the obstruction so that 4 feet of clear passing distance is maintained. Location to be coordinated with the United States Post Service Office for Warrenton.

8. New ADA ramp with Truncated Domes texture pattern is required on all street corners. The contractor shall provide the pattern panels for the ramps. Damage to ADA ramps or sidewalks during construction or building construction shall be the responsibility of the contractor to repair.

9. All street name signs shall be installed by contractor to APWA and City standards. Signs poles mounted in grade, curbs or sidewalks have V-lock anchors.

10. All street markings such as Stop Bars or Crosswalks etc., shall be installed by contractor and be made of thermoplastic material per APWA standards.

11. Streetlight poles and luminaries shall be installed prior to final approval.

12. Sidewalk portions to be (re)constructed for full frontage or where broken and missing. Two inches of compacted ¾”-0” base rock under concrete, with ¼” fiber board expansion joint at ends, dummy tool construction joints every 5 feet also matching score marks in any existing adjacent curb and gutter. An 8-inch thickness in commercial (6” residential) driveway aprons is required. All sidewalk widths are determined by the street classification. The sidewalk shall be a minimum of four inches thick and six inches thick at the driveways. Each lot shall have a driveway approach with three-foot curb transitions with sidewalk sweep around the back of the access per the attached plan set.

WATER AND SEWER UTILITY PLAN NOTES

A Water Infrastructure

1 Only City of Warrenton personnel may operate public water valves on City water mains. Requests shall be made 3 business days in advance to Public Works office: 503 861-0912.

2 Contractor is responsible to flush, clean, disinfect and pressure test water lines per AWWA standards. Testing is to be performed by the contractor and witnessed by City personnel. Test samples to be transported to a lab approved by the City. City and project engineer shall receive copies of test reports.

3 Fire hydrants shall be Mueller Super Centurion 250 Model A-423 or an approved equal with a recirculation oil lubrication system. Fire hydrant connections to the mainline shall have photo of tee and isolation valve prior to backfill.

4 Contractor shall perform a flow test for each hydrant and verify hydrant opening ease and lubricant. Contractor shall paint fire hydrants to City standard reflective silver barrel with bonnet color corresponding to the gpm flow rate; 0-500=red, 501-1000=yellow, 1001-1500=orange, etc.

5 Air Release and valve assemblies shall be automatic only.

6 All water valves shall have VC212 Valve Box Centering Guides or equal.

7 Valve boxes shall be model R-910 Vancouver style w/traffic lid and labeled “W” or “water”, as manufactured by Olympic Foundry Inc or equal. All valves shall be operated to verify valve wrench tool clearance prior to final paving.

8 Residential service lines shall be copper one-inch (1”) corporation stop, one-inch (1”) Type K copper water, service line with compression fittings, and a 1”x3/4” angle stop using Ford fittings. If 1”x1” angle stops are installed, 1”x3/4” adapters shall be included. Meter boxes are Armorcast RPM A6000485 (12x20x12) w/ Armorcast 20K traffic-rated lid.

9 Construct service saddles at least 24” from mainline end or an adjacent service.

10 Commercial properties making connections to the City infrastructure shall provide and install Master Meter dual body compound water meters with 3G Mobile AMR radio read registry system in Armorcast meter boxes and 20k traffic rated lids.

11 Customer Yard Valves shall be installed by Public Works on the proposed water service and are required to be in place prior to the activation of the Water Meter.

B Sanitary Sewer Infrastructure

1 The interior of the manhole base shall be formed so the effluent enters the flow smoothly with the shelf slope no more than 1:12. Grouting shall be smooth with no protruding sharp edges. Grouting around pipe intrusions including service laterals to be smooth with flow channels to prevent uncontrolled drops.

2 Manhole, Base, and Cone or Flat-top lid shall have only mainline toning wire extended into each manhole and secured under the manhole lid for easy access.

3 No outside drop service or drop mainline connections to manholes are allowed.

4 New 4” ASTM D3034 PVC lateral to connection on public mainline with (main size) 4” sanitary tee-wye, 12 gauge tracer wire. Connection is to be inspected by Public Words and Building Division.

5 The sewer laterals shall be installed entering the sewer main line from the upper quadrant of the pipe. Any sewer lateral entering the pipe at the spring line must have a tee-wye sweep fitting installed.

6 Each lateral shall be marked with a green 2”x 4” buried at the end of the pipe with the green toning wire secured above grade to the 2”x4”. The lateral shall be plugged with a water tight plug.

7 Contractor is responsible for vacuum, mandrel and television testing and inspection requirements, see General Section.

8 Contractor shall keep downstream sanitary sewer pipes and manholes clean of construction debris. Notification to clean the system may be given by the City at any time. The contractor is responsible for all cleaning which may include manholes downstream of the project scope of work.

9 Construct service saddles at least 24” from manhole wall or adjacent service.

10 Construct service lateral within 5’ of the center of the property served.

11 Contractor shall submit accurate as built stations for all connections of sewer laterals and note the distance from upstream manholes.

DRAINAGE PLAN NOTES

1. Installation of curb inlets, field inlets and manholes are to conform to City standards. Connection to existing public systems from private catchments shall be at or have installed curb catch basins or area inlets within the public right-of-way.

2. Construction of inlet / outlet headwall structures, riprap bank stabilization, bio-filter swale and energy dissipation features.

3. Erosion control fences along project perimeter. Installation of water quality erosion control BMP's per plan. Erosion from the project site onto adjacent lands are not allowed and will be required to be cleaned at the contractor's expense when notified by the City.

4. Installation of storm water detention, flow and pollution control water quality features per approved plans. Below ground culverts, box, MH or wet/dry basin etc.

5. Construction of drainage ditch to approved slope & grade, vegetation on side slopes for erosion control.

6. Roof and garage runoff drainage shall drain to approved drainways. Approved drainways include public curb and gutter street systems, pipe systems, or roadside ditches. Drainage grates across a public sidewalk are prohibited.

7. Each lot may have 2 each 4" schedule 40 PVC weep holes installed on each side of the driveway through the curb or accommodate runoff through easement to collection point with special approval from the Public Works Department.

8. Contractor is responsible for, mandrel and television testing and inspection requirements - see General Section.

9. Storm water detention may be required. Engineered Hydrology Studies are required prior to permitting**.**

STREET LIGHTING PLAN NOTES

1. Street lights to be Fiberglass Poles (provided by PP & L) with HPS 16L-150 watt lamps and installed on foundations per Pacific Power & Light requirements.

2. Downtown Street lights to be decorative Special District Street Lights installed on concrete foundations.

3. All street lights to have individual pull box (J-Box), (provided by the utility company), installed within 2 to 4' from the base of the pole and per City of Tempe standard Detail T-650.

4. All street lights to be 2' from back of curb where recessed or no sidewalk exists, or 2' back of walk to the face of pole unless otherwise approved by City.

5. All street light conduits to be *2-1/2"* PVC Schedule 40.

6. Street lighting improvements shall not be accepted until "as-built" plans have been submitted to and approved by the Public Works Division. As built drawings shall consist of one copy digital, one copy paper, one CD disc, and be submitted to the City Public Works Office within 30 days of beginning the warranty period

PERMIT AND AS-BUILT INFORMATION

Right of Way (ROW) permits. No person shall do work affecting the public right-of-way without first obtaining a permit from the Public Works Department. Work affecting the right-of-way includes, but is not limited to, construction, reconstruction, grading, oiling, repair, opening or excavation of a sidewalk, street, curb, driveway, culvert or ditch in a public right-of-way, but does not include the construction of improvements performed under City contract. (Ord. 1150-A § 4, 2010) Submit applications to the Public Works Department along with a drawing showing the proposed work. Refer to the section *Typical Plan Submittal Criteria for all Submittals* of this document for minimum plan requirements.

A ROW permit is to be issued only to a duly licensed bonded contractor holding a current City of Warrenton business license with proof of current liability and workers compensation insurance except as provided herein. A property owner who is not a licensed contractor may receive a permit under the following conditions:

A. The total value of the work is not to exceed $1,000.00.
B. No excavation shall exceed one foot in depth.
C. Excavations under this section shall be in that area between the back of the curb and the right-of-way/property line boundary.
D. No existing improvements other than sidewalks and/or driveway approaches are to be disturbed under this section.
E. A security deposit of $1,200.00 in the form of cash or certified check shall be required under the restoration of the work area at the discretion of the Public Works Director. In the event that restoration is not satisfactory, the deposit shall be retained by the City to defray the cost of restoration by the Public Works Department. (Ord. 1150-A § 8, 2010)

Plan submittals for permits for simple utility connections for a single residential project (new or remodels) may be made on an 8 ½" x 11" drawing showing the layout of the property and the proposed house layout.

Permit fees are established by City Commission Resolution and are included in Appendix "A" of this document. The applicant shall provide security for the proposed work before the issuance of a permit. Security shall be in the form of cash, certified check or bond in an amount sufficient to assure satisfactory completion of the work. The amount of security shall be determined by the Public Works Director. The Public Works Director shall use standard construction estimating techniques to determine the appropriate amount of security. An appeal process is provided under Section 12.32.140. The security provided by the applicant shall be held by the City until the work area is restored to the satisfaction of the Public Works Director. (Ord. 1150-A § 6, 2010)

Engineer's Certification and As-built Plans. A registered civil engineer shall provide written certification in a form required by the City that all improvements, workmanship and materials are in accord with current and standard engineering and construction practices, conform to the approved plans and conditions of approval, and are of high grade, prior to City acceptance of the public improvements, or any portion thereof, for operation and maintenance. The developer's engineer shall also provide as-built drawings for filing by the City. As built drawings shall consist of one copy digital in State Plane Oregon North Zone coordinates, one copy paper, one CD disc, and be submitted to the City Public Works Office within 30 days of beginning the warranty period.

The following is a list of the **minimum** requirements for the Engineer's certification:

A. Results from water & sewer line pressure tests.

B. Vacuum test results for sewer manholes.

C. TV camera videos from sewer & storm drain inspections.

D. Compaction tests for trench backfill.

E. Continuity tests for all tracer wire.

F. As-built verification of the following:

- Pipe materials,
- Pipe elevations,
- Survey monument horizontal & vertical controls,
- Curb grades including elevations at all grade breaks, curb return points of tangency, changes of grade direction,
- Manhole rim & invert elevations,
- Catch Basin inlet & discharge invert elevations

UTILITY COMPANY PLAN SUBMITTALS

Requirements Applicable to Private Development

All utility lines including, but not limited to, those required for electric, communication, lighting and cable television services and related facilities shall be placed underground, except for surface mounted transformers, surface mounted connection boxes and meter cabinets, which may be placed above ground, temporary utility service facilities during construction, and high capacity electric lines operating at 50,000 volts (50 kv) or above. The following additional standards apply to all new land divisions, in order to facilitate underground placement of utilities:

1. The developer shall make all necessary arrangements with the serving utility to provide the underground services. Care shall be taken to ensure that all above ground equipment does not obstruct circulation and access aisles or impede vision clearance areas for vehicular traffic:
2. The City reserves the right to approve the location of all surface mounted facilities:
3. All underground utilities, including sanitary sewers and storm drains installed in streets by the developer, shall be constructed prior to the surfacing of the streets: and
4. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.
5. The City will not participate in the cost of construction or utility relocation.

Pacific Power	_____	_____
	Company Representative Contacted	Date
Charter Cable	_____	_____
	Company Representative Contacted	Date
NW Nat Gas Co	_____	_____
	Company Representative Contacted	Date
Century LInk	_____	_____
	Company Representative Contacted	Date
_____	_____	_____
	Company Representative Contacted	Date
_____	_____	_____
	Company Representative Contacted	Date

Easements. Easements shall be provided for all underground utility facilities.

Exception to Under-Grounding Requirement. The standard applies only to proposed land divisions and large-scale developments. An exception to the under-grounding requirement may be granted due to physical constraints, such as steep topography or existing development conditions.

Requirements Applicable to Utility Company work in the Public Right of Way

All Utility Company work in Public Rights of Way is regulated under City Right of Way Ordinance 1168-A (passed June 12, 2012).

No person shall do work affecting the right of way without first obtaining a permit from the Public Works Department. Utility operators shall not be required to obtain a permit for service drops to customer premises or routine maintenance or repairs where such drops, repairs or maintenance do not require cutting, digging, or breaking of, or damage to, the right of way and do not result in closing or blocking any portion of the travel lane.

The permit shall be issued only to a duly licensed contractor holding a current City of Warrenton Business License with proof of liability and workers compensation insurance.

Applications for permits to work in the right of way shall be submitted upon forms provided by the City of Warrenton public Works Department. Applications must be accompanied by two (2) sets of plans and specifications sufficient to demonstrate that the facilities will be constructed in accordance with all applicable codes, rules, regulations and the requirements of these Public Works Specifications for plan submittals showing at a minimum shall demonstrate:

1. The location and route of all utility facilities to be installed above ground or on existing utility poles.
2. The location and route of all utility facilities on or in the rights of way to be located under the surface of the ground, including the line and grade proposed for the burial at all points along the route that are within the rights of way. Applicant's existing utility facilities shall be differentiated on the plans from new construction. A cross section shall be provided showing new or existing utility facilities in relation to the street, curb, sidewalk or right of way.
3. The construction methods to be employed for protection of existing structures, fixtures, and facilities within or adjacent to the rights of way, and description of any improvements that applicant proposes to temporarily or permanently remove or relocate.

A permit applicant shall provide the verification of a registered professional engineer, or other qualified and duly authorized representative of the applicant, that the drawings, plans and specifications submitted with the application comply with applicable technical codes, rules and regulations.

All permit applications shall be accompanied by a written construction schedule, which shall include a deadline for completion of construction. The construction schedule is subject to approval by the Public Works Director.

APPENDIX A - PERMIT & PLAN REVIEW FEES

ADOPTED BY CITY RESOLUTION 2397 (July 2013)

PUBLIC WORKS ENGINEERING FEES	***EFFECTIVE 7/9/2013***
Plan Review & ROW Permit fees Includes Public Works Department plan review& inspections for any or all of the following items in the public ROW: • Storm drain/culvert installation • fire hydrant installation • catch basin installation • curb, gutter, sidewalk & driveway installation • street cut & repair	
Description	***Cost***
Residential water service repairs in the ROW on the customer side of the meter or any sewer service repairs that do not require a new tap to the main or a cut in the existing pavement. City code requires that the property owner is responsible for these service line repairs.	No fee permit
New single family/duplex Residential	$40.00 per lot
New multi-family > two units Residential	$50.00 per lot
New Commercial Development Fee covers plan review & inspections for Erosion control, Sanitary connection, water connection, storm water connection.	$100.00 per project plus bacteriological fee if applicable+
New Subdivision Project	$150.00 per Preliminary Plat application plus bacteriological fee(s) if applicable*
Construction in ROW General Permit: This work includes any non-development related work in the ROW requiring excavation, pavement/concrete work, private utility work, or traffic control.	$30.00
Franchised Utility Company ROW permit	$50.00 per application
*Bacteriological fee * (in addition to permit fee)*	*$100.00 per test*

** Bacteriological tests are required for new main extensions. A minimum of two tests are required at separate service locations, with three typically required.*