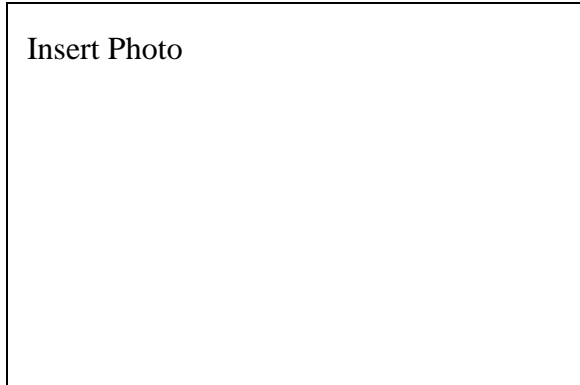


DRAFT

**ASOTIN COUNTY
ROAD STANDARDS**

March 2010

CHAPTER 1 –GENERAL INFORMATION



CHAPTER 1 –GENERAL INFORMATION	1
1.1 INTRODUCTION.....	1
1.2 CONTACT INFORMATION	2
1.3 REFERENCE MATERIAL	2
1.4 REQUEST FOR DEVIATION FROM STANDARDS.....	3
1.5 DEFINITIONS	3

CHAPTER 2 – PLAN APPROVAL PROCESS AND TYPICAL IMPROVEMENTS

2.1	INTRODUCTION.....	1
2.2	TYPES OF PROJECTS	1
2.3	REVIEW AND APPROVAL PROCESS OVERVIEW	1
2.3.1	PRE-APPLICATION MEETING	1
2.3.2	SUBMITTALS AND REVIEW PROCESS.	1
2.4	REQUIRED DEDICATIONS AND IMPROVEMENTS.....	3
2.4.1	GENERAL CONSIDERATIONS	3
2.4.2	ROAD CLASSIFICATIONS	4
2.4.3	DEDICATIONS AND IMPROVEMENTS	4
2.4.4	MODIFICATIONS TO REQUIREMENTS	6

CHAPTER 3 –TRAFFIC IMPACTS AND ANALYSIS

CHAPTER 3 – TRAFFIC IMPACT AND ANALYSIS	1
3.1 INTRODUCTION	1
3.2 TRIP GENERATION & DISTRIBUTION LETTER GUIDELINES	1
3.3 TRAFFIC IMPACT ANALYSIS	2
3.3.1 REPORT	3
3.3.2 METHODOLOGY	5
3.4 PUBLIC MEETINGS	6

CHAPTER 4 –REQUIREMENTS FOR PLAN SUBMITTAL

CHAPTER 4 –REQUIREMENTS FOR PLAN SUBMITTAL..... 1

4.1 INTRODUCTION 1

4.2 GENERAL REQUIREMENTS 1

 4.2.1 FONTS 1

 4.2.2 LINES AND SYMBOLS..... 1

 4.2.3 SHEET SIZE / PLAN MEDIUM 1

 4.2.4 ENGINEER SIGNATURE AND STAMP..... 1

 4.2.5 SCALE..... 1

 4.2.6 NORTH ARROW 2

 4.2.7 VERTICAL AND HORIZONTAL DATUM..... 2

 4.2.8 TITLE BLOCK..... 2

 4.2.9 REQUIRED PLAN SHEETS 2

4.3 SPECIFIC REQUIREMENTS FOR PLAN SHEETS..... 3

 4.3.1 COVER SHEET..... 3

 4.3.2 CLEARING AND GRADING SHEETS..... 4

 4.3.3 ROAD IMPROVEMENTS SHEETS 6

 4.3.4 ONSITE IMPROVEMENTS PLAN SHEETS..... 8

 4.3.5 DRAINAGE PLAN 9

 4.3.6 TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESC)..... 9

 4.3.7 TEMPORARY TRAFFIC CONTROL PLAN 10

 4.3.8 PERMANENT TRAFFIC CONTROL PLAN 10

CHAPTER 5 –CLEARING AND GRADING



CHAPTER 5 –CLEARING AND GRADING 1

5.1 INTRODUCTION..... 1

5.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS 1

5.3 CLEARING, GRUBBING, & GRADING REQUIREMENTS 2

5.3.1 GENERAL REQUIREMENTS 2

5.3.2 GEOTECHNICAL EVALUATION..... 3

5.3.3 CUT SLOPES 4

5.3.4 FILL SLOPES..... 6

5.3.5 SOIL PREPARATION, COMPACTION AND MATERIAL PLACEMENT 6

5.3.6 CUT AND FILL SETBACKS 8

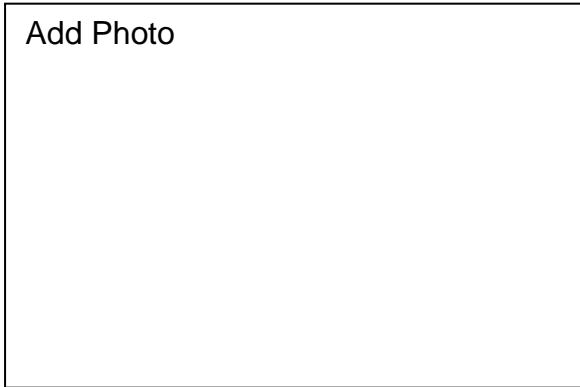
5.3.7 TERRACING..... 8

5.3.8 BLASTING..... 9

5.3.9 SLOPE EASEMENT 9

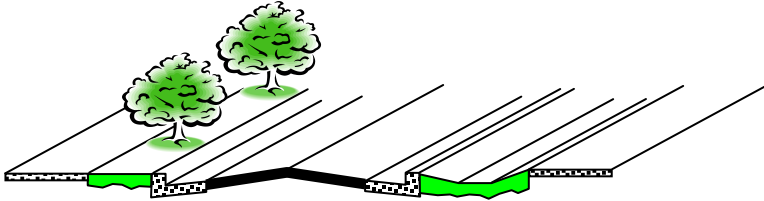
5.3.10 RETAINING WALL REQUIREMENTS 10

CHAPTER 6 -UTILITIES



CHAPTER 6 -UTILITIES	1
6.1 INTRODUCTION	1
6.1.1 SEWER.....	1
6.1.2 WATER/ELECTRICITY AND OTHER UTILITY PROVIDERS	1
6.2 DESIGN CRITERIA	1
6.2.1 UTILITIES LOCATED WITHIN COUNTY RIGHT-OF-WAY	1
6.2.2 UTILITIES LOCATED UNDERGROUND	1
6.2.3 UTILITIES LOCATED ABOVEGROUND	2
6.2.4 ASOTIN COUNTY PAVEMENT CUT POLICY	3

CHAPTER 7 –ROAD ELEMENTS



CHAPTER 7 –ROAD ELEMENTS 1

7.1 INTRODUCTION..... 1

7.2 ROAD TYPES 1

7.2.1 PUBLIC ROADS..... 1

7.2.2 PRIVATE ROADS 1

7.2.3 PRIVATE DRIVEWAYS AND FLAG LOTS..... 2

7.2.4 HALF-ROADS 2

7.3 ROAD GEOMETRY 3

7.3.1 RIGHT-OF-WAY 5

7.3.2 MEDIANS 5

7.3.3 TURNAROUNDS 5

7.3.4 SIDE SLOPES 6

7.4 ROAD LAYOUT 6

7.4.1 RESIDENTIAL ROADS 7

7.4.2 HORIZONTAL CURVES 7

7.4.3 VERTICAL CURVES 7

7.4.4 ROAD SURFACING REQUIREMENTS..... 8

7.5 SIGHT DISTANCE FOR INTERSECTIONS, PROFILES AND DRIVEWAYS 8

7.6 CLEAR ZONE 9

7.7 TRAFFIC CONTROL DEVICES..... 9

7.8 SIDEWALKS..... 10

7.9 APPROACH DESIGN CRITERIA 11

7.9.1 APPLICABILITY..... 11

7.9.2 APPROACHES..... 11

7.9.3 SIGNALIZED DRIVEWAY APPROACHES 16

7.10 BIKEWAYS 16

7.11 TRAFFIC CALMING 17

 7.11.1 TRAFFIC CALMING AND ROAD CLASSIFICATION 17

 7.11.2 TRAFFIC CALMING DEVICES ALLOWED..... 17

7.12 ILLUMINATION..... 17

7.13 ROAD NAMES 18

7.14 MAILBOXES 18

7.15 SURVEY MONUMENTS 18

7.16 GUARDRAIL..... 18

7.17 BOLLARDS 19

7.18 ROADWAY BARRICADES 19

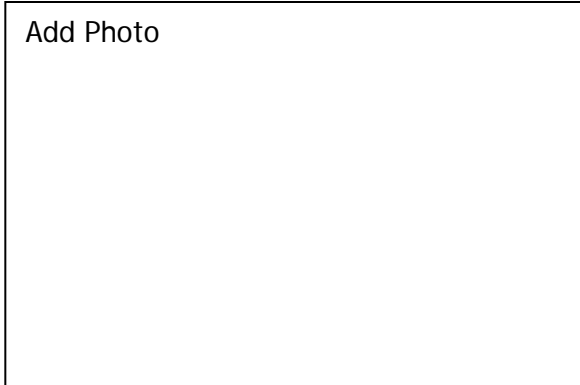
7.19 ENTRANCE GATES..... 19

CHAPTER 8 – PAVEMENT DESIGN



CHAPTER 8 – PAVEMENT DESIGN	1
8.1 INTRODUCTION	1
8.2 DESIGN REQUIREMENTS	1
8.2.1 ROAD CLASSIFICATION	1
8.2.2 ROAD SUBGRADE	1
8.2.3 MINIMUM ROAD PAVEMENT SECTIONS	3
8.2.4 REQUIREMENTS FOR ENGINEERED PAVEMENT SECTIONS	3
8.2.5 MATERIALS SPECIFICATIONS	5
8.2.6 RURAL ROAD BITUMINOUS SURFACE TREATMENT DESIGN GUIDELINES	5
8.2.7 REPORT SUBMITTAL	6

CHAPTER 9 - INSPECTION/CERTIFICATION



CHAPTER 9 – INSPECTION & CERTIFICATION.....	1
9.1 INTRODUCTION	1
9.2 APPLICABILITY.....	1
9.3 RESPONSIBILITIES	1
9.3.1 ONSITE INSPECTOR.....	1
9.3.2 DEVELOPMENT INSPECTOR	2
9.3.3 APPLICANT’S ENGINEER.....	2
9.4 AUTHORITY TO STOP WORK.....	3
9.5 RIGHT-OF-WAY PERMITS	3
9.6 PRE-CONSTRUCTION MEETING.....	3
9.7 CONSTRUCTION NOTIFICATION	4
9.7.1 NOTICES OF UPCOMING CONSTRUCTION	4
9.7.2 NOTICES OF UTILITY SHUTDOWN AND ACCESS LIMITATIONS	6
9.7.3 NOTICES FOR INSPECTION.....	6
9.8 INSPECTION REQUIREMENTS	6
9.8.1 REPORTING	6
9.8.2 MINIMUM MATERIAL TESTING FREQUENCIES	6
9.8.3 DRAINAGE SWALE AND DRAINAGE FACILITIES INSPECTION.....	7
9.8.4 SWALE INSPECTION DURING WARRANTY PERIOD	7

9.8.5 UTILITY INSPECTIONS 8

9.9 MISCELLANEOUS 8

9.9.1 CONFLICT RESOLUTION..... 8

9.9.2 CHANGES DURING CONSTRUCTION..... 8

9.9.3 CONSTRUCTION COMPLAINTS 8

9.10 FINAL WALK-THROUGH..... 8

9.11 RECORD DRAWINGS..... 9

9.12 PROJECT CERTIFICATION 9

9.12.1 CERTIFICATION OF DRAINAGE FACILITIES 10

9.13 PERFORMANCE SURETY 10

9.13.1 SHORT PLAT, LONG PLAT AND BINDING SITE PLAN/SURETY
EXCLUSION 10

9.13.2 SURETY RELEASE 10

9.14 WARRANTY SURETY..... 11

9.14.1 SURETY AMOUNT 11

9.14.2 WARRANTY DURATION..... 11

9.14.3 ACCEPTABLE SURETIES 11

9.14.4 TIME FRAMES TO COMPLETE REPAIR 11

9.14.5 FAILURE TO COMPLETE REPAIR 12

9.14.6 RESPONSIBILITY FOR MAINTENANCE 12

9.15 STREET ESTABLISHMENT 12

CHAPTER 10 – MAINTENANCE

CHAPTER 10 – MAINTENANCE 1

 10.1 INTRODUCTION 1

 10.2 MAINTENANCE RESPONSIBILITY 1

 10.2.1 PUBLIC ROADS..... 1

 10.2.2 PRIVATE ROADS AND DRIVEWAYS 1

 10.3 REQUIRED DOCUMENTS 2

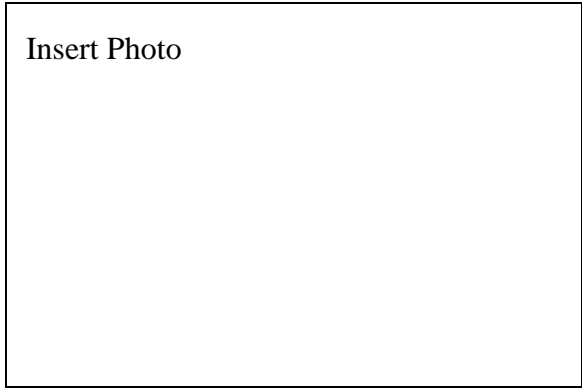
 10.3.1 HOMEOWNERS’ AND PROPERTY OWNERS’ ASSOCIATIONS 2

 10.3.2 OPERATION AND MAINTENANCE MANUAL 3

 10.3.3 FINANCIAL PLAN..... 3

 10.3.4 CONVERSION FROM PRIVATE TO PUBLIC ROAD..... 3

CHAPTER 1 –GENERAL INFORMATION



CHAPTER 1 –GENERAL INFORMATION	1
1.1 INTRODUCTION.....	1
1.2 CONTACT INFORMATION	2
1.3 REFERENCE MATERIAL	2
1.4 REQUEST FOR DEVIATION FROM STANDARDS.....	3
1.5 DEFINITIONS	3

CHAPTER 1 –GENERAL INFORMATION

1.1 INTRODUCTION

Asotin County has adopted this Road Standards manual to complement other related county documents such as the Zoning, Subdivision and Right-of-Way Management Ordinances. This document supersedes Ordinance No. 94-47 which is hereby repealed. This document encourages the standardization of design elements for consistency and to assure that public safety needs are met. This manual contains engineering standards for use by registered professional civil engineers when designing roads and associated facilities within the urban and rural boundaries of Asotin County.

Any substantially completed plats, plans, specifications or other related documents pertaining to roadway and drainage design submitted to Asotin County for review and acceptance following the effective date of this revised Asotin County Road Standards will be reviewed for conformance with these standards.

The standards discussed in this manual apply to new development as well as redevelopment. It is expected that in some cases where reconstruction of existing facilities occurs that these standards may need to be examined closely for practicality.

The information contained in this manual cannot provide for all situations and conditions that may be encountered. Specific provisions contained within this manual may not be appropriate for all locations and existing conditions. These standards are intended to assist, but not substitute for, competent work by professional civil engineers, geotechnical engineers and contractors. It is expected that each professional brings to each project the best of their skills and abilities. These Standards are also not intended to unreasonably limit any innovative or creative effort which could result in a more effective and appropriate design and/or cost savings while achieving equivalent goals. Any proposed departure from these Standards will be judged on the likelihood that such a departure or variance will produce a compensating or comparable result, adequate in every way, for the right of way user and County resident.

The design requirements contained within this manual do not set legal standards of care, but provide guidance for possible engineering treatment under most circumstances. This chapter contains general information on this manual and the Asotin County agency organization.

1.2 CONTACT INFORMATION

County Commissioners

135 Second Street, PO Box 250
 Phone (509) 758-5181
 Asotin, WA 99402
 Phone (509) 243-2060
 Fax: (509) 243-2005

Fire Department

2314 Appleside Blvd.
 Clarkston, WA 99403
 Phone (509) 758-5181
 Fax: (509) 758-5860

Public Works Department

P.O. Box 160
 135 2nd Street 3rd Floor
 Asotin, WA 99402
 Phone (509) 243-2074
 Fax (509) 243-2003

Building and Planning

P.O. Box 610
 95 2nd Street
 Asotin, WA 99402
 Phone (509) 243-2020
 Fax (509) 243-2019

1.3 REFERENCE MATERIAL

These Road Standards are a supplement to, and a modification of, the “Washington State Department of Transportation/American Public Works Association (WSDOT/APWA) Standard Specifications for Road, Bridge and Municipal Construction,” latest edition. The Road Standard Details are comprised of the County’s construction and design detail drawings for grading, storm drainage, and road work within the County that are supplemented by the Washington State Department of Transportation (WSDOT) Standard Plans for Road, Bridge and Municipal Construction.”

The current edition of the following publications should be used as additional reference material for design applications:

- A. Washington State Department of Transportation (WSDOT) “Standard Specifications for Street, Bridge and Municipal Construction”.
- B. Washington State Department of Transportation (WSDOT) “Design Standards”.
- C. WSDOT Local Agency Guidelines.
- D. WSDOT Guidelines for Urban Arterial Program.
- E. American Association of State Highway and Transportation Officials’ (AASHTO) “A Policy on Geometric Design of Highways and Streets”.
- F. Standard Specifications for Highway Bridges, AASHTO.
- G. Guide for the Development of Bicycle Facilities, AASHTO.
- H. Associated Rockery Contractors, Standard Rock Wall Construction Guidelines.
- I. Washington State Department of Ecology, Eastern Washington Stormwater Manual.
- J. Washington State Department of Ecology “Criteria for Sewage Works Design”.

- K. American Society for Testing and Materials (ASTM).
- L. Design criteria of federal agencies including the Federal Housing Administration, Department of Housing and Urban Development; and the Federal Highway Administration, Department of Transportation.
- M. U. S. Department of Transportation Manual on Uniform Traffic Control Devices, “MUTCD”, as amended and approved by Washington State Department of Transportation.
- N. Asotin County 6-Year Transportation Improvement Program
- O. Lewis Clark Valley Metropolitan Planning Organization (LCVMPO) 20-Year Long Range Transportation Plan
- P. Asotin County Bicycle and Pedestrian Plan
- Q. Eastern Washington Stormwater Manual.

1.4 REQUEST FOR DEVIATION FROM STANDARDS

The design standards contained herein should be used when designing a development project within Asotin County. In special cases, County standards may not best address a particular engineering application. In these instances, a design deviation from the County’s standards may be requested from the Office of the Asotin County Engineer. All such requests shall include applicable engineering justification for the deviation. Financial constraints by and of themselves do not constitute a variance justification. Deviation requests and supporting justification must be sealed by a licensed professional civil engineer. The Asotin County Fire Marshal will review all projects for adherence to the Uniform Fire Code. The County Planner must also review. The Office of the Asotin County Engineer will evaluate the request and notify the applicant of his/her decision within fifteen (15) working days of the receipt of a complete deviation request.

1.5 DEFINITIONS

Applicant – An individual or firm applying for design approval from the County for a project.

Asotin County Engineer – Person appointed pursuant to RCW 36.80.010 for Asotin County to review, inspect and approve County utility and public right of way improvements, or the designee of the County Engineer.

Clear Zone – used to designate the unobstructed area provided beyond the edge of the traveled way for the recovery of errant vehicles.

Cul-de-sac – a short road having one end open to traffic and ending with a vehicle turnaround, either permanent or temporary.

Curb Ramp – shall mean a short, depressed section of curb and sidewalk, normally placed at road intersections, designed to facilitate travel of physically disadvantaged persons.

Design Speed – A selected speed used to determine the various geometric design features of a roadway. The assumed design speed should be a logical one with respect to the topography, anticipated operating speed, the adjacent land use, and the functional classification of the roadway.

Developer – shall be used to mean the Owner and any agent of the Owner authorized to represent the Owner.

Driveway – shall mean private driveways that provide primary vehicular access from a public or private road.

Driveway Approach – shall mean any area, construction or facility between the roadway of a road and private property, to provide access for vehicles from the roadway of a road to lots, tracts or parcels.

Engineer – shall mean a Professional Engineer licensed by the State of Washington.

Flag Lot– a “panhandle” shaped lot or parcel with its widest area set back some distance from a publicly dedicated and improved street, and having a strip of land that meets minimum width requirements and standards of construction connecting to the public right-of-way to provide legal access. This strip of land, known as a Flag Pole has a width narrower than that of the lot, tract, or parcel to be served thereby and is designed for the purpose of providing access to a lot, tract, or parcel being less in width than the minimum lot width allowed under the applicable ordinance.

Half-road – shall mean, at a minimum, the construction from one side of the road, including the curb, gutter, storm drainage, sidewalk and landscape strip, to the road centerline.

Private Road – are local access roads that are privately owned and maintained by legally responsible owners

Project – shall mean the design and construction of infrastructure associated with land development activities.

Record Drawings – shall mean the plan set which is certified to contain a true and accurate representation of the actual field conditions for the project during construction or upon completion of construction.

Right-of-Way – shall mean a strip of land occupied or intended to be occupied by certain transportation and public use facilities, such as roadways, railroads, and utility lines.

Road – shall mean street and terms considered interchangeable such as any avenue, road, court, alley, or other public passageway within Asotin County.

Roadway – portion of a road, street or highway improved, designed, or ordinarily used for vehicular travel, exclusive of the sidewalk parts of any roadway may accommodate pedestrian or bicycle movements, even though such sidewalk or shoulder is used by persons riding bicycles.

Rural area – the area outside of the 20-year Urban Planning Boundary identified in the Asotin County Comprehensive Plan.

Surety – shall mean a financial guarantee by the Developer that infrastructure required for a project will be constructed and certified according to the approved plans, specifications and all applicable Standards.

Surveyor – shall mean a Professional Land Surveyor licensed by the State of Washington.

Traveled Way – is comprised of the through traffic lanes. It is the portion of a road designed or ordinarily used for vehicular travel excluding shoulders, medians, bicycle lanes or exclusive turn lanes.

Trip – a one-direction movement, which begins at an origin and ends at a destination.

Urban area – the area inside of the 20-year Urban Planning Boundary identified in the Asotin County Comprehensive Plan.

AASHTO – The American Association of State Highway Transportation Officials.

ADA – Americans with Disabilities Act.

ADAAG – Americans with Disabilities Act Accessibility Guidelines.

APWA – American Public Works Association.

AWWA – American Water Works Association.

MUTCD – Department of Transportation Manual on Uniform Traffic Control Devices.

RCW – Revised Code of Washington

SEPA – State Environmental Policy Act.

WAC – Washington Administrative Code

Chairman of the Asotin County Board of County Commissioners

CHAPTER 2 – PLAN APPROVAL PROCESS AND TYPICAL IMPROVEMENTS

2.1	INTRODUCTION.....	1
2.2	TYPES OF PROJECTS	1
2.3	REVIEW AND APPROVAL PROCESS OVERVIEW	1
2.3.1	PRE-APPLICATION MEETING	1
2.3.2	SUBMITTALS AND REVIEW PROCESS.	1
2.4	REQUIRED DEDICATIONS AND IMPROVEMENTS.....	3
2.4.1	GENERAL CONSIDERATIONS	3
2.4.2	ROAD CLASSIFICATIONS	4
2.4.3	DEDICATIONS AND IMPROVEMENTS	4
2.4.4	MODIFICATIONS TO REQUIREMENTS	6

CHAPTER 2 – PLAN APPROVAL PROCESS AND TYPICAL IMPROVEMENTS

2.1 INTRODUCTION

This chapter presents the plan approval process and requirements required to be fulfilled by development projects. The requirements are based primarily on the goals and policies contained in the Asotin County's Comprehensive Plan, especially those pertaining to Transportation, in conformance with the County's Pavement Management System and design standards. One important objective is to provide adequate and integrated road and sidewalk facilities for safe motorized, non-motorized (e.g. bicycles), and pedestrian usage and to provide for minimal disturbance while protecting the environment.

2.2 TYPES OF PROJECTS

Projects reviewed and conditioned by County Engineer and County Planner include the following general categories:

- A. Land divisions (short plats, subdivisions and binding site plans, as defined in the Subdivision Ordinance);
- B. Building permits, and;
- C. Boundary line adjustments, rezones, changes of use, changes of occupancy, temporary use permits and conditional use permits. This last category of projects may or may not need a building permit. They may, however, result in an increase in traffic and other impacts that can require mitigation.
- D. Approach permits.

2.3 REVIEW AND APPROVAL PROCESS OVERVIEW

2.3.1 PRE-APPLICATION MEETING

The first step in project development is the pre-application meeting. This is a meeting at Asotin County where the project is informally discussed and preliminary comments, based on the proposal submitted, are provided to the applicant. The Asotin County Building and Planning and Public Works Departments will attend this meeting as well as staff from other agencies as required. Due to updates in codes and standards, requirements may change by the time the formal application is submitted. Details and requirements for these meetings can be obtained from the Building and Planning Department (Planning Department).

2.3.2 SUBMITTALS AND REVIEW PROCESS.

In order to start the review process of the formal land action or design submittal, the following must be in place as applicable:

- A permit has been submitted (all projects);

- Road vacations have been approved and the ordinance recorded;
- Boundary line adjustments have been approved and recorded,
- For land division projects – the staff report with the decision or the County Commissioners decision has been issued and the preliminary plat has been approved. SEPA check list completed .

All documents are to be submitted to the Building and Planning Department, then be forwarded to Public Works. One set of plans are required for each review and then, for the final approved plans, the number of sets needed will be provided with the approval letter. The County does not provide detailed review of plans for water and sewer as these are reviewed by the PUD, but Public Works will request copies of the approved water and sewer plans. It is the responsibility of the developer to ensure that the documents are reviewed by the PUD. The Asotin County PUD may request that Asotin County perform a detailed review.

All plans and associated documents submitted to the County for review will first receive a preliminary assessment for completeness. Incomplete documents will be returned – the applicant will be contacted and they may pick them up at the Building and Planning Department.

Public Works will review plans and supporting documents for conformance with applicable Federal, State and County laws, codes, standards, agreements and policies. Review comments will be mailed to the Applicant and the Applicant’s Engineer. Revised plans and supporting documents that address the County’s comments are then to be resubmitted to the County for review. Prior to sign-off on the permit, the following will need to be approved:

- The plans.
- Other supporting documents, including:
 - A drainage report in accordance with the requirements specified in the Eastern Washington Stormwater Manual, as enacted or may be amended. The Eastern Washington Stormwater Manual is published by the Washington State Department of Ecology.
 - Pavement Design report (refer to Chapter 8 for more information).
 - Geotechnical Report.
 - Access , slope and drainage easements deed, if applicable.
 - Widening calculations for all projects with frontage improvements.
 - Trip Generation letter or Traffic Impact Analysis.
 - Site Plan.
 - Design Deviations.
 - Lot Plans.

- Homeowners Association UBI Number and CC&R's (refer to Chapter 10)
- Title Report (required if right-of-way is being dedicated).
- Developer's Agreements.
- All pertinent SEPA mitigations have been addressed.
- Right-of-way and border easements recorded.

If approved, the Applicant's contact will receive a letter of acceptance which will include:

- the type and number of copies of final plans to be submitted (see also Chapter 4)
 - mylar copy of final plans shall be submitted in addition to hard copy plans on bond,
 - electronic submittal in either AutoCAD or ESRI base format shall also be submitted,
- whether or not a pre-construction meeting is needed, and;
- a listing of some items that will be required for either sign-off on the certificate of occupancy (for building permits, note – Public Works does not sign off on Temporary Certificates of Occupancy) or final plat (for land division projects).

2.4 REQUIRED DEDICATIONS AND IMPROVEMENTS

This section describes the dedications and types of improvements that may be required by the County. Authority to require dedications and improvements is provided in the County's Subdivision Ordinance.

2.4.1 GENERAL CONSIDERATIONS

Land divisions and building permits will trigger requirements for dedications of right-of-way, border easements and future acquisition areas and for providing improvements such as pavement widening, sidewalks, etc. Other projects may also trigger these requirements. Specific requirements are determined during project review. These requirements are based primarily on the documents mentioned above as well as other factors, which are described later in this chapter.

When reviewing projects, the County takes into consideration at least the following:

- Existing improvements both on and off-site,
- Any anticipated increase in traffic,
- Road connectivity,
- Road classification (see the County Comprehensive Plan),
- County's 6-year Transportation Improvement Program,

- Lewis Clark Valley Metropolitan Planning Organization (LCVMPO) 20-Year Long Range Transportation Plan
- Asotin County Bicycle and Pedestrian Plan
- Other Studies as may be appropriate
- Public safety,
- Environmental impacts, and
- Road service life (the ability of the roadway section to perform properly for 20 years with only crack preventative maintenance).

There may also be requirements from other County departments such as the Police, Fire, Public Works, Planning and Building or other agencies such as WSDOT. This document does not address the needs or concerns of other agencies.

2.4.2 ROAD CLASSIFICATIONS

The classification of the road is a major component in determining requirements for dedications and improvements. Roads within the County include public and private roads. All public roads in Asotin County have been classified using the Federal Functional Classification system, which provides a hierarchy, from major arterials to local access roads in both the rural and urban areas, to accommodate existing and anticipated traffic. More detailed information on the road classification can be found in the County Comprehensive Plan.

2.4.3 DEDICATIONS AND IMPROVEMENTS

Dedications refer to land for right-of-way, easements and future acquisition areas granted to the County and apply to all public roads adjacent to or within the project parcel(s). Improvements mainly refer to construction of public and private roads and associated items and may also refer to providing for the mitigation of impacts caused by or affecting the project.

2.4.3.1 Primary Requirements

All projects, regardless of size, shall provide for:

- A. Dedications of land for right-of-way and easements as determined to enable full build-out of the project's frontage of all adjacent and interior existing or proposed public roads. These dedications shall occur whether or not the full build-out is presently proposed or will occur in the future. Construction easement needs shall be incorporated in the dedicated land;
- B. Creation of future acquisition areas as required;
- C. Vehicular and pedestrian access to all parcels of land in conformance to County Standards and the latest International Fire Code;
- D. Driveway approaches in accordance with Chapter 7 and the Standard Plans;

- E. Relocation of rigid objects out of the clear zone (clear zone as described by WSDOT);
- F. Repair and replacement of damaged curb, gutter, swales/planters and sidewalk;
- G. Removal of abandoned accesses and replacement with frontage improvements, consistent with this Chapter;
- H. Mitigations determined in the Traffic Impact Analysis, as described in Chapter 3. Mitigation may include, but not be limited to, construction of traffic calming devices and/or bus shelters and pullouts, as well as contributions to traffic signals, road lights, signing and/or pavement markings and turn lanes;
- I. No direct residential lot access to principal and minor arterials unless approved by the County Engineer (see Section 7.9 for Access Management);
- J. Engineer's design shall consider ease of maintenance when designing public roads and associated facilities;
- K. a minimum half-road section (as described in section 7.2.4) along all public roads fronting the project. This requirement also extends to all roads used as access by the project.
- L. For new internal roads - short plats resulting in four (4) or fewer lots must improve any proposed internal public road with a minimum 24-foot wide, paved surface, built to local-access Road Standards, see chapter 7. Grassed swales are to be provided along the road shoulder to receive stormwater runoff for storm water-quality treatment. Dedicated right-of-way may be required from frontage parcels.
- M. All other land division projects must fully improve new internal roads.

2.4.3.2 Building Permit – Requirements

When a project's conditions trigger different categories of improvements, the condition resulting in the greater requirement(s) shall govern.

New commercial, single family dwelling or single duplex structure construction will be required to make right of way improvements stipulated in these standards. Single family dwelling or single duplex remodel or improvements with proposed value of \$50,000 or greater will be required to make right-of-way improvements up to 20% of the improvement value. Planters and swales may not be required. Swales are required if the amount of new impervious roadway, sidewalk and driveway surface is over 5,000 square feet.

2.4.3.3 Boundary Line Adjustments, Rezones, Changes of Use, Changes of Occupancy, Temporary Use Permits and Conditional Use Permits

Improvements required for these projects are determined on a case-by-case basis during project review.

2.4.3.4 Site Specific Requirements

Additional requirements may be requested on a case-by-case basis, depending on site-specific conditions. These requirements may include but are not limited to the following:

- A. Improvements previously established by the County Commissioners by ordinance or resolution to be provided in the vicinity of the project.
- B. New roads (and accompanying dedications) consistent with the County's Comprehensive Plan.
- C. Participation in a County Road Project (CRP).
- D. If a performance or warranty surety is still active, repair by the holder of the surety of any damage to constructed improvements. Repaired improvements to be approved by the County Engineer prior to surety release. After sureties have been released, damage to improvements shall be repaired by the person or company (builder) causing the damage and repairs to be approved by the County Engineer prior to approval of the final certificate of occupancy and/or final plat.
- E. Other public improvements when physical characteristics of the property (including, but not limited to topography, slope, soil type, drainage pattern or vegetation) create potential hazards.
- F. Public improvements necessitated by a compelling public interest or safety related issue.
- G. Construction requirement such as traffic control, dust control, etc.

2.4.4 MODIFICATIONS TO REQUIREMENTS

2.4.4.1 Existing Improvements

If frontage improvements already exist in part or in whole either in front of the project and/or along the adjacent properties, then requirements will be determined upon review by the County Engineer with the following considerations:

- If there are no existing improvements within the project's frontage and the existing improvements of adjacent properties do not meet the current standards, then the proposed improvements for the project may be approved by Asotin County to match some or all of the existing adjacent road improvements.
- If the project's frontage includes existing improvements that do not meet standards and more than 50 percent of an improvement (e.g. curb or sidewalk) is proposed to be modified, then the remainder of that

improvement along the project's frontage may be required to be demolished and reconstructed completely up to standard.

- If the project's frontage includes existing improvements that are significantly below standard, for instance if a road has been reclassified to a higher class, then the existing improvements may need to be removed and replaced with a road section that meets current required standards.
- Traffic Impact Analysis prepared for the project.
- Asotin County Six-Year Transportation Improvement Program.

2.4.4.2 Design/Improvement Exceptions

In certain circumstances it may not be appropriate to require installation of some or all of the frontage improvements at the time a development occurs. Such circumstances may include instances where:

- Unusual topographic or physical conditions that preclude the construction of the improvements as required;
- Improvements would not be advantageous to the neighborhood or County as a whole;
- Required improvements are part of a larger project scheduled for construction in the County's 6-Year Transportation Improvement Program; the Lewis Clark Valley Metropolitan Planning Organization (LCVMPO) Long Range Transportation Plan or Transportation Improvement Program; or
- Sanitary sewer is not available, but is scheduled to come through in less than three years.

In these situations, the County Engineer may modify, waive or defer the installation of such improvements to a later date. A developer's agreement may be required to cover the construction of the improvements.

A sidewalk may not be required on a fronting local-access road if all of the following are true:

- the project is in a low-pedestrian zone (zones R-1, R-2, R-3, I-2), and
- there are no other sidewalks within its block, and
- any part of the project is more than one mile radially away from an activity center (which includes but is not limited to parks, schools, large employment centers, religious institutions). Other institutions or organizations that may attract significant numbers of pedestrians, i.e. aquatic center, B & G Club.

2.4.4.3 Deviations

In special cases, strict application of County standards may not best address a particular engineering situation. In these cases, a design deviation may be requested. Design deviation requests shall be on the County's form and include applicable engineering justification for the deviation. Deviations cannot conflict with a project's conditions of approval and shall be approved prior to plan acceptance. Conditions may be applied to the approved deviations such that the deviation achieves equivalent goals and provides a comparable result to the standards contained herein.

CHAPTER 3 –TRAFFIC IMPACTS AND ANALYSIS

CHAPTER 3 – TRAFFIC IMPACT AND ANALYSIS	1
3.1 INTRODUCTION	1
3.2 TRIP GENERATION & DISTRIBUTION LETTER GUIDELINES	1
3.3 TRAFFIC IMPACT ANALYSIS	2
3.3.1 REPORT	3
3.3.2 METHODOLOGY	5
3.4 PUBLIC MEETINGS	6

CHAPTER 3 – TRAFFIC IMPACTS AND ANALYSIS

3.1 INTRODUCTION

This chapter describes the required contents of the trip generation letter and Traffic Impact Analysis (TIA) submittals. The Trip Generation and Distribution Letter shows County staff the vehicle trips impacts from the proposed project. The traffic impact submittal is intended to be a comprehensive report containing all of the technical information and analysis necessary for the County to evaluate a proposed new development, redevelopment or rezone project for compliance with Level of Service (LOS) standards as defined by the Highway Capacity Manual. Development approval will not be issued until acceptable Levels of Service can be demonstrated – LOS “C” in rural areas and LOS “D” in urban areas within the 20-year Urban Planning Boundary.

3.2 TRIP GENERATION & DISTRIBUTION LETTER GUIDELINES

All projects (development, redevelopment or rezone requests) with transportation impacts of 10 or more peak hour vehicular trips are required to submit a Trip Generation and Distribution Letter. The letter shall be based on the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. A licensed civil engineer with experience in transportation engineering shall be required to seal this letter.

Exemptions are at the discretion of the County Engineer and will be discussed at the Pre-Application Meeting. Projects that are typically under the peak hour threshold and may be exempted from this requirement include:

- (1) Residential short plats
- (2) Multi-family projects with 9 units or less
- (3) Changes of use from residential to commercial with no new buildings or building additions
- (4) Office projects of less than 2,500 square feet (ITE land uses 700-799)
- (5) Industrial projects of less than 9,000 square feet (ITE land uses 100-199)

If a project involves a change of use for a site, then a comparison of trip generation between the previous and proposed site use is required in the Trip Generation letter. For rezone requests, the maximum development opportunity for the requested rezone should be the basis of comparison. If the comparison shows a net increase in trip generation, the project will be subject to the TIA requirements of a new development.

If a project is subject to SEPA review, the Trip Generation letter is required to be submitted for review at the time of the SEPA Application.

The Trip Generation Letter shall include the following elements:

- (1) Project description
- (2) Site plan to standard engineering scale with building size (square feet),
- (3) Type of use including zoning
- (4) Proposed and existing access points, site circulation, queuing lengths and parking locations.
- (5) Project phasing and expected opening year.
- (6) An estimate of trip generation for the typical weekday, AM peak hour, and PM peak hour conditions. Any adjustments for pass-by trips and/or diverted trips shall be clearly stated. Trip generation should typically be determined based upon the methodologies of the most current Institute of Transportation Engineers (ITE) Trip Generation Manual.
- (7) A preliminary distribution pattern for traffic on the adjacent road network, shown in a graphical format.

If the Trip Generation letter shows that a proposed development will add more than 20 peak hour trip ends to an intersection, then a Transportation Impact Analysis (TIA) shall be required at this same submittal time discussed above.

3.3 TRAFFIC IMPACT ANALYSIS

A Traffic Impact Analysis is required for the following situations:

- (1) If the Trip Generation and Distribution letter shows that, a proposed development will add 20 or more peak hour trip ends to an intersection.
- (2) If there exists a current traffic problem in the local area as identified by the County or previous traffic study, such as a high-accident location, poor roadway alignment or capacity deficiency, or pedestrian/bicycle conflicts.

The Scope of all Traffic Impact Analyses shall generally follow the guidelines set forth below:

- (1) The scope of the TIA shall be developed by the Applicant's professional engineer licensed in the State of Washington and reviewed and approved by the County Engineer and other impacted jurisdictions/agencies prior to submittal of the TIA.
- (2) The study area shall include any intersections of collector-class roads or higher that would experience an increase of at least 20 vehicle trips during a peak hour (10 PM peak hour trip ends). All site access points must be analyzed. Intersections of local roads may also be included at the discretion of the County Engineer.
- (3) A PM peak hour LOS analysis shall be conducted for all study area intersections. An analysis of the AM peak hour, Saturday afternoon, or other time period may be required at the discretion of the County Engineer.
- (4) Additional analysis may be required by other reviewing agencies.

The traffic impact study preparer should contact the County Engineer prior to the start of the study to learn the study area and any other additional requirements of the study.

Third party review of the completed Traffic Impact Analysis may be required and will be done at the expense of the applicant.

3.3.1 REPORT

The Traffic Impact Analysis report shall include, but is not be limited to, the following:

- (1) Title Page
 - (a) Name of Project
 - (b) Project sponsor's name and address
 - (c) Study preparer's name, address and phone number
 - (d) Date of study preparation
 - (e) The seal, signature and date of the professional engineer licensed in the State of Washington who prepared the report.
- (2) Introduction
 - (a) Brief project description, location and study area.
 - (b) Purpose of report and study objectives
- (3) Existing Conditions
 - (a) Roadway network description including functional roadway classifications, roadway widths and speed limits, study intersection geometrics and length of existing turn pockets, location of parking, etc.
 - (b) Existing zoning
 - (c) Existing traffic volumes including percent heavy vehicles
 - (d) Level of Service analysis
 - (e) Accident history – past 3 years
 - (f) Bike/pedestrian facilities
 - (g) Known traffic related problems
- (4) Future Non-project Conditions
 - (a) Background development projects and project descriptions
 - (b) Vicinity map
 - (c) Trip generation and Distribution
 - (d) Background growth rate
 - (e) Future traffic volumes without project (build-out year +5)

- (f) Level of Service analysis
- (g) Planned transportation improvements (private development and County)
- (5) Future Conditions with Proposed Development
 - (a) Project description, phasing and project timing
 - (b) Type of land use and proposed zoning
 - (c) Scaled site plan with building size(s) (square feet), location and vicinity map
 - (d) Access points, site circulation, storage lengths, and parking locations.
 - (e) An estimate of trip generation for the typical weekday, AM peak hour, and PM peak hour conditions. Any adjustments for transit use, pass-by trips, and/or diverted trips shall be clearly stated.
 - (f) A distribution pattern for traffic on the adjacent road network, shown in a graphical format
 - (g) Project phasing and timing
 - (h) Future traffic volumes with project (Build-out year +5)
 - (i) Level of Service analysis
 - (j) If the project mitigation involves installation or modification to an intersection controlled with a traffic signal or roundabout, an additional Build-Out Year + 20 analysis shall be completed for the intersection.
 - (k) Traffic calming street design amenities and progressive intersection solutions such as roundabouts are encouraged as conceptual alternatives.
- (6) Other Analyses may be required as requested by the County Engineer, including but not limited to:
 - (a) Sight distance
 - (b) Queue lengths at signalized intersections
 - (c) Noise
 - (d) Air quality – typically required when physical improvements are proposed
 - (e) Intersection control warrant analysis (signal, 4-way stop, yield)
 - (f) Auxiliary lane warrant analysis
 - (g) Site access
 - (h) Pedestrian study
 - (i) Vehicle speed study
- (7) Findings
 - (a) Traffic impacts
 - (b) Compliance with level of service standards

- (c) Needed improvements
- (8) Recommendations and Mitigation
- (9) Summary and Conclusions
- (10) Appendices
 - (a) Definitions
 - (b) Trip generation sources
 - (c) Passer-by and origin-destination studies
 - (d) Volume and turning movement count sheets
 - (e) Level of service calculations
 - (f) Warrant analysis calculations
 - (g) References

3.3.2 METHODOLOGY

The analysis shall be done using the following methodology:

- (1) Background Growth Rate – The background growth rate may be based on historical growth data and/or the LCVMPPO Regional Travel Demand Model as approved by the County Engineer. This rate is to be applied to existing turning movement volumes prior to the addition of background project traffic or site generated traffic volumes. A minimum growth rate of 1% is required.
- (2) Background Project Traffic – Background project traffic shall include the following:
 - (a) Traffic from newly constructed projects;
 - (b) Projects for which traffic impacts have been tentatively reserved (approved but not yet constructed);
 - (c) Non-project, general background traffic increases.
- (3) Level of Service (LOS) shall be determined in accordance with the methods reported in the latest edition of the *Highway Capacity Manual, Special Report 209*. LOS shall meet LOS “C” in the rural areas and LOS “D” in the urban areas inside the 20-year Urban Planning Boundary as defined by the Lewis Clark Valley Metropolitan Planning Organization.
- (4) Use of the two-stage gap acceptance methodology for unsignalized intersections is subject to the County Engineer’s approval.
- (5) Other analysis tools may be utilized with the County Engineer’s approval if HCM methodology cannot accurately model an intersection.
- (6) Trip Generation data shall be based on the latest edition of the ITE Trip Generation Manual. Trip Generation data from studies of similar facilities may be substituted as approved by the County Engineer.

- (7) Turning Movement Counts are required to be recorded less than one year prior to submitting a traffic study. Counts less than two years old may be used if no significant development projects or changes to the transportation network have been constructed. Counts should be taken on a Tuesday, Wednesday, or Thursday representing a typical travel day. Projects near schools may be required to collect turning movement counts during the school year.
- (8) If an average of more than 5 accidents have been reported, in the 3 most recent years at an intersection, an intersection collision rate should then be calculated based on collisions per million entering vehicles.

3.4 PUBLIC MEETINGS

A public meeting(s) may be required for any residential project generating over 100 PM peak hour trips, commercial projects generating over PM peak hour trips impacting a residential area, or for other large projects at the discretion of the County Engineer. Proper notification and all associated meeting costs shall be the responsibility of the Applicant. When the applicant is required to hold a public hearing, notice of the hearing shall be given in the following manner:

1. Each notice of a public meeting shall be ~~mailed~~ sent to all property owners within three hundred feet of the property that is the subject of the meeting;
2. Each notice of a public meeting shall be published in the official newspaper of the County at least ten days prior to the date of the meeting;
3. Notice shall be posted in at least one conspicuous place on the property designed to attract public awareness. Said posting shall be erected not less than ten calendar days prior to the scheduled public meeting. Posted information shall be able to withstand adverse weather conditions;
4. When the meeting involves a Planned Development application and said Planned Development is located adjacent to the right of way of a state highway, notice shall be given to the State Department of Transportation;

CHAPTER 4 –REQUIREMENTS FOR PLAN SUBMITTAL

CHAPTER 4 –REQUIREMENTS FOR PLAN SUBMITTAL..... 1

4.1 INTRODUCTION 1

4.2 GENERAL REQUIREMENTS 1

 4.2.1 FONTS 1

 4.2.2 LINES AND SYMBOLS..... 1

 4.2.3 SHEET SIZE / PLAN MEDIUM 1

 4.2.4 ENGINEER SIGNATURE AND STAMP..... 1

 4.2.5 SCALE..... 1

 4.2.6 NORTH ARROW 2

 4.2.7 VERTICAL AND HORIZONTAL DATUM..... 2

 4.2.8 TITLE BLOCK..... 2

 4.2.9 REQUIRED PLAN SHEETS 2

4.3 SPECIFIC REQUIREMENTS FOR PLAN SHEETS..... 3

 4.3.1 COVER SHEET..... 3

 4.3.2 CLEARING AND GRADING SHEETS..... 4

 4.3.3 ROAD IMPROVEMENTS SHEETS 6

 4.3.4 ONSITE IMPROVEMENTS PLAN SHEETS..... 8

 4.3.5 DRAINAGE PLAN 9

 4.3.6 TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESC)..... 9

 4.3.7 TEMPORARY TRAFFIC CONTROL PLAN 10

 4.3.8 PERMANENT TRAFFIC CONTROL PLAN 10

CHAPTER 4 –REQUIREMENTS FOR PLAN SUBMITTAL

4.1 INTRODUCTION

The Developer is required to submit a complete drawing plan set and supporting calculations covering the design for all public and private improvements in the project. Hand drawn plans will not be accepted. Plans will not be accepted for review that are not clear, concise or easy to read with all lettering and lines legible. Incomplete plan sets will not be reviewed and will be returned to the applicant. This chapter provides the minimum plan elements for a complete submittal. State law requires that engineering work be performed by or under the direction of a Professional Engineer currently licensed in the State of Washington.

4.2 GENERAL REQUIREMENTS

4.2.1 FONTS

Lettering will be legible to be easily read and understood by the reviewer. The lettering will be of sufficient size and scale to produce clear, readable images when scanned digitally by an optical scanner.

4.2.2 LINES AND SYMBOLS

Standard drafting lines and symbols are shown on the Standard Plans entitled Asotin County Drafting Standards. All drawings submitted for review will use these Standards. Symbols and line types for plan features not available in the Standards will be described in a legend in the plan set.

4.2.3 SHEET SIZE / PLAN MEDIUM

For commercial and residential projects, plan sets will be plotted or copied on standard drafting paper with dark ink. Colors other than black should be avoided due to reproduction issues.

All plan sheets shall be 24 inches by 36 inches (D size).

4.2.4 ENGINEER SIGNATURE AND STAMP

All sheets shall include the engineer's signature, stamp and date of signature in accordance with current regulations established by the State of Washington Board of Registration of Professional Engineers.

4.2.5 SCALE

All Plan and profile sheets:

- Horizontal. 1 inch = 20, 30 or 40 feet. (1 inch = 50 feet or greater scales are not accepted without prior approval from County Engineer)
- Vertical. 1 inch = 5 or 10 feet.
- Overall Plan. 1 inch = 100 feet.
- Cross Sections. Vertical exaggeration ratio shall be 5:1.

4.2.6 NORTH ARROW

All design sheets shall have a north arrow oriented toward the top or right side of applicable sheets.

4.2.7 VERTICAL AND HORIZONTAL DATUM

The Asotin County vertical datum is based on North American Vertical Datum (NAVD) 83. The horizontal datum is a coordinate system based on 1983(91) State Plane Coordinates.

4.2.8 TITLE BLOCK

A title block is required on every sheet and cover sheet submitted for review and acceptance. The title block shall be located in the extreme lower right hand corner, the right side margin, or along the bottom edge of the sheet. The following information shall appear in the title block on each sheet:

- Project name and the file number provided by the County;
- The type and location of improvement);
- Engineer's name, address, including zip code, and telephone number, and FAX number; (if draftsman is used, include their initials on plan);
- Date of all revisions;
- Sheet number and total number of sheets;
- Name of owner/developer.

4.2.9 REQUIRED PLAN SHEETS

The plan set shall include as a minimum:

- Cover Sheet (refer to Section 4.2.11);
- Clearing and Grading Plan (refer to Section 4.2.12);
- Road Improvements sheets (refer to Section 4.2.13);
- On-site Improvement sheet
- Drainage Plan, (refer to section 4.2.14)

- Erosion Control Plan sheet (refer to section 4.2.15);
- Temporary Traffic Control Plan sheet (refer to Section 4.2.16); and,
- Permanent Traffic Control Plan sheet (refer to Section 4.2.17); and,
- Detail sheets, as needed.

4.3 SPECIFIC REQUIREMENTS FOR PLAN SHEETS

This section outlines the minimum required information to be included on specific sheets of the plan set. The following sheets are listed in the order they should appear in the plan set. Some sections of the plan set may have more than one sheet, but should be labeled alike.

All sheets except the cover sheet, detail sheets and traffic control plan will have the following message:

**CALL 2 BUSINESS DAYS BEFORE YOU DIG
811 OR 1-800-424-5555**

4.3.1 COVER SHEET

4.3.1.1 Applicability

All plan sets shall include a cover sheet.

4.3.1.2 Minimum Elements

The following shall be included on the cover sheet:

- The project name and the number shown in the top middle of the page
- A vicinity map approximately 8 1/2"x11" inch area showing the location and name of all arterial roadways within one mile of the proposed construction, and all other roadways within 1/2 mile of the proposed construction. The project area shall be indicated by shading;
- A sheet index of all sheets within the plan set;
- Impervious area calculations for all commercial projects, which should be itemized and include the total of the rooftop area, pavement area and gravel area and total impervious area;
- Section, Township, and Range;
- Legend of Symbols for all appurtenances related to each type of facility;
- General Construction Notes as provided in Attachment 1;
- Developer's signature (for final plans);
- Each utility purveyors signature;
- Property area of parcel owned by proponent;

- Property area of parcel impacted by project;
- Certification Statement. The note below will appear on the cover sheet of the construction plans for private improvements:

Asotin County will not be responsible for the maintenance of road and appurtenant improvements, including storm drainage structures and pipes, for the following private roads: (list).

- County Engineer's signature.

4.3.2 CLEARING AND GRADING SHEETS

4.3.2.1 Applicability

Clearing and grading sheets are required for projects applying for:

- A clearing and grubbing permit;
- A grading only permit;
- A building permit for all new non-residential development and for residential construction of four or more units per lot;
- Short plat proposing internal roads, 150 foot or longer driveways, or fronting improvements;
- Long plats; or
- Binding Site Plans.

4.3.2.2 Minimum Plan Elements

The clearing and grading sheets will clearly convey design and construction intent. The clearing and grading sheets shall only depict the work to be done with the requested permit and shall include, as applicable: (See Chapter 5 Requirements)

- Property limits and accurate contours of existing ground elevations. For existing topography, one foot (1') contour intervals are preferred unless the County Engineer determines that up to five foot (5') contour mapping is accurate and detailed enough to describe current landforms. One foot contours may be necessary to show certain features such as swales.
- The extent of clearing and/or grading areas, delineated and labeled "excavation" or "fill".
- Finish contours to be achieved by the grading and related construction. The contour interval for proposed topography must be no more than 1 foot (1'), unless the slope is greater than 10%, in which case, the County Engineer may accept five foot (5') contour intervals.
- Existing and proposed surface and subsurface drainage facilities.

- Footprint of onsite buildings or structures and the location of adjacent buildings or structures located within 15 feet of the property or which may be affected by the proposed grading operations.
- Specifications shall contain information covering construction and material requirements, including, but not limited, to specification of the soil compaction to be achieved in any areas of fill placement. Compaction standards shall be met as set forth in the Washington State Department of Transportation “Design Standards” or other applicable WSDOT documents.
- Estimated amount of cut and fill and vertical dimensions of cut and fill.
- Delineation of sensitive areas, floodplains, and critical areas per information available from pertinent agencies or from required studies per County Engineer determination.
- The approximate location of all trees eight inches dbh (diameter at breast height) and larger. A description of the tree protection standards to be implemented during construction.
- Delineation of any areas to be preserved.
- For subdivision work, plans shall also provide the following:
 - Details of subdivision construction to mitigate the effects of storm water and irrigation spoils for all lots and areas of the subdivision. Specific site construction requirements to mitigate collection of flowing water or moisture in crawlspaces and basements.
 - Final location of all grading construction spoils. If spoils are placed on building lots, the surface overburden, (i.e. topsoil and any underlying soils not conforming to the project requirements of the lots) shall be removed prior to the placement of any other fill. If lots are comprised of fill materials more than two feet in depth, the compacted fill materials below two feet in depth from finished grade shall have a minimum allowable bearing capacity of 2000 pounds per square foot and related compaction documentation to show proper placement.
 - Maximum and minimum elevations for all basement and crawl space floors. Maximum and minimum elevations for the top of foundation walls. Maximum elevation for lot/ property boundary lines to provide positive drainage from building sites. In areas of shallow groundwater. Recommendations shall be coordinated with the International Building Code (IBC) and International Residential Code (IRC).
 - In the event of shallow groundwater, discussion of the effects of hydrostatic pressure that may lead to basement flooding and recommendations as to the effectiveness of waterproofing; (See Chapter 5 requirements). Asotin County does not allow the direct pumping of stormwater into public sanitary sewer without written authorization.

- Identification of locations where sub-level structure construction is not feasible;

4.3.3 ROAD IMPROVEMENTS SHEETS

The plans shall include road improvements sheet for each public and private road proposed in the development and for existing roads with fronting improvements. The information described below shall be shown on all road improvements sheets submitted for review and approval.

4.3.3.1 Applicability

Road improvements sheets are required for projects:

- Proposing new public or private road or road extensions;
- Proposing private driveways which are 150 feet (150') or more in length;
- Triggering road improvement requirements as specified in Chapter 2; or,
- Required to provide fronting improvements.

4.3.3.2 Minimum Plan View Elements

The plan view shall include, at a minimum, the following:

- Survey lines and stationing lines shall normally be based on centerline of road; other profiles may be included but shall be referenced to centerline stationing. Stationing in cul-de-sacs shall be on the centerline to the center of the bulb with flowlines dimensioned within the bulb.
- Lot lines, lot numbers and block numbers.
- Proposed and adjoining subdivision names.
- Existing and proposed road names.
- Section, Township, and Range.
- Existing and proposed property and/or right-of-way lines, easements, and/or tracts. Type and dimension of easement or tract is to be clearly labeled. Dimensions of Property and right-of-way lines are to be marked.
- Road alignments with 100' stationing, reading from left to right, and stationing at points of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and the horizontal control net. Stations shall increase from west to east and from south to north.
- Match lines and stations.
- Bearings on the road centerline, keyed to an associated plat map.
- Station and elevation of all horizontal curves including PI, PC's, PT's (point of intersection, point of curvature, point of tangent), etc.; high or

low point and PI of all vertical curves; existing and proposed, centerline bearings, distances, and complete curve data.

- Curve data including radius, delta, arc length and semi-tangent length on all road centerlines and curb returns.
- Stations and elevations of all curb returns. Beginning, mid-point, and ending elevations of curb returns.
- Location of all proposed and existing driveways.
- All existing utilities.
- Sidewalks and/or bicycle pedestrian facilities.
- All proposed water, sewer, power, phone, cable television and gas utilities that will be designed and constructed. The plan sheet shall show the extent of the pavement cut for connections.
- Proposed drainage features including, station and type of all structures, direction of flow, size and kind of each drainage channel, ditch or pipe and any other requirements as specified in the Eastern Washington Stormwater Manual.
- Storm drainage flow direction arrows, particularly at intersections and all high and low points.
- Station and critical elevation (flowline, invert of pipe, etc.) of all existing and proposed utility or drainage structures. Location of utilities shall be identified with horizontal and vertical dimensions as measured from roadway centerline profile grade.
- Accompanying geotechnical engineering reports as required by this document or standard engineering judgment.

4.3.3.3 Minimum Profile View Elements

The profile view shall include, at a minimum, the following:

- The stationing shall be the same as the horizontal plan, reading from left to right. It shall include stationing of points of curve, tangent, length, and point of intersection of vertical curves, with elevations to 0.05 feet;
- Original ground line (dashed) at 100' stations and at significant ground breaks and topographic features based on field measurement accurate within 0.1' on unpaved surface and 0.05' on paved surface;
- Profiles for curbed roads shall show the tops of both curbs and the centerline clearly labeled. Profiles for shouldered roads shall show the centerline only;
- On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements;
- Elevation of vertical grade breaks, grade and length of vertical curves;

- The datum used and all benchmarks, which must refer to established control when available.

4.3.3.4 Minimum Typical Cross Section Elements

A typical road section shall include, at a minimum, the following:

- Station limits;
- The dimensions of traffic lanes, shoulders, gutters, sidewalks, swales, depths, planting strips, easements, right-of-way, etc.
- The cross slope of elements such as pavement, ditches, sidewalks, etc.
- Type of curb.
- Dimensions and type of structural section material layers.
- Retaining walls, as applicable.
- A separate full width, typical section is required for each road or portion of the road that differs significantly.

4.3.4 ONSITE IMPROVEMENTS PLAN SHEETS

4.3.4.1 Applicability

Onsite improvements sheets are required for projects proposing:

- New non-residential developments;
- Residential construction of three or more units per lot;
- Drywells;
- The addition or replacement of 5,000 square feet or more of impervious areas at full build-out. The impervious areas of the entire plan shall be used in determining requirements. This includes projects that are:
 - Phased, even if the separate phases will be constructed under separate contract or by separate owners (e.g. development where lots are sold to separate builders);
 - Phased over multiple years, but are still under a consistent plan for long term development;
 - Projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility.
- Additions or alterations to, or change in use of existing buildings, sites, or parking areas where the work:
 - Increases the assessed value of the improvements on the property by greater than fifty percent;
 - Increase impervious areas to 5,000 square feet or more;

- Alters site access requirements, including adding or removing driveways; or
- Connects to and impacts County roads and utilities.

4.3.4.2 Minimum Onsite Improvement Elements

The onsite improvements sheet shall include, at a minimum, the following:

- Lot lines, lot numbers and block numbers;
- Existing road names
- Section, Township, and Range
- Existing and proposed property and/or right-of-way lines, easements, and/or tracts. Type and dimension of easement or tract is to be clearly labeled. Dimensions of property and right-of-way lines are to be marked.
- Location of all proposed and existing driveways.
- All existing utilities.
- All proposed water, sewer, power, phone, cable television and gas utilities that will be designed and constructed. The plan sheet shall show the extent of the pavement cut for connections.
- Proposed drainage features including: station and type of all structures, direction of flow, size and kind of each drainage channel, ditch or pipe and any other requirements as specified in the Eastern Washington Stormwater Manual, as amended.
- Storm drainage flow direction arrows, particularly at intersections and all high and low points.
- Station and critical elevation (flowline, invert of pipe, etc.) of all existing and proposed utility or drainage structures. Location of utilities shall be identified with horizontal and vertical dimensions as measured from roadway centerline profile grade.

4.3.5 DRAINAGE PLAN

A drainage plan, showing the location and drainage facilities intended to provide flow control, treatment, and conveyance will be submitted with the construction plans and will conform to the Eastern Washington Stormwater Manual as published by the Washington State Department of Ecology.

4.3.6 STORMWATER POLLUTION PREVENTION PLAN OR EROSION AND SEDIMENT CONTROL PLAN

A Stormwater Pollution and Prevention Plan or Erosion Sediment Control Plan shall be submitted for all projects as specified in Section 5.2 and shall conform with Section 5.2 and local Stormwater Construction Permit requirements as well as

requirements of the Washington State Department of Ecology and the Eastern Washington Stormwater Manual, as amended.

4.3.7 TEMPORARY TRAFFIC CONTROL PLAN

A temporary traffic control plan shall be submitted insufficient detail appropriate to the complexity of the project, following the guidance in the MUTCD Chapter 6 B.

4.3.8 PERMANENT TRAFFIC CONTROL PLAN

Permanent traffic control plan sheets will include the components outlined below. Permanent signage and striping will be complete and in place before any new roadway is opened to the public.

4.3.8.1 Area Map

Separate signage and striping plans are to consist of an overall area map noting all specific use areas, such as schools, parks, recreation centers, library, commercial, industrial, etc.

4.3.8.2 Road Segment Pages

The pages following the area map are to be broken down into road segments, for notation of signage and striping details.

4.3.8.3 Signing Plan

The permanent signing plan should:

- Show the longitudinal location of each sign (horizontal offset and station);
- Specify the sign legend and sign type (from MUTCD);
- Specify the sign size;
- Provide the construction drawing shown in Appendix “A” of installation dimensions (height, distance from curb, etc);
- Detail post and base dimensions and installation plan (showing sleeves, depth below surface, and materials used, according to Local Entity standards);
- Specify the blank gauge of the sign; and,
- Note the reflectorization provided.

4.3.8.4 Striping Plan

The striping plan must show:

- Color and type;
- Lane widths, taper lengths, storage lengths, etc.;
- Striping/skip interval;

- This sheet shall also contain any construction or application notes, (e.g., application temperatures, surface cleaning methods to be used prior to application, etc.);
- Typical treatments for acceleration/deceleration lanes, turning lanes, and crosswalks;
- Type of material (epoxy, latex, thermoplastic); and,
- Station and offset or dimensions to all angle points, symbol locations, and line terminations.

4.3.8.5 Traffic Signal Plan

Traffic signal installation and equipment will conform to the WSDOT Standards and Specifications. The MUTCD Signal Warrants will be met.

Attachment 1
GENERAL CONSTRUCTION NOTES

All work and materials shall be in conformance with the latest edition of the Asotin County Road Standards and all other governing agency's standards.

Prior to site construction, the Contractor is responsible for locating underground utilities. Call the underground utility location service at 1-800-424-5555 before you dig.

Locations of existing utilities shown in the plans are approximate. The Contractor shall be responsible for locating all underground utilities. Any conflicting utilities shall be relocated prior to construction of road and drainage facilities.

The Contractor is required to have a complete set of the accepted road and drainage plans on the job site whenever construction is in progress.

If the Contractor discovers any discrepancies between the plans and existing conditions encountered, the contractor shall immediately notify the design engineer.

The Contractor should take precautions to protect the infiltration capacity of stormwater facilities (e.g., line the facility with filter fabric, over-excavate upon completion of the infrastructure, etc.)

Where directed by Asotin County, the Contractor shall place traffic control devices, the placement and type of which shall conform to the Manual of Uniform Traffic Control Devices (MUTCD).

It shall be the Contractor's responsibility to coordinate with and contact all of the appropriate utilities involved prior to construction.

All pavement cuts to connect utilities shall be repaired in conformance with the Asotin County Road Standards.

Contractor shall be responsible for scheduling and acquiring electrical inspections required by the State.

Contractor is responsible for applying for and obtaining all permits.

The Contractor and all subcontractors shall have a current Business License for work in Asotin County.

The Contractor and all subcontractors shall be licensed by the State of Washington and bonded to do work in the public right of way.

No work on this project shall commence until an Asotin County Right of Way permit has been issued.

The Contractor shall protect adjacent properties, public or private, at all times during construction from the direct and indirect impacts of construction.

Contractors shall control dust in accordance with regulations of local air pollution control authority, state and federal law.

Contractor shall remove all construction related debris to an approved waste disposal site.

Supplemental notes should be used when applicable.

For any curb grades less than 0.8% (0.008 ft/ft), a Professional Land Surveyor currently licensed in the State of Washington shall verify that the curb forms are at the grades noted on the accepted plans, prior to placement of concrete. The Contractor is responsible for arranging and coordinating work with the Surveyor.

The Contractor shall employ a Professional Land Surveyor currently licensed in the State of Washington or other professional approved by the Public Works Director to verify that the cross-gutter forms are at the correct plane grade prior to concrete placement. The cross-gutters shall be constructed prior to paving, and the pavement shall then match the edge of concrete gutter.

For construction of drywells, install filter fabric (Amoco 4545 or approved equivalent) between the washed drain rock and the native soils.

Bio-infiltration ponds/swales shall have a maximum treatment design depth (from pond/swale bottom to elevation of drywell grate or first overflow/outflow mechanism) of 6 inches. Either organic matter content or Cation Exchange Capacity (CEC) testing shall be completed in order to substantiate the treatment soil composition. The tests shall be performed on composite samples taken from the treatment soil layer from the constructed pond bottom. A composite sample consists of well-mixed soil obtained from at least four cores, to a depth of at least 6 inches, randomly distributed over the pond bottom test area. Stockpile samples from on-site or a material supplier can be tested for informational purposes to determine initial suitability and possible soil amendments, but will not be accepted in-lieu of in-place testing. A minimum of one test shall be performed for each bio-infiltration pond/swale 1,500 square feet or less, with one additional test for each additional 2,000 square feet of pond/swale bottom, or fraction thereof. "One test" is equal to four core samples taken as described above. Testing results shall be submitted as part of the Construction Certification Submittal required for release of surety posted on project.

Concrete aprons are required at the inlet into any swale or pond. The finish grade of the swale/pond side slope, where the concrete inlet apron ends, shall be a minimum of 2 inches below the finished elevation of the concrete curb apron extension. The intention is to allow stormwater runoff to enter the swale/pond unobstructed, without backing up into the road and gutter due to sod overgrowth at the inlet.

Unlined pond and bioinfiltration swale bottoms are expected to infiltrate via the pond floor, and therefore, shall not be heavily compacted; equipment traffic shall be minimized on the pond bottoms. The facility subgrade shall be a medium- to well- draining material, with a minimum thickness of 48 inches and a minimum infiltration rate of 0.15 in/hr. The facility shall drain within 72 hours of a 10 year storm event. If the pond also serves as a water quality treatment facility, the treatment zone (sod and 6 inches of treatment soil) shall be a medium- to well-draining material, with a minimum infiltration rate of 0.25-0.50 in/hr.; silty loam or loamy soils are presumed to have an infiltrative rate that falls within this range. Scarify the finish grade of the pond bottom prior to hydroseeding/sodding. Testing that verifies subgrade minimum infiltration rate is required by the local jurisdiction prior to construction certification to ensure adequate drainage. Infiltrative testing of the treatment zone is only required if soils other than silty loam or loamy soils are proposed.

If, during final inspection, it is found that the constructed pond or swale does not conform to the accepted design, the system shall be reconstructed so that it does comply. Refer to Appendix 9A for Erosion and Sediment Control Standard Notes.

CHAPTER 5 –CLEARING AND GRADING



CHAPTER 5 –CLEARING AND GRADING 1

5.1 INTRODUCTION..... 1

5.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS 1

5.3 CLEARING, GRUBBING, & GRADING REQUIREMENTS 2

5.3.1 GENERAL REQUIREMENTS 2

5.3.2 GEOTECHNICAL EVALUATION..... 3

5.3.3 CUT SLOPES 4

5.3.4 FILL SLOPES..... 6

5.3.5 SOIL PREPARATION, COMPACTION AND MATERIAL PLACEMENT 6

5.3.6 CUT AND FILL SETBACKS 8

5.3.7 TERRACING..... 8

5.3.8 BLASTING..... 9

5.3.9 SLOPE EASEMENT 9

5.3.10 RETAINING WALL REQUIREMENTS 10

CHAPTER 5 –CLEARING AND GRADING

5.1 INTRODUCTION

The design of temporary erosion and sediment control (ESC), clearing and grading plans shall conform to the requirements herein.

The purpose of these requirements is to provide the design criteria necessary to preserve the Asotin County's water courses; minimize surface and ground water quality degradation; protect adjacent and downstream property owners from erosion and flooding; and ensure the safety and stability of Asotin County's roads and rights-of-way.

Although the construction phase of a project is usually considered a temporary condition, construction work may take place over several seasons. All Best Management Practices used in the course of construction should be of sufficient size, strength, and durability to readily outlast the expected construction schedule and operate properly during the design storm rainfall conditions. Maintenance of these Best Management Practices system is mandatory.

This section relates to required State of Washington Department of Ecology Phase II Stormwater permitting and any regional and local stormwater ordinances. See the Municipal Separate Stormwater System map for Asotin County. This chapter of the Road Standards pertains mainly to right-of-way work. When site improvements occur on projects that overlap onto slope easements or private property, the County Engineer will determine if any inconsistencies between these standards and other County ordinances need to be clarified.

This section does not relieve the project proponent of any increased responsibilities for professional involvement by geotechnical engineers or environment scientists should site conditions warrant. Clearing and grading permits do not allow the filling in of critical habitat areas such as wetlands etc. without proper scientific study performed to a standard acceptable to the profession and Asotin County.

5.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS

The applicant for a development permit is ultimately responsible for containing all soil on the project site and must recognize the potential for changing stormwater flow or unexpected site and weather conditions.

The Asotin County Construction Ordinance governs stormwater provisions. When required, an Erosion and Sediment Control (ESC) plan shall be prepared in accordance with Chapter 9 - Erosion and Sediment Control Design of the Eastern Washington Stormwater Manual, as enacted or may be amended. Detailed examples and descriptions of the Best Management Practices (BMP) referenced in the above chapter are included in Chapter 7 of the *Eastern Washington Stormwater Manual*. The ESC plan shall address the following items:

- Construction sequence,

- Construction access route,
- Installation of sediment control,
- Provisions for soil stabilization,
- Protection of inlets,
- Control of runoff from construction sites,
- Washout site for concrete trucks and equipment,
- Material storage/stockpiling,
- Handle cut and fill slopes properly,
- Stabilization of temporary conveyance channels and outlets,
- Dewatering construction site,
- Control of pollutants other than sediment on construction sites including airborne particulate (dust), and,
- Maintenance of Best Management Practice Systems (BMPS).

5.3 CLEARING, GRUBBING, & GRADING REQUIREMENTS

Clearing and grubbing includes, but is not limited to, removing trees, stumps, roots, brush, structures, abandoned utilities, trash, debris and all other materials found on or near the surface of the ground in the construction area and understood by generally accepted engineering practice not to be suitable for construction of the contemplated project.

Grading is the physical manipulation of the earth's surface and/or surface drainage pattern without significantly adding or removing on-site materials. This includes removing the organic layer, all surcharging, preloading and re-contouring the ground, and may include minor excavation and filling.

Underground structures such as basements, vaults, septic tanks and drainfields shall be addressed during clearing and grading.

5.3.1 GENERAL REQUIREMENTS

This section provides general criteria for clearing, grubbing, and grading activities. In general, clearing, grubbing, and grading activities shall:

- Not contribute to or create erosion, landslides, accelerated soil creep, settlement of soils, or flooding of public or private property.
- Not contribute to or create flooding, erosion, increased turbidity, or siltation of a watercourse.
- Contain reasonable provisions for the preservation of natural features, vegetation, sensitive areas, and drainage courses.

- Expose the smallest area of soil for the least amount of time;
- Reasonably preserve natural land, vegetation, drainage, and other natural features;
- Minimize groundwater and tree disturbance; and,
- Not divert existing watercourses.

If the County determines that an existing excavation, embankment, fill, or cut will become a hazard to life or limb, or endangers property, or adversely impacts the safety, use, or stability of public or private property, drainage channel or natural resources, the owner of the property shall repair and/or eliminate such hazard upon receiving notice from the County within the period specified therein. It is the responsibility of the property owner or project proponent to share information defined above with the Asotin County staff. Failure to repair or eliminate the problem to County specifications may result in a Stop Work Order and/or fines.

5.3.2 GEOTECHNICAL EVALUATION

A geotechnical evaluation is required and shall include data regarding feasibility of the site for the proposed uses; recommendations for grading, including site preparation and placement of fill; nature, distribution, erosion hazards, and strength of existing surface and subsurface soils; foundations recommendations; finished slope stability; adequacy and stability of the geologic subsurface for cuts and fill loads, surface and subsurface drainage; and soil description.

The County will require geotechnical analysis, by an engineer in the state of Washington with geotechnical expertise or other qualified professional approved by the County Engineer, when work is proposed for the following situations:

- When proposing a design that does not adhere to the criteria specified in this chapter;
- Slopes with surface water flows,
- Slopes greater than 2 horizontal:1 vertical,
- In areas of questionable soils conditions,
- When extensive fill is proposed,
- Where the length of the slope requires terracing,
- When unusual situations are encountered,
- In other situations where slope stability could be in question, as determined by the County, or,
- In cases where the project may negatively affect down stream or neighboring parcels.

The separate issue of drainage outside the pavement surface area may also require a geotechnical evaluation, regardless of whether or not an evaluation was made on the

road section, to verify if stormwater erosion is an unintentional consequence of the roadway improvement.

5.3.3 CUT SLOPES

Unless otherwise recommended by a geotechnical evaluation, reviewed and approved by the county, cut slopes shall conform to the following provisions:

- Cut slopes shall be no steeper than is safe for the intended use;
- Cut slopes shall be rounded off so as to blend in with natural terrain (Figure 5-1 and Figure 5-2);
- Cut slopes greater than five feet in height shall not be constructed steeper than two horizontal to one vertical (2:1) except where approved and engineered slopes or retaining walls are to be installed;
- Upon County approval, a slope of one horizontal to one vertical (1:1) may be used for cuts into stable bedrock;
- Cut slopes shall not exceed twenty feet in vertical height or seventy five foot slope distance without a bench or terrace break (Figure 5-3). Interceptor ditches may be required if a Geotechnical evaluation determines they are needed.
- Cut slopes shall be stabilized by terracing, cat tracking, jute mat, grass sod, hydroseeding, or by other planting or surfacing materials acceptable to the County;
- Cut slopes shall not encroach upon adjoining property without written approval of the adjacent owner;
- Cut slopes shall be provided with subsurface and surface drainage provisions to approved drainage locations as necessary to retain the slope; and,
- The faces of slopes shall be stabilized and vegetated to control erosion, dust and noxious weeds. The erosion control measures shall be initiated or installed as soon as possible and shall be maintained by the owner.

Figure 5-1 Road Cuts and Fills

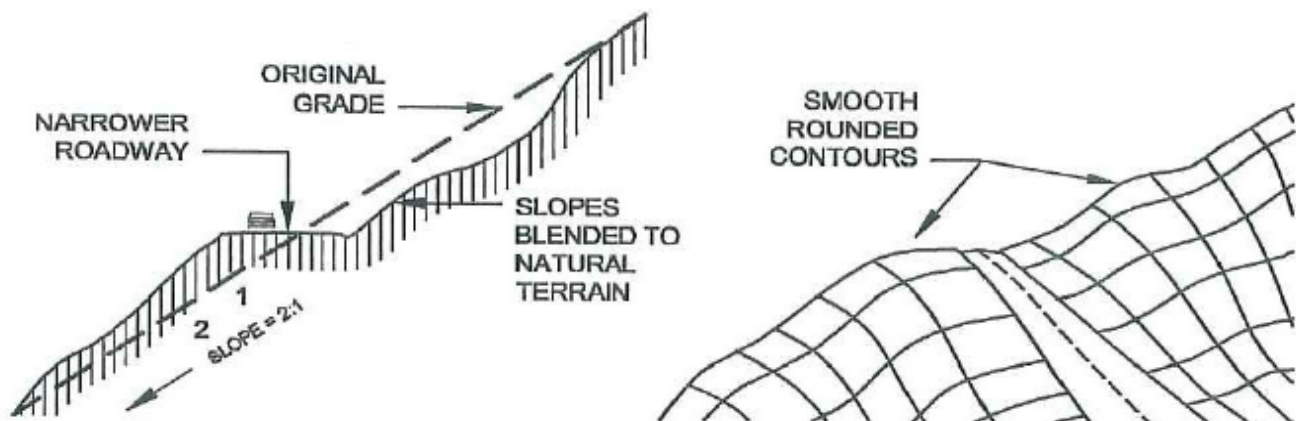


Figure 5-2 Development Cuts and Fills

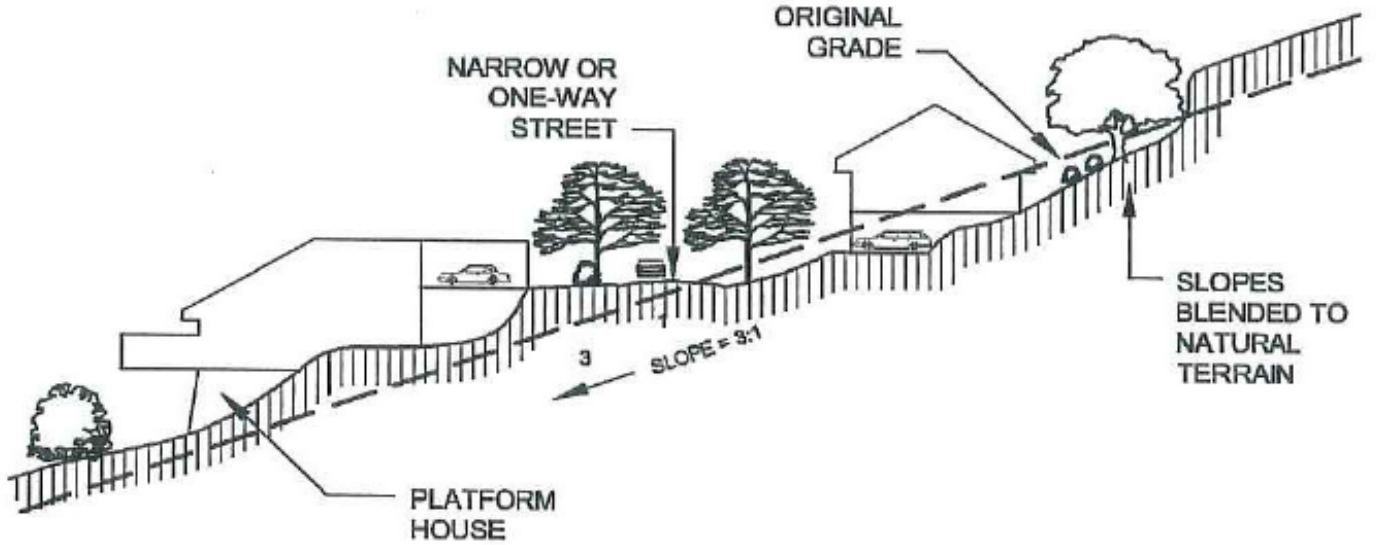
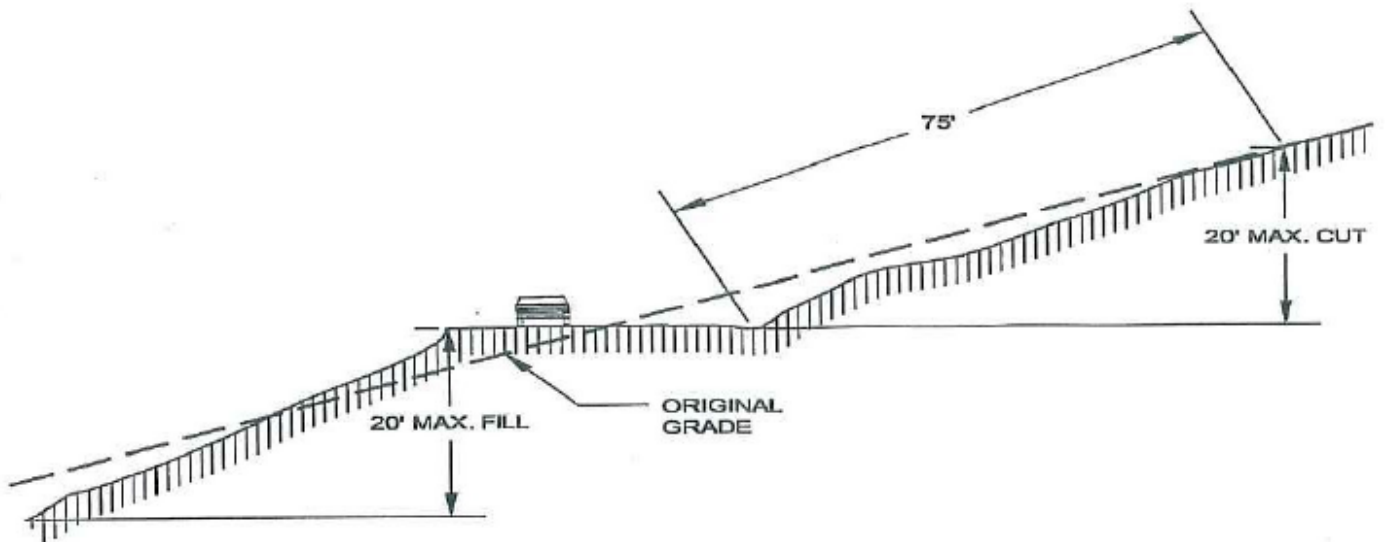


Figure 5-3 Maximum Heights and Lengths of Cut and Fill Slopes



5.3.4 FILL SLOPES

Unless otherwise recommended by a geotechnical evaluation reviewed and approved by the County, fill slopes shall conform to the following provisions:

- Fill slopes shall be no steeper than is safe for the intended use;
- Fill slopes shall not be constructed on natural slopes steeper than two horizontal to one vertical (2:1) unless an Engineer devises a method of placement which ensures the fill will remain in place. Where slopes are greater than five horizontal to one vertical (5:1) and the height is greater than five feet, an engineered grading is required;
- The toe of fill shall not be closer than 12 feet horizontally to the top of existing or planned cut slopes (Figure 5-4). The area beyond the toe of the fill shall be sloped for sheet overflow or a drain shall be provided;
- Fill slopes shall not exceed twenty feet in vertical height or seventy five slope distance without a bench or terrace break (Figure 5-3);
- Fill slopes shall be stabilized by terracing, cat tracking, jute mat, grass sod, hydroseeding, or by other planting or surfacing materials acceptable to the County;
- Fill slopes shall not encroach upon adjoining property without written approval of the adjacent owner in the form of an easement recorded with the County;
- Fill slopes shall be provided with subsurface and surface drainage provisions to approved drainage locations as necessary to retain the slope;
- The faces of slopes shall be stabilized and vegetated to control erosion, dust and noxious weeds. The erosion control measures shall be initiated or installed as soon as possible and shall be maintained by the owner;
- Absolutely no drywells shall be placed in fill slopes or loosely placed fill on grade; and,
- Unless formally designed and approved by a geotechnical engineer temporary or permanent stormwater runoff shall not be directed onto or near a slope of 2:1 or steeper.

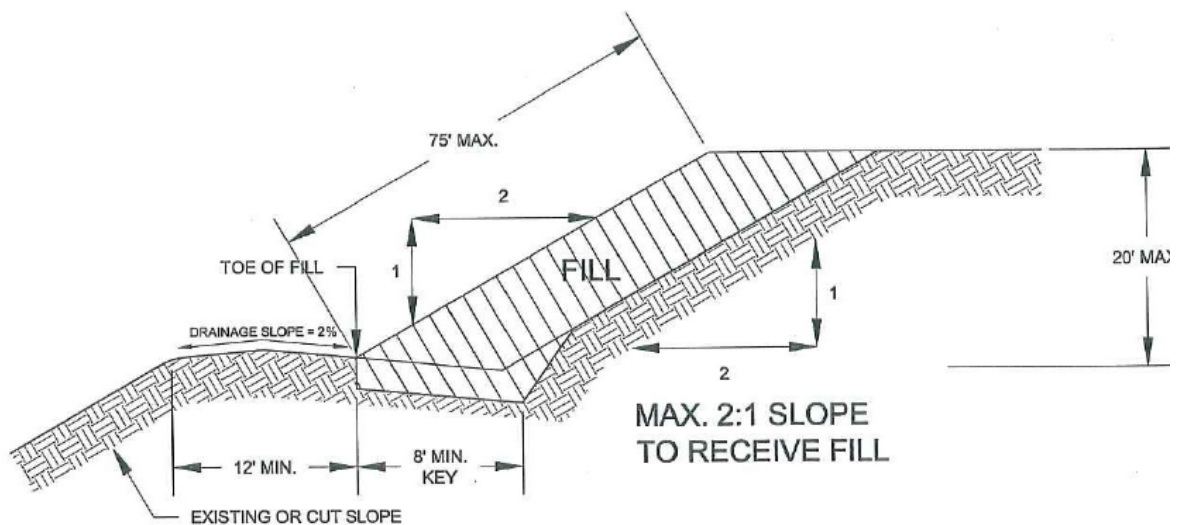
5.3.5 SOIL PREPARATION, COMPACTION AND MATERIAL PLACEMENT

Unless otherwise recommended by a geotechnical evaluation approved by the County, fill shall conform to the following provisions:

- Top six inches (6) of subgrade should be scarified and compacted before placing fill.
- Fill material shall be placed in lifts of no more than twelve inches (12”).

- All fills shall be compacted to a minimum relative dry density of 95 percent as determined in accordance with ASTM Standard D-1557-78 Modified Proctor or as directed by the geotechnical engineer. Field density verification shall be determined in accordance with ASTM Standard D-1556-82 or equivalent and must be submitted for any fill 12 inches or more in depth where such fill may support the foundation for a structure. A higher relative dry density, or additional compaction tests, or both, may be required at any time by the County.
- Where slopes are three horizontal to one vertical (3:1) or steeper and/or twenty feet or more in height, an 8-foot wide (minimum) key shall be dug into undisturbed, solid component soil or bedrock beneath the toe of the proposed fill. On minor fills, a key of less than eight feet may be approved by the County. The key must be cut and approved as a suitable foundation for fill before placing any fill (Figure 5-4).
- Only permitted material free from tree stumps, detrimental amounts of organic matter, trash, garbage, sod, peat, and similar materials shall be used. Rocks larger than six inches (6") in greatest dimension shall not be used unless the method of placement is properly devised, continuously inspected, and approved by the County. The following shall also apply:
 - Rock sizes greater than six inches (6") in maximum dimension shall be ten feet (10') or more below grade, measured vertically.
 - Rocks shall be placed so as to assure filling all voids with fines. Topsoil may be used in the top 12-inch surface layer to aid in planting and landscaping.
- Prior to any fill being placed, all vegetation, topsoil and other unsuitable material shall be removed.

Figure 5-4 Minimum Key for Fill Slopes

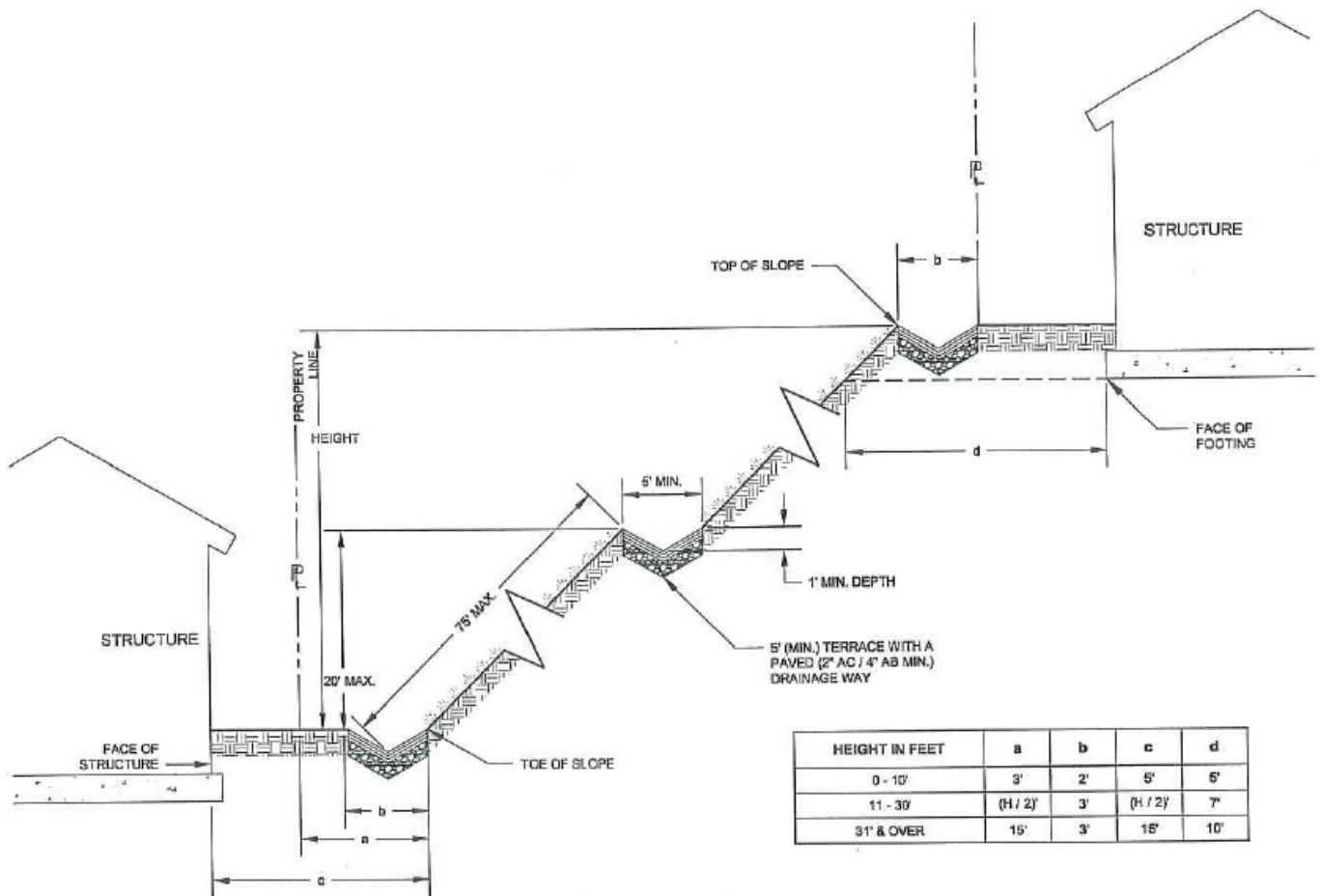


5.3.6 CUT AND FILL SETBACKS

Unless otherwise recommended by a geotechnical evaluation approved by the County, setbacks shall conform to the following provision and shall not be less than the criteria specified in Figure 5-5.

Tops and toes of cut and fill slopes shall be set back from property boundaries and structures as far as necessary for the safety of the adjacent properties and to prevent damage resulting from stormwater, flooding, slope erosion or sediment deposition.

Figure 5-5 Minimum cut and Fill Setbacks



5.3.7 TERRACING

At a minimum a geotechnical engineer will review all proposed terracing. All terracing shall conform to the provisions of this section:

- Terraces at least eight feet in width shall be established at not more than 20 feet vertical intervals on all cut or fill slopes to control surface drainage and debris.

When only one terrace is required, it shall be at mid-height. Cut or fill slopes greater than 20 feet in height shall be engineered grading;

- Swales or ditches on terraces shall have a minimum gradient of half a percent (0.5%) and must be paved with reinforced concrete not less than three inches (3”) in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of one foot (1’) and a minimum paved width of five feet (5’). A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (projected) without discharging into a down drain.
- All drainage facilities shall be designed to carry the 100-year storm event to an approved location so as to not create a hazard. This shall be designed so as to convey the 100 year event and overflow to a facility so persons and property are not harmed. Stormwater runoff shall leave the site in the same manner and location as it did in the pre-developed condition.
- Lots shall be graded so as to drain surface water away from foundation walls.
- Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes toward the cut and has a drainage path greater than forty feet measured horizontally. Interceptor drains shall be paved with a minimum 3 inches of reinforced concrete or gunite, or an approved equivalent. Drains shall have a minimum depth of 12 inches and minimum paved width of 30 inches measured horizontally across the drain.

5.3.8 BLASTING

This section does not replace or negate State or federal requirements pertaining to explosives:

- All blasting activities shall comply with all federal, state, and local regulations applicable to blasting activities. These activities shall have and provide evidence of all necessary licensing required to conduct blasting activities.
- Notice of all blasting shall be provided to the County. Prior to blasting, the owner shall inform all property owners within one thousand (1000) feet of the blast site.
- Additional notification may be required for projects near hospitals, schools, etc.
- Signs shall be placed at road intersections adjacent to the blasting site 15 days prior to blasting activities. Signs shall state blasting times and information.
- Pre-blast and post-blast surveys in accordance with common practice or with regulations.

5.3.9 SLOPE EASEMENT

Slope easements adjacent to the right-of-way for maintenance of cut or fill slopes and drainage facilities may be required. Easement shall be from the catch point plus a minimum of five feet (5’), as determined by the County.

5.3.10 RETAINING WALL REQUIREMENTS

Retaining walls can vary with design and must be approved by the County. Retaining walls in locations where the possibility exists for pedestrians to walk near the top edge of the wall may require protective fencing. Retaining walls with a vertical difference of three feet (3') or greater along pedestrian corridors and areas where maintenance personnel will be required to access will require a handrail for safety of pedestrian traffic.

5.3.10.1 Rockeries

Rockeries may be used for containment of cut slopes or fill embankment up to a maximum height of eight feet (8'). Rockeries over four feet (4') in height or in areas of questionable soil stability will require an engineered design. The engineered design may include a soils investigation and report by a geotechnical engineer and structural calculations to support the rockery design.

A wall drain must be provided for all rockeries greater than four feet in height as measured from the bottom of the base rock. The drains shall be installed in accordance with the clearing and grading development standards.

For a rockery between four and six feet in height, the prescriptive standard requires that the lower half be constructed of four-man or larger rocks as defined below. For the upper half, progressively smaller rocks may be used, with a minimum size of two-man for the uppermost course. The plans must include the rock sizes to be used in the installation.

Rock Placement

To provide a secure footing for the rockery, the base course of rocks must be embedded into firm undisturbed earth a minimum depth of 12 inches. The long dimension of the rocks must extend into the slope behind the rockery to provide maximum stability. Subsequent courses of rocks must be placed to lock into the rocks in the lower course or tier.

Size

Size Categories include:

- Two-man rocks (200 - 600 pounds) 18" - 28" average diameter.
- Three-man rocks (600 - 2000 pounds) 28" - 36" average diameter.
- Four man rocks (2001 - 4000 pounds) 36" - 48" average diameter.

Material

The rock material shall be as rectangular as possible. No stone shall be used that does not extend through the wall. The quarried rock shall be hard, sound, durable, and free from weathered portions, seams, cracks, and other defects. The rock density shall be a minimum of 160 pounds per cubic foot, measured

accordingly to WSDOT test method 107 (Bulk Specific Gravity - S.S.D. basis).

Underdrains

Underdrains are required for all retaining walls over four feet (4') in height.

A minimum six-inch (6") diameter perforated or slotted drainpipe shall be placed in a shallow excavated trench located along the inside edge of the keyway. The pipe shall be bedded on and surrounded by "Gravel Backfill for Drains" (WSDOT/APWA 9-03.12(4)) to a minimum height of eighteen inches (18") above the bottom of the pipe. The drain pipe must drain to a point of discharge indicated on the grading or civil plans.

A filter fabric shall surround the gravel backfill and shall have a minimum of one foot (1') overlap along the top surface of the gravel. The perforated pipe shall be connected to a storm drain system or to an acceptable outfall.

A minimum of 18 inches of granular drainage material shall be placed between the undisturbed soil or engineered fill and the rockery. The drainage material must be composed of gravel with particle sizes ranging from 3/8 inches to three inches (3").

5.3.10.2 Block Retaining Wall Requirements

Block retaining walls, (i.e., Keystone, Allan Block, Ecology Block) may be used for containment of cut slopes or fill embankment. Block retaining walls over four feet (4') in height or in areas of questionable soil stability will require an engineered design. The engineered design may include a soils investigation and report by a geotechnical engineer and structural calculations to support the block wall design.

Material

Blocks used for retaining walls shall be in good condition and structurally sound; cracked and/or broken blocks should be returned to the manufacturer. Unless designed as a gravity wall (ecology blocks), block walls over four feet (4') in height shall employ geo-grid type material to increase the structural stability of the wall.

Underdrains

Underdrain requirements for block retaining walls shall per Section 5.3.10.1 Underdrains.

5.3.10.3 Reinforced Concrete Walls

Reinforced concrete walls or cast-in-place concrete walls may be used for containment of cut slopes or fill embankment. Concrete retaining walls over four feet (4') in height or in areas of questionable soil stability will require an engineered design. The engineered design may include a soils investigation and report by a geotechnical engineer and structural calculations to support

the concrete wall design. Special Inspection during construction may be required by the County.

Material

A minimum 3,000-psi structural reinforced concrete shall be used in the design of concrete retaining walls.

Underdrains

Underdrain requirements for reinforced concrete walls shall be designed per Section 5.3.10.1 Underdrains.

5.3.10.4 Mechanically Stabilized Earth Walls (MSE Walls)

MSE walls may be used in conjunction with other retaining walls or as a stand-alone application when constructing fill slopes. MSE walls will require an engineered design.

The engineered design shall include a soils investigation and report by a geotechnical engineer and structural calculations to support the MSE wall design.

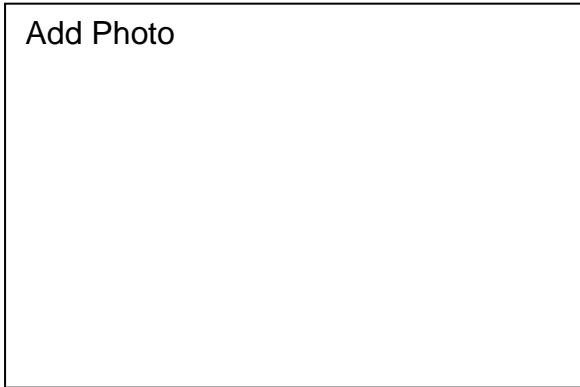
Material

MSE walls shall employ well-draining structural soil compacted to the geotechnical engineer's specifications.

Underdrains

Underdrain requirements for mechanically earth walls shall per Section 5.3.10.1 Underdrains.

CHAPTER 6 -UTILITIES



CHAPTER 6 -UTILITIES 1

6.1 INTRODUCTION 1

 6.1.1 SEWER..... 1

 6.1.2 WATER/ELECTRICITY AND OTHER UTILITY PROVIDERS 1

6.2 DESIGN CRITERIA 1

 6.2.1 UTILITIES LOCATED WITHIN COUNTY RIGHT-OF-WAY 1

 6.2.2 UTILITIES LOCATED UNDERGROUND 1

 6.2.3 UTILITIES LOCATED ABOVEGROUND 2

 6.2.4 ASOTIN COUNTY PAVEMENT CUT POLICY 3

CHAPTER 6 -UTILITIES

6.1 INTRODUCTION

The design of public and private utilities located within County right-of-way shall be in conformance with these standards. The applicant shall be responsible for any costs for field surveys required to establish land ownership right-of-way lines for the installation or modification of utilities within Asotin County right-of-way.

6.1.1 SEWER

Asotin County Public Utility District (PUD) owns and oversees sewer related infrastructure planning, design and construction. The sewer system requirements are available from the PUD. Project applicants are responsible for proper inclusion of sewer related design and construction aspects of their project unless otherwise stated in written agreements with Asotin County. This includes all related labor and materials, unless otherwise agreed to by County and the PUD.

6.1.2 WATER/ELECTRICITY AND OTHER UTILITY PROVIDERS

Project applicants are responsible for coordinating utility portions of design and construction for all related utility development projects with utility providers including, but not limited to Asotin County, the PUD and Avista Utilities. This includes all related labor and materials unless otherwise agreed to by the provider.

6.2 DESIGN CRITERIA

Asotin County has established the following minimum requirements to ensure the efficient construction of utilities with the least impact to County transportation and utility infrastructure.

6.2.1 UTILITIES LOCATED WITHIN COUNTY RIGHT-OF-WAY

Unless otherwise provided in a public way agreement, franchise, or lease, a grantee, franchisee, or lessee with permission to occupy a public way must locate its utility underground.

6.2.2 UTILITIES LOCATED UNDERGROUND

Utilities located underground shall meet the following requirements:

- A. Utilities shall be installed with no less than thirty-six inches (36”) of finished cover.
- B. Private utility lines to be located within the County right-of-way will require prior approval from the County. These utility companies shall have a current franchise or public way agreement consistent with all applicable codes of Asotin County.

- C. Private utilities shall be located a minimum horizontal distance of five feet (5') from buildings and public utilities.
- D. When crossing public utilities, private utilities shall be located a minimum vertical distance of twelve inches (12") from the public utility. In no case shall standard accepted engineering practice for separation of utilities be reduced.
- E. Storm culverts under gravel driveways will have a minimum of 12 inch of finished cover over the pipe unless approved by the County. Approved material for these installations is CMP in most cases but Asotin County may require ductile iron pipe if conditions warrant.
- F. All sewer utility installation shall satisfy Asotin County PUD sewer requirements as well as the Washington State Department of Health Orange Book.
- G. All water line installations or modifications shall satisfy AWWA (American Water Works Association) Standard Specifications in addition to PUD requirements.
- H. End markers will be installed at the end of all utility stubs or crossings and locator tape will be installed at a maximum of six inch (6) above all conduits, pipe and cables.
- I. The applicant shall notify the applicable utility companies of upcoming street construction so the utility companies shall have the opportunity to upgrade their utilities if desirable.
- J. Manhole covers, utility box lids and all other underground utility and access covers shall not be located within the sidewalks or driveway approaches.

6.2.3 UTILITIES LOCATED ABOVEGROUND

On projects where underground requirements do not apply, the following parameters will need to be addressed in locating aboveground utilities:

- A. Utility poles and other aboveground utility structures located on roads with a curb shall be installed a minimum of two feet (2') from the face of curb with the preferred location being at the edge of the right-of-way. For urban and rural roads where no curb is present, utility poles and other aboveground utility structures shall be located outside the clear zone in accordance with the AASHTO manual "A Policy on Geometric Design of Highways and Streets."
- B. Utility poles and other aboveground utility structures shall not be located within the sidewalk. If this is not possible, their locations shall provide a minimum of sixty inches (60") of travelway to meet ADA requirements.
- C. Utility poles and other aboveground utility structures shall be compatible with driveways, intersections, and all other road features. They shall not interfere with sight distance, road signing, traffic signals, culverts, etc.

This criterion may require that existing poles be relocated at the developer's expense.

- D. No utility pole or other aboveground utility structures shall be located in such a way as to pose a hazard to the general public. Utility companies shall locate and replace poles and other structures with primary consideration given to public safety and roadway functionality.

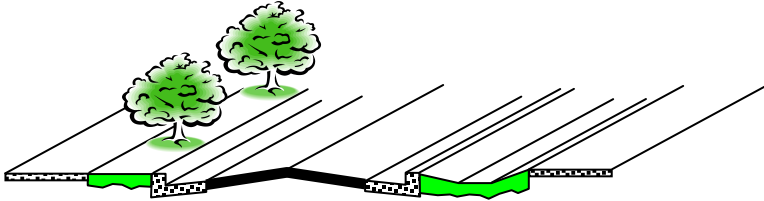
When an applicant developer-driven project requires the relocation of private utilities due to public utility extensions or other County required improvements, the cost of relocation of the private utility shall be fully borne by the developer.

6.2.4 **ASOTIN COUNTY PAVEMENT CUT POLICY**

Modification or removal of pavement within the County's right of way is governed by the Right of Way Management Policy. General requirements are as follows:

A Right-of-Way permit is required of any person or company performing work within existing County rights-of-way or on County-owned infrastructure. Associated permit fees shall be paid to Asotin County. A pavement cut moratorium is in effect for three years from the date of pavement construction or reconstruction of pavement for all arterials, collectors and local access streets. For streets beyond the pavement cut moratorium period cuts are allowed if the requirements of their sections are met. The applicant shall provide a warranty for all pavement cuts in accordance with Asotin County Policy.

CHAPTER 7 –ROAD ELEMENTS



CHAPTER 7 –ROAD ELEMENTS 1

7.1 INTRODUCTION..... 1

7.2 ROAD TYPES 1

7.2.1 PUBLIC ROADS..... 1

7.2.2 PRIVATE ROADS 1

7.2.3 PRIVATE DRIVEWAYS AND FLAG LOTS..... 2

7.2.4 HALF-ROADS 2

7.3 ROAD GEOMETRY 3

7.3.1 RIGHT-OF-WAY 5

7.3.2 MEDIANS 5

7.3.3 TURNAROUNDS 5

7.3.4 SIDE SLOPES 6

7.4 ROAD LAYOUT 6

7.4.1 RESIDENTIAL ROADS 7

7.4.2 HORIZONTAL CURVES 7

7.4.3 VERTICAL CURVES 7

7.4.4 ROAD SURFACING REQUIREMENTS..... 8

7.5 SIGHT DISTANCE FOR INTERSECTIONS, PROFILES AND DRIVEWAYS 8

7.6 CLEAR ZONE 9

7.7 TRAFFIC CONTROL DEVICES..... 9

7.8 SIDEWALKS..... 10

7.9 APPROACH DESIGN CRITERIA 11

7.9.1 APPLICABILITY..... 11

7.9.2 APPROACHES..... 11

7.9.3 SIGNALIZED DRIVEWAY APPROACHES 16

7.10 BIKEWAYS 16

7.11 TRAFFIC CALMING 17

 7.11.1 TRAFFIC CALMING AND ROAD CLASSIFICATION 17

 7.11.2 TRAFFIC CALMING DEVICES ALLOWED..... 17

7.12 ILLUMINATION..... 17

7.13 ROAD NAMES 18

7.14 MAILBOXES 18

7.15 SURVEY MONUMENTS 18

7.16 GUARDRAIL..... 18

7.17 BOLLARDS 19

7.18 ROADWAY BARRICADES 19

7.19 ENTRANCE GATES..... 19

CHAPTER 7 –ROAD ELEMENTS

7.1 INTRODUCTION

The design of roads within Asotin County shall generally conform to American Association of State Highway and Transportation Officials (AASHTO) and the State of Washington Department of Transportation (WSDOT) standards unless modified herein.

Asotin County has two different sets of Road Standards based on the 20 Year Urban Planning Boundary Maps included in the Asotin County Comprehensive Plan.

Some roadway designs require technical criteria that are above the scope of this manual and therefore not covered. In these cases the manuals referenced in Chapter 1 should be used for a basis of design. Washington State licensed engineers experienced in roadway design will be required to perform and seal roadway design plans and specifications.

7.2 ROAD TYPES

Roads within the County include public and private roads. Since community needs are usually best served by roads owned and maintained by the county, most projects are required to be accessed via public roads. Private streets may be appropriate for some local accesses in very limited usage. For the purposes of this Road Standards document, the following designations provide additional descriptions of roadways.

7.2.1 PUBLIC ROADS

Public roads are owned and maintained by the County. All public roads in the County have been classified using the Federal Functional Classification system, which provides a definition hierarchy, from principal arterials to local access roads, to accommodate existing and anticipated traffic. Road classifications can be found on the County's Road Functional Classification Map adopted as part of the County's Comprehensive Plan. Public roads shall be constructed when serving more than two parcels of property which cannot be served by a private driveway or private road.

This chapter provides design criteria and requirements for public roads.

7.2.2 PRIVATE ROADS

Community road requirements are usually best served by public roads, owned and maintained by the County. Private roads may be appropriate for some local accesses in very limited usage. Private roads are local access roads that are privately owned and maintained by legally responsible owners. Typically a homeowners association or other legal entity is created for all benefited private road property owners. Private roads are permitted where connectivity to the County road system is not compromised, and where future connections are not possible. All new private roads must be approved by the county engineer. Private roads will not be approved if they land lock present or planned parcels.

Private roads can serve from two (2) to four (4) single-family dwelling lots of five acres or larger in size, or may serve up to eight parcels of property with an additional approved means of ingress/egress. Private Residential Roads shall be centered within the ingress and egress easement or roadway tract. Private roads will be constructed to County Standards as described in Chapter 8.

Private roads shall provide a direct access to County roads and shall be limited to those roads accessing properties within a planned area or properties immediately adjacent. The design of a private road shall be such that it will discourage any through traffic of non-residents. Traffic calming measures shall be utilized.

Private roads shall have a permanently established tract or easement providing legal access to each lot served. A legally responsible owner or homeowners association shall be established to maintain private roads in perpetuity. A plat or short plat with private roads requires an executed recorded Private Road Maintenance Agreement and a Storm Water Easement and Maintenance Agreement that obligate the future property owners to maintain the infrastructure in perpetuity (see Chapter 10). This language requiring a responsible owner or homeowners association shall be incorporated on the face of the recorded plat.

7.2.3 PRIVATE DRIVEWAYS AND FLAG LOTS

Private driveways provide vehicular access to no more than two individual parcels of property and no more than 4 dwelling units. Private driveways longer than 500 feet shall be engineered and meet the requirements of the width and signing requirements for private streets. Private driveways longer than 750 feet shall only be allowed when approved by the Fire Department. Structures accessed by a private driveway and which are not visible from the public street shall post an address at the street.

The use of flagpoles to access flag lots shall only be utilized for a private driveway, shall directly access onto a public right-of-way and shall not be created where a flagpole abuts another flagpole upon the same parcel of property being developed. In no case can more than two flagpoles be abutting. Flagpoles shall be constructed in accordance with the current International Fire Code. Turns or corners may be restricted in the flagpole connecting the flag lot to the public right-of way.

7.2.4 HALF-ROADS

A Half Road could be comprised of any one of the above road classifications. Half Roads require, at a minimum, the construction from one side of the road, including the curb, gutter, storm drainage, sidewalk and landscape strip, to the road centerline. Half Roads shall be constructed when a proposed new development or redevelopment of a property is located on a public road that is not currently built to County standards. Half-Road construction may also be required for property that abuts future roads proposed in the County's Road Functional Classification Map.

When Half Road construction is required on an existing paved road, the design of the Half Road shall be consistent with the existing road conditions or as dictated by a traffic study. This could require construction of more than half the road for safety and

drainage reasons. The construction of a Half Road may require the dedication of additional right-of-way.

When Half Road construction is required on unpaved roads or unimproved areas, a minimum of twenty-four feet (24') of pavement is typically required, but may be reduced for some circumstances. In these cases, the road shall be designed to provide drainage for the constructed portion of the road. Provisions shall be made to allow for extension of the storm drainage system to the undeveloped portion of the road for future construction.

Transition tapers are required when edges of pavement do not match. Tapers are required to conform to AASHTO manual "A Policy on Geometric Design of Highways and Roads," latest edition and the State of Washington Department of Transportation (WSDOT) design standards and specifications.

All proposed utilities located within the portion of the road being built shall be installed during construction.

The unfinished side of the Half Road shall be finished with shoulders, ditches and/or side slopes so as to assure proper drainage, bank stability, and traffic safety.

When Half Roads connect to an intersection, the intersection shall be designed and constructed for the full build-out of the road. The intersection design and construction shall extend at least seventy-five feet (75') from the travel way of the cross road.

7.3 ROAD GEOMETRY

For in-depth design information on the following criteria, please reference the AASHTO Manual "A Policy on Geometric Design of Highways & Roads," latest adopted edition and the WSDOT Design Manual. Factors that contribute to the geometric conditions of a road are discussed below. Minimum and maximum geometric design elements can be found in Table 7.1. Typical roadway cross sections are shown in the Appendix, Figure A – F. Alternative roadway sections can be proposed by the applicant, subject to the approval of the County Engineer.

Minimum longitudinal road grade will be 0.5% or greater to provide proper drainage as referenced in the AASHTO Manual, Chapter 6, page 435 "for better drainage". All concrete gutters will meet this standard but Asotin County will require asphalt gutters to be constructed with a minimum grade of 0.8% or greater. Maximum longitudinal road grade will be 10% under normal design conditions. Applicants will be allowed to request a variance based on special site specific conditions.

All roads shall be constructed with 2% center crown unless a variation is reviewed and approved by Asotin County.

All public internal residential roads in a subdivision including half roads shall be fully constructed to the plat boundaries. Pavement, curb, gutter, and sidewalk shall be extended to allow future connections to occur.

TABLE 7.1 ROAD DESIGN CRITERIA

DESIGN ELEMENT	PRINCIPAL ARTERIAL⁽¹⁾	MINOR ARTERIAL⁽¹⁾	COLLECTOR⁽¹⁾	LOCAL	RURAL
RIGHT OF WAY					
WIDTH	70' - 102'	70' - 78'	58' - 78'	50' - 66'	60'
INTERSECTION RADII	22'	22'	19.5'	9'	22'
TRAVELWAY					
CURB TO CURB WIDTH	46' - 70'	46'	34' - 46'	28' - 36'	N/A
LANE WIDTH	12'	12'	12'	14' - 18' ⁽²⁾	14' ⁽³⁾
NUMBER OF LANES	3 - 5	3	2/3	2	2
CURB AND GUTTER	YES	YES	YES	YES	NO
PARKING ALLOWED	NO	NO	NO ⁽⁴⁾	YES ⁽²⁾	NO
CURB RADII AT INTERSECTION	50'	40'	30'	20'	20'
BIKE LANES ⁽⁵⁾	5'	5'	5'	N/A	NO
ROADSIDE					
SIDEWALK WIDTH ⁽⁶⁾	6'	6'	6'	5'	N/A
STORMWATER DISPOSAL WIDTH	Typical 6' - 10' both sides of roadway – depending on stormwater analysis				
ILLUMINATION	YES	YES	YES	YES	NO
GEOMETRIC DESIGN CRITERIA					
DESIGN SPEED ⁽⁷⁾	For roadways with a posted speed of 35 MPH or less the design speed is not less than the posted speed. For roadways with posted speed 40 – 50 MPH the design speed is 5 MPH over the posted speed. For roadways with posted speed 55 MPH or higher the design speed is 10 MPH over the posted speed.				
MIN. HORIZONTAL APPROACH ANGLE	90° + or - 5 degrees	90° + or - 5 degrees	90° + or - 5 degrees	90° + or - 5 degrees	90° + or - 5 degrees
MIN. LANDING APPROACH LENGTH	30'	30'	20'	20'	20'
MAXIMUM LANDING APPROACH GRADE	3%	3%	5%	5%	5%

- (1) As determined by a traffic study.
- (2) 14' without parking could be considered in some instances (e.g. steep slopes or commercial/industrial areas where parking would be provided off-street). Increase 2' when guardrail is required.
- (3) Includes 2' striped shoulder. Increase 2' when guardrail is required.
- (4) Parking may be allowed in some instances with Public Works Director approval, with an alternate roadway section width.
- (5) A multi-use path instead of bike lanes is an alternative consideration.
- (6) Wider sidewalks may be required at bus stops, near schools and in commercial areas.
- (7) County Engineer may require a speed study.

7.3.1 RIGHT-OF-WAY

The required right-of-way will depend upon on the required road elements including number of lanes, on-road parking, bike lanes, medians, turn lanes, roadside swales, pedestrian buffer strips and above and below ground utilities. Right-of-way requirements may be variable within a road corridor. Right-of-way shall be conveyed to the County on a recorded plat or by a right-of-way dedication.

7.3.2 MEDIANS

An appropriate road cross-section will be added to the plan sheets when landscape planters or medians are required for traffic control. Medians and planters will be designed so that sight distance and vehicle turning radii will not be limited. Medians may be covered with grass, landscape plantings, aggregate, asphalt or concrete. Borders will be defined by curbs or by shoulders and ditches. Where shoulders are provided in lieu of curbs, they will be a minimum of 5 feet (5') in width. Median design will be reviewed for pedestrian accessibility based on the WSDOT Design Manual and ADA criteria. Medians and landscape planters will be illuminated as determined by the County. Medians will be reviewed by emergency services agencies such as fire and ambulance before being approved.

7.3.3 TURNAROUNDS

Roads shall be planned, designed and constructed to connect to future developments. Existing stub end roads that are greater than seven hundred fifty feet (750') in length shall be linked to other roads, unless it can be demonstrated that such connections would lead to a substantial rerouting of through traffic onto the road.

All dead-end public or private roads greater than one hundred fifty (150') feet in length shall end in either a temporary or permanent cul-de-sac that meets the requirements of the International Fire Code. A turnaround is required for private driveways when the driveway length is 150' or more. When applicable, non-motorized paths shall be provided at the end of the road to shorten walking distances to an adjacent arterial, collector or public facilities including, but not limited to, schools or parks. This requires right-of-way dedication and/or easements.

Dead-end roads shall not be more than seven hundred fifty feet (750') in length, unless the County determines that due to topography or existing development patterns there are no feasible alternatives and emergency services can be effectively provided. Dead end roads shall serve a maximum of 30 dwelling units as defined in the Asotin County Zoning Ordinance.

7.3.3.1 Temporary Cul-de-sacs

Temporary cul-de-sacs may be provided only when there is a plan for extending the road. Temporary cul-de-sacs shall have a paved surface with a radius of forty-five feet (45'). Cul-de-sac profiles shall be established to provide minimum one percent (1%) grades with proper drainage at all places along the gutter lines.

A sign shall be posted at the back of the temporary cul-de-sac stating that the road is planned to be extended in the future and to contact Asotin County for further information.

7.3.3.2 Permanent Cul-de-sacs

Permanent dead-end roads or cul-de-sacs will only be allowed where a through road to connect adjacent properties and/or other roads is not needed or possible. Permanent cul-de-sacs shall have a paved surface with a radius of forty-eight feet (48') unless otherwise directed by the County. Permanent cul-de-sacs shall be constructed with curb, gutter, sidewalk and swales. Cul-de-sac profiles shall be established to provide minimum one percent (1%) grades at all places along the gutter lines.

7.3.3.3 Hammerheads

The hammerhead termination may be used only with the approval of the County on dead end private roads. They shall be constructed in accordance with the International Fire Code, latest edition. The county engineer may request a fire marshal review.

7.3.4 SIDE SLOPES

Typical slopes for embankments are preferred to be 3:1 (horizontal/vertical) or flatter. The steepest slope for embankment or excavation will be 2:1. Approval of slopes steeper than 3:1 will require a report prepared by an engineer licensed in the State of Washington and qualified in soils testing and analysis. Embankment slopes greater than 5 foot horizontal to 1 foot vertical will comply with section 5.3.3 and 5.3.4 or this standard.

On shouldered roads, a minimum space of 5-feet shall be provided between the catch point of the side slope and the right-of-way line for the installation of utility poles, fences, sloped rounding, etc. The maximum slope of this space will be 3:1.

Slope easements beyond the right-of-way that are required because of terrain or design features of a road will be dedicated to Asotin County.

7.4 ROAD LAYOUT

An efficient transportation system seeks to spread vehicle movements over a series of planned roads. The goal of the system is to encourage connectivity while preventing unacceptably high traffic volumes on any one road. Ample alternatives should exist to accommodate access for emergency vehicles and non-motorized transportation on arterials, collectors, and local roads within and between subdivisions. For these reasons, the County will continue to plan a series of arterials and collectors designed to national standards to provide efficient service to the community.

7.4.1 RESIDENTIAL ROADS

The internal local residential road network for a subdivision should be designed to discourage regional through traffic and non-residential traffic from penetrating the subdivision or adjacent subdivisions. Local residential roads shall not exceed seven hundred fifty feet (750') in length between intersections and shall not serve more than 30 dwelling units.

Residential developments shall be planned in a manner that minimizes the number of local road accesses to arterials and collectors. Residential developments with greater than 30 single-family dwelling units shall have a minimum of two road accesses. Multi-family developments with greater than 100 dwelling units shall have a minimum of two road accesses.

7.4.2 HORIZONTAL CURVES

Curve radii shall be as large as possible using the American Association of State Highway and Transportation Officials (AASHTO) minimums only where necessary. Angle points are not allowed. All changes in direction shall be made using horizontal curves.

Reverse and compound curves are discouraged and can only be used with the approval of the County Engineer. For driver safety, compound curves shall have a ratio no greater than 1.5 where the value of the larger radius is divided by the smaller radius.

Whenever two roads intersect, a tangent length (measured from the nearest gutter flowline of the intersected road to the point of curvature in the intersecting road) shall be provided for a safe sight distance and traffic operation. The angle of departure shall not exceed 15 degrees for the length of the tangent.

For driver safety, horizontal curves shall not begin near the top of a crest vertical curve or the bottom of a sag vertical curve.

Connection with existing roads shall be made to match the existing alignment grade of the existing improvements. The centerline, flowline, and existing ground lines of all roads (except cul-de-sacs) shall be continued for 100 feet beyond the proposed construction.

7.4.3 VERTICAL CURVES

The minimum vertical curve length for public and private local access roads is 50 feet and 100 feet for arterials. A vertical curve is required when the grade break is 1 percent or greater.

The following guidelines shall be followed when designing a profile:

- The grade line shall be smooth flowing;
- The roller coaster type profile should be avoided;
- A broken-back grade line (successive vertical curves in the same direction) generally shall be avoided;

- The grade through intersections on roadways with moderate to steep grades shall be reduced;
- A sag vertical or flat grade is desirable in advance of such features as channelizations and ramp takeoffs in order to provide good visibility;
- Steep downgrades shall be avoided; and,
- Vertical curves should be avoided at the intersection with roads or approaches.

7.4.4 ROAD SURFACING REQUIREMENTS

All new urban travel ways shall be paved with ACP. Rural travel ways can be ACP or BST. Paving requirements are specified in Chapter 8. Certain existing rural roadways with Average Daily Traffic less than 400, that require mitigation based on a traffic study, may be permitted to be mitigated with gravel surfacing.

7.5 SIGHT DISTANCE FOR INTERSECTIONS, PROFILES AND DRIVEWAYS

Sight distance is defined as the length of roadway that is entirely visible to the driver. All roads, intersections, and access points should be designed to provide adequate sight distance for all normal driving situations including intersection, profile and driveways and are required to conform to AASHTO manual “A Policy on Geometric Design of Highways and Streets,” latest edition and the State of Washington Department of Transportation (WSDOT) design standards and specifications.

Drawings showing appropriate intersection sight distance triangles are required to be provided for all new intersections being designed within the County. Sight distance triangles shall be provided for all projects where new driveways are being installed except for single-family residences on local residential roads. It is strongly recommended that the project developer retain the services of an experienced, licensed, civil engineer with traffic engineering experience to develop intersection sight distance triangles.

The area within the sight distance triangle must be free from any sight-obscuring objects in accordance with AASHTO design guidelines. Sight-obscuring objects include but are not limited to: buildings, parked vehicles, signs, fences, and landscaping. Stopping sight distance shall be continuous. See also the Asotin County Right-of-Management Policy

The sight distance triangle should be located completely within an easement provided to the county. The property owner will be responsible for removal of any objects within the easement that become a sight hazard. If an easement is not practical then in order to ensure proper maintenance, the County may require additional right-of-way as a condition of development approval.

7.6 CLEAR ZONE

Clear Zone is defined as a relatively flat area void of fixed objects or obstructions beyond the edge of the traveled way that allows drivers to stop safely or regain control of a vehicle that leaves the traveled way. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clean run-out area. The desired minimum width is dependent upon traffic volumes, traffic speeds, side slopes and the street geometry.

A recoverable slope is a slope on which a motorist may retain or regain control of a vehicle by slowing or stopping. Slopes flatter than 4:1 (horizontal/vertical) are generally considered recoverable.

A non-recoverable slope is considered to be traversable but on which an errant vehicle continues to bottom. Embankment slopes between 3:1 and 4:1 may be considered traversable but non-recoverable if they are smooth and free of fixed objects.

A clear run-out area is the area at the top of a non-recoverable slope available for safe use by an errant vehicle. Slopes steeper than 3:1 are not considered traversable and are not considered part of the clear zone.

For streets with curb and gutter, the following is required:

- A. Sidewalk adjacent to the curb – rigid objects shall be placed 2 feet behind the sidewalk;
- B. Separated sidewalk – rigid objects shall be no closer than 2 feet from the back of the curb;
- C. No sidewalk – rigid objects shall be no closer than 2 feet from the back of the curb;
- D. Speed limit 40 MPH or less – the clear zone distance is 2 feet behind the back of the curb.

For all other pavement edges and design speeds, clear zone requirements per AASHTO's "A Policy on Geometric Design of Highways and Streets" shall be used.

7.7 TRAFFIC CONTROL DEVICES

Asotin County uses the "Manual on Uniform Traffic Control Devices" (MUTCD) as a guideline for traffic control devices including pavement marking and signing, except as modified by WSDOT.

The developer shall be responsible for providing and installing all traffic control devices, including but not limited to road name signs, regulatory signs (including STOP and NO PARKING), warning signs, barricades, crosswalk markings, and bicycle/pedestrian signs as required.

The contractor shall be responsible to provide and maintain all signs, barriers, warning lights, striping, and flag control required for maintaining public safety in construction areas. Traffic control shall be maintained at all times when construction is in progress on all roads, and access points in the construction area.

No construction area traffic control activities will be permitted without an approved traffic control plan. Plans shall be incorporated into the construction plan set submitted for review simultaneously.

7.8 SIDEWALKS

Sidewalk requirements are based on road classifications as shown in the reference cross-section for each road classification, Table 7.1 and the corridor's continuity. Sidewalks are required along both sides of all urban road classifications. The sidewalk can be eliminated on one side of the road only if topography or safety prohibits construction and pedestrian needs can be satisfied. County approval must be obtained to eliminate any sidewalk.

Sidewalks shall be a minimum of six feet (6') in width for all collector and arterial road classifications. Sidewalks on local access roads may be five feet (5') in width. Non-standard widths of sidewalk greater than the standards identified above may be required to provide corridor continuity. At no location shall a sidewalk provide an unobstructed path of less than five feet (5') in width. Wider sidewalks may be required at or near schools and at bus stops to allow bus riders a place to stand without hindering pedestrian movements or handicap access. In commercial areas wider sidewalks may also be required.

Concrete sidewalks shall be four inches (4") thick. When the sidewalk is installed at the back of the curb, a thickened edge shall be provided, and a base of a minimum of four inches (4") of crushed surface top course (CSTC) compacted to 95% modified proctor, native based shall be compacted equally. When the sidewalk is adjacent to the landscape strip, the sidewalk shall not have a thickened edge but will have the same minimum four inches (4") of CSTC base. Driveways and rolled curb approaches are required to be 6" minimum.

The Public Works Director may approve meandering sidewalks. The design of meandering sidewalk shall address obstructions, including mailbox mountings, road trees, fire hydrants, power poles, driveways, swales and road signs, without deviation from the required design width. Additional right-of-way (or easement) may be required to accommodate the obstructions or the meander of the sidewalk.

All sidewalks shall be designed according to ADA (American Disability Act) specifications. This includes cross slopes of no greater than two percent (2%) and longitudinal slopes of no greater than twelve to one (12:1).

Wheel chair ramps shall be provided at all pedestrian crossings having vertical curb sections. Every wheel chair ramp shall have at least one receiving ramp. This may require construction of "island" landing ramps. In special conditions wheel chair ramps shall also be provided to enable passage across curbed radius return access points. Wheel chair ramps located on arterials and collectors shall have detectable warning patterns formed with manufactured truncated domes painted yellow.

7.9 APPROACH DESIGN CRITERIA

The following section contains design criteria for intersections and driveway approaches. These are minimum requirements and may be modified if traffic volumes (existing and/or projected), topography, design speed, design vehicle requirements, drainage or other conditions, either existing or projected indicate a more stringent criterion is necessary. Asotin County may require additional provisions to ensure public safety.

7.9.1 APPLICABILITY

These requirements apply to all new or altered intersection and driveway approaches on County roads. All new approaches to county roadways are required to obtain a permit consistent with the Asotin County Right-of-Way Management Policy.

7.9.2 APPROACHES

7.9.2.1 Access Limitations

While no property is denied access to County roads, direct road access may be restricted for public safety. When direct access is denied, properties may be required to:

- Share a single driveway approach with two or more contiguous properties; or,
- Restrict access with a right in/right out approach for properties located on arterials and with no available alternate access. Additionally, these properties may be required to construct road improvements to preclude left turning traffic.

Properties are restricted to one access point on arterials and two access points on local access roads. Exceptions may be made for parcels with long frontages provided that the minimum spacing requirement can be met, driveway volumes are expected to exceed 100PM peak hour trips and traffic analysis demonstrates a need for additional driveways to address poor Level of Service (LOS) for the outbound movements.

When a property has frontage on two or more roads, and spacing requirements on the major road cannot be met, the driveway approach shall be located on the road with the lowest classification unless safety considerations dictate otherwise.

For a development that combines more than one lot, these requirements, including the number and spacing of access points, shall apply to the development as a whole, not to each underlying lot.

Driveways will not be allowed where horizontal or vertical curves prevent the roadway from having continuous stopping sight distance or adequate intersection sight distance to safely accommodate the movements in and out of the driveway.

7.9.2.2 General Design

Approaches shall be constructed to avoid interference with existing drainage inlets, culverts, lighting, utility poles, traffic regulating devices, fire hydrants, or other facilities. The Applicant shall be responsible for the cost of relocating any of the above. The agency holding authority for the particular structure shall decide how the facility will be relocated, subject to conditions including but not limited to clear zones, sight lines and local storm water regulations.

If at the time of construction the fronting road does not have full width pavement or curb and gutter, a rural driveway approach may be used with the approach starting at the edge of the existing pavement.

Approaches shall not restrict or impound drainage flow in the road. For shouldered roads with ditches, stormwater shall be conveyed under the driveway with a culvert. The minimum culvert size shall be 12 inches. Asotin County may require a larger diameter culvert based on site need and drainage conditions. For curbed roads, stormwater shall be conveyed using a culvert or an inverted approach.

If an existing approach is to be altered or abandoned the unused portion of the original approach is to be removed and replaced with curb, gutter and sidewalk matching that, which is adjacent.

Redevelopment projects shall be required to modify or eliminate any existing driveway approach that does not conform to these standards.

7.9.2.3 Driveway Approach Horizontal and Vertical Grade

Approaches shall align perpendicular to the road. The angle of intersection of the road shall not be less than 75 degrees.

The vertical grade of approaches shall not exceed 8 percent within the right-of-way and shall be designed to preclude vehicles dragging when entering or exiting the site. Vertical grades shall not exceed 10 percent within ten feet of the right-of-way.

7.9.2.4 Driveway Approach Widths

Driveway widths shall not be greater than 50 percent of total lot frontage width.

SINGLE FAMILY RESIDENTIAL

Driveway approach widths shall be a minimum of 16 feet and a maximum of 30 feet.

RESIDENTIAL PRIVATE ROADS

Approach widths shall be a minimum of 20 feet or match the width of the pavement.

COMMERCIAL/INDUSTRIAL

Driveway widths shall be a minimum of 30 feet and a maximum of 40 feet.

High volume driveway approaches may be required or permitted when all of the following conditions are present:

- The access is located along an arterial;
- Access volumes indicate a need for a radii curb return where the ADT exceeds 500 or where speed change lanes would be required;
- The access is designed to restrict turning movements, requiring the installation of an access island or center median;
- The roadway has no curb and gutter;
- The access serves an industrial property or provides for commercial deliveries, where large truck movements are required; and,
- A traffic engineering analysis submitted by the applicant determines that a radii access is necessary to ensure adequate traffic safety and operation.

7.9.2.5 Driveway Approach Spacing on Local Access Roads

SINGLE FAMILY RESIDENTIAL

For approaches on residential local access roads, the minimum spacing between approaches shall be 10 feet.

RESIDENTIAL PRIVATE ROADS

For approaches on residential local access roads, the minimum spacing between approaches shall be 10 feet.

COMMERCIAL/INDUSTRIAL

For approaches on commercial local access roads, the minimum spacing between approaches shall be 30 feet.

7.9.2.6 Corner Clearance From Intersections

SINGLE FAMILY RESIDENTIAL

Residential driveway approaches may not be located closer than 15 feet from the point of curvature of a curb return.

COMMERCIAL/INDUSTRIAL

Commercial driveway approaches may not be located closer than 125 feet from the point of curvature of a curb return.

Greater corner clearances may be required at the discretion of the Public Works Director based on existing or proposed conditions at the intersection.

Where the driveway location does not meet minimum County criteria, or where a safe driveway location cannot be found the County requires appropriate mitigation measures to provide for as safe a driveway as feasible.

7.9.2.7 Driveway Approach Spacing Arterial or Collector Roads Same Side of Road

Table 7.2 provides the minimum distance allowed between the centerlines of adjacent driveway approaches on arterial or collector roads. The distance is measured from centerline to centerline of each approach.

TABLE 7.2 – DRIVEWAY APPROACH SPACING

ROAD CLASSIFICATION	DESIRABLE CONDITONS SEPARATION (FT)	LIMITING CONDITONS SEPARATION (FT)
Collector	70	50
Minor Arterial	90	60
Principal Arterial	120	80

Desirable conditions shall be applied when sufficient space or road frontage is available. If sufficient space or road frontage for desirable conditions is not available, then lesser distances, down to, but not less than the requirement for limiting conditions, may be applied.

7.9.2.8 Restricted Access Driveways

Restricted access approaches do not allow left-hand turns out of or into the driveway approach. Development or redevelopment of properties where the required set back from an intersection cannot be achieved in any direction and without other ways to access the site, may be required to use a restricted access driveway. In some cases a raised median may be required.

Restricted access approaches shall only be allowed when approved or required by the County. The existence of other approaches in the vicinity that do not meet standards is not grounds for allowing further substandard approaches.

7.9.2.9 Alignment of Cross-Road Driveway Approaches

Driveways should be placed directly opposite from each other whenever possible. If this is not possible and adequate left-turn storage capacity is not available in advance of each driveway, combining of driveways on the same side of the road may be required.

The requirement above shall not apply if the road to be accessed has a permanent median and/or traffic control device that prevents any cross-road movement of traffic or if the Public Works Director determines that adhering to said requirement would be unsafe.

7.9.2.10 Driveway Approach On-Site Layout

Approaches shall provide access to an off-road parking area located on private property. The driveway shall be of sufficient length so a vehicle in the driveway does not project into the right-of-way, impeding pedestrian access to sidewalk or vehicles in the public road. Driveway approaches shall be designed to allow the largest typical vehicle using the approach (i.e. tractor trailers at large warehouses, delivery trucks at mini marts, etc.)

Whenever possible, the site should be designed for counterclockwise circulation of large trucks as left turns and left-hand backing maneuvers are easier and safer since the driver's position is on the left hand of the vehicle. All parking, loading and maneuvering of trucks shall be conducted on private property.

Driveway stacking length for vehicles end to end, for multi-use properties is the distance between the right-of-way and the near side of the first intersection interior aisle or parking lot. The driveway stacking length for multi-use properties shall be as follows:

- 20 feet for parking lots with less than 50 spaces;
- 50 feet for parking lots with up to 200 spaces; and,
- 80 feet for parking lots with over 200 spaces.

Driveway stacking length for single-use properties is the distance between the right-of-way and the proposed uses. The minimum length for driveway stacking for drive-thru window shall be as follows:

- 150 feet for drive-in banks and drive-thru restaurants;
- 50 feet for automated tellers (ATM) and drive-in cleaners and repair services;
- 75 feet for automated car wash and espresso stands; and,
- 100 feet for controlled access parking.

The County may require a traffic study to determine the stacking and queuing requirements for uses that include, but are not limited to; service stations, drive-thru restaurants, drive-up banking, etc.

The County may require sites with internal traffic congestion to design approaches with long throat lengths to provide sufficient distance to avoid impacting County roads.

7.9.2.11 Driveway Approach Methods of Measurement

Driveway width is measured perpendicular to the centerline of the driveway between lines defined by the radii, whether or not that occurs inside the property lines and is physically marked with curbing.

Driveway length is measured along the centerline of the driveway from the back edge of the driveway apron and the nearest vehicle aisle or circulation road.

Dimensions in this section refer to distances from (or along) face of curb. In the absence of a curb, the measurement is considered to be from (or along) the edge of pavement.

Driveway angles are measured between the driveway centerline and centerline of the roadway.

7.9.3 SIGNALIZED DRIVEWAY APPROACHES

If the Traffic Impact Analysis determines that there is or will be a need to signalize proposed access points, then proposed access points shall be aligned directly opposite any existing or proposed access points or T-intersection across the road.

Where driveways are to be signalized, a minimum spacing of 1,320 feet to any other signalized intersection should be maintained or shall be spaced as approved by the Public Works Director.

7.10 BIKEWAYS

The minimum design standards for bikeways shall be per “Guide for the Development of Bicycle Facilities,” prepared by the AASHTO task force on geometric design, most recently adopted. Typically, bikeways are shared with other transportation modes, although routes may be provided exclusively for bicycle use. Bikeways are categorized as follows:

- Class I bicycle route is physically separated from motor vehicle roadways but may be shared with pedestrians. The Class I bikeway shall have a minimum pavement section of six inches (6”) of CSBC and two inches (2”) of Class “B” asphalt concrete pavement.
- A Class II bicycle route is adjacent to the motor vehicle roadway. Signs and pavement markings designate the bike lane. The Class II bikeway shall have the same pavement cross-section as the adjacent road.
- A Class III bicycle route is designated with signs as a bicycle route but not marked on the roadway surface. The Class III bikeway shall have the same pavement cross-section as the adjacent road.
- A Class IV bicycle route shares the motor vehicle roadways, with no special designation or design criteria toward bicycle use.

Class I, II, III, or IV Bikeways, as appropriate, shall be provided for:

- Wherever called for in the Asotin County Bicycle Plan.
- When traffic analysis or traffic planning indicates substantial bicycle usage that would benefit from a designated bicycle facility as determined by the County.

- When continuous connection can be made to existing or planned bicycle facilities.

7.11 TRAFFIC CALMING

Traffic calming in residential neighborhoods is used to improve neighborhood livability by reducing the speed and impact of vehicular traffic.

7.11.1 TRAFFIC CALMING AND ROAD CLASSIFICATION

Traffic Calming devices will be allowed as follows:

- Arterials – not allowed
- Collectors – only if determined to be needed through an engineering study
- Local Access – if problem is anticipated or determined through an engineering study

In existing neighborhoods, traffic calming devices will be installed only if determined to be needed through an engineering study. The installation of devices is required to be neighborhood funded.

In new developments, traffic calming devices shall be implemented in the design of the internal road layout. They are to be installed at the expense of the developer.

All traffic calming devices will be reviewed and approved by the County Engineer. In new developments, the devices will be reviewed at the time of preliminary design review.

7.11.2 TRAFFIC CALMING DEVICES ALLOWED

The following traffic calming devices are allowed, see standard plans for more detail.

- Curb Extension/Bulb
- Median
- Pedestrian Crossing Refuge Island
- Traffic Circle
- Chokers
- Narrow Points
- Chicanes

7.12 ILLUMINATION

Illumination shall be included at the intersection of public roads with a minimum of one street light placed consistent with the WSDOT Standard Specifications.

7.13 ROAD NAMES

The applicant may suggest road names within a development. Road names will be reviewed by the County and Fire Department and modified as necessary to 1) conform to regulations, 2) expedite property identification by emergency services, and 3) comply with US Postal Services addressing standards. Road name designations shall be as follows:

- All North-South roads shall be called Streets in the Urban area and Road in the Rural area.
- All East-West roads shall be called Avenues.
- Roads in large subdivisions that do not have a definite directional course shall be called Drives.
- A dead-end or cul-de-sac road when not an extension of an existing road or a continuation of any future road shall be called a Court.
- A road that lies diagonally to the east-west, north-south grid system and is an arterial or collector road shall be called a Boulevard.
- A road that has its ingress and egress on the same road shall be called a Circle.
- A private road shall be called a Lane.

7.14 MAILBOXES

Locating and installing mailboxes in connection with the construction or reconstruction of a County road shall follow AASHTO and US Postal Service guidelines. Mailboxes shall not be placed in sight triangles or clear zones.

7.15 SURVEY MONUMENTS

Survey monuments shall be placed or replaced in accordance with good practice in land surveying. Monuments are required along the centerline of improvement of all new or reconstructed roads. Monuments shall be placed at intersections, points of curvature (P.C.), and points of tangency (P.T.).

All new or existing survey monuments that are disturbed, lost, or destroyed during construction shall be replaced by a registered land surveyor registered in the State of Washington at the expense of the responsible builder or developer.

7.16 GUARDRAIL

Evaluation of embankments for guardrail installations shall be in accordance with Chapter 1610 of the WSDOT Design Manual. Guardrail installations shall conform to WSDOT/APWA Standard Plans. Guardrail may be required by the Public Works

Director in consideration of topography and maintenance schedule regardless of speed and functional classification.

7.17 BOLLARDS

When necessary to deny vehicle access to an easement, tract, or trail (except for maintenance or emergency vehicles) the point of access shall be closed by a line of bollards. These shall include one or more fixed bollards on each side of the traveled way and removable, locking bollards across the traveled way. Spacing shall provide one bollard on centerline of the trail and other bollards at a maximum spacing of three feet (3') to preclude vehicular access. Fire access roads shall not be blocked in this manner without the concurrence of the Fire Marshal. Bollards shall be ten feet (10') from the paved edge of roadway.

7.18 ROADWAY BARRICADES

Temporary and permanent barricades shall conform to the standards of the Manual on Uniform Traffic Control Devices (MUTCD).

A. Type I or Type II barricades may be used when traffic is maintained through an area being constructed/reconstructed.

B. Type III barricades may be used when roads are closed to traffic. Type III barricades may extend completely across the road (as a fence). Where provision must be made for access of equipment and authorized vehicles, the Type III barricades may be provided with movable sections that can be closed when work is not in progress, or with indirect openings that will discourage public entry. Where job site access is provided through the Type III barricades, the developer or contractor shall assure proper closure at the end of each working day.

C. In the general case, Type III barricades shall be installed to close arterials or other through roads hazardous to traffic. They shall also be used to close off lanes where tapers are not sufficiently delineated.

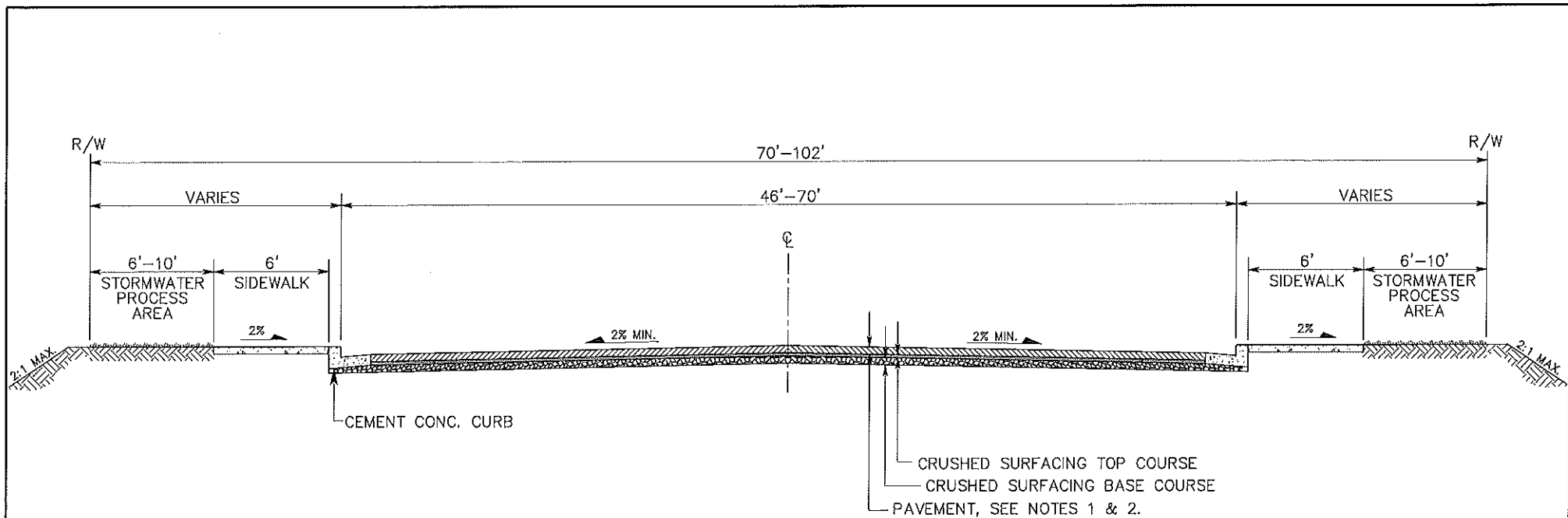
D. Type III barricades shall be used at the end of a local access road terminating abruptly without cul-de-sac bulb or on temporarily stubbed off roads. Each such barricade shall be used together with an end-of-road marker.

7.19 ENTRANCE GATES

Entrance gates are only allowed on private roads with approval of the County. The proposed gates must be clearly shown on the road plans. If a center island is used a minimum 14-foot wide lane between face of curb and center island is required to be provided. The center island shall not extend past the end of the gate when it is fully opened. In case where there is no center island, the minimum roadway width is 24 feet. No parking on either side of the road will be allowed within 48 feet of the gate on both sides of the gate. The no parking zone shall be clearly signed on both sides of the gate.

The homeowners association will be responsible for the maintenance of the gate and the No Parking signs.

Gates roads require a queuing area to allow vehicles to exit the connecting road prior to the gate. The queuing area must be at least 48 feet long.



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

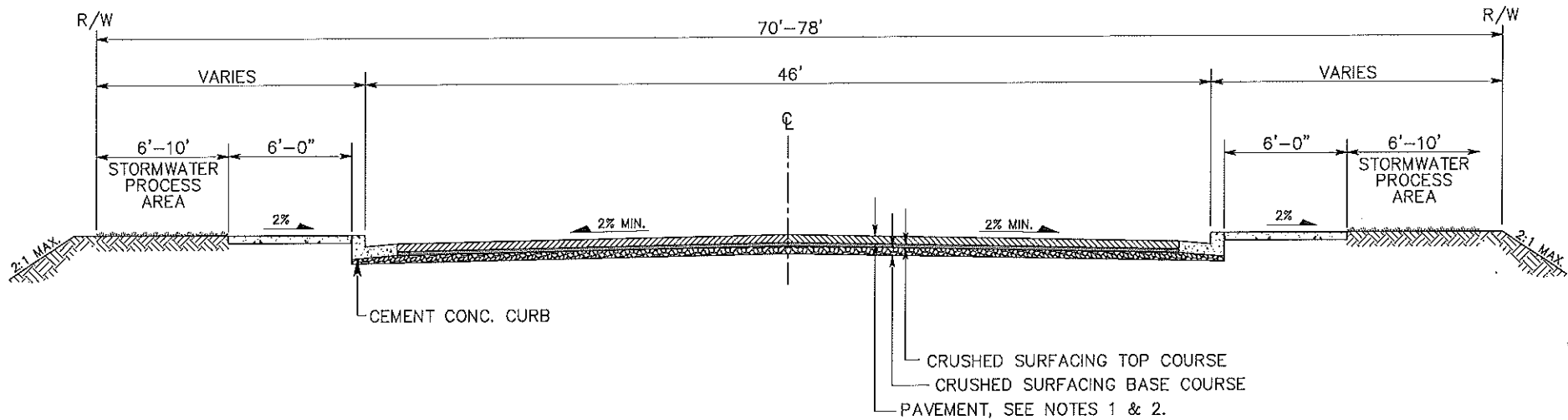
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION - PRINCIPAL ARTERIAL

AS-ALD90
SHEET
A-1



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

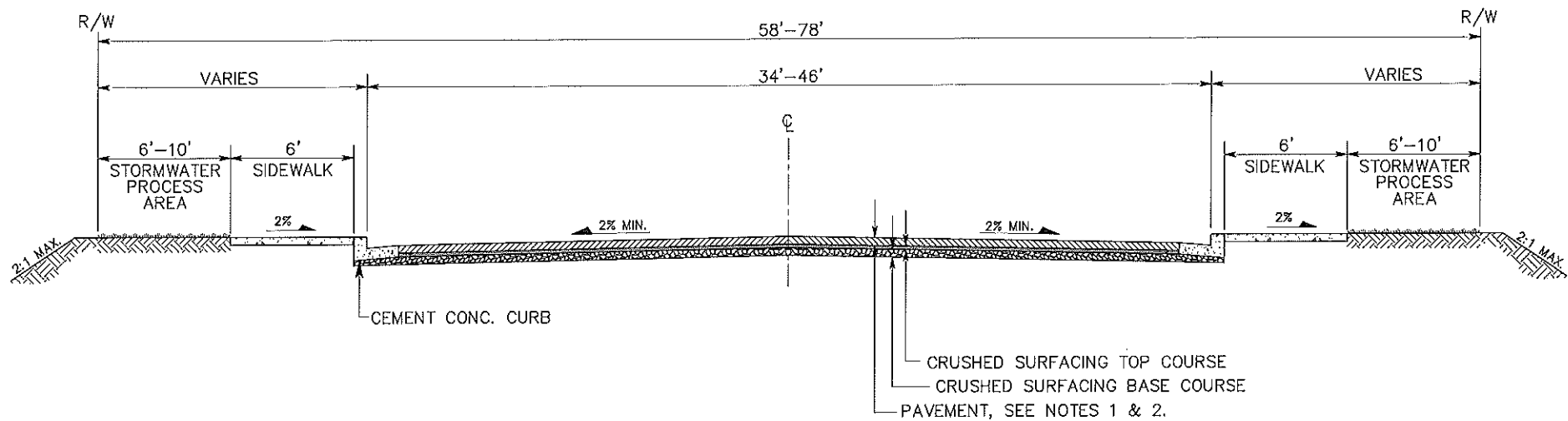
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
COUNTY ENGINEER
DATE: 11/05/09

ROADWAY SECTION - MINOR ARTERIAL

AC-A10WG
SHEET
A-2



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

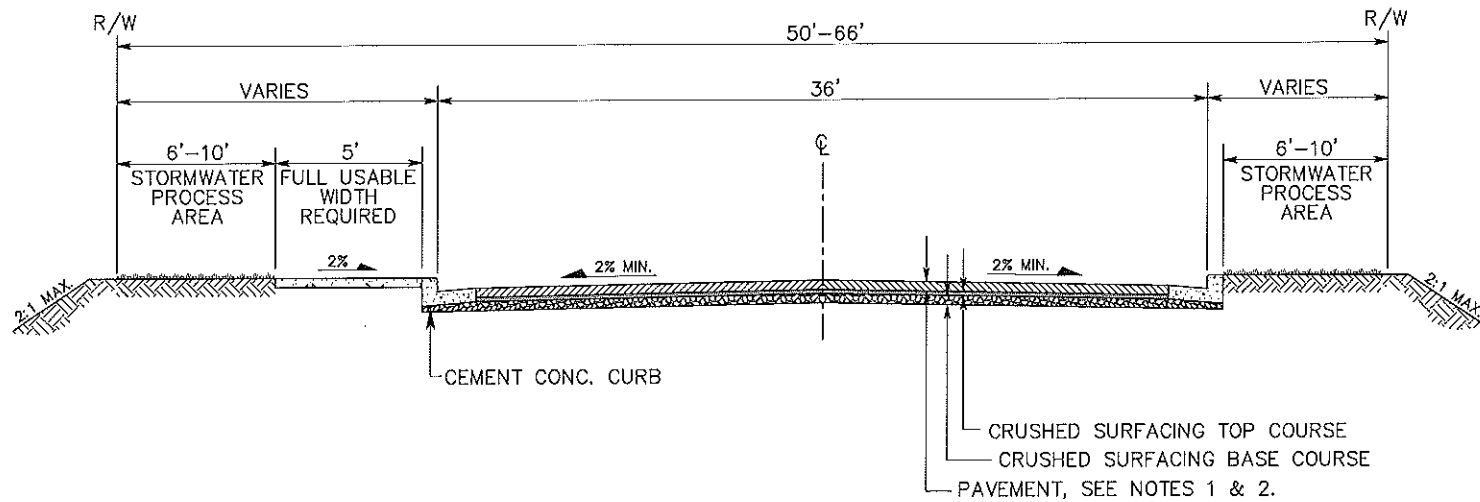
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
COUNTY ENGINEER
DATE: 11/05/09

ROADWAY SECTION
LOCAL AND COLLECTOR URBAN
COMMERCIAL/INDUSTRIAL STREET

AC-A1040
SHEET
A-3



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES. THE MINIMUM ASPHALT LAYER SHALL BE 3" THICK. THE MINIMUM CRUSHED SURFACING BASE COURSE LAYER SHALL BE 6" THICK.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

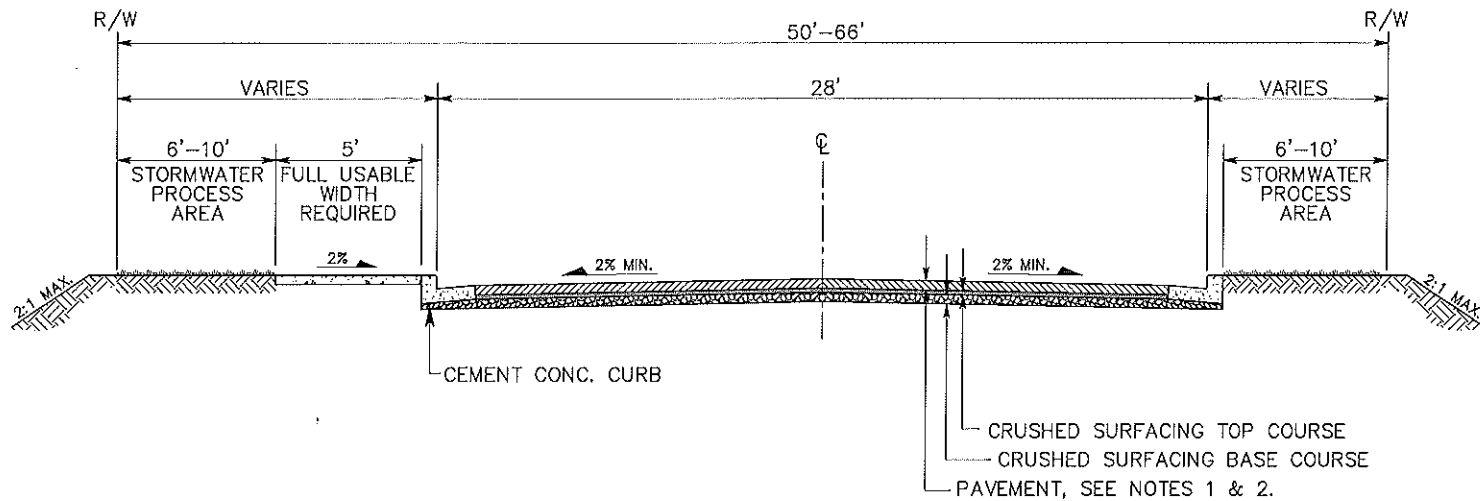
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION
LOCAL URBAN RESIDENTIAL STREET WITH PARKING

AC-A1.0WG
SHEET
A-4



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES. THE MINIMUM ASPHALT LAYER SHALL BE 3" THICK. THE MINIMUM CRUSHED SURFACING BASE COURSE LAYER SHALL BE 6" THICK.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

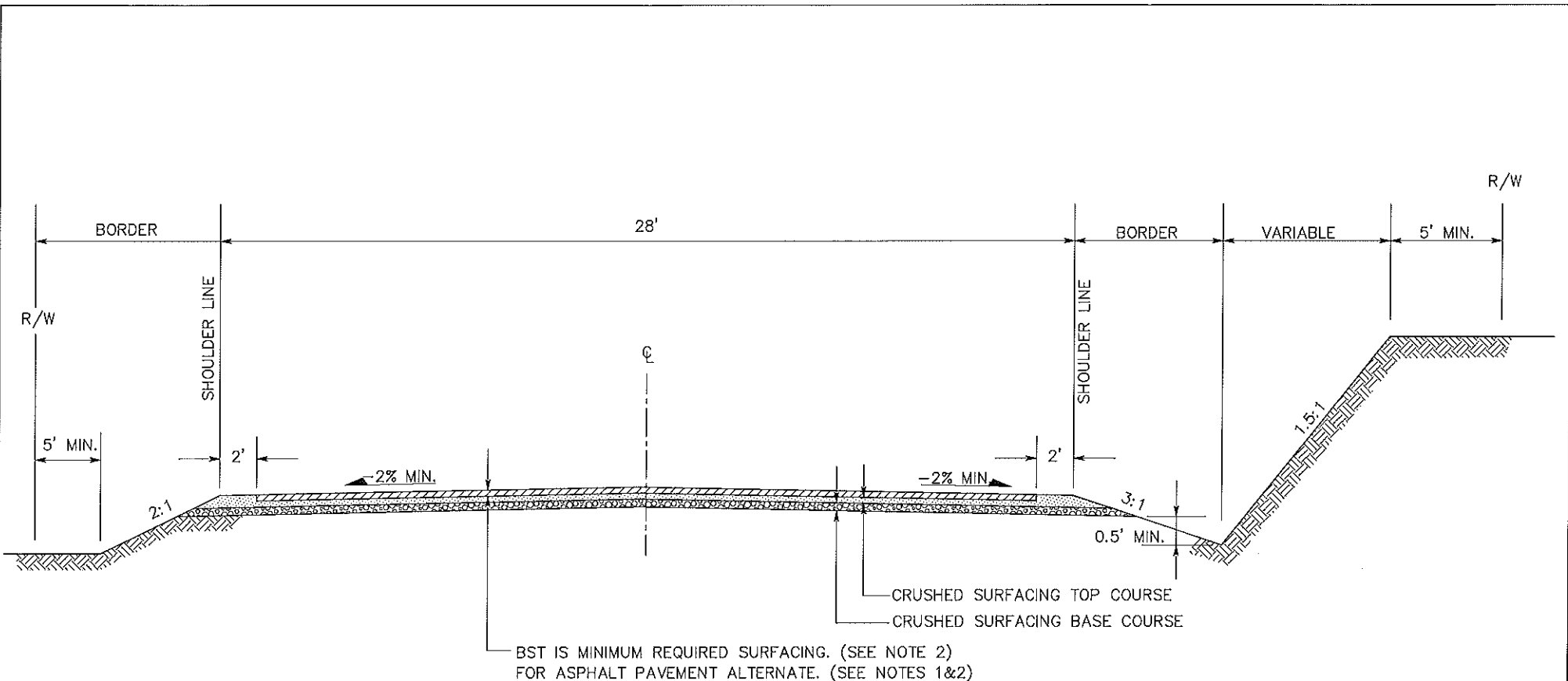
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
COUNTY ENGINEER
DATE: 11/05-09

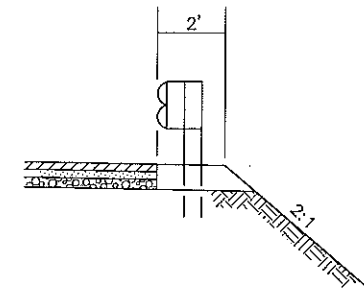
ROADWAY SECTION
LOCAL URBAN RESIDENTIAL STREET WITHOUT PARKING

AC-ASRWG
SHEET
A-5



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES. MINIMUM B.S.T. SHALL BE 2 SHOT TYPE PER WSDOT STANDARDS. MINIMUM 6" CRUSHED SURFACING TOP COURSE AND 6" CRUSHED SURFACING BASE COURSE AS REQUIRED.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.
5. B.S.T. = BITUMINOUS SURFACE TREATMENT



WIDENING FOR BARRIER

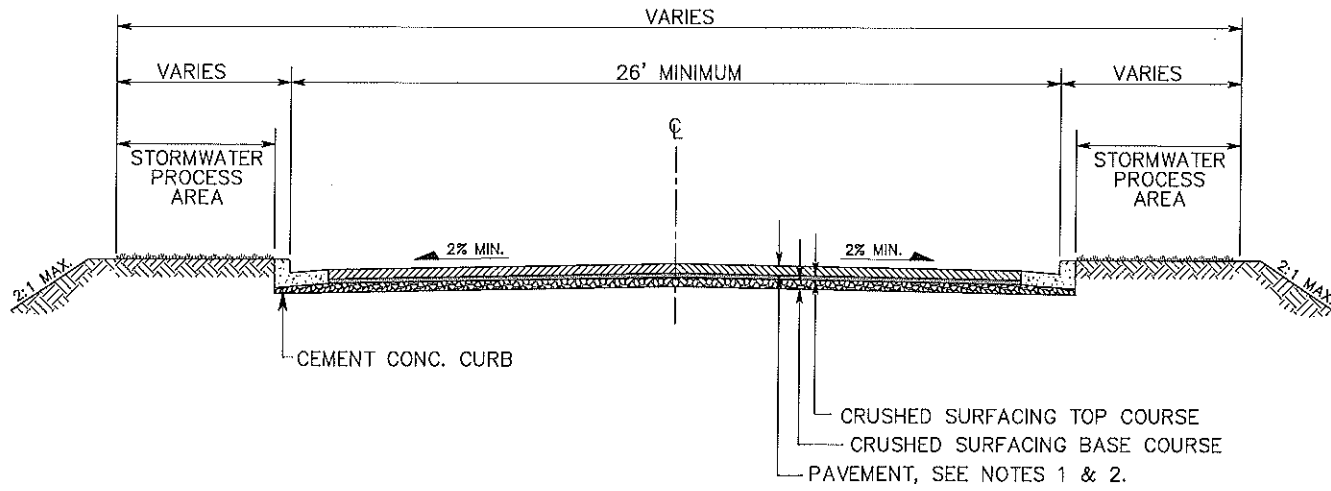
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION -- RURAL STREET

AC-A12DW
SHEET
A-6



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES. THE MINIMUM ASPHALT LAYER SHALL BE 3" THICK. THE MINIMUM CRUSHED SURFACING BASE COURSE LAYER SHALL BE 6" THICK.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
5. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
6. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.

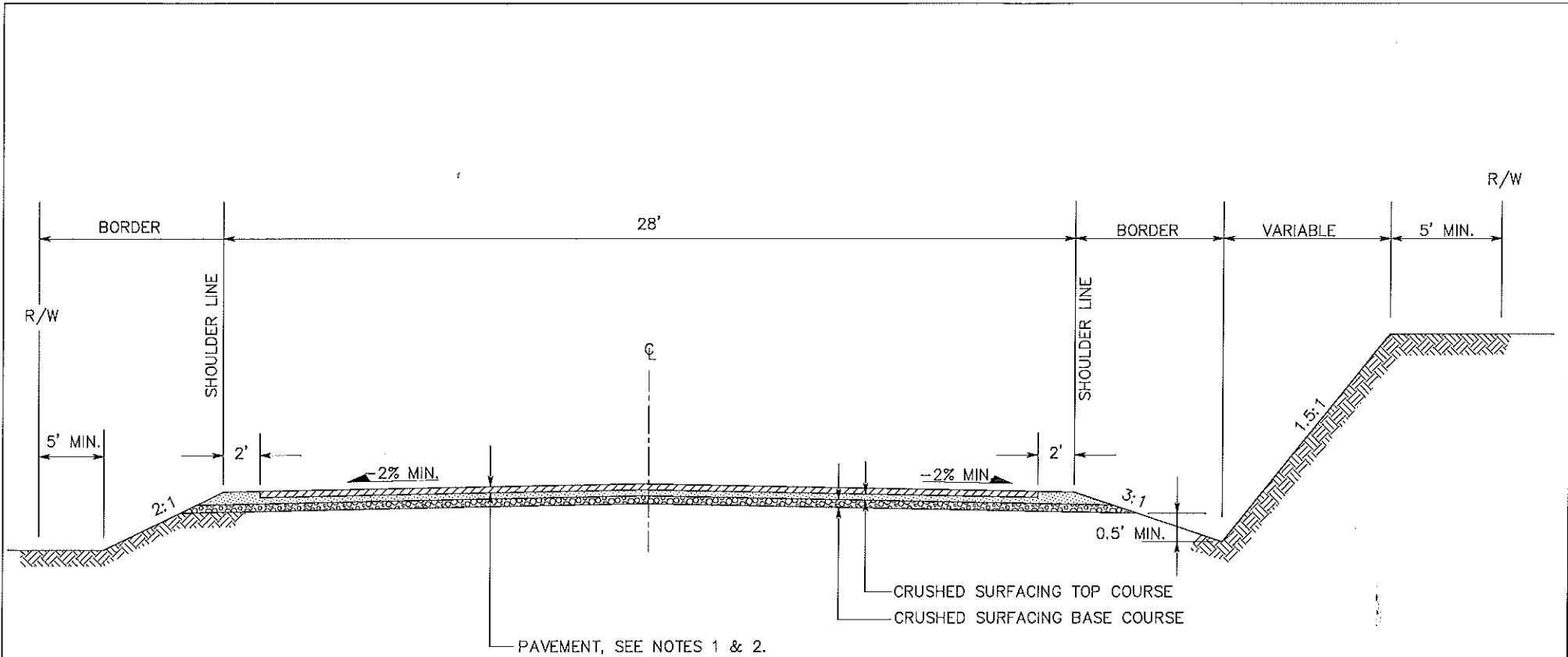
NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
 DEPARTMENT OF PUBLIC WORKS
 ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
 COUNTY ENGINEER
 DATE: 11/05-09

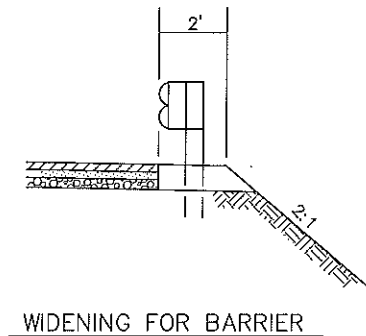
ROADWAY SECTION
 PRIVATE LOCAL URBAN STREET PUD
 WITH OPTIONAL SIDEWALK

AC-A1242
 SHEET
 A-7



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. COUNTY ENGINEER SHALL HAVE AUTHORITY TO APPROVE ALTERNATIVE ROAD SECTION GEOMETRY SUBJECT TO AN EQUIVALENCY REVIEW.



NO.	DATE	BY	CHKD.	APPR.	REVISION

ASOTIN COUNTY
 DEPARTMENT OF PUBLIC WORKS
 ASOTIN, WA. 99402 509-243-2074

APPROVED: _____
 COUNTY ENGINEER
 DATE: 11/05-09

ROADWAY SECTION - RECONSTRUCTED PUBLIC
 OR PRIVATE RURAL GRAVEL ROAD

AC-ALDKG
 SHEET
 A-8

CHAPTER 8 – PAVEMENT DESIGN



CHAPTER 8 – PAVEMENT DESIGN	1
8.1 INTRODUCTION	1
8.2 DESIGN REQUIREMENTS	1
8.2.1 ROAD CLASSIFICATION	1
8.2.2 ROAD SUBGRADE	1
8.2.3 MINIMUM ROAD PAVEMENT SECTIONS	3
8.2.4 REQUIREMENTS FOR ENGINEERED PAVEMENT SECTIONS	3
8.2.5 MATERIALS SPECIFICATIONS	5
8.2.6 RURAL ROAD BITUMINOUS SURFACE TREATMENT DESIGN GUIDELINES	5
8.2.7 REPORT SUBMITTAL	6

CHAPTER 8 – PAVEMENT DESIGN

8.1 INTRODUCTION

This section of the Standards has been prepared for engineers to use in the design of pavement sections for County roads. The use of the following will ensure that paved transportation corridors are improved in a uniform and consistent manner.

The information contained in this section has been established to minimize the structural failures in roads due to traffic loadings and/or existing soils conditions. Engineers will be allowed to complete their own pavement thickness design in accordance with the current AASHTO design procedure and the minimum County requirements supplied in Section 8.2.3. All roads except those classified as residential shall be designed by a licensed engineer.

8.2 DESIGN REQUIREMENTS

8.2.1 ROAD CLASSIFICATION

The classification of a particular road (i.e. Collector) can be obtained from Asotin County Public Works Department. The classification of a road will be required to determine the volume and mix of vehicles for which it is designed. In some cases where a road has yet to be designated a specific classification, road pavement should be designed based on the anticipated traffic volume. An anticipated daily traffic count may be obtained from Asotin County Public Works for the road in question or a similar road that functions in the same manner. The County may, however, require the applicant to obtain additional traffic classification, count information, or perform a Traffic Impact Analysis consistent with Chapter 3 as warranted.

8.2.2 ROAD SUBGRADE

8.2.2.1 Geotechnical Evaluation

A geotechnical evaluation including field sampling is required on all roadways being proposed. If the geotechnical characteristics are classified as appropriate for the minimum road section below no other geotechnical investigations are required.

8.2.2.2 Residential Roads

A minimum road section of 3” of Hot Mix Asphalt over 6” of properly placed and compacted base will be required on all constructed roads regardless of classification and native soils.

For the purpose of pavement design, the engineering characteristics of the subgrade soil shall be determined either through index testing or laboratory testing.

Laboratory testing consisting of California Bearing Ratio (CBR) testing, resilient modulus (Mr) testing or R-value testing may be used to characterize the subgrade soil supporting capability. The scope of this section does not cover existing subgrade with a CBR less than three (3), R-values less than 20 and resilient modulus values less than 3,000 psi, or for subgrade soil classified as MH, CL, CH, OL or peat in accordance with the Unified Soil Classification System. When results of laboratory testing indicate that poor subgrade soils are present based on the above criteria, a Geotechnical Design is required as outlined in Section 8.2.2.2.

8.2.2.3 Non-Residential Roads

For structural pavement design of roadways that are not classified as a residential road, an analysis of the resilient modulus of the subgrade soil is required. The resilient modulus value can be acquired using the following methods:

- A. Contract with a private firm/laboratory to perform the Mr testing. Soil samples need to be obtained, and sent to the private lab for testing. The proposed roadway shall have a minimum of one laboratory test for every 1,000 feet of road and/or for every obvious change in subgrade material (minimum of three (3) tests per road).
- B. Contract with a private firm/laboratory to perform CBR testing or R-value testing. Soil samples need to be obtained and sent to the private lab for testing. The proposed roadway shall have a minimum of one laboratory test for every 1,000 feet of road and/or for every obvious change in subgrade material (minimum of three (3) tests per road). A geotechnical engineer shall be retained to provide recommendations for correlations between CBR or R-value results and Mr values.
- C. Conduct in-situ testing of the subgrade using a non-destructive deflection test method. The results shall be reported by road stationing. The sponsor shall obtain approval from the Asotin County Public Works Department for the type of non-destructive deflection test method proposed, before conducting the testing. For non-destructive deflection testing, a statistical analysis is needed. Test results shall include a graph of the resilient modulus values vs. road stationing. The graph shall be included in the design report prepared and submitted by the sponsor's engineer.

8.2.2.4 Subgrade Preparation

Prior to placing any road base material, the subgrade shall be rolled and compacted to a minimum of 95% of the maximum density as determined by ASTM D-1557 (Modified Proctor). This degree of compaction must extend to a depth of at least two feet (2') below pavement subgrade elevation.

Any sections of a roadway that exhibit “pumping” shall be removed to a depth where the pumping ceases, or as directed by a licensed Civil Engineer or other qualified design professional approved by the Asotin County Public Works Director, and replaced with granular imported material that can be compacted to at least 95% of the maximum density for the top 2” ASTM D-1557, without pumping, or as directed by a licensed Geotechnical Engineer. Fill or embankment soil placement shall be 90% of the maximum density, ASTM D-1557. Asotin County Public Works reserves the right to direct soft spot excavation.

If the existing subgrade is a fine-grained soil (ML, CL, MH, CH), then a geotextile fabric may be required on the subgrade prior to placing any subbase or base materials. The geotextile fabric shall meet the criteria in Section 9.33 for “Separation” of the WSDOT Standard Specifications (or current version).

8.2.3 MINIMUM ROAD PAVEMENT SECTIONS

A licensed civil engineer shall design road pavement sections. Road pavement section requirements shall be a minimum of three inches (3”) of commercial Hot Mix Asphalt over six inches (6”) of crushed surfacing properly placed and compacted for private roads, local residential and rural residential roads. Rural roads may also be constructed with Bituminous Surface Treatment (BST). Local non-residential roads, all collector and arterials roads shall have engineered pavement design sections per section 8.2.4. The results of laboratory testing obtained from the testing or geotechnical firm, the type and class of road from the Asotin County, will assist in determining the appropriate design. Geo-textile fabric may be required between the subgrade and the gravel base where soil conditions are poor.

8.2.4 REQUIREMENTS FOR ENGINEERED PAVEMENT SECTIONS

All non-residential local roads, collector and arterial roads shall have engineered pavement design. Engineered pavement designs should follow the 1993 AASHTO “Guide for Design of Pavement Structures” for flexible pavements and be based on the following criteria:

8.2.4.1 Traffic Requirements

For projects where a traffic analysis report was not required, contact the County to obtain the most recent road classification and traffic counts (Additional traffic information may be required.)

The existing traffic levels shall then be inflated to match the projected traffic at the end of the roadways design life (in most cases a twenty-year design life will be used). The rate of growth is one and a half percent (1.5%) for residential roads and two percent (2%) for commercial/industrial roads and arterials roads. The one and a half percent (1.5%) growth can be waived in closed subdivisions with County approval.

The engineer shall submit calculations showing how Equivalent Single-Axle Loads (ESALs) were determined based on traffic data. The following truck factors may be used in the absence of other information:

<u>Vehicle Type</u>	<u>Truck Factor (ESAL/vehicle)</u>
School Bus	2.87
PTBA Bus	2.57
Refuse Truck	1.03
All other trucks (averaged)	0.42

8.2.4.2 Other AASHTO Pavement Design Input Parameters

The following design parameters shall be used in design of pavements:

- Reliability Level:
Private roads, alleys, access roads, residential roads and local non-residential, R=75%
All other road classifications, R=90%
- Overall standard deviation (S):
New construction, S=0.45
Overlays, S=0.49
- Initial and terminal serviceability indexes (PSI):

Road Classification	PSI(initial)	PSI(terminal)
Private roads, alleys, access road, residential roads & local non-residential	4.2	2.00
Collectors and minor arterials	4.2	2.25
Principal arterials	4.2	2.50
- Structural Layer Coefficients (aj) and drainage coefficients (mj) for new material shall be in accordance with Table 2.4 and Appendix DD of the 1993 AASHTO “Guide for Design of Pavement Structures”. In the absence of following the rigorous design approach outlined in this two reference, the following factors can be used:

Material	Structural Coeff.	Drainage Coeff.
HMA	0.42	1.00
Crushed surfacing	0.14	0.95
Gravel Base	0.10	0.95

8.2.4.3 Subgrade Evaluation

Prior to designing the pavement thickness, the subgrade soil shall be evaluated in accordance with Section 8.2.2.2. in order to establish a design Mr value. The following moduli ratios (ratio of seasonal moduli to “summer” moduli” can be used to determine the effective roadbed (subgrade) resilient modulus value (M_{Ref}):

Winter (Jan)	1.00
Winter/Spring (Feb-May)	0.85
Summer (Jun-Sep)	1.00
Fall (Oct-Dec)	0.90

8.2.5 MATERIALS SPECIFICATIONS

The following material requirements are referenced from the most current version of the WSDOT Standard Specifications and are subject to change.

- **Gravel Base**
Gravel base shall be bank run gravel, defined as naturally occurring material having characteristics such that when compacted in place on the roadway, it will provide a course having greater supporting value than the subgrade on which it is placed. It shall be from a pit approved by the Asotin County Public Works Department and shall be in accordance with Section 9-03.10 of the WSDOT Standard Specifications.
- **Crushed Rock**
Crushed rock used in County road construction will fall under the following two classifications:
 1. Crushed Surfacing Top Course (CSTC)
 2. Crushed Surfacing Base Course (CSBC)

CSTC and CSBC shall be in accordance with Section 9-03.9(3) of the WSDOT Standard Specifications.
- **Hot Mix Asphalt**
Hot mix asphalt shall be in accordance with the current edition of the WSDOT Standard Specifications. Asphalt used in County road construction shall use Performance Grade asphalt binders, in accordance with AASHTO Designation MP-1. The minimum base binder used shall be PG-64-28. Required base binders based on road type and condition are provided in the following table:

Road Type	Performance Grade
Access roads, residential, and local non-residential	64-28
Collectors and arterials	70-28

Aggregate for use in hot mix asphalt shall be Class 1/2 –inch in accordance with Section 9-03.8(1) of the WSDOT Standard Specifications.

8.2.6 RURAL ROAD BITUMINOUS SURFACE TREATMENT DESIGN GUIDELINES

The minimum guidelines for Bituminous Surface Treatment, only allowed in rural areas, are outlined below.

8.2.6.1 Traffic Requirements

- Double shot BST roadways constructed to the standards and gravel support requirements (6-inches) for rural roadways are suitable for annual passenger vehicle traffic of 60,000 vehicles or less. This roughly corresponds to an average daily traffic (ADT) of 200 which is expected from a 20 unit subdivision.
- Triple shot BST roadways constructed to the standards and gravel support requirements (10-inches) for urban roadways are suitable for annual passenger vehicle traffic of 150,000 vehicles or less. This roughly corresponds to an average daily traffic (ADT) of 400.
- The above traffic estimates assume a maximum of 5 percent of ADT are commercial truck-type traffic. Regardless of the subgrade soil, roadway classification or traffic volumes, the County will require the civil designer to verify the design ADT will not exceed the allowable traffic;
- Seasonal roadways should be subject to spring breakup load and speed limits;
- Traffic estimates are based on back calculating allowable traffic loads constructed over typical Asotin County roadways, near surface soil conditions equating to sand or silty fine sand loess. For projects where a traffic analysis report was not required, contact the County to obtain the most recent road classification and traffic counts (additional traffic information may be required).

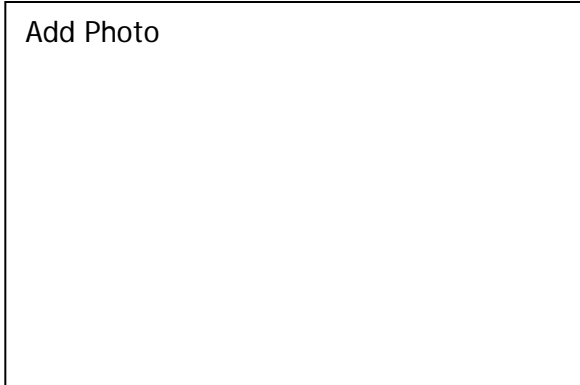
8.2.6.2 Sub Grade

- BST standard sections are suitable to be placed over sand, silty sand, silt with sand, gravel, silty gravel or bedrock. Under the Unified Soil Classification System (USCS), these soil types correspond to SP, SM, SW, GM, GP and GW soil.
- Wherever interbed, elastic silt, plastic clay, groundwater or soft subgrade conditions (pocket penetrometer less than 2 tons per square foot) are encountered, geotechnical or civil design must provide specific asphalt section design and construction requirements for the subgrade conditions. In addition, where these soil are encountered during construction, Asotin County Public Works Department personnel must be notified immediately.

8.2.7 REPORT SUBMITTAL

The applicant must submit a roadway analysis report to Public Works Department, including a narrative of the site conditions, the pavement sections, and applicable background information for review and approval. The report must detail data on how the design was achieved including information on the subgrade soils. The report shall be stamped by a licensed engineer registered in the State of Washington.

CHAPTER 9 - INSPECTION/CERTIFICATION



CHAPTER 9 – INSPECTION & CERTIFICATION.....	1
9.1 INTRODUCTION	1
9.2 APPLICABILITY.....	1
9.3 RESPONSIBILITIES	1
9.3.1 ONSITE INSPECTOR.....	1
9.3.2 DEVELOPMENT INSPECTOR	2
9.3.3 APPLICANT’S ENGINEER.....	2
9.4 AUTHORITY TO STOP WORK.....	3
9.5 RIGHT-OF-WAY PERMITS	3
9.6 PRE-CONSTRUCTION MEETING.....	3
9.7 CONSTRUCTION NOTIFICATION	4
9.7.1 NOTICES OF UPCOMING CONSTRUCTION	4
9.7.2 NOTICES OF UTILITY SHUTDOWN AND ACCESS LIMITATIONS	6
9.7.3 NOTICES FOR INSPECTION.....	6
9.8 INSPECTION REQUIREMENTS	6
9.8.1 REPORTING	6
9.8.2 MINIMUM MATERIAL TESTING FREQUENCIES	6
9.8.3 DRAINAGE SWALE AND DRAINAGE FACILITIES INSPECTION.....	7
9.8.4 SWALE INSPECTION DURING WARRANTY PERIOD	7

9.8.5 UTILITY INSPECTIONS 8

9.9 MISCELLANEOUS 8

9.9.1 CONFLICT RESOLUTION..... 8

9.9.2 CHANGES DURING CONSTRUCTION..... 8

9.9.3 CONSTRUCTION COMPLAINTS 8

9.10 FINAL WALK-THROUGH..... 8

9.11 RECORD DRAWINGS..... 9

9.12 PROJECT CERTIFICATION 9

9.12.1 CERTIFICATION OF DRAINAGE FACILITIES 10

9.13 PERFORMANCE SURETY 10

9.13.1 SHORT PLAT, LONG PLAT AND BINDING SITE PLAN/SURETY
EXCLUSION 10

9.13.2 SURETY RELEASE 10

9.14 WARRANTY SURETY..... 11

9.14.1 SURETY AMOUNT 11

9.14.2 WARRANTY DURATION..... 11

9.14.3 ACCEPTABLE SURETIES 11

9.14.4 TIME FRAMES TO COMPLETE REPAIR 11

9.14.5 FAILURE TO COMPLETE REPAIR 12

9.14.6 RESPONSIBILITY FOR MAINTENANCE 12

9.15 STREET ESTABLISHMENT 12

CHAPTER 9 – INSPECTION & CERTIFICATION

9.1 INTRODUCTION

Asotin County requires inspection oversight of all utility, road improvement and construction projects within public rights of way. This includes all utilities installed but not operated by the County. Water and sewer construction shall also be monitored by the system purveyor and/or agency of system ownership. Representatives assigned by the County will review any field changes to the design plans and permits that have prior approval. Review and acceptance of any changes to approved plans for utility, site improvements and road right of way work will require the oversight of both the Applicant/utility operator as well as Asotin County.

9.2 APPLICABILITY

The following projects require construction certification:

- New construction of public streets;
- New construction of private streets;
- New construction of driveways accessing more than one lot;
- New construction of engineered driveways;
- Frontage improvements on public streets, including pavement widening, curb and gutter, sidewalk, and drainage improvements; and
- The drainage facilities and structure for commercial projects.

9.3 RESPONSIBILITIES

9.3.1 ONSITE INSPECTOR

The Applicant is required to secure the services of an Onsite Inspector for all projects requiring certification.

The Onsite Inspector is responsible for:

- Preparing weekly reports;
- Ensuring the plans and specifications are followed;

- Inspecting paved areas, curb and gutter, sidewalks, approaches, drainage improvements, and utilities within the right-of-way and easements. The Onsite Inspector shall be present at all times for Hot Mix Asphalt (HMA) placement, any trench work within the street prism, and for drywell installation;
- Coordinating required testing and frequencies of testing or inspection. (See Appendix 9A);
- Monitoring traffic control;
- Verifying fire hydrants, gates and No Parking signs are installed at the location shown in the plans;
- Preparing as-built drawings, and,
- Preparing the certification package.

9.3.2 DEVELOPMENT INSPECTOR

The Development Inspector is a full time Asotin County employee and is responsible for:

- Coordinating with and reviewing submittals from the Onsite Inspector(s);
- Performing development walk-through on private and public streets for acceptance and surety reductions;
- Reviewing and accepting certification packages. A project certification will not be accepted if required frequencies for testing are not met or test results do not meet specifications;
- Reviewing quantity estimates for performance and warranty sureties;
- Performing final inspections of public streets for surety release and street establishment; and,
- Inspecting swales located in easements and/or right-of-way for single family dwelling and duplexes prior to issuing a certificate of occupancy;

9.3.3 APPLICANT'S ENGINEER

The Applicant's engineer shall be a professional engineer licensed in the State of Washington.

The Applicant's engineer provides required project modifications that occur during the construction process, coordinating with the Contractor and obtaining County approval when significant modifications are required.

Concerns regarding project design or constructability, whether raised by the Contractor, Onsite Inspector, or Development Inspector, shall be addressed by the Applicant's Engineer. The method of addressing the concern shall be confirmed in writing by the Development Inspector with specific follow-up oversight by the Onsite Inspector.

9.4 AUTHORITY TO STOP WORK

The Development Inspector has the authority to stop work when any of the following situations exists:

- The Contractor is working without a valid permit;
- The Contractor is executing work not included in the approved plans;
- Required inspections and tests are not being performed;
- Test results do not meet required specifications; and,
- Construction activities have the potential to adversely impact public or private property or human life.
- Violation of noise, air, or water pollution regulations of a Federal, State or County nature.

9.5 RIGHT-OF-WAY PERMITS

Right-of-way permits are required for all work in the public right-of-way. No person, firm or corporation shall commence work or permit any other person, firm, or corporation to commence work on the construction alteration, repair or removal, cutting and/or paving of any street, alley right-of-way or other public place in the County without first obtaining a written right-of-way construction permit and approved plans from the County.

The Applicant shall secure the services of an Onsite Inspector before applying for and securing a right-of-way construction permit for any given project.

9.6 PRE-CONSTRUCTION MEETING

A pre-construction meeting is required for the following projects:

- Long plats;
- Short plats;

- Binding site plans;
- Commercial projects with frontage and full street improvements; and,
- Other projects which the County deems a pre-construction meeting is required.

The pre-construction meeting shall be held prior to commencing work. The purpose of the pre-construction meeting is to discuss project concerns or issues, construction notification requirements and certification procedures. The Applicant, Applicant's Engineer, Contractor, asphalt and concrete subcontractors, Development Inspector and Onsite Inspector are required to attend this meeting. A pre-construction meeting will not be held if the Contractor, paving and concrete subcontractors, and/or the Onsite Inspector are not present. The County may request fire, water and sewer, or other authorities to attend and/or comment.

The Contractor shall bring a properly planned and coordinated project schedule to the pre-construction meeting.

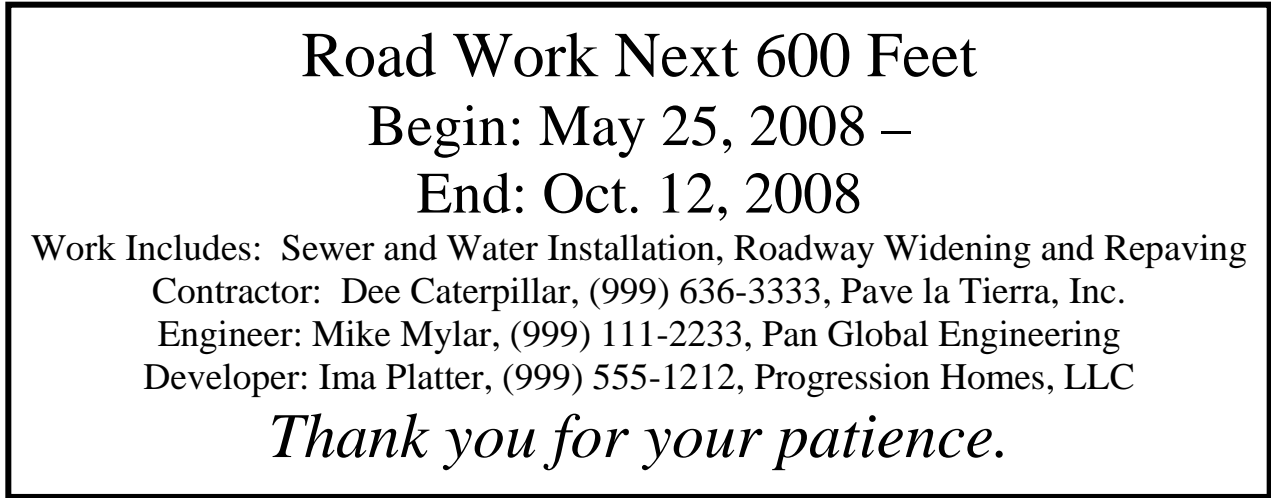
9.7 CONSTRUCTION NOTIFICATION

On major or high profile projects, Asotin County may require that the applicant secure the services of a Public Information Officer to notify the public of the project schedule and provide scheduled updates.

9.7.1 NOTICES OF UPCOMING CONSTRUCTION

Construction warning signs shall be securely posted 14 days prior to construction of short plats, long plats, or any other project with street construction. Signs shall be placed at all ingresses to the project area and shall be clearly visible from the right-of-way. A typical sign is included in Figure 9-1. The Contractor shall notify the Onsite Inspector within 72 hours of installing the sign(s).

FIGURE 9-1 TYPICAL SIGN



The signs shall be posted for the duration of the project and shall conform to the following:

- The signs shall be made of materials that are able to withstand weather for the duration. The signs shall be maintained to remain readable from the public right-of-way;
- The sign supports shall meet current safety standards;
- The bottom of the sign shall be 7 feet above ground;
- Lettering shall be easily readable and shall be per Table 9.1; and,
- The signs shall include the information required in Table 9.1.

TABLE 9.1 REQUIRED SIGN INFORMATION PERMITS

INFORMATION ON SIGN	MINIMUM TEXT HEIGHT
Road Work Next # Miles/Feet	2 ½ inch
Begin: Month, Day Year – End: Month, Day Year	2 inch
Work includes: New Street, Utility Installation, Paving...	1 inch
Contractor: Contact Name, Phone Number, Company Name	1 inch
Engineer: Contact Name, Phone Number, Company Name	1 inch
Developer: Contact Name, Phone Number, Company, Name	1 inch
Thank you for your patience	2 inch

9.7.2 NOTICES OF UTILITY SHUTDOWN AND ACCESS LIMITATIONS

Affected residents and businesses are to be notified at least 24 hours in advance of when their utilities (water, electricity, etc.) will be interrupted and/or access limitations and to be informed of the duration of the interruption.

The Contractor shall provide written notification and hand deliver the notification to the affected residents and businesses. The Contractor shall provide a copy of the notification and a list of the citizens/businesses notified to the Development Inspector. This information shall be included in weekly reports as provided by the Onsite Inspector.

9.7.3 NOTICES FOR INSPECTION

The Contractor shall inform the Onsite Inspector at least 24 hours in advance of paving operations or installation of drywells. Seventy two hours notice is required for work performed during the weekend or Monday. It is the responsibility of the Contractor to coordinate with the Onsite Inspector for all required inspections and required testing.

The County will not accept any improvements failing to meet the minimum number of required tests or failing to meet the required test results, and a stop work order may be issued.

9.8 INSPECTION REQUIREMENTS

9.8.1 REPORTING

The County's Onsite Inspector shall prepare weekly project summary reports. All lab and field-testing reports shall be included in the weekly project summary reports and in final certification packages. Test reports that show failing tests shall have follow-up test reports that show passing tests for the area of failure. Onsite samples shall be used for testing. Any test or inspection failures shall be fully recorded with subsequent documentation detailing how the test failure item was unsuccessful and how item was corrected.

9.8.2 MINIMUM MATERIAL TESTING FREQUENCIES

Material testing is required as specified in Appendix 9A. The frequency of testing may be increased at the discretion of the Onsite Inspector or the Development Inspector. Any known special areas of concern shall be addressed with increased testing frequencies based on sound engineering judgment. Wet weather conditions may also require additional testing frequencies.

The Onsite Inspector shall coordinate with an approved materials lab the number of tests, locations, etc. The Applicant shall be responsible for field materials testing and lab costs. A material supplier may not perform testing for certification purposes.

9.8.3 DRAINAGE SWALE AND DRAINAGE FACILITIES INSPECTION

The Onsite Inspector shall verify that the volume of each finished drainage swale equals or exceeds the design volume of the swale at a 6-inch and 1-foot depth. Additionally, the Onsite Inspector shall verify that there is adequate and continuous grade from the street to the swale for the effective conveyance of runoff. If these items are deficient, the Onsite Inspector shall notify the Applicant's engineer to determine a solution. Elevation sensitive aspects of installed materials, such as drywell rims, etc., shall be verified as within normal industry tolerances (i.e., drywell rim elevations +/- 5/100').

At the discretion of the County, a test of the facility may be conducted to demonstrate adequate performance. The test shall be performed in the presence of the Onsite Inspector.

The Onsite Inspector shall inspect on a continuous basis the installation of pipe, pipe zone material, drywells, catch basins, and other drainage structures or facilities.

All aspects of the drainage facility, including landscaping, irrigation and establishment of specified vegetation, shall be completed in accordance with the accepted plans. An exception may be granted for single-family or two-family residential subdivisions where the completion of the swales is not practical until such time as the dwellings are constructed. In these cases, the Applicant shall rough-grade the swales to the required volume, install all drywells, inlets, and curb drops and other structures in accordance with the accepted plans.

Erosion control measures shall be implemented to protect the installed drainage structures and to prevent erosion and/or failure of the swale side slopes. This includes, but is not limited to, lining the swale with geo-fabric that can be removed along with accumulated silt, until the swale is final-graded and vegetated.

The completion of landscaping, irrigation, and establishment of specified vegetation shall be required prior to issuance of the final Certificate of Occupancy or final inspection for any associated dwelling. For single and two-family dwellings, it shall be the responsibility of the Builder to satisfy these requirements.

Acceptance of performance sureties, in lieu of establishing vegetation, shall be permitted only when completion of improvements prior to final land action or permanent Certificate of Occupancy is impractical because of cold weather not suitable for the establishment of vegetation.

9.8.4 SWALE INSPECTION DURING WARRANTY PERIOD

The Applicant's engineer and the Development Inspector shall monitor performance of swales during the construction and warranty periods for proper percolation. (See Section 9.14.2). Swales that do not percolate properly shall require corrective work or measures and these measures are the financial responsibility of the Applicant.

9.8.5 UTILITY INSPECTIONS

Whenever pipe installation or pipe zone material placement and compaction is underway, the Applicant's engineer, or his/her representative, shall observe the work and provide daily reports to Asotin County on a continual basis.

9.9 MISCELLANEOUS

9.9.1 CONFLICT RESOLUTION

During the construction process, occasional differences may arise between the Applicant's engineer or Contractor and County staff regarding interpretation of policies, standards or guidance documents. When the Applicant's engineer or Contractor does not agree with an interpretation made by County staff, the Applicant's engineer may appeal to the County Engineer, as appropriate. The determination by the County Engineer is final.

9.9.2 CHANGES DURING CONSTRUCTION

Changes during construction that affect the scope of the project and/or the accepted individual lot plans shall be submitted for review by the County. Minor changes do not require County review, but shall be discussed with the Onsite Inspector and documented in the daily and weekly inspection reports. In the event the onsite inspector and the development inspector disagree on minor or major changes, the County engineer shall make the final decision on required course of action.

The Onsite Inspector or Development Inspector shall review and approve any significant field changes to the design plans and permits that have prior approval. Review and acceptance of any changes to approved plans for utility, site improvements and street right-of-way work shall be require the oversight of both the utility operator as well as Asotin County.

9.9.3 CONSTRUCTION COMPLAINTS

Complaints from citizens regarding the project shall be documented and shared with the County's Onsite Inspector and resolved by the Applicant's engineer.

On major or high profile projects, Asotin County may assign a Public Information Officer to notify the public of project schedule and provide weekly up-dates (See Section 9.2).

9.10 FINAL WALK -THROUGH

When requested by the Applicant, the Onsite Inspector shall prepare a punch list. When the punch list items have been addressed, the Applicant shall schedule a walk-through with the Onsite Inspector and the Development Inspector.

The Onsite Inspector shall then prepare a certification package in accordance with Section 9.12. The Applicant continues to be responsible for correction of all deficiencies until the County accepts the project unless as noted in Section 9.12. It is suggested that the Applicant consider taking verification photographs immediately following the final walk-through. Verification photographs can be helpful in resolving cases of damage by third parties (utility companies, builders, landscapers).

9.11 RECORD DRAWINGS

After the final walk-through, the Onsite Inspector shall prepare record drawings for the project. Record drawings shall be stamped by the Applicant's engineer and have a signed certificate statement saying:

"I have reviewed the construction and to my knowledge I find it to be in general conformance with the approved plans."

Changes from the originally accepted documents shall be clearly noted with "clouds" on the approved plans and changes shall be noted in the revision block. Revised notes, elevations, grades or other text shall be lined through. Clean new sheets are not desired. Any changes to easements shall be clearly shown on the record drawings. Record drawings shall be marked "Record Drawings."

If a change represents a deviation from the design intent or system performance in the judgment of the Applicant's engineer, then it shall be clearly shown. Spot elevations (on swales, curb, gutter, etc.) to depict final grades should be taken and compared with the final design. Differences shall be noted on record drawings. Significant changes shall be coordinated with the Applicant's Engineer. Elements of the plans that were not built shall have a design change acceptance from the County engineer prior to final inspection and submittal of record drawings.

9.12 PROJECT CERTIFICATION

The Onsite Inspector shall prepare a certification package for the project. The package shall include weekly reports, material test reports, the certification checklist (Appendix 9B), truck tickets, all related construction documents, one set of Mylar record drawings; and one paper copy of the stamped Mylar.

Asotin County shall review the certification package within a 2-week period and shall notify the Applicant if the project is accepted to go to warranty. This Notice of Substantial Completion is conditioned upon no further deficiencies becoming evident before the County accepts the project.

Upon notification that the project is accepted and upon receipt of the warranty surety, the warrant period per Section 9.14.2 shall begin.

9.12.1 CERTIFICATION OF DRAINAGE FACILITIES

Stormwater facilities located in private tracts shall be certified by the Applicant's engineer prior to final plat approval for plats, short plats, and binding site plans. The certification of stormwater facilities located within easements and right-of-way for single-family and two-family dwellings may be delayed until the issuance of the final certificate of occupancy.

Drainage facilities associated with a commercial building permit shall be certified, as specified in Section 9.12, prior to issuing a final Certificate of Occupancy.

9.13 PERFORMANCE SURETY

The Applicant shall complete all plan improvements prior to the approval of final plat, short plat, or binding site plan or the issuance of certificate of occupancy. A performance surety may be submitted in lieu of completion of the actual construction of required improvement prior to the approval of the final plat, short plat, binding site plan or certificate of occupancy as described in the sections below. See Section 9.13.1 for surety exclusion.

9.13.1 SHORT PLAT, LONG PLAT AND BINDING SITE PLAN/SURETY EXCLUSION

No surety in lieu of construction shall be allowed for the construction of utilities or streets, including pavement, curbs and gutters.

A cash surety in lieu of the completion of sidewalks, drainage improvements, or driveway approaches may be allowed if approved by the County Engineer, as long as the following conditions are met:

- A completion schedule is submitted and approved.
- The improvements are sufficiently complete as to allow proper function and operation of the transportation, sewer, water, and stormwater systems, as determined by the County Engineer;
- The improvements shall be completed within one year of the date of final approval, and,
- The Applicant does not have any outstanding improvements that have not been timely completed within other plats, short plats, binding site plans, or building permits.

9.13.2 SURETY RELEASE

The performance surety shall be released when all of the following conditions have been met:

- A certification package is accepted by the County;
- The Applicant has paid all costs incurred and owed or payable to the County in full;
- All monuments have been reset and referenced by a surveyor; and,
- The Applicant has submitted a warranty surety for improvements in the public right-of-way and easements as specified in Section 9.14.

9.14 WARRANTY SURETY

All projects with improvements in the public right-of-way or easements shall submit to the County a warrant surety. The warranty surety shall guarantee against material and/or workmanship defects in street construction, utility work within the right-of-way and easements, and or/or drainage facilities as required by the County.

9.14.1 SURETY AMOUNT

The Applicant's engineer shall submit quantities and extrapolated costs reflecting the complete nature of the work that has been performed within or on the right-of-way, easements, or on the frontage of County right-of-way. The Development Inspector will enter that information into an updated calculation spreadsheet reflecting a total valuation of the work to be performed. The Development Inspector will then calculate 20 percent of that total work to be performed, but not less than \$10,000.00, and request a surety for that amount from the Applicant. The surety shall be held by the County for 2 years.

9.14.2 WARRANTY DURATION

The surety shall remain in effect for 2 years from the date of acceptance of the streets by the County. Thirty days prior to the expiration of the warranty, the Applicant shall retain a professional engineer to inspect the improvements. Any deficiencies noted shall be repaired prior to the release of the surety. If the inspection is not conducted and the deficiencies are not repaired, the warranty surety shall be renewed by the Applicant until this requirement is satisfied.

9.14.3 ACCEPTABLE SURETIES

The warranty surety shall be a letter of credit or cash savings assignment. Bonds are not accepted by the County. Examples of sureties are provided in Appendix 9C.

9.14.4 TIME FRAMES TO COMPLETE REPAIR

The warranty surety shall be used to correct deficiencies due to materials and workmanship.

At any time before the end of the warranty period, the County may notify the Applicant of needed repairs. If repairs are considered to be an imminent danger to the public's health, safety, and welfare, the Applicant shall act within 24 hours to complete the repair.

If the work is not considered a safety issue, the Applicant has 10 business days to schedule the work, and 60 calendar days to complete the work. Extensions of time may be considered when necessary due to weather constraints.

When the project is accepted and in warranty or after releasing the warranty surety, the Builder is responsible for any damage to the improvements along the lot frontage. Any deficiencies shall be corrected by the Builder prior to the issuance of the final Certificate of Occupancy for the structure.

9.14.5 FAILURE TO COMPLETE REPAIR

If the Applicant has not completed the warranty repairs in the time frame specified, the County may choose to conduct the necessary repairs. The County will either invoice the Applicant or collect from surety for all costs for related work plus a \$500.00 administrative fee.

9.14.6 RESPONSIBILITY FOR MAINTENANCE

The Applicant is responsible for maintaining all public improvements, including street sweeping, throughout the warranty period.

9.15 STREET ESTABLISHMENT

When the project has been certified and accepted, the Applicant can request to receive provisional acceptance after posting a warranty surety in accordance with Section 9.14. The Applicant is responsible to repair failures during the warranty period in accordance with Section 9.14.2. Final acceptance shall be granted after the warranty period assuming all deficiencies have been corrected.

When the project receives final acceptance, the Development Inspector shall recommend to the County Engineer that the streets be established.

ATTACHMENT INDEX

- Appendix 9A - Minimum Material Testing Frequencies
- Appendix 9B - Final Certification Checklist – Sample
- Appendix 9C - Examples of Sureties

APPENDIX 9A- Minimum Material Testing Frequencies

MINIMUM MATERIAL TESTING FREQUENCIES

The following testing frequencies represent the minimum requirements during construction. If individual tests fail to meet specifications, additional testing shall be conducted to assure conformance.

Earth Embankment	-1 density test per lift per 300 cubic yard (CY) placed
Road Subgrade	-1 density test per 200 LF of lane or equivalent
Crushed Rock	-1 density test per 200 LF of lane or equivalent per lift
Trench Embankment	-1 density test per 5 FT of depth per 100 LF of trench
Crushed Rock under Curb and Sidewalks	-1 density test per 200 LF of curb of walk length per lift (Unless tested as part of the roadway crushed rock)
Concrete for Curbs and Sidewalks	-1 set (4 cylinders) per 100 CY (Minimum 1 set per day) -1 set of air, slump, temperature, etc. on first truck and with cylinders thereafter
Aggregate Quality	-1 gradation test per 2,000 CY (Minimum 1 test per day) -1 Sand Equivalent test per 2,000 CY (Minimum 1 test per day) -1 Fractured Face test per 2,000 CY (Minimum 1 test per day)
Asphalt Pavement	-1 Lot = 400 tons -5 random density tests per lot (Minimum 5 tests per day) -1 test to verify gradation per 1,000 tons (Minimum 1 test per day) -1 test to verify asphalt content per 1,000 tons (Minimum 1 test per day) -1 test to verify maximum density per 1,000 tons (Minimum 1 test per day)

APPENDIX 9B– Final Certification Checklist (Sample)

Project: _____

Certificate Head Letter: _____

Statement of intent to certify the project.
PE Stamp and Signature.

Record Drawings Mylar Drawings: _____

PE Stamp and Signature
Lettered certification statement (9.10 Asotin County Standards)

Project Documents: _____

Daily Inspection Reports: _____

Field Reports: _____

Inspection of Asphalt Paving: _____

 100% On site inspection during paving _____

Compaction Reports:

 Sewer trench lifts. _____

 Water trench lifts. _____

 Utility trench lifts. _____

 Crushed Rock Lifts. _____

Material Documents: Field and Laboratory Tests: _____

	Field	Test	Lab	Test
Concrete	_____	(Slump, Air Content, Temp).	_____	(Break Test)
Sub-Grade:	_____	(Compaction)	_____	(Gradation, Proctor)
Crushed Rock	_____	(Compaction, Depth)	_____	(Gradation, Proctor)
Asphalt	_____	(Compaction, Thickness)	_____	(Rice, Gradation, Oil Content)
On Site Inspections of Drainage Items:				
Drywells:	_____			
Gutter Inlets:	_____			
Culverts:	_____			
Sidewalk Vaults:	_____			
Drainage Ditches:	_____			
Other:	_____			

Incoming/Outgoing Correspondence _____

APPENDIX 9C- Examples of Sureties

LETTER OF CREDIT
(BANK LETTERHEAD)

IRREVOCABLE STANDBY LETTER OF CREDIT

Date:

Beneficiary: _____

Name:

Address:

Phone:

Attn:

Applicant: _____

Asotin County

P.O. Box 160

Asotin, WA 99402

Project # & Name:

Letter of Credit Number:

Expiry Date:

Our Counters Presently Located At:

Amount:

Not exceeding
USDollars _____ (written dollar
amount)

Surety is for the following (*check one*):

- Performance surety for public improvements
- Performance surety for private improvements
- Warranty surety for public improvements

Itemized as follows:

Roadway Improvement & Inspection: (Amount- numeric and written)

This page 1 forms an integral part of credit number _____

We hereby issue this irrevocable standby letter of credit for (project name and number) available by your draft(s) drawn on us and accompanied by the following documents:

1. A signed statement from the Asotin County Engineer's Office reading exactly as follows: "I, the undersigned duly authorized representative of the Asotin County Engineer's Office, hereby certify that the draft drawn under this letter of credit represents the amount of money required to complete the installation of street improvements including grading, gravel, paving, curbs, sidewalks, storm drainage, drainage swales, monuments, street signs, inspection, construction engineering and/or other work as is incidental and related thereto in accordance with the acceptable civil plans and specifications as submitted to and approved by the Asotin County Engineer's Office on (date of approved plans)".
2. The original of this letter of credit.

This page 2 forms an integral part of credit number _____

SPECIAL CONDITIONS

1. Any and all banking charges other than those of the issuing bank are for the account of the beneficiary.
2. It is a condition of this letter of credit that it shall be automatically extended, without amendment, for an additional period of one year from the present expiration date or each future expiration date, unless we have notified you in writing not less than thirty (30) days before such expiration date, that we elect not to renew this letter of credit and have received from the County Engineer a letter approving the non-renewal of this letter of credit. All written notifications shall be sent via registered mail.

Drafts drawn under this credit must bear the clause: "Drawn under (bank's name and letter of credit number)."

This credit is subject to the "Uniform Customs and Practice for Documentary Credits (1993)", International Chamber of Commerce Publication No. 400.

We hereby engage with you that draft(s) drawn and/or documents presented and negotiated under and in compliance with the terms of this irrevocable standby letter of credit will be duly honored upon presentation to us.

The amount of each drawing must be endorsed on the reverse of this credit by negotiating bank.

A charge of USD25.00 will be deducted from the proceeds of any drawing presented with discrepancies.

NAME OF ISSUING BANK

Signature and signatory's authority

This Page 3 forms an integral part of credit number _____.

(BANK LETTERHEAD)

SPECIAL ACCOUNT ASSIGNMENT FOR CONSTRUCTION SURETY

For security purposes only, _____
("DEVELOPER") has deposited funds in a special account for the purpose of surety for the full and faithful performance by the DEVELOPER of the construction of certain street traffic improvements, monuments and drainage facilities for _____ ("PROJECT") specified in the accepted approved civil plans for said PROJECT on file in the Office of Asotin County Public Works Department (County Engineer).

Surety is for the following (*check one*):

- Performance surety for public improvements
- Performance surety for private improvements
- Warranty surety for public improvements

The DEVELOPER hereby designates ASOTIN COUNTY, a code County of the State of Washington, beneficiary of the following:

Special Account Number

_____.

in the face amount of \$XXX

and held in and by

Bank Name

Bank _____

_____ Branch (the "BANK")

Funds deposited in this account may be released to the DEVELOPER or any other party only with the prior written consent and agreement of the County Engineer.

The undersigned DEVELOPER hereby authorizes the BANK to pay over to ASOTIN COUNTY all, or a sufficient portion of monies on deposit in the special account referenced hereinabove, upon (1) written documentation being received from the County Engineer indicating that the purposes for which the special account was assigned have not been fully and faithfully performed as required; and (2) a statement from the County Engineer of that amount of money which the COUNTY deems necessary to complete such obligation. Upon receipt of such written documentation, the DEVELOPER hereby authorizes the BANK to release to Asotin County that amount of money requested, up to the maximum amount in the special account.

Said SPECIAL ACCOUNT ASSIGNMENT FOR CONSTRUCTION SURETY PURPOSES is made as security for the full and faithful performance by the DEVELOPER to complete the improvements in accordance with the accepted plans.

During the construction period, Asotin County may request payment from the BANK for the purposes of completion of improvements, by providing documentation to the BANK. Asotin County's documentation shall indicate that the construction of the improvements has not been performed in accordance with the accepted plans for the PROJECT and therefore the purposes of said SPECIAL ACCOUNT ASSIGNMENT have not been fully and faithfully performed as required. The County Engineer's documentation shall also include a statement of the amount of money that Asotin County deems necessary to complete such obligation. Upon the BANK'S receipt of such written documentation, the DEVELOPER hereby authorizes the BANK to release to ASOTIN COUNTY that amount of money requested, up to the maximum amount in the special account.

A copy of all such documentation and correspondence with the BANK shall be provided by the County Engineer to the DEVELOPER at the address noted below.

DATED this _____ day of _____, 20__.

BANK: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

PHONE: _____

BANK REPRESENTATIVE:

NAME: _____

TITLE: _____

State of Washington)

)ss

County of Asotin)

I certify that I know or have satisfactory evidence that (name of person) is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument, on oath stated that (he/she) was authorized to execute the instrument and acknowledged it as the (type of authority, e.g., officer, trustee, etc.) of (name of party on behalf of whom instrument was executed) to be the free and voluntary act of such a party for the uses and purposes mentioned in the instrument.

Dated _____

Notary Public in and
For the State of Washington.
My Appointment Expires: _____

DATED this _____ day of _____, 20__ .

CHAPTER 10 – MAINTENANCE

CHAPTER 10 – MAINTENANCE 1

 10.1 INTRODUCTION 1

 10.2 MAINTENANCE RESPONSIBILITY 1

 10.2.1 PUBLIC ROADS..... 1

 10.2.2 PRIVATE ROADS AND DRIVEWAYS 1

 10.3 REQUIRED DOCUMENTS 2

 10.3.1 HOMEOWNERS’ AND PROPERTY OWNERS’ ASSOCIATIONS 2

 10.3.2 OPERATION AND MAINTENANCE MANUAL 3

 10.3.3 FINANCIAL PLAN..... 3

 10.3.4 CONVERSION FROM PRIVATE TO PUBLIC ROAD..... 3

CHAPTER 10 – MAINTENANCE

10.1 INTRODUCTION

This chapter establishes the parties responsible to maintain the public and private infrastructure created with development. In addition, it presents the documents required to be submitted during the review of the proposed project.

10.2 MAINTENANCE RESPONSIBILITY

10.2.1 PUBLIC ROADS

The County maintains all public roads (curb, gutter, and pavement) and public stormwater drainage structures (drywells, inlets and pipes) located within the public road right of way that serve public road runoff, upon acceptance of the public infrastructure.

The County does not maintain sidewalks, or landscaping of swales or grass strips located adjacent to the curb or sidewalk on local roads, even if located within the public right-of-way.

Property owners are responsible for the maintenance of these features as well as tree trimming. Maintenance means preservation of the original area, volume, configuration and function of the stormwater facility as described in the plans. Maintenance also includes mowing, irrigating, and replacing when necessary the lawn turf within the swales.

10.2.2 PRIVATE ROADS AND DRIVEWAYS

The County does not maintain any of the infrastructure located on private roads or private driveways. Private roads and driveways shall have a permanently established tract or easement providing legal access to each lot served. The project proponent is to provide for the perpetual maintenance of the private roads, private driveways, and all elements of the stormwater system located outside the public right of way and border easements.

Access will be granted to the County to provide emergency maintenance to the private facilities. The cost of the emergency maintenance will be the responsibility of the property owners or the Homeowners' Association in charge of maintenance.

10.3 REQUIRED DOCUMENTS

When applicable, the following maintenance-related items shall be submitted for all projects with private roads and/or common areas:

- A copy of the conditions, covenants and restrictions (CC&Rs) for the homeowners' association (HOA) or property owner's association (POA) in charge of operating and maintaining all elements of the private road system;
- An Operations and Maintenance (O&M) Manual;
- A Financial Plan outlining the funding mechanism for the operation, maintenance, repair, and replacement of the private road system;
- Road Maintenance Agreements, as applicable;
- Reciprocal use agreements, as applicable; and,
- Drainage easements, as applicable.

Refer to the Spokane Regional Stormwater Manual for maintenance requirements for stormwater facilities.

10.3.1 HOMEOWNERS' AND PROPERTY OWNERS' ASSOCIATIONS

A homeowners association, or alternate entity acceptable to the County, shall be formed to maintain the infrastructure located outside of the public right of way. For commercial/industrial and multi-family residential developments with shared access and multiple owners, a property owners' association or similar entity shall be formed, or a reciprocal-use agreement executed.

A draft copy of the CC&Rs for the HOA or POA shall be submitted with the civil and drainage plans. The CC&Rs shall summarize the maintenance and fiscal responsibilities of the HOA or POA, refer to the O&M Manual (Section 10.3.2), and include a copy of the sinking fund calculations and Financial Plan (Section 10.3.3). Annual HOA or POA dues shall provide funding for the annual operation and maintenance of private roads, private driveways, and common areas. The sinking fund calculations shall also include costs for the maintenance of the stormwater system (and all facilities associated with the stormwater system (Refer to Chapter 11 of the Spokane Regional Stormwater Manual).

Homeowners' associations and property owners' associations are to be non-profit organizations accepted by the Washington Secretary of State. A standard business license is not acceptable for this purpose.

10.3.2 OPERATION AND MAINTENANCE MANUAL

All projects with private roads and/or common areas used for stormwater management are required to have an O&M Manual. Projects with private driveways may also be required to submit an O&M Manual. The O&M Manual must include, at a minimum:

- Description of the entity responsible for the perpetual maintenance of the private roads and/or common areas including legal means of successorship;
- Description of road and stormwater maintenance tasks to be performed and their frequency;
- A description of the source control best management practices (BMPs) such as road sweeping (Refer to Chapter 10 of the Spokane Regional Stormwater Manual);
- A list of the expected design life and replacement schedule of each component of the private road and/or stormwater management system;
- A general site plan (drawn to scale) showing the overall layout of the site; and,
- Contact information for the design engineer.

10.3.3 FINANCIAL PLAN

To provide guidance regarding financial planning for maintenance and replacement costs, a Financial Plan is required. The Financial Plan shall include the following items:

- A list of all private roads and/or stormwater management facilities and expected maintenance activities and associated costs;
- Sinking fund calculations that take into consideration probable inflation over the life of the infrastructure and estimates the funds that need to be set aside annually; and,
- A mechanism for initiating and sustaining the sinking fund account demonstrating that perpetual maintenance of private roads and/or stormwater management facilities will be sustained.

10.3.4 CONVERSION FROM PRIVATE TO PUBLIC ROAD

Converting private roads to public ownership is generally discouraged. However, the following requirements shall be met. The applicant will submit to the Public Works Department any and all available construction drawings of the subject road along with an engineer stamped analysis of the pavement and sub-grade as determined from test sites separated no greater than 100 feet apart or as required by the County. Digital

photos at every 50 feet or as the County requires will be submitted with the application. The County will review the information, visually check the road and determine what would be necessary to bring the roadway up to current County standards. A letter of requirements will be issued by the County that the applicant(s) will have to meet before the road is accepted as a public right of way. The applicant will prepare a legal description of the road and execute a deed of trust transferring the property to the County once the physical deficiencies have been corrected and accepted.