SEWERAGE

MAIN EXTENSIONS

CHECKLIST

1. Developer submits legal description of proposed development.

2. District provides standards, conditions and specifications.

3. Developer submits collection plan designed by a licensed, Professional Engineer.

4. Developer signs Agreement by the Friday prior to the Regular Board of Director's meeting on the second Tuesday of each month.

5. Board of Directors reviews plans and either accepts plan, modifies plan, asks for additional information or rejects plan.

6. After plan is accepted, District enters into Agreement with Developer for sewer main extension.

7. Sewerage main extension constructed by licensed and bonded contractor to District Standards as certified by licensed Professional Engineer.

8. District inspects and observes testing of sewerage extension prior to approval.

9. Developer posts a one-year maintenance bond for the materials and workmanship if applicable.

10. Developer submits reproducable copy of as-built drawings and easements certified by the licensed Professional Engineer.

11. Developer conveys system to District for operation and maintenance and certifies the extension costs.

12. District notifies Chelan County, if applicable, that utility provisions for plat have been completed.

13. All services off of sewerage main extension are hooked up by individual builders as applicable hook-up fees are paid by individual lot owners.

STANDARDS, CONDITIONS & SPECIFICATIONS

SEWER MAIN EXTENSIONS

I. GENERAL:

A. The items herein contained are the sewerage system Standards, Conditions, and Specifications of the Lake Chelan Reclamation District. These are minimums only and may be increased or altered to fit particular situations.

B. Definitions:

1. District - Lake Chelan Reclamation District, a quasi-municipal corporation organized and operating pursuant to Title 87, Laws of the State of Washington.

2. Developer(s) - The landowner, land developer, or agent responsible for installation of the sewerage collection system.

3. Sewer Main - A pipe designed to collect sewerage from two users or more to properties over 150 feet from an existing sewer main.

4. Sewer System User - Any person, firm, or corporation having a right to sewer service within the District; this also includes the holders of title or evidence of title to land to which sewer service is furnished.

5. Side Sewer line - The pipe, valves, and necessary accessories designed to convey sewerage from each lot to the sewer main, unless said lot is over 150 feet from the sewer main.

6. Sewerage Collection System - The collection of sewer mains and sewer service lines required to provide sewer service to each customer in a development.

II. STANDARDS AND CONDITIONS:

A. When extensions of the existing sewer system is required for service, an Agreement for Sewer Main Extensions shall be entered into between the Developer and the District.

B. To initiate the developer extension process the Developer shall submit a sewer plan prepared by a professional engineer licensed in the State of Washington. Plan / profile drawings shall be produced on reproducable copy.

C. The Developer shall be responsible for any and all incurred costs with the District's consultants due to, but not limited to, pre-construction conference, review of draft plans, inspections during construction, inspection of pressure test, final inspection, re-inspection of deficient work, final review of submitted extension documents, legal services, recording fees, and any other work reasonably required by the District in conjunction with this application and/or administration of this extension.

D. The licensed professional engineer shall certify the design and construction of the sewerage collection system meets or exceeds the applicable standards set forth herein.

E. Obtaining necessary permits will be the responsibility of the Developer.

F. Where franchises, easements or deeds to property are required it shall be the responsibility of the Developer to provide same and submit appropriate documentation to the District.

G. Easements for sewer mains shall be a minimum of l0-feet wide. Easement legal descriptions shall be prepared by a surveyor or engineer licensed to practice in the State of Washington. Easement legal descriptions shall be reviewed and approved by the District prior to acceptance.

H. The Developer shall supply an "as-built" drawing on reproducable copy certified by the licensed Professional Engineer.

I. The Developer is required to guarantee the materials and workmanship for a period of one year after the date of acceptance by the District for operations and maintenance. On projects whose certified costs are greater than $50,000, the Developer is to supply cash or a maintenance bond for an amount outlined below covering materials and workmanship for a period of one year after the date of acceptance by the District for operation and maintenance.

Labor and Material Cost	Bond or Cash
Greater than $50,000	10% of Labor and Material Cost but not less than $12,500

J. Connection between the District's existing system and the new sewerage collection system shall be made by the District at the expense of the Developer as calculated by the District.

K. All main lines must be designed to provide for proper collection of sewerage from all lands served by the development. Extensions shall be required through and to the extremes of the property for future service as determined by the District.

L. Pressure and leakage testing shall be accomplished before final acceptance.

M. Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The District shall not be barred from requiring the Developer to reimburse the District for the removal, adjustment, replacement, repair or disposal of any unauthorized or defective work or material or from recovering costs for any such work or material.

N. Sewer hook-ups shall be made by or with the approval of the District. Sewer service shall not begin prior to payment by sewer system user of all applicable hook-up fees.
N. Sewer Main Extension projects shall be certified as to their costs and conveyed to the District for operation and maintenance by Conveyance Agreement.

O. The District may enter into Agreements with Developers who have installed sewer mains and appurtenances in order to provide for the reimbursement to Developers for a pro-rata share of the cost of construction thereof by the sewer users of any real estate who have not contributed to the original cost of such facilities and who subsequently connect to the sewerage collection system or use same. Pursuant to such agreement, the District may charge a fifteen percent (15%) fee for administrative costs of collecting the latecomer fees. Latecomer fees will be collected at the time of application for service.

III. SPECIFICATIONS:

A. EXTENSIONS: All extensions to the sewer system must conform to the design standards of the District. The system must be capable of future expansion, if required, and be constructed of permanent materials. The following are required:

1. Plans and Specifications. The installation of sewer extensions shall be in accordance with construction plans and specifications approve by the District.

2. Gravity sewer pipes shall be PVC, HDPE or ductile iron. District shall approve type.

3. Manholes shall be precast, 48" I.D. and shall generally conform to ASTM specification for equivalent size reinforced concrete sewer pipe. Outside drop structures or inside drop structures may be constructed of ductile iron or PVC pipe and fittings.

4. Pressure mains shall be HDPE, ductile iron or PVC.

5. All joints for sewers or pressure mains shall be of the rubber gasket type if applicable.

6. Pipe sizes shall be selected as is indicated by good engineering practice and shall conform to the overall General Sewer Plan.

7. Minimum depth of sewer main and side sewer stubs shall be 5 feet over the top of pipe in the public right-of-way. Building pad elevations shall be shown or approximated on the plans.

8. The sewer grades shall be sufficient to maintain a minimum velocity of 2 feet per second at design flow. Minimum grade shall be five-tenths of one percent (0.005).

9. Manholes shall be placed at each grade and direction change. Distances between manholes shall not exceed 400 feet. Manholes shall be used at the termination of each sewer unless specified otherwise.

10. Manhole covers shall be equal to Olympic Foundry Company, No. 5943, solid lid with one one-inch pick hole and are to read "SEWER".

B. GRAVITY SEWER PIPE (GENERAL):

1. All material shall be new and undamaged. Unless otherwise approved by the District, the same manufacturer of each item shall be used throughout the work.

2. Where reference is made to an ASTM, AWWA or APWA designation, it shall be the latest revision at the time of construction, except as noted on the plans or special provisions of the plans.

C. PVC PIPE: PVC pipe shall conform with the provisions of ASTM D-3034, SDR35 unless otherwise specified. Rubber gaskets for PVC pipe shall conform with ASTM 3034.

D. DUCTILE IRON PIPE:

1. Ductile iron pipe shall be standard thickness Class 50 with a 40-mil dry film thickness ceramic epoxy lining for sewer applications unless otherwise specified and shall conform to the standards of USA Standard A-21.51 (AWWA C-151).

2. Rubber gasket pipe joints to be push-on-joint (Tyton) or mechanical joint (MJ) in accordance with USA Standard A21.11 (AWWA C-111), unless otherwise specified.

3. Flanged connection shall conform to USA standard B16.1.

4. The Contractor shall furnish certification from the manufacturer of the pipe and gasket being supplied that the inspection and all of the specified tests have been made and the results thereof comply with the requirements of this standard.

E. HIGH DENSITY POLYETHYLENE PIPE: High density polyethylene pipe (HDPE) shall be a minimum of SDR 17, PE 3408 pressure pipe as specified in AWWA C906-99. All fittings shall have the same pressure rating as the pipe they are being connected with. HDPE fittings shall be Central Plastics or approved equal.

F. CAST IRON FITTINGS:

1. Cast iron fittings shall be short body for pressure rating of 150 psi, unless otherwise noted. Metal thickness and manufacturing process shall conform to applicable portions of USA Standard A21.10, A21.11, B16.2 and B16.4.

2. Epoxy ceramic lining of fittings for sewer application in accordance with USA Standard A21.4 (AWWA C-104).

3. Rubber gaskets for push-on-joint (Tyton) or mechanical joint (MJ) in accordance with USA Standard A21.ll (AWWA C-111).

4. Gasket material for flanges shall be neoprene, Buna N chlorinated butyl, or cloth-inserted rubber. Type of ends shall be specified as push-on-joint (Tyton), mechanical joint (MJ), plain end (PE), flanged (FL), or (TH) threaded.

G. GATE VALVES:

1. The minimum requirements for all gate valves shall, in design, material and workmanship, conform to the Standards of AWWA C-509.

2. Buried gate valves shall be iron body, bronze mounted, resilient wedge, nonrising stem, operating stems equipped with standard two (2) inch operation nut, and O-ring stem seals, suitable for installation with the type and class of pipe being installed. Ends to be as specified.

3. Valves not buried shall be specified.

H. CHECK VALVES: Check valves shall conform to AWWA C508 and shall be rated for 200 psi working pressure, unless otherwise specified. Valve shall have adjustable tension lever and spring to provide nonslamming action under all conditions unless otherwise specified.

I. ECCENTRIC VALVES: Plug valves shall be eccentric plug valves unless otherwise specified. Valves shall be of the non-lubricated eccentric type with resilient faced plugs. Ends to be specified.

J. BOLTS IN PIPING: Bolts shall be cast iron, zinc or chromium plated or stainless steel.

K. BEDDING AND BLOCKING CONCRETE: Concrete shall be mixed from materials acceptable to the District and shall have a 30-day compressive strength of not less than 1,500 psi. The mix shall contain four (4) sacks of cement per cubic yard and shall be of such consistency that the slump is between l inch and 5 inches.

L. IDENTIFYING TAPE AND TRACER WIRE: Identifying tape shall be installed twenty-four (24") below finished grade over all sewer pipelines in all locations. Pipe locator ribbon shall be two inches (2") wide, plastic coated aluminum and shall be clearly marked, "CAUTION BURIED SEWER LINE" continuously along the length of the ribbon with minimum 1 ½ inch letters. The ribbon shall be green in color. Tracer wire shall be installed along all non-metalic forcemains. Wire shall be 12-gage and shall terminate in valve boxes or at a maximum of 1,000 feet into electrical pull boxes. Wire

splices shall be made with DryConn water proof connectors by King Innovation. Tape wire to pipe prior to backfill operations.

M. METHODS OF CONSTRUCTION:

1. PIPE LAYING:

a. Pipe Laying shall be in accordance with he latest edition of APWA Construction Manual for Municipal Public Works and the pipe manufacturer's recommendations. Gravity pipe must be laid with a properly adjusted pipe laser set to the design grade.

b. The first section of pipe not less than 300 feet in length installed by each crew shall be tested in order to qualify the crew and/or material. Successful installation of this section shall be a prerequisite to further pipe installation of said crew.

c. Each pipe shall be laid with bells upgrade with the invert of the pipe to the alignment and grade shown on the plans. Care shall be exercised to insure close concentric joints and a smooth invert. Open ends of pipe or fittings shall be temporarily blocked and covered when laying is not in progress.

d. Water shall not be allowed in the trench during the pipe laying, joint making and as long thereafter as is necessary, in the judgment of the District for the type of joint being used.

e. Adjustment to the line and grade shall be done by scraping away or filling in and tamping approved pipe-bedding material under the body of the pipe. Adjustment to the line and grade by wedging and blocking shall not be permitted.

f. The pipe shall be lowered into the trench by means of ropes, tripod, crane or any other suitable means. The pipe shall not be dropped or handled roughly. The pipe shall be checked for cracks and defects prior to use, and any defective pipe laid aside.

g. Tees and wyes shall be installed as shown on the standard details and at such locations as are shown on the plans or as otherwise directed by the District. These items shall not be covered until the District has recorded their exact location.

h. Pipe laying shall start from the lowest point unless otherwise approved by the District.

2. PRESSURE SEWER PIPE (GENERAL):

a. All materials shall be new and undamaged. Unless otherwise approved by the District, the same manufacturer of each item shall be used throughout the work.
b. Where reference is made to an AWWA, APWA or ASTM designation, it shall be the latest revision at the time of construction, except, as noted on the plans or special provisions of the plans.

3. PRESSURE SEWER PIPES:

a. P.V.C. pressure pipe shall conform to AWWA C-900. Joints shall be made up as recommended by the pipe manufacturer for pressure pipe.

b. High density polyethylene pipe (HDPE) shall be a minimum of SDR 17, PE 3408 pressure pipe as specified in AWWA C906-99. All fittings shall have the same pressure rating as the pipe they are being connected with. HDPE fittings shall be Central Plastics or approved equal. Sections of HDPE pipe shall be joined into a continuous length on the job site above ground by the thermal butt fusion-welding method in strict accordance with the manufacturer's requirements.

c. Pressure sewer mains shall be laid so that no high point exists except at the discharge manhole or an air release assembly. Valves with O-ring seals shall be set vertically and shall be opened and shut under pressure to check operation without leakage. Two-piece cast iron valve boxes shall be set as directed by the District.

4. JOINTS:

a. Joints shall not be covered until examined and approved by the District. Only pipe layers experienced with the type of gasket being used shall be allowed to lay the pipe. The District may demand proof of such experience before pipe laying may begin or be continued.

b. Joint material shall be used in accordance with the recommendations of the manufacturer. Pipe handling after the gasket has been affixed shall be carefully controlled to avoid bumping the gasket and thus knocking it out of position or loading it with dirt or other foreign material. Any gasket so disturbed shall be removed and replaced, cleaned and relubricated, if required, before the joint is attempted.

c. Care shall be taken to properly align the pipe before joints are forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane as required to minimize lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned. Pipe deflection and straightening shall be held to a very minimum once the joint is home to prevent creep of the joint.

d. Sufficient pressure shall be applied in making the joint to assure that the joint is home as defined in the standard installation instructions provided by the pipe manufacturer. Sufficient restraint shall be applied to the line to assure the joints once home are held so, by tamping approved pipe bedding material under and alongside the pipe or otherwise. At the end of the day's work, the last pipe shall be blocked in such a manner as may be required to prevent creep during down time.

5. ALIGNMENT TOLERANCE OF GRAVITY LINES:

a. The maximum tolerance from true line and grade shall be as follows:

1. Maximum deviation from established line and grade shall not be greater than one thirty-second (1/32) inch per inch of pipe diameter and not to exceed one-half (1/2) inch per pipe length.

2. No adverse grade in any pipe length will be permitted.

3. The difference in deviation from established line and grade between two successive joints shall not exceed 1/3 of the amounts specified above.

6. TRENCH EXCAVATION:

a. Trenches shall be excavated to the line and grade designated by the District. Except for unusual circumstances where approved by the District, the trench sides shall be excavated vertically and the trench width shall be excavated only to such width as is necessary for adequate working space. The maximum trench width at the top of the pipe shall be 30 inches for pipe up to and including 12 inch inside diameter and the outside diameter of the pipe barrel plus 16 inches for pipe larger than 12 inch inside diameter. The top width of the trench shall not exceed the outside diameter of the pipe plus 36 inches. The trench shall be kept free from water until jointing has been completed. Surface water shall be diverted so as not to enter the trench. The Developer shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out. Unsuitable material below the depth of the proposed pipe shall be removed and replaced with satisfactory materials as determined by the District. Excavation for precast manholes shall be sufficient to provide a minimum of 12 inches between the manhole and the side of the excavation.

b. Trenching operations shall not proceed more than 200 feet in advance of pipe laying without written approval of the District. The Developer shall provide trench boxes or other approved sheeting as necessary to

protect workmen, the work, existing utilities and other properties in accordance with OSHA / WISHA standards.

7. JACKING OR BORING - ROADWAY CROSSINGS: The Developer may use any method which provides satisfactory results and is acceptable to the governmental agency having control of the road and to the District, provided that the Developer restores the crossing to its original condition. Normally, these crossings require the placing of steel, cast iron or concrete pipe casing by jacking or tunneling and laying the sewer line within the casing.

8. PIPE BEDDING:

a. Except where excavation in pure sand where imported bedding material will not be required, the pipe shall be placed on a prepared subgrade of imported bedding material four inches under the pipe for all pipe sizes of 27 inches diameter and smaller and six inches for all pipe sizes 30 inches and larger. Bedding material shall consist of clean, granular, unfractured material of which 100 percent will pass the U.S. Standard 3/4-inch opening; not more than 3 percent will pass the U.S. No. 200 (wet sieve). Bell holes shall be excavated so the pipe, when laid, will have a uniform bearing under the full length of the pipe. The Developer shall be responsible for adequate support and bedding for the pipe. The trench shall be backfilled from the spring line of the pipe to six inches above the top of the pipe as shown in the Standard Detail. The material shall be placed in four-inch layers and compacted to no less than 95 percent of the maximum theoretical density as measured by the modified Proctor method prior to placement of the next layer.

b. Where the undisturbed trench below the four-inch bedding is unstable, the unstable material shall be removed and backfilled with foundation gravel and/or bedding gravel as necessary to produce a stable foundation upon which to place the bedding. The Contractor shall be responsible for providing a stable foundation for placing of the bedding.

c. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the full width of the trench and to a depth six inches below the pipe. In solid rock, the trench shall be excavated six inches below the pipe bottom and backfilled as provided above.

d. Whenever the trench is excavated below the depth required for proper bedding, it shall be backfilled with bedding gravel and compacted, as provided above.

e. Furnishing of required foundation and bedding material and/or bedding concrete shall be done to secure proper bedding condition.

9. CONCRETE BLOCKING AND ENCASEMENT: Blocking shall be installed at changes in direction and in a manner acceptable to the District. Encasement of pipe shall be as shown in standard details or as otherwise directed by the District.

10. FOUNDATION GRAVEL: Foundation gravel shall be coarse graded gravel or crushed rock passing a 3-inch mesh. Pit run passed through a 3-inch screen thoroughly compacted may be used provided that it is, in the opinion of the District, properly graded and otherwise suitable.

11. MANHOLES:

a. Manholes shall be constructed as shown in standard details for standard manholes and drop manholes. Manholes shall be of precast reinforced concrete and shall be a uniform thickness. Close tolerances are required between sections. Manhole ring and covers shall be level and adjusted to the elevation required by the Sewer Plan prior to final acceptance of the work.

b. The manhole base slab shall be placed on firm soil. If the foundation material is inadequate, the Developer shall use foundation gravel, bedding gravel or concrete under the normal base to support the manhole.

c. All joints and connections to manholes shall be made with cement mortar or other approved jointing material and shall be watertight. Joints and connections shall be finished on interior and exterior of manhole. There shall be 3/4-inch thick smooth plaster finish on inside and outside on leveling concrete blocks at top of manholes.

d. Where manholes are installed over an existing sewer main, the manhole base shall be poured in-place on firm soil or foundation material as described above. Sewer main inside manhole will not be cut away until approved by District.

12. INSTALLATION STAKING: The Developer shall furnish grade, cut and finish staking for the excavation for an installation of sanitary sewer mains, manholes and appurtenances.

13. CLEANING AND FLUSHING:

a. Prior to pipe testing, all pipes shall be cleaned and flushed with a Vac Truck at the expense of the Developer. This procedure may be required to be repeated if manhole lids, rings or covers are disturbed during street paving operations.

b. All debris flushed out shall be removed at the first manhole where its presence is noted. In the event cemented or wedged debris or a damaged

pipe exists, the Contractor shall remove the debris or replace the damaged pipe.

14. TESTING OF GRAVITY SEWERS:

a. Method of testing gravity sewers shall be at the option of the Developer unless otherwise specified.

1. WATER TEST:

a. Tests for water tightness shall be made by the Developer in the presence of the District. A test shall be made of every section of the sewer, including the side sewers, after completion of backfill. Where the groundwater table is so high as to preclude a proper exfiltration test, an infiltration test may be used.

b. The exfiltration test shall be made by plugging the inlets of the lower manhole and filling the test section with water to a height of six (6) feet above the crown of the sewer at the upper end of the sewer being tested.

c. In no case shall the static level be less than six (6) feet above the water table at the upper end of the sewer being tested. Where the static pressure on the lower manhole would exceed l5 feet, the Developer shall test the sewer between manholes in two or more sections. The Developer shall provide for sectional testing by installing tees in the main line. The tees shall be of a type that permit plugging of both the upper and lower run of the tee. The required static water head shall be obtained by installing vertical lengths of pipe in the tee or from the upper end of the sewer pipe being tested at shallow manholes.

d. The Developer shall provide a groundwater observation well at each manhole for determining the level of groundwater during the test. The observation well shall consist of one-inch plastic pipe installed vertically adjacent to the manhole. The lower end of the test well shall be placed in a one-(1) cubic yard pocket of wash gravel and shall be at the same elevation as the invert of the manhole. The upper end of the test well shall be a maximum of two (2) feet below the finished grade elevation and shall be plugged and exposed until completion of the test.

e. The time of exfiltration tests shall be a minimum of one (1) hour. The leakage during the test shall not exceed the following allowances:

Allowable Leakage / Exfiltration:

Allowable leakage in gallons per 100 linear feet per hour. Head above crown on lower end of test section.

Pipe	6 ft.	8 ft.	10 ft.	12 ft.	14 ft.	16 ft.
6	0.6	0.7	0.7	0.8	0.8	0.9
8	0.8	0.9	1.0	1.0	1.1	1.2
10	1.0	1.1	1.2	1.3	1.4	1.5
12	1.2	1.3	1.4	1.6	1.7	1.8
15	1.5	1.7	1.8	2.0	2.1	2.3
18	1.8	2.0	2.2	2.3	2.5	2.7
24	2.4	2.6	2.9	3.1	3.4	3.6

Repair by chemical grouting will not be allowed.

f. For static head above the basic six feet at the crown of the sewer at the lower end of the test section, the allowable leakage shown above shall be increased at a ratio of 5 percent per foot increase.

g. Where the groundwater exceeds a height of six feet above the crown of the sewer at the upper end of the test section, the section shall be tested by infiltration. The infiltration test shall be conducted by placing a plug in the inlet sewer at the upper manhole and inserting an approved measuring device in the inlet sewer at the lower manhole. Prior to making measurements, care shall be taken to assure that the flow over or through the measuring device is constant. A minimum of four measurements shall be made over a period of one hour.

2. AIR TESTING:

a. The Developer may use a low-pressure air test at his option. The following procedures shall be used in conducting the low-pressure air test. The Developer shall furnish all facilities and personnel for conducting the test under the observation of the District. The equipment and personnel shall be subject to the approval of the District.

b. The Developer may desire to make an air test prior to backfilling for his own purposes. However, the acceptance air test shall be made after backfilling has been completed and compacted.

c. All wyes, tees, or end of side sewer stubs shall be plugged with flexible joint caps, or acceptable alternate, securely fastened to withstand the internal test pressures. Such plugs or caps shall be readily removable and their removal shall provide a socket suitable for making a flexible jointed lateral connection or extension. No double plugs shall be allowed.

d. Immediately following the pipe cleaning, the pipe installation shall be tested with low-pressure air. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches 4.0 pounds per square inch greater than the average back pressure of any groundwater that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization before proceeding further.

e. The requirements of this specification shall be considered satisfied if the time required in seconds for the pressure to decrease from 3.5 to 2.5 pounds per square inch greater than the average back pressure of any groundwater.

Size of Pipe	Seconds per Lineal Foot of Pipe
4 inch	0.11
6 inch	0.25
8 inch	0.46
10 inch	0.72
12 inch	1.04
15 inch	1.63

18 inch	2.35
21 inch	3.20
24 inch	4.18

f. The use of air pressure for testing sewer lines creates hazards that must be recognized. The Developer shall be certain that all plugs are securely blocked to prevent blowouts. A supply air regulator shall be installed on the air supply line to the sewer that shall permit a maximum of 10 psi in the line to be tested. All pressure shall be relieved from the sewer section being tested prior to removal of test plugs.

15. VIDEO INSPECTION OF GRAVITY SEWERS:

a. All gravity sewer lines shall be video inspected at the cost of the developer after completion of flushing, cleaning and testing, but prior to paving.

b. Any sags or ponding of water along the pipe will be repaired by excavation of the pipe, realigning and compacting the subgrade or relaying the non-conforming section of pipe if necessary.

16. TESTING OF PRESSURE SEWER MAINS: Prior to acceptance of the project, the pressure line shall be subjected to a hydrostatic pressure test equal to three times the maximum working pressure at the high point of the line. Any leaks or imperfections developing or occurring under the test pressure shall be remedied by the Developer before final acceptance of the project. Leakage shall be measured by approved means. Test pressure shall be maintained while the entire installation is inspected. The Developer shall provide all necessary equipment and shall perform all work connected with the tests. Insofar as is practical, test shall be made with pipe joints and fittings exposed for inspection. Maximum leakage allowable shall be 0.05 gallons per hour per inch of pipe diameter per 100 feet of pipe or no more than a 10 psi drop in pressure, which ever is least.

N. SIDE SEWERS:

1. General. Developers of subdivisions located within the sanitary sewer services area with conventional gravity service available shall be required to extend the side service from the sewer main to the property line.

2. Before construction of a side sewer on public right-of-way or private property, the Developer is required to receive permission from the District. Connection to

the home or business shall not occur prior to payment of the applicable hookup fees.

O. SEPTIC TANKS: In areas within the urban growth area of the District where it is determined by the District that conventional gravity sanitary sewer service is not available, septic tank systems may be installed upon approval and issue of permit by the Chelan-Douglas Health Department.

P. PUMP STATIONS:

1. Pump stations shall only serve those properties which cannot otherwise be served by conventional gravity sewers or septic tanks.

2. Pump stations to be maintained by the District shall be approved for design by the District.

3. Pump station wet and dry wells shall be watertight concrete vaults or approved alternates. The walls shall be a uniform thickness and sections shall fit together with close tolerances. Lids shall fit air tight and shall be true with the vaults.