

# APPENDIX C: GENERAL NOTES

## STANDARD (ALL PROJECTS)

1. All design and construction must be in accordance the City of Bothell Municipal Code (BMC), the City of Bothell Design and Construction Standards (Bothell Standards), WSDOT Standard Specifications and the Conditions of Permit Approval. It is the sole responsibility of the Developer and the professional civil engineer to correct any error, omission, or variation from the above requirements found in these plans. All corrections will be at no additional cost or liability to City of Bothell.
2. The design elements within these plans have been reviewed according to Bothell Standards requirements. Some elements may have been overlooked or missed by the plan reviewer. Any variance from adopted standards is not allowed unless specifically approved by the City of Bothell prior to construction.
3. A copy of the approved plans, including all required City notes and Stamps, must be on the job site whenever construction is in progress.
4. Construction noise is limited in accordance with BMC 8.26.; normally this is 7:00 am to 8:00 pm, Monday through Friday and 9:00 am through 6:00 pm on Saturday with no work on Sunday or City-observed holidays unless as otherwise approved or required.
5. City of Bothell Datum must be used for all survey control and elevation information (NAVD 1988, NAD 83).
6. It is the Developer /Contractor's responsibility to obtain all construction easements necessary before initiating off-site work. Easements require review and approval prior to construction and must be included on the approved plans.
7. Franchised utilities or other installations that are not shown on these approved plans may not be constructed unless an approved set of plans that meet all requirements for a right-of-way invasion permit approved by the City.
8. Private or Franchise utilities must have at least 5 feet horizontal clearance from all City water sewer, and stormwater structures.
9. A minimum full-lane width, 2-inch minimum thickness grind and overlay is required for road widening or pavement cuts parallel to roadway. Full width, 2-inch minimum thickness grind and overlay is required where other roadway cuts and patches are across the roadway width at the direction of the Public Works Director. Transverse utility trenches must be restored with full road width Trench-Cut patch a 5-foot minimum beyond trench edge.
10. All utility trenches and roadway subgrade must be backfilled and compacted to 95 percent maximum dry density. Flowable Controlled Density Fill (CDF) may be used if approved by the Public Works Construction Inspector (no dry CDF is allowed).
11. Open cutting of existing roadways for non-franchised utility or storm work is not allowed unless specifically approved and noted on these approved plans. Any open cut must be restored in accordance with Bothell Standards.
12. Soil treatment including but not limited to fly-ash and cement, may not be used as in fill or trench backfill without approval by the Public Works Director and an approved placement, testing, and water-quality inspection program.
13. The Developer is responsible for providing adequate safeguards, safety devices, protective equipment, flaggers, and any other needed actions to protect the life, health, and safety of the public, and to protect property in connection with the performance of work covered by the Contractor. Any work within the traveled right-of-way that may interrupt normal traffic flow will require an approved traffic control plan in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and a traffic control plan approved by City of Bothell.
14. The Developer must install and maintain whatever erosion & sedimentation control measures necessary to insure that silt-laden water does not leave the construction area. Any such facilities installed must be

maintained in proper operating condition until all disturbed areas have been revegetated or otherwise developed and the potential for erosion eliminated.

15. Construction truck traffic must be routed in accordance with an approved haul route and Contractor parking must be located on-site unless allowed in accordance with an approved parking plan.
16. Locations of existing buried utilities are shown for design purposes and may not be accurate or complete. It is the responsibility of the Contractor to locate, have located by the appropriate companies, and/or pothole all utilities prior to beginning construction. Call Underground Locate at 1-800-424-5555 or 811 a minimum of 48 hours prior to any excavations.
17. Submittal, review, and approval of as-built plans is required prior to acceptance of plat improvements or other permit finalization. As-builts are to contain CAD, TIF, and PDF files of all plan sheets.

#### **CONSTRUCTION SEQUENCE STANDARD NOTES (ALL PROJECTS)**

1. A preconstruction meeting must be held between the Public Works Construction Inspector, the Developer, and the Developer's construction representative before any construction or development activity.
2. Schedule clearing limit and tree protection inspection and approval before installing Temporary Erosion & Sediment Control (TESC) measures or any site clearing.
3. Install TESC measures and Schedule TESC inspection and approval before starting site construction.
4. Clear and grub site. Retain vegetation as possible, selective clearing is encouraged to minimize effort spent on TESC activities.
5. Grade site and rough grade roadways per plans. Grade site within 1-foot of finish road elevation and finished grade except where topography requires conforming to a specific grading plan. Any walls must include drainage and fall protection if wall height exceeds 30-inches.
6. Install utilities and permanent storm drainage system as soon as possible.
7. Geotechnical testing, performance proof roll, and City subgrade approval is required prior to paving. The Contractor must request a paving pre-construction meeting at least 48 hours prior to paving.
8. Hydroseed and mulch all exposed areas that have not been previously stabilized. Slopes steeper than 15% must be stabilized with jute matting or other City-approved erosion control product.
9. After entire site is stabilized and the potential for erosion has passed, TESC facilities must be removed upon City approval.
10. Clean any silt that has accumulated in the permanent storm drainage system and video-inspect storm drainage and sewer system.
11. Request a punchlist inspection and complete all corrections prior to final City approval of completion of work and compliance of permit requirements.

## TEMPORARY EROSION & SEDIMENT CONTROL STANDARD NOTES (ALL PROJECTS)

1. The Temporary Erosion & Sediment Control (TESC) measures shown in these plans are the minimum requirements for anticipated site conditions. During the construction period, these TESC measures must be upgraded as needed for unexpected storm events and modified to account for changing site conditions (e.g. additional cover measures, pumping and containment, relocation of ditches and silt fences, perimeter protection etc.) as directed by City of Bothell.
2. These facilities must be satisfactorily maintained until the construction and landscaping is completed and the potential for onsite erosion has passed. The TESC plans are to be considered a dynamic minimum guideline and as such will most likely have to be continually evaluated and/or modified depending on site conditions.
3. The implementation of these TESC plans and the construction, maintenance, replacement, and upgrading of these TESC facilities is the responsibility of the Developer and TESC supervisor until all construction is approved.
4. The boundaries of the clearing limits shown on this plan must be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing limits will be permitted. The Developer and Contractor must maintain the flagging for the duration of construction.
5. Stabilized construction entrances must be installed at the beginning of construction and maintained for the duration of the project. Additional measures, such as constructed wheel wash systems or wash pads, may be required to ensure that all paved areas are kept clean and track out to road right of way does not occur for the duration of the project.
6. The TESC facilities shown on this plan must be constructed prior to or in conjunction with all clearing and grading so as to ensure that the transport of sediment to surface waters, drainage systems, and adjacent properties is minimized.
7. The TESC facilities must be inspected daily by the Developer/TESC supervisor and maintained to ensure continued proper functioning. Written records must be kept of weekly reviews of the TESC facilities.
8. Soils must not remain exposed and unworked for more than 7 days from May 1 through September 30 and not more than 48 hours from October 1 and April 30. Exposed and unworked soils must be covered by mulch, sodding, plastic covering, jute-matting, or as otherwise approved or required by the Public Works Construction Inspector.
9. The TESC facilities on inactive sites must be inspected and maintained a minimum of once a month during the dry season, bi-monthly during the wet season, or within 24 hours following a storm event.
10. At no time may more than 6-inches of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines must be cleaned prior to paving and final approval. The cleaning operation may not flush sediment-laden water into the downstream system.
11. Any permanent retention/detention facility used as a temporary settling basin must be modified with the necessary TESC measures and must provide adequate storage capacity. If the facility is to function ultimately as an infiltration system, the temporary facility must be rough graded so that the bottom and sides are at least three feet above the final grade of the permanent facility.
12. Prior to the beginning of the wet season (Oct. 1), all disturbed areas must be reviewed to identify which ones can be seeded in preparation for the winter rains. Disturbed areas must be seeded within one week of the beginning of the wet season. A sketch map of those areas to be seeded and those areas to remain uncovered must be submitted to the Public Works Construction Inspector for review and approval.
13. Dust generated during construction activities must be controlled by wetting dust sources such as areas of exposed soils, washing truck wheels before they leave the site, and installing and maintaining rock construction entrances. Contractor must mechanically sweep streets daily with vacuum sweeper unless otherwise approved. Flushing of streets and sidewalks will not be permitted. A wheel-wash for construction traffic must be installed if required by the Public Works Construction Inspector. Any violations of the City of Bothell Municipal Code or other applicable regulations may result in imposing penalty fee.

## **HYDROSEEDING STANDARD NOTES AND SPECIFICATIONS (ALL PROJECTS)**

1. Construction acceptance will be subject to a well-established ground cover that fulfills the requirement of the approved construction plans and the Bothell Standards.
2. All disturbed areas such as detention facilities, roadway backslopes, etc., must be seeded with a perennial ground cover grass to minimize erosion. Grass seeding will be done using an approved hydroseed or as otherwise approved by the City of Bothell.
3. All areas to be seeded must be cultivated and the disturbed areas fully stabilized. This may require additional discing, raking, harrowing, or other acceptable means to stabilize the area free from further erosion.
4. Immediately following finish grading, install permanent vegetation and mulch in accordance with the approved landscape plan or hydroseed. Specifications for hydroseeding are as follows:

### ***Hydroseeding specifications***

- i. Application rate: 150 pounds per acre.
  - ii. Mix consistency: 10% highland colonial bent, 50% perennial rye and 40% pennlawn red fescue
  - iii. Mulch: 2,000 pounds per acre
  - iv. Fertilizer: 400 pounds per acre of 10-20-20 or 22.5-10-10. Slow-release fertilizers are preferred.
  - v. Ground characteristics: on slopes of 2:1 or greater, an approved tackifier binder must be used at 40 pounds per acre.
1. All hydroseeding firms must have a printout of the application rate for each job readily available for inspection by the Public Works Construction Inspector.
  2. The Public Works Construction Inspector must be notified 48 hours prior to any hydroseed application to ensure compliance of these specifications.

## **ROAD CONSTRUCTION STANDARD NOTES (ALL PROJECTS)**

1. Improvements must be constructed as noted on road cross sections and in conformance with the Bothell Standards and the current editions of the WSDOT Standard Specifications for Road, Bridge and Municipal construction.
2. Crushed rock base and/or subgrade fill must be verified at 95% of maximum density per ASTM D1557 to provide a firm and unyielding base. Removal of unsuitable material and replacement with select material may be required. Density testing must be done by a licensed geotechnical engineer. Submit one copy of approved density tests to Public Works Construction Inspector prior to paving.
3. Subgrade and crushed rock base performance testing, including a proof roll with a fully-loaded 10 cubic-yard dump truck, must be witnessed and approved by the Public Works Construction Inspector prior to placing asphalt and cement concrete pavement. Third-party pavement inspection including thickness, compaction/density, temperature, and smoothness is required unless otherwise approved by the City Construction Inspector.
4. Any utility rings/grates or monuments raised after final lift must be raised with a maximum 1-foot wide closure patch consisting of a minimum 5-inch thickness of minimum 3,000 PSI concrete overlain by design pavement thickness.
5. All underground utilities are to be inspected and approved by the City prior to placing pavement. Pavement must consist of ½-inch HMA unless otherwise approved by the Public Works Director. The Contractor must provide a paving equipment list, pavement mix design, pavement tester and testing data, and attend a paving pre-construction meeting at least 48 hours prior to paving.
6. An approved traffic control plan in accordance with the MUTCD is required for all work in the right-of-way of the traveling public.
7. Any and all damaged or replaced curb and sidewalk must be replaced joint-to-joint.

8. Placement of final (top) lift of asphalt pavement occurs after 80 percent completion of residential or commercial buildout unless otherwise approved by the Public Works Director.

#### **WATER MAIN INSTALLATION STANDARD NOTES (BOTHELL SERVICE AREA PROJECTS ONLY)**

1. All construction of water mains and related appurtenances must conform to the Bothell Standards, applicable American Water Works Association (AWWA) Standards and Section 7-09 of the latest edition of WSDOT/APWA Standard Specifications. The general requirements of AWWA and the WSDOT/APWA Standard Specifications apply unless they conflict with any of the provisions of this particular section. Should a conflict occur, the Bothell Standards would take precedence.
2. All water main pipe must be cement lined, ductile iron pipe conforming to AWWA C-150 and C-151 or latest revision, thickness Class-52. Cement mortar lining and seal coating must conform to AWWA C-104 or latest revision.
3. All mechanical and push-on joints must be restrained and conform to AWWA C-111. All flanged joints must conform to AWWA C-110. Special epoxy coated joints and valves will be reviewed and approved by the Public Works Director on a case-by-case basis.
4. All water mains smaller than 12-inches must maintain a minimum cover of 36-inches and there may not normally be more than 48-inches from the top of the water main to finished grade, unless otherwise approved by the Public Works Director. All water mains 12-inches and larger must maintain a minimum cover of 42-inches and there may not normally be more than 60-inches from the top of the water main to finished grade, unless otherwise approved by the Public Works Director.
5. Approved bedding material must be 5/8-inch of crushed rock. It must be placed a minimum of 6-inches under the pipe and to a depth of at least 6-inches over the top of the pipe. The bedding materials must be rammed and tamped around the pipe by the use of approved hand-held tools so as to provide firm and uniform support over the full length of all pipe and joints. Extra care must be given to ensure a smooth and even trench bottom so the pipe is uniformly supported throughout its length. Backfill material must achieve compaction to 95% MDD within the trench and fill area.
6. All water main and service laterals must be installed with a continuous length of blue 10-gauge tracer wire and metal-based tracer tape that has a 3-inch minimum width. This tape must be placed above the 6-inch thick cover layer over the pipe.
7. All meter boxes without landscape strip must be installed square and approximately 6-inch behind sidewalk. All meter boxes within landscape strips must installed square and approximately 6-inch behind curb.
8. Water main shutoffs must be controlled by the Public Works Department to minimize disruption of service. Valves may be operated by authorized City staff only.
9. The Developer must provide a minimum 72-hour notice to the Public Works Construction Inspector, Fire Marshall, Public Works Director, and Water Department, prior to the 48 hour written notice to the residents affected by shutoff.
10. Water mains may be installed only after the roadway subgrade has been established and compacted in cut and fill areas.
11. Trench backfill and surface restoration of existing asphalt must be completed as required by the Bothell Standards.
12. Separation of water and sewer mains must be a minimum of 10 feet horizontally with the sewer main a minimum of 1.5 feet below the water main measured at the two closest edges of the pipes. Where a water main crosses above a sanitary sewer, center one full length of sewer pipe at the crossing for maximum joint separation. Deviation from the above may only be permitted with a design in accordance with W.D.O.E. Criteria for Sewage Works Design (Orange Book) and as approval by the Public Works Director.
13. Water main crossings at existing utilities other than sanitary sewers must be installed to maintain 3 feet minimum cover and a minimum of 1.5 feet below the water main measured at the two closest edges of the pipes, unless otherwise approved by the Public Works Director.

14. All water services must have a minimum inside diameter of 1-inch.
15. Private connections to existing mains are not allowed, unless approved by the Public Works Director. An approved backflow prevention assembly must be installed prior to flushing, testing, and disinfection, and receipt of satisfactory bacteriological test results.
16. All lines must be disinfected, flushed, and pressure tested in conformance with COB/WSDOT/APWA standards and specifications in that order of precedence. All pipe must be tested at 240 psi for a period of no less than 15 minutes per Bothell Standards with zero pressure loss and no leakage. The Contractor must furnish all temporary plugs, testing devices, etc. The Public Works Construction Inspector must be present for all testing. After pressure testing is complete and flushing is finished, the City will collect samples for bacteriological testing including two bacteriological tests a minimum of 24-hours from flushing and a minimum of 24-hours between tests.
17. The new water main may only be connected to the existing system only after the new main has been flushed, and disinfected, and satisfactory bacteriological sample results are obtained and provided to the City.
18. After disinfecting the water main, chlorinated water may only be discharged into a sanitary sewer main, or as directed by the Public Works Director. A City-approved dechlorinator must be used when flushing water mains.
19. Water main connections to existing mains must be sealed off until construction is completed. No connections will be allowed until the new water main has passed all pressure and purity tests.
20. All pipe and fittings not to be disinfected in place must be swabbed with 1 percent available chlorine solution prior to installation.
21. Ball and socket type joints that allow up to 15 degrees deflection per joint must be specified and installed at locations where differential settling is likely to occur. These areas include, but are not limited to, water mains running through bridge decks, bridge abutments, across geologic faults, etc. Pipe wall thickness requirements will be determined on a case-by-case basis as reviewed and approved by the Public Works Director. Pipe joint deflection must not exceed manufacturer's deflection standards.
22. All piping elevation changes to match inside vault requirements must be made outside of vault using restraint joints.
23. A Washington State Department of Health approved backflow prevention assembly must be installed and tested for all irrigation systems, in accordance with BMC18.07.
24. Prior to the issuance of the Certificate of Occupancy, all detector check valve assemblies must be tested by a Washington state Certified Backflow Assembly Tester (BAT), and the City provided with the results.

***SANITARY SEWER MAIN INSTALLATION STANDARD NOTES (Bothell Service Area projects only)***

1. All sewer lines, side sewers, sanitary sewer manholes, and sanitary sewer facilities must be designed and constructed in accordance with the latest issue or revision of the Criteria for Sewage Work Design (Orange Book) published by the Washington State Department of Ecology, the WSDOT/APWA Standards Specifications and WSDOT Standard Plans and the Bothell Standards for sanitary sewers. All connections to King County Wastewater Treatment facilities must conform to the standards established by King County Wastewater Treatment Division.
2. All existing structures must remain accessible at all times.
3. Sanitary sewers are to be located within public right-of-way or centered in easements with a minimum width of 15 feet or equal to double the depth of the sewer, whichever is greater. All sewer main extensions within the public right-of-way or in easements must be staked for line and grade prior to starting construction.
4. Gravity sewer main must be PVC, ASTM D 3034, SDR 35 or ASTM F 789 with joints and rubber gaskets conforming to ASTM D 3212 and ASTM F 477.
5. Service laterals must be PVC, ASTM D 3034 SDR 35 with flexible gasketed joints. Service lateral connections must be made by a tap to the existing main or a 'wye' branch from a new main connected above the springline of the pipe.
6. Approved bedding material must be 5/8 inch of crushed rock. It must be placed a minimum of 6-inches under the pipe and to a depth of at least 6-inches over the top of the pipe. The bedding materials must be rammed and tamped around the pipe by the use of approved hand-held tools so as to provide firm and uniform support over the full length of all pipe and joints. Extra care must be given to ensure a smooth and even trench bottom so the pipe is

uniformly supported throughout its length. Backfill material must achieve compaction to 95% MDD within the trench and fill area

7. All mainline sewer pipe and service laterals must be installed with a continuous length of green 10-gauge tracer wire and metal based tracer tape that has a 3-inch minimum width. This tape must be placed above the 6-inch thick cover layer over the pipe.
8. Minimum cover over sanitary sewer pipe is to be 5 feet, unless otherwise shown and approved by the Public Works Director.
9. Separation of water and sewer mains must be a minimum of 10 feet horizontally with the sewer main a minimum of 1.5 feet below the water main measured at the two closest edges of the pipes. Where a water main crosses above a sanitary sewer, center one full length of sewer pipe at the crossing for maximum joint separation. Deviation from the above may only be permitted with a design in accordance with W.D.O.E. Criteria for Sewage Works Design (Orange Book) and as approval by the Public Works Director.
10. Sewer main crossings at existing utilities other than water must be installed to maintain 3 feet minimum cover and a minimum of 1.5 feet above or below the sewer main measured at the two closest edges of the pipes, unless otherwise approved by the Public Works Director.
11. All damages to public or private property, incurred by the Developer during the course of construction must be promptly repaired to the satisfaction of the Public Works Construction Inspector before project approval or release of the performance bond.
12. No part of the sanitary sewer system may be put into use until it has been tested, inspected, videoed, and approved by the Public Works Construction Inspector. Tests must be observed and inspected by the Public Works Construction Inspector. A copy of pipe inspection video must be submitted to the City.
13. As part of a sewer main extension, the ladder and cone must be rotated so the lid is outside of the roadway wheel-path and the ladder is not over manhole channel.
14. Whenever a new sewer main/side sewer replaces an existing sewer main/side sewer, the Developer must abandon the existing at the sewer main, and must cap or plug the abandoned sewer main. The plans must show the size and location of all existing sewer facilities with respect to the new connection and abandonment points. Whenever a replacement side sewer is constructed and connected to an existing sewer main, the side sewer must be constructed as new according to Bothell Standards.
15. Before the City accepts sanitary sewer improvements, the Developer must supply the Public Works Construction Inspector with as-builts of the sanitary sewer system bearing the stamp and signature of a registered professional engineer, or a registered land surveyor in a format approved by the City. The Public Works Construction Inspector must review and approve all as-builts. The Developer must make all changes to the as-builts as directed by the Public Works Construction Inspector.

#### **STORM DRAINAGE STANDARD NOTES (ALL PROJECTS)**

1. All drainage structures, such as catch basins and manholes, not located within a traveled roadway or sidewalk, must have solid locking lids. All drainage structures associated with a permanent retention/detention facility must have solid locking lids.
2. All catch basin grates must conform to Bothell Standard drawings and include the stamping "OUTFALL TO STREAM, DUMP NO POLLUTANTS" and "PROPERTY OF CITY OF BOTHELL".
3. Default to vertical curb and gutter unless specified otherwise on approved plans. Solid locking lids must be used for all catch basins not located within a gutter flowline and vanned grate style covers must be used within the gutter flowline.
4. All driveway culverts located within City of Bothell right-of-way must be of sufficient length to provide a minimum 3:1 slope from the edge of the driveway to the bottom of the ditch. Culverts must have beveled end sections to match the side slope.

5. All conveyance pipe 6-inches or greater in diameter must be ASTM D3034 SDR 35 PVC unless otherwise shown on the plans as approved by the Director of Public Works.
6. Approved bedding material must be 5/8 inch of crushed rock. It must be placed a minimum of 6-inches under the pipe and to a depth of at least 6-inches over the top of the pipe. The bedding materials must be rammed and tamped around the pipe by the use of approved hand-held tools so as to provide firm and uniform support over the full length of all pipe and joints. Extra care must be given to ensure a smooth and even trench bottom so the pipe is uniformly supported throughout its length. Backfill material must achieve compaction to 95% MDD within the trench and fill area.
7. Storm Drain crossings at existing utilities must be installed to maintain 3 feet minimum cover and a minimum of 1.5 feet above or below the Storm Drain measured at the two closest edges of the pipes, unless otherwise approved by the Public Works Director.
8. Drainage outlets (stub-outs) must be provided for each individual lot. Stub-outs must conform to the following:
  - i. Each outlet must be suitably located at the lowest elevation on the lot, so as to service all future roof downspouts and footing drains, driveways, yard drains, and any other surface or subsurface drains necessary to render the lots suitable for their intended use. Each outlet must have free-flowing, positive drainage to an approved stormwater conveyance system or to an approved outfall location.
  - ii. Ends of each storm drain stub at the property line must be capped and located with a 2 inch x 4 inch board marked plainly and permanently "STORM" with depth to pipe in feet and inches, stenciled in black letters 2-inch high.
9. Footing drains must be placed around all perimeter footings. The footing drainage system must be tied into the roof drainage system at least 3 feet from, and below the bottom of, the building foundation. All perforated drainage pipe must be rigid PVC.
10. All single service building roof drain downspouts and footing drains must be directly connected to the main storm drainage connection via a minimum 4-inch diameter PVC pipe installed at a minimum slope of 2%.
11. Multiple service roof and footing drains must be min. 6-inch diameter ASTM D3034 SDR 35, installed at 2% min. slope and must include cleanouts where individual services connect. No fitting must be greater than 45° (i.e., use two 45° bends with minimum three feet of separation instead of a 90° bend).
12. Cast-in-place concrete stormwater facilities must have be smooth with no fins, voids, rock pockets, or other irregularities with approved water stops at all construction joints. Cone snap ties are required for formwork and are to be removed and epoxy sealed at all interior and exterior wall surfaces. No flat ties allowed.