

## Chapter 20.50 BIRCH BAY WATERSHED LOW IMPACT DEVELOPMENT OVERLAY

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### **20.50.010 Purpose.**

The Birch Bay Low Impact Development (LID) Standards are intended to conserve and use existing natural site features, to integrate distributed, small-scale stormwater controls, and to prevent measurable harm to streams, lakes, wetlands, and other natural aquatic systems from commercial or

residential development sites. The purpose of this section is to establish a scoring system for low impact developments in the Birch Bay and Terrell Creek watershed. While enrollment in this program is not required, all project applicants are encouraged to use LID techniques in their projects. This chapter is intended to fulfill the following purposes:

- (1) Manage stormwater through a land development strategy that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic conditions.
- (2) Encourage creative and coordinated site planning, the conservation of natural conditions and wildlife corridors, the use of appropriate new technologies and techniques, and the efficient layout of streets, utility networks, and public recreational improvements.
- (3) Minimize impervious surfaces.
- (4) Encourage the creation or preservation of permanent forested space and native vegetation.
- (5) Promote innovative site and housing design.
- (6) Provide standards for development practices that will earn credits toward incentives.
- (7) Provide incentives for project proponents whose project exceeds the standards of existing development regulations.
- (8) Implement a scoring system that provides flexibility in methods used to achieve the stated purpose rather than use a prescriptive approach.
- (9) Further the goals and the implementation of the policies of the Birch Bay Community Plan, Birch Bay Stormwater Plan, and the Whatcom County Comprehensive Plan.

#### **20.50.020 Definitions.**

As used in this chapter, the following terms shall have the meanings indicated:

“DBH” means diameter breast height, which means the outside bark diameter at breast height. Breast height is defined as four and one-half feet (1.27m) above ground on the uphill side of the tree.

“Alternative Surfaces” including, but not limited to, bark or wood mulch, washed gravel, grid/lattice systems, permeable interlocking pavers, pervious concrete, porous asphalt, and other similar approved materials. Surfaces shall be considered impervious surfaces unless the following conditions are met:

- (1) Bark, wood mulch, and washed gravel shall be designed and installed so that all rain water falling upon the alternative surface will be infiltrated directly beneath the alternative surface without generating surface runoff based on the one-year, 24-hour storm event.
- (2) Other alternative surface methods shall be designed and installed in accordance with the guidelines in the current edition of the *Low Impact Development Technical Guidance Manual for Puget Sound*, as applicable.

“Hard surfaces,” For use in estimating review thresholds, hard surfaces include impervious surfaces, alternative surfaces, and vegetated roofs.

“Low Impact Development Best Management Practices” (BMPs) are distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention/rain gardens, permeable pavements, dispersion, soil quality and depth, minimal excavation foundations, vegetated roofs, and water re-use.

“Tree canopy” means the area of cover provided by conifer or hardwood tree(s) greater than four inches DBH (diameter at breast height). Tree canopy excludes the portion of the tree cover that overlies impervious surface areas.

Review Note: Using existing impervious surface definition in WCC 20.97. These added definitions provide consistency with State language and Water Resource Protection Overlay District (WRPOD).

#### **20.50.030 Area and applicability.**

- (1) The LID program applies to development proposals in the unincorporated areas of the Birch Bay watershed (Res. 2008-049 § 1 (Exh. A § 2)).
- (2) These optional standards apply to development that qualifies under in 20.50.100.
- (3) The benefits are available to residential and commercial development, as well as short subdivisions and long subdivisions, and binding site plans.
- (4) The provisions of this chapter do not apply within the jurisdiction of the Shoreline Management Program.

#### **20.50.040 Conformance.**

The provisions of this chapter overlay other permit and approval requirements of the Whatcom County Code. All development under this chapter shall comply with all current adopted Whatcom County codes and ordinances, including but not limited to:

- (1) Whatcom County Code, Title 20, Zoning, except as modified by this chapter;
- (2) The International Building and Fire Codes;
- (3) Whatcom County Critical Area Ordinance 16.16;
- (4) Flood Damage Prevention, Title 17;
- (5) Subdivision, Title 21;
- (6) Stormwater Special District, 20.80.636, except as modified by this chapter;
- (7) Whatcom County Development Standards - Stormwater, Chapter 2, except as modified by this chapter;
- (8) Whatcom County Development Standards, Stormwater Special Districts, Chapter 2-Section 221, except as modified by this chapter;
- (9) 20.80.735 Water resource special management areas;
- (10) Whatcom County Code, Title 23, Shoreline Management Program;
- (11) Whatcom County Code, Title 24 Health Code; and
- (12) All other applicable official controls.

Review Note: This section is intended to show other relevant code sections and where this code allows deviation. The other code would apply except where in conflict with this.

#### **20.50.050 Program Evaluation.**

The Birch Bay LID standards in Chapter 20.50 shall be evaluated by the County no later than January 1, 2017, with Council action taken to renew, modify, or remove the LID standards. Criteria used by the County to evaluate the program shall include, but not be limited to:

- 1) Feedback from LID program enrollees, County staff, and Birch Bay Watershed residents.

- 2) Total number of development applications in the Birch Bay Watershed that have enrolled in the program, as compared to total number of applications that have not.
- 3) Effectiveness of LID stormwater controls to retain and treat stormwater in the Birch Bay Watershed, as indicated by water quality trends and changes in flooding extent and frequency.
- 4) Effectiveness of the program to create/preserve permanent, forested open space and wildlife corridors in developing areas, as indicated by changes in land cover.
- 5) Advances in LID technology and science, and changes in relevant federal and state regulations.

Review Note: Should the code expire or just require evaluation as described?

**20.50.100 Low Impact Development Qualification.**

Where a low impact development (LID) approach to stormwater management is required by code, or where incentives are provided to encourage its use, projects shall be evaluated based on the LID points they achieve and meeting the minimum requirements. Points are scored based on the area of the project that utilizes any of the five LID practices contained in this chapter. The project area is the boundaries of the parcel or parent parcel of common ownership. The following shall be the minimum thresholds used to identify a low impact development:

- (1) A development project must achieve fifty five points, out of a hundred possible points, through any combination of development practices described in this chapter; and
- (2) Use LID best management practices (BMPs) to manage the stormwater runoff of a 24 hour storm with a six month return frequency, or 91% of annual stormwater runoff volume as indicated in WCC 20.50.700.

Review Note: Points threshold requires application of 3 of the 5 LID practices in addition to the prerequisites. Points are based on the ecological benefit of the practice and its cost to implement. Stormwater prerequisite (2) will meet the draft State LID performance standard.

**20.50.110 Applicant Benefits.**

By implementing LID techniques, users of this chapter can earn several benefits, based on a sliding point scale.

- (1) Free LID screening meeting. Whatcom County will provide a free screening meeting for those interested in pursuing LID credits. An LID specialist from staff will help evaluate whether this program makes sense for the project and describe how the process works. If an applicant decides to pursue a Low Impact Development project, the benefits of WCC 20.50.110(2) are intended to create incentives.
- (2) Projects that qualify as LID under WCC 20.50.100 can take advantage of the following Benefits

- (a) Use of Birch Bay Habitat Mitigation Fund. Whatcom County code requires mitigation for wetland buffer and Habitat Conservation Area buffer impacts. This mitigation is typically performed on the site where the development impacts occur, and the applicant is required to post a performance bond, and construct, monitor, and maintain the mitigation project for several years. Projects that qualify per WCC 20.50.100 and do not have suitable mitigation on-site per WCC 16.16.900, shall be able to avoid these obligations by paying into a fund, which fund sponsors would use to implement mitigation at priority restoration sites in the watershed. By scoring points through this LID program and meeting the minimum stormwater prerequisite, and thus mitigating the water quality and hydrology impacts onsite, an applicant can participate in this off-site habitat mitigation program.
- (b) Reduction in Critical Area Buffer Size. Projects that are designated LID in WCC 20.50.100 are eligible for wetland buffer and stream buffer reductions consistent with Critical Area provisions in WCC 16.16.900.
- (c) **Design Standards.** The creation of new building lots shall be subject to the design standards of the existing zoning district, subject to the following exceptions:
- (i) Lot size. Design objective: Minimize area of site disturbance. The minimum lot size of the underlying zone district may be reduced up to 15% to achieve the purposes in WCC 20.50.010.
  - (ii) Lot frontage width. Design objective: Reduce impervious surfaces by minimizing street length. The minimum width of lots that directly abut streets may be reduced to achieve the purposes in the section.
  - (iii) Front yard setbacks shall be as follows: State Highways and Major Collectors or Arterials shall have a minimum setback of 30 feet; and Minor Collectors, Local Access Streets and Neighborhood Collectors shall have a minimum setback of 20 feet, as measured from the abutting road right-of-way; provided, that the road right-of-way meets the minimum standard for road rights-of-way pursuant to the Whatcom County Development Standards. Stormwater BMPs shall be allowed within front yard setbacks.
  - (iv) Zero lot line side yard setbacks may be approved within the Urban Growth Area, by the zoning administrator for single-family attached dwelling units along the common property line where the dwellings share a common wall when it is demonstrated:
    - (a) That compensating design and/or structural measures are used to ensure the protection of the users and inhabitants (of the development) health, safety and welfare, including but not necessarily limited to visual and acoustical privacy, and adequate light and air.
  - (v) Roof overhangs: or other overhanging architectural features shall not project further than 18 inches into the side or rear yard setbacks. Such overhangs may extend three feet into the front yard setback; however, in no case shall they extend more than one-half the depth of the front yard setback.
  - (vi) An additional 10 feet in building height above the maximum allowed by zoning, provided that:
    - (1) The floor area ratio does not exceed 2:1; or
    - (2) the project is not within shoreline jurisdiction.
  - (vii) Does not allow a gross density greater than what would otherwise be allowed or required under existing county regulations.
- (d) Use of the Special District Streets found in WCDS Chapter 5.

- (e) Reduced commercial parking requirements and space dimensions as described in WCC 20.50.600.

Review Note: Is this flexibility we can work with? We Don't have design standards for cottage housing or townhomes, but this language is intended to allow better clusters and less impervious without increasing zoning densities. Should there be more caveats: fire walls, minimum spacing of 10 feet between units, etc.

### **20.50.120 Review Process**

Authorizations required under this chapter overlay other permit and approval requirements of the Whatcom County Code. Low Impact Development pursuant to this chapter shall be conducted as part of the underlying permit or approval. All review must comply with the procedural requirements of Chapter [2.33](#) WCC. The following outlines the major steps that users of this chapter must follow to receive the benefits in section WCC 20.50.110.

- (1) Optional LID Screening and technical assistance meeting:
  - (a) Applicant has option to receive a free consulting meeting with a county LID specialist. This is a chance to discuss conceptual plans, describe how LID scoring and benefits work, whether the program is appropriate for the intended project, and discuss LID techniques that may be most suitable on the project site.
- (2) If a pre-application meeting is required pursuant to WCC 2.33, such as subdivision, short subdivision, and commercial applicants:
  - (a) Applicant indicates to county staff that their project will qualify as LID, and where their project may deviate from standard requirements in order to achieve the purposes in WCC 20.50.010. County staff prepare findings.
  - (b) Applicant submits documentation as described in WCC 20.50.140, and other applicable development regulations, initiating the formal review process.
  - (c) County staff review submittals and determine if the project is in compliance with this chapter. If the project does not qualify as LID, no more than one additional round of resubmittal and review may occur at this stage without additional fees.
- (3) The application process for projects exempt from pre-application review per 2.33.020 is as follows:
  - (a) As part of construction permit submittals, such as clearing, or building permit, applicant submits documentation as required under section 20.50.140, initiating the formal review process.
- (4) Modifications to the LID plan. Requests for modifications of preliminary or final development plans shall be made in writing and shall be submitted to the planning department.
  - (a) Modifications shall be deemed minor if the proposal remains consistent with the purpose and design criteria of this chapter and does not change the overall score of the project and any of the following:
    - (i) Land use;

- (i) Density, number of dwelling units or lots;
- (ii) The amount of parking;
- (iii) The elimination of LID practices to treat stormwater.

(b) Examples of minor modifications include, but are not limited to lot line adjustments associated with a subdivision, minor relocations of buildings or landscaped areas, minor changes in phasing and timing, minor changes in building design, and minor changes in elevations of buildings. Other modifications may be deemed minor if approved by the technical administrator.

(c) Major modifications are those which, as determined by Planning and Development Services, substantially change the basic design, density, open space or other similar requirements or provisions. Major adjustments to the development plans shall be reviewed under the same process as the original approval.

### **20.50.130 Protective Measures**

(1) To ensure that LID features provide durable benefits to the watershed, these features must be protected using one of the following mechanisms:

(a) Notice on Title. The owner of the LID project for which a development permit is about to be issued shall record a notice with the county auditor real estate records in a format approved by the technical administrator and provide a copy of the filed notice to the planning and development services department at the time the permit is issued. See subsections in this chapter for specific requirements; or

(b) Placement in a separate non-building tract owned in common by all lots within a subdivision. Covenants, Conditions and Restrictions shall be recorded on the face of the plat with an Auditor file number consistent with land division requirements of WCC 21.04.170, and establish the same limitations on actions as described above under notice on title; or

(c) Placement in a conservation easement or parcel, dedicated to the county or a public or private land trust organization.

(2) A consolidated site plan that documents and displays all protective measures of a LID project, consistent with 20.50.140, can be substituted for multiple individual covenants with approval of the technical administrator.

### **20.50.140 Site plan and Supporting Text.**

At the screening LID meeting, applicants should bring a conceptual site plan and any supporting graphics, and maps to show existing conditions and an overview of the proposed LID project. At the time of application the site plan and supporting text in combination shall provide a level of detail appropriate to the scale of the project and sufficient to demonstrate how the project complies with the provisions of this chapter. Specific requirements shall be consistent with existing permit requirements, and at a minimum shall contain:

- (1) Proposed name of the development, north point, a common engineering scale, date and address, and telephone number of the preparer of the site plan/supporting maps.
- (2) Critical Areas and their buffers.
- (3) Tree and Forest Retention Areas.
- (4) Area of canopy removal.
- (5) Revegetation Areas.
- (6) Proposed conservation easements
- (7) Driveway, parking area, building footprints, and other impervious areas.

- (8) For Subdivisions: Roads, parking areas, sidewalks and other in-common pervious and impervious developed areas. Stormwater facilities and infrastructure.
- (9) Areas of disturbed soils to be amended.
- (10) Textual information of the proposed LID project including:
  - (a) Project narrative showing how the project fulfills the overall goals and each purpose statement in WCC 20.50.010;
  - (b) Total gross area of the site;
  - (c) Total project area (total gross site area minus open space/reserve area);
  - (d) Total area of designated development area;
  - (e) Total area of tree and forest cover retention area;
  - (f) Total area of revegetation area;
  - (g) Total units proposed;
  - (h) Proposed number of dwelling units by type;
  - (i) Maximum impervious surface proposed for each lot;
  - (j) Lot sizes and dimensions;
  - (k) Total area of impervious surfacing;
  - (l) Proposed ownership of land areas within the LID project both during and after construction;
  - (m) Requested dimensional modifications to standard code requirements;
  - (n) Development schedule indicating the approximate date when construction of the LID project or stages of the LID project can be expected to begin and be completed.
  - (o) Copy of all existing deeds, restrictive covenants, or other legal restrictions which apply to the project site. The applicant may submit a copy of any proposed restrictive covenants that have been drafted.

**20.50.400 Tree and Forest Retention Area.**

**20.50.410 Percentage of Forest Cover to be Preserved on the Property.**

<b>Within UGA</b>	10 – 20 %	> 20 %	Conservation Easement or Non-Building Tract
<b>Outside of UGA</b>	35 – 65 %	> 65 %	

<b>Points Received</b>	6 points	12 points	+ 6 points
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**20.50.420 Scoring Criteria.**

Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas fir, Western Hemlock, Western Red Cedar, Alder, Big-leaf Maple, and Vine Maple; shrubs such as willow, elderberry, and salmonberry; and herbaceous plants such as sword fern, foam flower, and fireweed. Species, such as Himalayan Blackberry, Scotch Broom, or Reed Canary grass are not considered native species.

- (1) Tree and Forest Retention Area shall be measured from the outside of the tree canopy.
- (2) The total area below the tree canopy shall have at least 30% of the surface area covered by native vegetation containing a dense growth of trees, plants, and underbrush.
- (3) Tree and Forest Retention Areas can be discontinuous.

- (4) Preserved Tree and Forest Retention Areas shall count toward landscaping requirements.
- (5) Critical areas and their buffers may be counted towards this standard so long as they contain existing forest cover (e.g., a steep slope with Douglas fir may be counted while one with Himalayan blackberry may not). Land below an ordinary high water mark shall not be counted towards the required forest cover area.
- (6) The applicant shall receive an additional 6 credits if area is protected in a conservation easement or a non-building tract owned in common by all lots within a subdivision consistent with WCC 20.50.130.

#### **20.50.430 Development Requirements.**

- (1) Trees to be retained shall be healthy and free of disease.
- (2) Healthy trees should be retained to the maximum extent possible.
- (3) Trees shall be retained in stands or clusters, or if protection of dispersed, individual trees is necessary to meet objectives, specific trees selected for protection should have live crown ratios greater than 30%.
- (4) Development within the Tree and Forest Retention Area is consistent with requirements for critical areas in WCC 16.16.230 and 16.16.235.
- (5) Prior to any clearing activity or development activity, any tree canopy area designated for retention shall be delineated by temporary fencing, tape, or other indicators around the outer dripline of the trees. Temporary fencing, tape, or other indicators shall be clearly visible and shall be maintained for the duration of the proposed clearing or development activity. Any tree canopy areas designated for retention shall be field verified by the technical administrator before clearing activities begin. Trees within canopy areas designated for retention shall not be damaged by clearing, excavation, ground surface level changes, soil compaction, or any other activities that may cause damage to roots or trunks. Machinery, impervious surfaces, fill and storage of construction materials shall be kept outside of the dripline of the tree canopy areas designated for retention.

#### **20.50.440 Protection and Maintenance.**

- (1) Protection shall include a notice on title consistent with Protective Native Growth Area covenant requirements in WCDS Chapter 2, Section 221, or a conservation easement consistent with WCC 20.50.130.
- (2) Tree canopy areas may be modified under the following circumstances:
  - (a) Fire prevention methods when supported by the county fire marshal;
  - (b) Hazard trees, as defined in WCC [16.16.900](#), are identified (an evaluation and determination by a licensed arborist or forester may be required);
  - (c) Limited window or view trimming is allowed for view purposes consistent with WCC 16.16.235.(G)

**20.50.500 Revegetation.**

The following outlines the scoring criteria for the landscaping and revegetation LID technique.

**20.50.510 Percentage of Property Revegetated with Native Trees and Shrubs**

<b>Within UGA</b>	2 – 5 %	> 5 – 15 %	> 15 – 30 %	> 30 %	Conservation Easement or Non-Building Tract
<b>Outside of UGA</b>	1-2 %	> 2-5 %	> 5-25 %	> 25 %	

<b>Points Received</b>	6 points	8 points	12 points	18 points	+ 6 points
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**20.50.515 Percentage of Degraded Wetland/Stream Buffer to be Revegetated.**

	10 – 50 %	> 50%
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<b>Additional Points Received</b>	+ 5 points	+ 10 points
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**20.50.520 Scoring Criteria**

- (1) The area of revegetation is based upon the percentage of the development parcel(s) that is revegetated through planting.
- (2) Additional points are earned if the revegetation area contains wetland and/or stream buffer that is degraded due to clearing activity, invasive species, agricultural operations, or prior development.
  - (a) If revegetation of Critical areas or buffer is done as part of compensatory mitigation, no credits shall be awarded.
- (3) The applicant receives an additional 6 credits if the area is protected in a conservation easement or a non-building tract owned in common by all lots within a subdivision consistent with WCC 20.50.130.

**20.50.530 Revegetation Requirements.**

- (1) Revegetation areas shall meet the following standards:
  - (a) Native vegetation areas shall be replanted with species indigenous to the Northwest or suitable for the Pacific Northwest climate:
    - (i) Native vegetation list see Appendix C of Stormwater Special District standards, WCDS Section 221.
  - (b) Reforested areas shall be replanted with a minimum of 25% deciduous species and 50% coniferous species, and 25% shrub species.

(c) Planting should be done during the rainy season in the early spring or middle to late fall, in order to increase plant survival rates.

**20.50.530 Protection and Maintenance.**

(1) Protection shall include a notice on title consistent with Protective Native Growth Area covenant requirements in WCDS Chapter 2, Section 221, or a conservation easement consistent with WCC 20.50.130.

**20.50.600 Impervious Surface.**

The following outlines the scoring criteria for impervious surface coverage. The impervious surface point score is based upon the percentage of impervious area of the entire development parcel(s).

**20.50.610 Percent of Project Area to be Impervious Surface**

<b>Within UGA</b>	< 45 %	10 – 35 %	< 10 %	Development that decreases the existing area of impervious surface >150 ft <sup>2</sup>
<b>Outside of UGA</b>	< 15 %	5 – 10 %	< 5 %	
<b>Points Received</b>	4 points	12 points	20 points	20 points

**20.50.615 Scoring Criteria**

- (1) The area of the parcel that is located waterward of the ordinary high water mark shall not be used in impervious/pervious surface calculations.
- (2) Any portion of a roof overhang or other overhanging architectural feature which projects further than three feet from the footprint of a structure, except green roofs, shall be calculated as impervious surface.
- (3) Alternative surface methods described in WCC 20.50.623 shall be counted as pervious area unless an underdrain is used.
- (4) Green roofs described in WCC 20.50.626 shall be counted as pervious area.
- (5) Points shall be given for the area of a parcel that is impervious, or for the redevelopment of a parcel, not both.

**20.50.620 Development Requirements.**

**.621 Parking space dimensions.**

A standard parking space shall have the rectangular dimensions of 10 feet in width and 20 feet in length; provided, that for any parking area of six or more spaces, 50 percent of all spaces may have the rectangular dimensions of eight feet in width and 15 feet in length; and further provided, that these spaces are marked for use by compact automobiles. Except in single-family residential areas, all dimensions shall be exclusive of driveways, aisles and other circulation areas required under WCC [20.80.560](#) and [20.80.570](#).

**.622 Parking requirements.**

Parking shall conform to the requirements of WCC [20.80.500](#) through [20.80.590](#) unless otherwise specified in this section. Minimum parking requirements may be reduced through any of the following methods:

(1) A shared parking agreement has been filed with the county auditor establishing a shared parking lot for land uses with noncompeting hours of operation, or for multitenant retail and commercial facilities; provided, the parking lot is not located further than 700 feet from any of the uses it is intended to serve.

(a) The minimum required parking in shared facilities shall be based on the land use with the highest parking demand.

(b) Mixed use developments with similar operating hours may be required to submit a parking demand study to determine if parking can be combined.

(2) A 20 percent reduction may be approved if an establishment is located within 1,000 feet of any regularly scheduled bus stop.

(3) The zoning administrator determines that a reduced requirement will reduce overall impervious surfaces while maintaining consistency with this title.

#### **.623 Alternative surfacing methods.**

Alternative surfacing methods may be approved for fringe or overflow parking areas; emergency parking areas, private roads, fire lanes, road shoulders, bike paths, walkways, patios, driveways, and easement service roads in residential or commercial zones unless site constraints make use of such materials detrimental to water quality. Utilization of alternative surfacing methods shall be subject to review and approval by the Whatcom County Public Works Department, the County Fire Marshal, and/or the county ADA coordinator for compliance with other applicable regulations and development standards.

#### **.624 Vehicular access.**

Driveways and curb cuts shall be minimized along all arterial and collector roads. Each existing lot shall be allowed only one driveway or curb cut; adjacent lots are encouraged to share access points. In new developments, lots or leased sites shall be oriented toward internal driveways, parking areas, or roads with limited access to arterial or collector roads.

#### **.625 Roads, curbs, gutters and sidewalks.**

The intent of this section is to reduce impervious surfaces and stormwater runoff. Innovative street sections, which do not compromise public safety, shall be encouraged in the watershed. The following shall be permitted with the approval of the Whatcom County public works department:

(1) Narrow streets and reduced sidewalk standards that satisfy pedestrian and vehicular circulation requirements may be implemented.

(2) For low volume streets with an average daily traffic volume up to 500, the Special District road standards of WCDS Chapter 5, or similar design.

**.626 Green Roof**

Green roofs shall be designed and constructed using the current edition of the *LID Technical Guidance Manual for Puget Sound*. Green roofs shall not be counted as impervious surface.

Review Note: Development Requirements were taken from Water Resource Protection Overlay District, except for Roads.

**20.50.700 LID Stormwater Design.**

**20.50.710 Percentage of Stormwater Managed Onsite, Using LID BMPs.**

91 – 95 %	> 95 – 98 %	> 98 – < 100 %	100 %
Prerequisite	8 points	10 points	14 points

**20.50.715 Scoring Criteria.**

As a prerequisite to qualifying for this program, small scale and large scale stormwater projects shall use LID best management practices (BMPs) to manage the stormwater runoff of a 24 hour storm with a six month return frequency, or 91% of annual stormwater runoff volume. Additional credits are awarded for projects that manage stormwater above the prerequisite, according to table WCC 20.50.710. Any runoff that passes through LID BMPs without overflow or bypassing the BMP is considered managed. LID BMPs located within the parcel or subdivision are considered onsite. Runoff that flows through bioretention media and is collected in an underdrain is considered to be managed, provided that downstream flow control requirements are met either solely through the LID BMP or downstream conventional stormwater controls where applicable.

Additional points may be awarded by the Technical Administrator for managing stormwater offsite according to table WCC 20.50.710, provided the applicant demonstrates the following:

- (1) The prerequisite stormwater management is provided onsite; and
- (2) Area or size of LID BMPs provided offsite is equal to or greater than the additional size above the prerequisite level that would be required to attain an equivalent point level onsite; and
- (3) Offsite stormwater management is provided within the Birch Bay Watershed; and
- (4) Protection and maintenance for offsite stormwater management meets the requirements in WCC 20.50.736.

**20.50.720 Small Scale Stormwater LID Project.**

**20.50.721 Applicability:**

- (1) The requirements of this section apply to all small development projects as defined:
  - (a) Individual detached single-family residences, duplexes and accessory development:

- (i) Resulting in the creation or addition of less than 10,000 square feet of cumulative hard surfaces; and
  - (ii) Less than ¾-acre of clearing and grading; and
  - (iii) Less than 5,000 square feet of pollution generating impervious surface.
- (b) All other development:
- (i) Resulting in the creation or addition of less than 5,000 square feet of hard surface area; and,
  - (ii) Less than ¾-acre of clearing and grading.

Threshold to determine review process is based on “hard surfaces.” This ensures that a projects with 20,000 sqft of pervious asphalt and 10,000 ft of green roof would still get engineering even though it is not impervious surface. See definition at beginning.

**20.50.725 General Standards.**

Runoff discharge toward or infiltration proposed within 200’ of a landslide hazard area must be evaluated by a geotechnical engineer or a qualified geologist. The discharge point may not be placed on or above slopes greater than 20% or above erosion hazard areas without evaluation by a geotechnical engineer or qualified geologist and Whatcom County approval.

**20.50.726 Development Requirements.**

Stormwater generated on-site from all new impervious surfaces shall be managed through any combination of LID best management practices (BMP) to treat at least 91% of annual stormwater runoff volume onsite.

- (1) With a licensed professional engineer designed system, points will be given according to the thresholds established in WCC 20.50.710, using LID best management practices provided in the current edition of the *LID Technical Guidance Manual for Puget Sound*, or any other LID best management practices approved by Whatcom County.
- (2) Without site specific engineering, stormwater management points shall be given according design specifications and sizing charts below.
  - (a) Sites that can fully infiltrate or fully disperse per WCDS, Chapter 2, Sect. 221, are not required to otherwise provide runoff treatment and/or flow control BMPs.
  - (b) BMP’s shall be designed consistent with the applicable technical manual
    - (i) *Raingarden Handbook for Western Washington Homeowners* (WSU, 2007), or
    - (ii) Current edition of the *LID Technical Guidance Manual for Puget Sound*.

Should dispersion/infiltration standards be set to Whatcom County standards (2.(a)), or DOE stormwater manual requirements?

(c) Small Scale Stormwater LID Sizing Table

Percentage of Stormwater Managed -->		91-95%	>95-98%	>98-100%	100%
LID BMP	Soil Group	Prerequisite			
<b>Rain Garden<sup>i</sup></b>	A	1.6%	2.0%	2.8%	7.0%
	B	3.7%	4.9%	6.7%	14.0%
	C <sup>ii</sup>	1.6%	4.9%	6.7%	14.0%
	D <sup>ii</sup>	1.6%	4.9%	6.7%	14.0%
<b>Infiltration Trench<sup>iii</sup></b>	A	0.015	0.02	0.03	0.075
	B	0.035	0.045	0.06	0.19
	C/D	N/A	N/A	N/A	N/A
<b>Dispersion Trench<sup>iv</sup></b>	(all)	0.014	0.036	0.071	0.143
<b>Dispersion Sheet Flow<sup>v</sup></b>	(all)	10	10	25	50
<b>Dispersion Splash Block<sup>v</sup></b>	(all)	10	25	50	100
<b>Cisterns<sup>vi</sup></b>	(all)	1	1.25	1.9	2.5

- (i) Sizing is expressed as percent rain garden area relative to tributary impervious area. Sizing is based on the underlying soil type, and the square footage of impervious area to be treated.
- (ii) For soil groups C and D, an underdrain to a suitable dispersion area is required.
- (iii) Sizing is expressed as length of trench (ft) relative to tributary impervious area. Infiltration trenches shall be sized based on the underlying soil type, and the square footage of impervious area to be treated. For hydrologic soil group C and D infiltration trenches are not allowed without engineered plans.
- (iv) Sizing is expressed as length of trench (ft) relative to tributary impervious area.
- (v) Sizing is expressed as length of downstream flow path through native vegetation or compost-amended soils.
- (vi) The amount of stormwater that can be managed using a cistern depends upon the size of the cistern and the square footage of roof area to be treated.

**20.50.727 Protection and Maintenance.**

A declaration of covenant must be recorded for each property where stormwater BMPs exist. A draft of the proposed covenant must be reviewed and approved by Whatcom County prior to recording. All required covenants must be recorded prior to final construction approval for the proposed project.

- (1) The Stormwater Facility Location covenant in Whatcom County Development Standards, Chapter 2, Section 221, or similar, can be used provided that it contains the following:
  - (a) Notice to future owners of the presence of stormwater BMPs on the lot and the responsibility of the owner to retain, uphold, and protect the devices, features, pathways, limits, and restrictions.
  - (b) Include as an attachment, a recordable version of the following information:
    - (i) a site plan showing all developed surfaces, impervious and pervious, and the location and dimensions of flow control and treatment BMP devices, features, flowpaths (if applicable), and limits of native growth retention areas (if applicable). This plan(s) must be of a common engineering scale and include site topography.
    - (ii) The stormwater BMP design and maintenance details for each BMP. This includes a diagram (if applicable) of each flow control and treatment BMP device or feature and written maintenance and operation instructions.

- (c) Require that each flow control BMP be operated and maintained at the owner's expense.

#### **20.50.730 Large Scale Stormwater LID Project.**

**20.50.731 Applicability.** The requirements of this section apply to residential and nonresidential projects not meeting the threshold of a small development project above, in 20.50.721.

**20.50.735 Development Requirements.** Applicants shall use the LID best management practices (BMPs) provided in the current edition of the *LID Technical Guidance Manual for Puget Sound* as the first step and preferred method in meeting stormwater flow control, detention, and treatment requirements. LID projects shall use infiltration, dispersion, and bioretention to the maximum extent practicable and minimize the use of conventional detention to manage stormwater runoff generated on-site. LID points will be given when stormwater is managed beyond the standards of subsections (1) and (2) below, to the thresholds established in WCC 20.50.710.

- (1) Flow Control and Detention shall meet flow-control minimum requirements of the current edition of the WSDOE Stormwater Management Manual for Western Washington.
  - (i) Flow control requirements may be reduced through implementation of LID Guidance Manual for Puget Sound, Section 7.2.2, or then-current equivalent, dispersion for all or part of the development site.
- (2) Water quality. Low Impact Development treatment BMPs shall be designed to treat 91 percent of the annual runoff volume per *WSDOE Stormwater Management Manual for Western Washington*, outlined under runoff treatment minimum requirements.
- (3) Sites that can fully infiltrate per *WSDOE Stormwater Management Manual for Western Washington* Volume III, Chapter 3 or fully disperse per *WSDOE Stormwater Management Manual for Western Washington* Volume V Chapter 5, BMP T5.30 are not required to otherwise provide runoff treatment and/or flow control facilities.

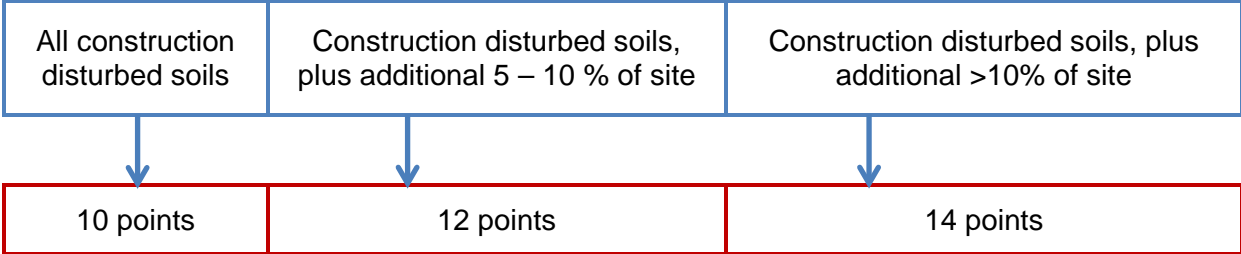
#### **20.50.736 Protection and Maintenance.**

- (1) All projects shall provide a maintenance plan/program that has been approved by Whatcom County.
- (2) A notice on title, or with plat covenants that protect the LID stormwater management facilities from:
  - (a) Cover by structures or impervious material;
  - (b) Soil compaction, for example by vehicular traffic; and
  - (c) Damage by soil removal and grade alteration.

**20.50.800 Native soil protection and amendment.**

The following outlines the scoring criteria for the soil amendment LID technique. The LID point score is based upon the area of the development parcel(s) that is amended with compost.

**20.50.810 Portion of Site that Receives Soil Amendment.**



**20.50.830 Development Requirements.**

- (1) Construction disturbed soils are those disturbed by the current development activity.
- (2) The duff layer and native topsoil should be retained in an undisturbed state to the maximum extent practicable. In areas requiring grading, remove and stockpile the duff layer and topsoil on site in a designated, controlled area, not adjacent to public resources and critical areas, to be reapplied to other portions of the site where feasible.
- (3) Soil quality and depth. All areas subject to clearing and grading that have not been covered by impervious surface, incorporated into a drainage facility or engineered as structural fill or slope shall, at project completion, shall demonstrate compliance with the Guidelines for Implementing Soil Quality and Depth (BMP T5.13 in *Stormwater Management Manual for Western Washington - 2005* or as amended).