CHAPTER 5

STREET AND ASPHALT CONCRETE PATHS AND/OR BIKEWAYS STANDARDS

5.1 GENERAL CONSIDERATIONS

A. General

The overall goal of this chapter is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand with minimal environmental impact to the community as a whole.

Development of properties on or tributary to substandard or unsafe (safety issues) roadways may, depending on the size and type of development, be cause for "off-site" improvements to the substandard or unsafe corridors, to include road drainage facilities. The City Engineer shall determine when and if such conditions exist. At a minimum a 20-foot-wide paved surface with curb, gutter and sidewalk on one side, and associated storm drainage, will be required for off-site improvements as a condition of development.

When new development borders two or more roads with different classifications the development shall take access off the road with the lower classification. In the event that abutting roads have the same classification the access shall be determined based upon existing and projected future traffic so as to minimize impacts on traffic flow. Access onto high volume roads may be denied in the interest of traffic safety or operational requirements.

This chapter provides minimum street design standards as well as minimum design standards for "stand alone" pedestrian and/or bike trails/paths. Higher design and construction standards may be warranted due to localized design and construction parameters.

5.2 STREETS

A. General

All street design and construction must provide for the maximum traffic loading and capacity conditions anticipated based upon existing land use and zoning. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

B. Design Standards

The design of streets and roads shall depend upon their type and usage. The design elements of streets shall conform to City standards as set forth herein.

The layout of streets shall provide for the continuation of existing arterial streets in adjoining subdivisions or of their proper projection when adjoining property is not subdivided. Local access streets, which serve primarily to provide access to abutting property, shall be designed to discourage through traffic through the use of traffic calming devices or other City-approved measures. See Table 5-1 Minimum Street Design Standards in Section 5.3.

1. Grade. Street profile grade should conform closely to the natural contour of the land. In some cases, a different grade may be required by the City Engineer. Unless otherwise approved by the City, the minimum profile grade shall be 0.7 percent. Local conditions may, in the opinion of the City's Engineer, require a lesser profile grade in which case (if specifically approved by the City Engineer), the minimum allowable profile grade shall be 0.5 percent. The maximum allowable grade shall be as further specified in the Table 5-1 Minimum Street Design Standards.

2. Width. The pavement and right-of-way width depend upon the street classification. Table 5-1 Minimum Street Design Standards show the minimum widths allowed.

   Street widths shall be measured from face of vertical curb to face of vertical curb on streets with cement concrete curb and gutter, and from centerline of asphalt to centerline of asphalt for streets approved by the City without concrete vertical curb and gutter.

3. The developer is required to retain a licensed geotechnical engineer to make soils tests and to provide engineering recommendations for design of the sub-base and roadway sections based on "in place" soils, depth of "free draining" structural materials, projected pavement loadings, roadway classification, average daily traffic volume, etc.

4. In special circumstances, as may be specifically approved/required by the City Planning Commission and/or City Council, due to local conditions and/or geometric restrictions, paving widths or

improvement standards may be required which are different than those specifically listed herein.

5. Streets and lots shall be placed in relationship to natural topography so that grading and filling and/or other alternations of existing condition is minimized. Reserve strips or street plugs controlling access to streets will not be approved unless, in the judgment of the City Engineer, such is necessary for the protection of the public welfare or substantial property rights. The control and disposal of the land comprising such strips or plugs shall be placed within the jurisdiction of the City.

6. The City intends to promote connectivity of roadways within and between plats. Therefore, if, in the opinion of the City, it is necessary to give access to, or permit future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end street shall be provided with a temporary cul-de-sac. The temporary cul-de-sac shall be appropriately signed as "temporary" and further paved, to include furnishing and installing concrete curbs, gutters and sidewalks and constructed to City standards.

7. Alleys shall be prohibited except when approved by the City and Fire Marshall's office.

8. The street system (in residential subdivisions and short subdivisions) shall be laid out with a minimum number of intersections with other arterial streets. No streets shall intersect at intervals closer than 125 feet, unless, in the judgment of the City Engineer, an exception to this rule would be in the public interest and welfare.

9. Streets designed to have one end permanently closed shall be no longer than 400 feet

10. Intersecting streets shall be laid out so that blocks between street lines are not more than 1,320 feet in length.

11. Streets shall be laid out so as to intersect as nearly as possible at right angles, and in any event, no street shall intersect with any other street at an angle of less than 60 degrees, without specific written City approval.

12. At a minimum streets shall conform to all requirements of the latest edition of the Uniform Fire Code adopted by the City.

13. All street construction plans shall be submitted to the City and shall include the required information from the plan development checklist.

    All public streets, sidewalks and alleys shall be designed to meet the needs of anticipated future development;

    All topsoil, organic, and structurally unsuitable soils shall be removed as necessary for the proposed street section.

14. In addition to the above requirements, street design shall incorporate the following minimum requirements:

    a. All new utility systems such as power, gas, cable TV and telephone shall be buried, except where topography or site conditions prohibit reasonable installation. Design and installation of the system shall be done by the franchised utility company. Design shall be submitted to the City Engineer for review and approval prior to installation;

    b. Street lighting shall be provided in accordance with Snohomish County PUD standards. Additional City street lighting is required as specified in Section 5.20.

5.3 DESIGN STANDARDS

City streets are divided into four categories (Table 5-1). Major arterial, minor arterial, collector arterial, local access streets, in accordance with regional transportation needs and the functional use each serves alleys may be allowed in special circumstances as approved by the City. Function is the controlling element for classification and shall govern right-of-way, road width, and road geometrics. The proponent/developer shall request information on the functional classification of existing streets from the City, Manager. New streets will be classified by the City.

Generally speaking, the functional classification of streets is defined as follows:

- Major arterials are defined as streets connecting two or more arterials together or serving industrial areas.

- Minor arterials are defined as streets serving or anticipated to serve in the future less than 14,000 average daily trips and provide service for trips of moderate length, serve geographic areas that are smaller than their higher arterial counterparts and offer connectivity to the higher arterial system.

- Collector arterial streets are defined as streets currently serving or anticipated to serve up to 2,600 average daily trips and serve a critical role in the roadway network by gathering traffic from local roads and funneling them to the arterial network.

- Local access streets are streets that do not fit the definitions above and are not intended for use in long distance travel. Local roads are to be designed to discourage through traffic.

- Alley is defined as a strip of land dedicated for public use which is 20 feet in width and which is intended to provide driveway access to adjacent properties. Alleys are not allowed except under special circumstances, and are intended only to serve the properties directly abutting them for non-commercial purposes only.

TABLE 5-1

Minimum Street Design Standards

Design Standard	Major Arterial	Minor Arterial	Collector Arterial	Local Access Street	Alley
Min. Right-of-Way[1]	100 feet	75 feet	60 feet	50 feet	25 feet
Min. Pavement Width[2]	64 feet	40 feet	40 feet	36 feet	20 feet
Parking Lane	None	Both Sides	Both Sides	Both Sides	None
Min./Max. Grade	0.7% - 8.0%	0.7% - 8.0%	0.7% - 15%	0.7% - 15%	0.7% - 15%
Curb	Vertical Cement Concrete Curb and Gutter both sides	Vertical Cement Concrete Curb and Gutter both sides	Vertical Cement Concrete Curb and Gutter both sides	Vertical Cement Concrete Curb and Gutter both sides	One side if Cross Slope alley. None if "V" section.
Planter Strip[2]	10 feet in median plus 5 feet min. both sides	10 feet in median plus 5 feet min. both sides	5 feet minimum both sides	None	None
Sidewalk[2][3]	5 feet min. both sides in back of planter strip	5 feet min. both sides in back of planter strip	5 feet min. both sides in back of planter strip	7 feet min. both sides	None
Cul-de-Sac Radius[4]	N/A	N/A	N/A	50-foot paved bulb radius	N/S
Intersection Curb Radius	30 feet	30 feet	30 feet	25 feet	15 feet
Design Speed	Per City Direction	30 mph	25 mph	25 mph	15 mph

TABLE 5-1 – (continued)

Minimum Street Design Standards

Design Standard	Major Arterial	Minor Arterial	Collector Arterial	Local Access Street	Alley
Stopping Site Distance	Per City Direction	250 feet	200 feet	200 feet	Per City Direction
Access	Controlled. No Direct Lot Access	Residential and Commercial	Residential and Commercial	Residential and Commercial	Residential

(1) Right-of-way requirements may be increased if additional lanes, pockets, transit lanes, bus loading zones, operational speed, bike lanes, utilities, schools or other factors are proposed and/or required by the City.

(2) Alternate roadway, sidewalk and planter strip design may be considered and/or required by the City.

(3) Minimum sidewalk width in the Central Business District and the General Commercial Zones shall be 6 feet. Sidewalk width measured from back of curb when curb and sidewalk are contiguous.

(4) Pavement cul-de-sac bulbs shall have a right-of-way extending 6 feet outside the face of curb.

TABLE 5-2

Design Values for Roads

Design Speed	20	25	30	35	40
Horizontal Curvature for Normal Crown Section, Radius (ft)	100	180	300	460	600
Horizontal Curvature for 2% Superelevation, Radius (ft)	N/A	155	250	375	540
Horizontal Curvature for 4% Superelevation, Radius (ft)	N/A	145	230	345	490
Horizontal Curvature for 6% Superelevation, Radius (ft)	N/A	N/A	215	320	450
Stopping Site Distance*	125	150	200	250	325
Entering Site Distance **	250	300	350	400	450
Passing Site Distance for a 2-Lane Road		1,100	1,300	1,500	1,650

*If entering on a downgrade slope the stopping sight distances shall be increased for slopes greater than 3 percent.

** Distance required on major street and uncontrolled intersection

TABLE 5-3

Road Classification for the City of Granite Falls

Road Type	Road in Classification
Major Arterial	Stanley Street (Quarry Road to Granite Avenue)
Minor Arterial	Stanley Street (Granite Avenue to Alder Avenue), 100th Street, Jordan Road, Galena Street, Alder Avenue, Mt. Loop Highway, South Granite Avenue (north of Pioneer Street)
Collector Arterial	South Granite Avenue (south of Pioneer Street)/Robe Menzel Lake Road, Hemming Way, Alpine Street, Pioneer Street/Menzel Lake Road
Local	All roads not included above

5.4 STREET NAMES

The developer shall submit proposed street names at the time the preliminary plat is submitted for review by the City Manager. The City Manager will ensure that the name assigned to a new street is consistent with policies of the City. The City Council shall approve all street names based on a recommendation by the City Manager.

An address number will be assigned to all new buildings no later than at the time the building permit is issued. It is then the owner's responsibility to see that the house numbers are placed clearly and visibly at the main entrance to the property or at the principal place of ingress.

5.5 SIGNING

The developer is responsible for furnishing and providing all temporary and permanent traffic control signs and street designation signs. Traffic control signing shall comply with the provisions as established by the U.S. Department of Transportation Manual on Uniform Traffic Control devices (MUTCD). All signs, including poles and hardware, shall be furnished and installed by the developer. Street designation signs shall display street names or grid numbers as applicable.

5.6 STREET FRONTAGE IMPROVEMENTS

A. All industrial, commercial, or residential development, except as excluded from these Standards in Chapter 1, shall install street frontage improvements at the time of construction. Such improvements shall generally include concrete curb and gutter, concrete sidewalk, street storm drainage, street lighting system, utility installation and/or relocation, landscaping and irrigation, undergrounding aerial utilities and street pavement widening all per these Standards. Plans shall be prepared and signed by a registered engineer currently licensed in the State of Washington.

B. All frontage improvements shall be made across the full frontage of the property. Corner lots shall provide for full frontage along both rights-of-way. Through lots shall provide for frontage on both ends of the property.

C. All frontage improvements shall provide for a smooth transition to neighboring property.

D. Storm drainage shall be installed as necessary to extend past the neighboring properties to prevent stormwater runoff from impacting those properties.

5.7 OFFSITE IMPROVEMENTS

Where a project is connected to an improved street by an unimproved right-of-way or gravel road within the right-of-way, offsite improvements shall be required. The offsite improvements shall be a 20-foot-wide paved road with curb, gutter, and sidewalk on one side and associated storm drainage.

5.8 DEAD ENDS

Where a street is dead ended, turn around provisions must be provided where the road serves more than 150 feet in length. The Detail section of these Standards, and Table 5-1, show the requirements for a cul-de-sac. The turnaround may be a hammerhead as shown in the Miscellaneous Detail Section of these Standards if approved by the City.

5.9 INTERSECTIONS

A. Traffic control will be as specified in the Manual on Uniform Traffic Control Devices (MUTCD) or as may be specifically modified by the City Manager as a result of appropriate traffic engineering studies.

B. For safe design, the following types of intersection features should be avoided:

1. Intersections with more than four intersecting streets;

2. "Y" type intersections where streets meet at acute angles;

C. Spacing between adjacent intersecting streets, whether crossing or "T" should be as follows:

When highest classification involved is:	Minimum centerline offset should be:
Major Arterial	350 feet
Minor Arterial	300 feet
Collector Street	300 feet
Local Access Street	150 feet

When different class streets intersect, the higher standard shall apply on curb radii. Deviations to this may be allowed at the direction of the City Engineer.

D. On sloping approaches at an intersection, landings shall be provided with grade not to exceed 1-foot difference in elevation for a distance of 30 feet approaching any arterial or collector or 20 feet approaching a local access street, measured from nearest right-of-way line (extended) of intersecting street.

E. All intersections shall meet the sight distances as given in Tables 5-1 and 5-2.

5.10 HALF STREETS

Half-street improvements are not permitted.

5.11 DRIVEWAYS

A. General

1. Driveway approach details are located at the end of these Standards.

2. All driveway approaches (from roadway edge to right-of-way) shall be constructed of Portland Concrete Cement, and shall be at least 6-inches thick, over a 4-inch crushed surfacing top course. Driveway approaches shall be subject to the same testing and inspection requirements as curb, gutter, and sidewalk construction. Driveway approaches shall be Class 4,000 psi.

3. All driveways (on private property) shall be constructed of Portland cement concrete, and shall be at least 6-inches thick, over a 4-inch crushed surfacing top course, with the exception that driveways longer than 100 feet may be asphalt with written permission from the City.

4. Joint-use driveways serving up to four adjacent parcels are encouraged. Where shared use extends onto private property, an access easement shall be recorded for all parcels of land impacted. Joint use driveways shall have a minimum paved width of 20 feet. Joint driveways longer than 150 feet must have a turnaround as discussed under dead end streets, and as shown in the Standard Details

5. No commercial or industrial type driveway shall be constructed where backing onto the sidewalk or street is required.

6. No driveway shall extend into the street further than the face of the curb or edge of asphalt in the absence of a curb.

7. The angle between any driveway and the street shall be not less than 45°.

8. Generally, the two edges of each driveway shall be parallel.

9. Every driveway must provide access to a garage, carport, parking area or other structure on private or public property requiring the entrance of vehicles. No public curb shall be cut unless a driveway is installed.

10. Maintenance of driveway approaches shall be the responsibility of the owners whose property they serve.

11. No person shall begin work on the construction, alteration, repair or removal of any driveway or the paving of any parking strip on and/or adjacent to any street, alley or other public place in the City without first obtaining a right-of-way permit from the City. Exceptions to permit acquisition requirements may be granted at the discretion of the Manager and/or Building Official.

12. Driveway Location:

    No driveway shall be located as to create a hazard to pedestrians, bicyclists or motorists or to invite or compel illegal or unsafe traffic movements.

13. No driveway shall be constructed in such a manner as to be a hazard to any existing street lighting standard, utility pole, traffic regulating device or fire hydrant. At a minimum, all portions of the driveway shall be located 5 feet from these and similar appurtenances and adjacent property lines for residential properties. Driveways shall be located a minimum of 9 feet from the property line for commercial and industrial areas. The cost of relocating any such street structure when necessary to do so shall be paid by the abutting property owner. The relocation of any street structure shall be allowed with the specific written approval of the Owner of the structure involved.

14. Driveway Size and Number

    a. Except as otherwise provided, the width of any residential driveway shall not exceed 25 feet and not be less than

10 feet (exclusive of the radii of the returns, see Table 5-4). The City Engineer may authorize additional residential driveway widths for three-car garages or for access driveways necessary for off-street parking or for recreational vehicles.

TABLE 5-4

Maximum Residential Driveway Width

Property Frontage	Maximum Driveway Width
Less than 50'	18'
≥ 50' and less than 75'	22'
Greater than 75'	25'

b. Any driveway which has become abandoned or unused through a change of the conditions for which it was originally intended or which for any other reason has become unnecessary, shall be closed and the owner shall replace any such driveway curb-cut with a standard curb according to the City's standards.

c. The length of any driveway shall not exceed 150 feet, without approval of the City Engineer.

d. There shall not be more than two driveways on one street for any one ownership except where a single ownership is developed into more than one unit of operation, each unit sufficient in itself to meet the requirements of off-street parking and loading as required by the zoning ordinance and where the necessity for separate access to the street is evident. In such cases, there shall not be more than two driveways on the street for any one unit of operation.

15. Driveway Slopes and Entry

Driveway slopes or grades shall not exceed eight percent unless otherwise authorized/approved by the City Engineer in writing. The City Engineer will consider authorizing driveway slopes exceeding eight percent, up to a maximum of twelve percent, if it is determined that:

a. The driveway is the only economically and environmentally reasonable alternative.

b. The driveway will not present a traffic, pedestrian, bicycle or safety hazard.

c. The public health, safety and general welfare will not be adversely affected.

d. Driveway access onto an arterial street shall be 150 feet, or as far as practicable, from an intersecting street except with written permission from the City. No driveway shall be located within 20 feet of a crosswalk.

e. Within the limitations set forth above, access to arterial streets within the City shall be limited to one driveway for each tract of property separately owned, except that automobile service stations may be allowed two driveways as further stated herein.

f. Driveways giving direct access onto arterials may be denied if alternate access is available. Deviations of these standards may be permitted by the City Engineer.

16. Driveways may utilize the full width of narrow "pipe stem" parcels or easements if approved by the City Engineer.

17. Commercial and Industrial Driveways

For commercial or industrial driveways with heavy traffic volumes or significant numbers of trucks, the Director may require construction of the access as a street intersection. This requirement will be based on traffic engineering analysis submitted by the applicant that considers, among other factors, intersection spacing, sight distance and traffic volumes. No commercial or industrial type driveway shall be constructed, if reasonably possible, where backing onto the sidewalk or street is required. Street approaches and/or ingress and egress tapers may be required in industrial and commercially zoned areas as directed by the City Engineer.

5.12 SIGHT OBSTRUCTION

The following sight clearance requirements take into account the proportional relationship between speed and stopping distance.

The sight distance area is a clear-view triangle formed on all intersections by extending two lines of specified length (A) and (B) as detailed within these

Standards. The area within the triangle shall be subject to restrictions to maintain a clear view on the intersection approaches.

A. Sight Distance Triangle

1. Stop or Yield Controlled Intersection

See Table 5-2.

2. Uncontrolled Intersection

a. Length as shown below is for each road with the speed limit on each road governing the sight distance as measured from the center of the intersecting streets along the centerlines of both streets and connecting these endpoints to form the hypotenuse of the triangle.

Speed Limit	Sight Distance (feet)
15 mph	80
20 mph	100
25 mph	125
30 mph	150
35 mph	175
40 mph	205

The vertical clearance area within the sight distance triangle shall be free from obstructions to a motor vehicle operator's view between a height of 3 feet and 10 feet above the existing surface of the street.

Sight obstructions that may be excluded from these requirements include: fences in conformance with this chapter, utility poles, regulatory signs, trees trimmed from the base to a height of 8 feet above the sidewalk and 14 feet above the street, places where the contour of the ground is such that there can be no cross visibility at the intersection, saplings or plant species of open growth habits and not in the form of a hedge which are so planted and trimmed as to leave at all seasons a clear and unobstructed cross view, buildings constructed in conformance with the provisions of appropriate zoning regulations and preexisting buildings.

5.13 SUBGRADE PREPARATION

The subgrade area of the street right-of-way shall be cleared of brush, weeds, vegetation, grass and debris, per Section 2-01 of the Standard Specifications. All cleared and grubbed material shall be satisfactorily disposed of. All depressions, or ruts, which contain water will be drained.

The subgrade shall then be bladed and dragged to remove inequalities and secure a uniform surface. The existing subgrade will be compacted to a minimum density as defined in the Standard Specifications and as witnessed by the City Inspector. Compaction tests may be required to be conducted at the discretion of the City to verify same.

5.14 CRUSHED SURFACING (BASE AND TOP COURSE)

Two or more courses of Crushed Surfacing Base Course or Top Course shall be placed upon an existing roadway surface, or upon a subgrade properly prepared as outlined above. Crushed surfacing material shall be uniform in quality and substantially free from wood, roots, bark and other extraneous material. It will compact into a dense and unyielding mass, which will be true to line, grade and cross-section.

Base courses and top courses shall be placed in accordance with the approved cross-section. Compaction shall be a minimum of 95 percent of standard density as determined by the compaction control test for granular materials. Base course rock may be composed of larger fractured rock if recommended by the developer's engineer and approved by the City Engineer.

5.15 SURFACING REQUIREMENTS

All streets in the City of Granite Falls will be paved with either Asphalt Concrete or Cement Concrete, in strict compliance with these standards. Low Impact Development alternative surfaces are encouraged and may be approved by the City on a case by case basis.

The pavement design shall meet the requirements in the latest publication of the AASHTO Guide for Design of Pavement Structures. The pavement section shall be designed and stamped by an engineer currently licensed in the State of Washington. Pavement shall be designed using currently accepted methodology that considers the load bearing capacity of the soils and the traffic carrying capacity requirements of the roadway. Plans shall be accompanied by a pavement thickness design based on soil strength parameters reflecting actual field tests and traffic loading analyses. The analysis shall include the traffic volume and axle loading, the type and thickness of roadway materials and the recommended method of placement.

One soil sample per each 500 LF of centerline with three minimum per project representative of the roadway subgrade shall be taken by the Developer and delivered to a City approved soils lab in order to determine a statistical representation of the existing soil conditions.

Soil tests shall be performed by an engineering firm specializing in soils analysis and currently licensed in the State of Washington.

The soils report, signed and stamped by a soils engineer licensed by the State of Washington, shall be based on actual soils tests and submitted with the plans. All depths indicated are a minimum compacted depth.

Construction of materials to create streets paved with Hot Mix Asphalt Concrete (including subbase) shall conform to Sections 5-04 and 9-03 of the Standard Specifications. Pavement material for asphalt concrete roads will be hot mix asphalt concrete and be constructed at least 3 inches thick (minimum compacted thickness) over the prepared subbase. Additional thickness may be required depending upon specific site conditions and anticipated traffic loading. Generally, the accepted asphalt hot mix is Hot Mix Asphalt Class 1/2" PG 64-22. Mechanical spreading and finishing will be as described in Section 5-04.3(9) of the Standard Specifications. Compaction will be performed by the equipment and methods presented in Section 5-04.3(10) of the Standard Specifications, and Surface Smoothness shall satisfy the requirement of Section 5-04.3(13) of the Standard Specifications.

Cement concrete streets will be constructed as specified in Section 5-05 of the Standard Specifications. Cement concrete shall be placed over a minimum of 6 inches of compacted crushed surfacing.

As adopted by City ordinance, unless otherwise approved by the City, no pavement that has been constructed or resurfaced within the past 5 years shall be cut. If allowed, permanent pavement patching will be performed as described in the pavement repair detail listed herein, and in compliance with Section 5-04 of the Standard Specifications.

5.16 TEMPORARY STREET PATCHING (BY CITY APPROVAL ONLY)

Temporary restoration of trenches shall be accomplished by using 2-inch Hot Mix Asphalt Concrete Pavement when available or 4-inch medium-curing (MC-250) liquid asphalt (cold mix), 3-Inch Asphalt Treated Base (ATB), or steel plates suitable for H-20 traffic loading conditions. Steel plates shall be provided with a cold mix “lip” to accommodate a smooth transition from pavement to steel plate.

All temporary patches shall be maintained by the contractor until such time as the permanent pavement patch is in place. All temporary patch materials shall be loaded and hauled to waste by the Developer, in compliance with applicable governmental regulations.

If the contractor is unable to maintain a patch for whatever reason, the City will patch it at actual cost plus overhead and materials. The property

owner/developer/permittee shall be invoiced for any City expenses incurred to comply with this Contractor requirement.

5.17 TRENCH BACKFILL AND RESTORATION

If allowed to open cut, trench restoration shall be by a patch plus overlay as required by the City. Generally utility trenches parallel to the roadway will require a half width overlay.

A. All trench and pavement cuts shall be made by sawcuts. The cuts shall be a minimum of 1 foot outside the trench width or 1 foot outside any pavement that cracks as a result of the trenching activities. If the pavement is older than 5 years or has a PCR rating of 74 or less as determined by the Washington State Transportation Improvement Board (http://www.tib.wa.gov/Dashboard/modules/SmallCityMaintenance/CityDetail.cfm?AN=Granite%20Falls). Boring shall be conducted for pavement newer than 5 years but if the City allows a trench restoration within newer pavement, the cut shall be made 5 feet outside the trench width.

B. All trenches shall be backfilled with crushed surfacing materials, approved excavated material, control density fill or hot mix asphalt. The trench shall be compacted to 95 percent maximum density, as described in Section 2-03 of the Standard Specifications. The City will be the sole judge of approving materials to be utilized for backfill.

For street crossings, the fill shall be 100 percent imported crushed rock, either crushed surfacing base course or crushed surfacing top course or CDF if required by the City. All trench backfill materials shall be compacted to 95 percent density. If CDF is required it will be placed from 6 inches above the utility to 4 inches below the bottom of the asphalt. Compacted crushed rock (5/8 minus) will be placed in the top 4 inches between the CDF and asphalt.

Backfill compaction shall be performed in 6 inch lifts, unless otherwise approved by the City.

Replacement of the asphalt concrete or Portland concrete cement shall match existing asphalt concrete or Portland concrete cement thickness, plus 1 inch.

C. If open cut is allowed by the City and the utility trenches are separated by 150 feet or less they shall be repaired by asphalt planing between trenches to a minimum depth of 2 inches, and a hot mix asphalt overlay from the outer edge of the trenches to the curb, to create one single road patch.

D. Tack coat shall be applied to the existing pavement and edge of cut and shall be emulsified asphalt grade CSS-1. All joints shall be sealed with a sealant meeting Section 9-04.2 of the Standard Specifications. Tack coat shall be applied as specified in Section 5-04 of the Standard Specifications.

E. Hot mix asphalt concrete shall be placed on the prepared surface by an approved paving machine and shall be in accordance with the applicable requirements of Section 5-04 of the Standard Specifications, except that longitudinal joints between successive layers of asphalt concrete shall be displaced laterally a minimum of 12 inches unless otherwise approved by the City. Fine and coarse aggregate for asphalt shall be in accordance with Section 9-03.8 of the Standard Specifications. Asphalt concrete over 2-inches thick shall be placed and compacted in equal lifts not to exceed 2 inches each.

All street surfaces, walks or driveways within the street trenching areas affected by the trenching shall be sawcut, or ground and paved to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Feathering the asphalt shall not be allowed.

Surface smoothness shall be per Section 5-04.3(13) of the Standard Specifications. The paving shall be corrected by removal and repaving of the trench only.

F. All joints shall be sealed with a sealant meeting Section 9-04.2 of the Standard Specifications.

G. When trenching within the roadway shoulder(s), the shoulder shall be restored to its original or better condition.

H. The final patch shall be completed as soon as possible and shall be completed within 30 days after first opening the trench. This time frame may be adjusted if delays are caused by inclement paving weather, or other adverse conditions that may exist. However, delaying of final repair is allowable only subject to the City Engineer's approval. The City Engineer may deem it necessary to complete the work within the 30 days time frame and not allow any time extension. If this occurs, the Contractor shall perform the necessary work as required by the City.

5.18 MATERIAL AND CONSTRUCTION TESTING

Testing shall be required at the developer's or contractor's expense. The testing shall be ordered by the developer or contractor and the chosen testing lab shall be accredited for performing the various testing methods either by AASHTO R18,

CONTINUED IN 2 OF 2