ORDINANCE NO. 15 - 08

AN ORDINANCE REPEALING ORDINANCE NO. 94-47AND ESTABLISHING NEW ASOTIN COUNTY ROAD STANDARDS

WHEREAS, the former Asotin County Road Standards were revised and adopted in 1994 under Ordinance No. 94-47; and

WHEREAS, Washington State regulations addressing road standards have been revised since 1994; and

WHEREAS, the Asotin County Board of Commissioners desires to update the road standards to meet current regulations and community needs; and

WHEREAS, Washington State RCW 36.32.120(7) requires public hearings for the adoption or amendment of County ordinances; and

WHEREAS, a public hearing was held on February 23, 2015, and a period of public written comment was afforded for the public to address concerns regarding the revised road standards; and

WHEREAS, all public comment was evaluated and incorporated into the attached Asotin County Road Standards where deemed appropriate by the Board of County Commissioners.

NOW THEREFORE, BE IT ORDAINED, that the attached Asotin County Road Standards be adopted as presented, and that these standards may be amended in the future;

BE IT FURTHER ORDAINED, that Ordinance No. 94-47 and any and all prior resolutions and ordinances relating to Asotin County Road Standards are hereby repealed and replaced and superseded by this ordinance; and

BE IT FURTHER ORDAINED, that if any section, subsection, paragraph, sentence, clause, or phrase of this ordinance is declared unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining parts of this ordinance; and

BE IT FURTHER ORDAINED, whenever a reference is made to this ordinance or to any portion thereof, the reference shall apply to all amendments, corrections, and additions to the standards heretofore, now or hereafter made.

BE IT FURTHER ORDAINED, the attached Asotin County Road Standards shall be in full effect immediately upon its adoption. Any substantially completed (in the opinion of the Asotin County Board of Commissioners) 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 the attached Asotin County Road Standards, shall conform to said standards. Any substantially complete plats, plans, specifications or other related documents pertaining to roadway and drainage design submitted to Asotin County for review prior to the effective date of the attached Asotin County Road Standards, shall be subject to design requirements contained in the former Asotin County Road Standards, Ordinance No. 94-47.

Dated this 2 day of March, 2015.

ATTEST:

Vivian Bly
Clerk of the Board

APPROVED AS TO FORM:

Benjamin Nichols
Prosecuting Attorney
WSBA #23006

ASOTIN COUNTY BOARD OF COMMISSIONERS

Jim Jeffords, Chairman

Brian Shinn, Vice-Chair

Jim Fuller, Member

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Asotin County Public Works

ASOTIN COUNTY ROAD STANDARDS

Adopted March 2, 2015

CHAPTER 1 – GENERAL INFORMATION

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. The adoption of this document supersedes Ordinance No. 94-47 which is hereby repealed. The purpose of this document is for 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.

These Standards may be amended from time to time. All requests for amendments or revisions to these Standards from other County departments, other agencies or other outside parties shall be provided to the County Engineer for evaluation. Such requests shall be in writing and shall provide such supporting information as may be required by the County Engineer.

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 adopted Asotin County Road Standards will be reviewed for conformance with these standards.

The standards discussed in this manual apply equally to new development as well as redevelopment. Additionally these standards apply to all proposed work within Asotin County to be performed by private development, public utility purveyors, other agencies and Asotin County contractors and County forces. The terms "County Funded Projects", "Private development", "Contractor/Developer", and "Utility Purveyor", and any variation thereof, are used throughout these specifications and shall apply on all requirements within these specifications and standards.

Asotin County shall not be held financially or materially responsible for any and all claims, cost over-runs, or damages resulting from any omission of the specific terms "Private development", "Contractor/Developer", "Applicant", "Owner" or "Utility Purveyor" in any section or sub-section within these specifications and standards. Further, it shall be the sole responsibility of all private developers and their contractors to comply fully, without any compensation from Asotin County, to meet all requirements as specified herein and/or shown on the Standard Details.

Any change required by the County to meet these specifications and standards on the plans submitted for review and previously approved of any private development, or change required by the County during construction as a result of differing plans or, unforeseen conditions, does not constitute an agreement or obligation for the County to compensate the developer or their contractors for said changes.

The County recognizes private developments may seek and receive bids prior to plan approvals by the County. However, it does not relieve the developer/contractor of the obligation to comply with these specifications and standards, and it shall be the sole financial responsibility of the private developer and their contractors to comply with all conditions of approval on the recorded set of plans approved by the County at the time of

issuance of all permits and inspections. The County takes no responsibility for financial impacts that this may have on any project and the private developer and the Contractor shall not be entitled to any claim for compensation as a result of complying with the recorded plan set.

The information contained in this manual cannot provide for all situations and conditions that may be encountered. In instances where specific provisions contained within this manual may not provide for the encountered situation or condition, deviation from these standards shall be submitted by licensed professional engineers, detailing the request for the deviation for the change. 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 deviation from these Standards will be reviewed to ensure that such deviation or variance will produce an equivalent result.

The design requirements contained within this manual do not set legal standards of care, but provides a minimum basis for project engineering solutions. This chapter contains general information on this manual and the Asotin County agency organization.

1.2 CONTACT INFORMATION

County Commissioners

PO Box 250
95 Second Street,
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

Regional Stormwater Program

PO Box 160
135 2nd Street 3rd Floor
Asotin, WA 99402
Phone (509) 243-2071
Fax (509) 243-2003

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, latest edition.

O. Lewis Clark Valley Metropolitan Planning Organization (LCVMPO) 20-Year Long Range Transportation Plan.

P. Asotin County Bicycle and Pedestrian Plan.

Q. WDOT Highway Runoff Manual.

R. Eastern Washington Low Impact Development (LID) Guidance Manual (http://www.wastormwatercenter.org/ew-lid-guidance-manual).

S. Guidance for UIC Wells that Manage Stormwater.

1.4 REQUEST FOR DEVIATION FROM STANDARDS

The design standards contained herein shall be used as a minimum basis for design for all construction activity proposed within Asotin County rights of way, either existing or proposed. 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 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 Marshall, County Planner and Regional Stormwater Program Coordinator will review all projects for adherence to codes, specifications and ordinances. 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, utility, agency 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 based upon the topography, anticipated operating speed, the adjacent land use, and the functional classification of the roadway.

Developer – shall be used to mean the Owner of the proposed project 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.

Performance Bond/Surety - means any of the following forms of performance security provided at Permittee's option:

A. Bond;
B. Cash deposit;
C. An assignment of a savings account;
D. Letter of Credit, in form acceptable to the County;
E. Other financial guaranty in form acceptable to the County;

Private Road – shall mean local access roads that are privately owned and maintained by legally responsible owners, home owner associations, or other such entities as may be described and recorded on file with the Asotin County Auditor's Office

Project – shall mean the design and construction of roadways, utilities, or other such infrastructure associated with land development activities.

Record Drawings – shall mean the plan set which is sealed by both an Engineer and Surveyor 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, pedestrians and bicycles movements, exclusive of an improved sidewalk.

Rural Area – the area outside of the 20-year Transportation Planning Boundary as identified by the Lewis Clark Valley Metropolitan Planning Organization.

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 by the Lewis Clark Valley Metropolitan Planning Organization.

Warranty Bond/Surety - shall mean a financial guarantee by the Developer that infrastructure required for a project, as well as any applicable roadway repairs or patching, has been constructed and certified according to the plans, specifications and all applicable standards.

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.

CRP – County Road Project

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

RCW – Revised Code of Washington

SEPA – State Environmental Policy Act.

WAC – Washington Administrative Code

WDOT – Washington State Department of Transportation

LID – Low Impact Development

LCVMPO - Lewis Clark Valley Metropolitan Planning Organization

UIC – Underground Injection Control Wells also known as Drywells

CHAPTER 2 – PLAN APPROVAL PROCESS AND TYPICAL IMPROVEMENTS

CHAPTER 2 – PLAN APPROVAL PROCESS AND TYPICAL IMPROVEMENTS

2.1 INTRODUCTION

This chapter presents the plan approval process and requirements to be fulfilled by development projects, regardless of size and/or scope. The requirements are based primarily on the goals and policies contained in Asotin County's Comprehensive Plan, with the primary objective 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;

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;

E. Stormwater construction permits;

F. Utility projects to effect planned repairs, maintenance, connections to, and adjustments, and for the installation and construction of new utility systems, equipment, or other such facilities as may be needed to supply the public with, water (both potable and non-potable),sanitary sewer, storm water, power, telecommunications, and gas.

Emergency utility repairs within the right of way are exempt from the plan review process but the Owner or contractor shall notify the Asotin County Public Works Department immediately upon discovery and any permits shall be issued after the fact. In such an event the Owner or contractor shall conform to these standards and specifications with respect to road repairs and restoration of the site.

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. 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 may be applicable:

- Appropriate development applications have been obtained and review fees have been paid;
- Applicable road vacations have been approved and recorded;
- Applicable boundary line adjustments have been approved and recorded,

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. The number of sets of the final approved plans will be provided with the approval letter. The County does not provide detailed review of plans for the installation of water and sewer systems or connections thereto as these are reviewed by the Asotin County Public Utility District (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 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; however, if the County's review misses or fails to identify deficiencies related to such, this does not absolve the Applicant's responsibilities to meet these requirements. 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 building/development permit, or staff recommendation to the Board of County Commissioners for preliminary plat approval, the following need to be submitted, reviewed, and accepted to staff satisfaction:

- 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.

- Stormwater Pollution Prevention Plan (SWPPP) or Erosion and Sediment Control (ESC) plan.
- Pavement Design report (refer to Chapter 7 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 9)
- 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 ready to be 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 – a pre-construction meeting is required on projects greater than one acre, and;
- a listing of some items that will be required for either approval of the certificate of occupancy (for building permits) or final plat (for land division projects). Note – Public Works does not approve Temporary Certificates of Occupancy.

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, and storm water 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
- Americans with Disabilities Act Inventory Plan (LCVMPO)
- 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 Sheriff's Department, Fire, Public Works, Regional Stormwater Program, Building and Planning 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 6 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 6.9 Approach Design Criteria);

J. Engineer's design shall consider ease of maintenance when designing public roads and associated facilities;

K. For new local access roads - short plats resulting in four (4) or fewer lots must improve any proposed local access public road with a minimum 28-foot wide or 24-foot wide (private road), paved surface, built to local-access Road Standards, see chapter 6. 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.

L. Surface Treatment – All local access roads within the 20 Year Urban Boundary shall be constructed in accordance with Chapter 7.

M. All other land division projects must fully improve new local access roads to the same standard as K.

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. Low Impact Development (LID) practices are encouraged. Improvements required for these projects are determined on a case-by-case basis during project review.

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, stormwater construction permit requirements, 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 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 Plan; 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, shopping districts) or other institutions or organizations that may attract significant numbers of pedestrians, i.e. aquatic center, Boys and Girls Club, sports complexes.

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 submitted in writing to the County Engineer 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 IMPACTS AND ANALYSIS

3.1 INTRODUCTION

This chapter describes the required contents of the trip generation analysis and Traffic Impact Analysis (TIA) submittals. The Trip Generation and Distribution Analysis 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 Lewis Clark Valley Metropolitan Organization 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 – four (4) lots or less

(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 Analysis. 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 Analysis is required to be submitted for review at the time of the SEPA Application.

The Trip Generation Analysis shall include the following elements:

(1) Project description

(2) Site plan to standard engineering scale with building size (square feet) (refer to Section 4.2.5),

(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 Analysis shows that a proposed development will add more than 20 peak hour trip ends to an intersection, then a Traffic Impact Analysis (TIA) shall be required at this same submittal time.

3.3 TRAFFIC IMPACT ANALYSIS

A Traffic Impact Analysis is required for the following situations:

(1) The Trip Generation and Distribution letter shows that, a proposed development will add 20 or more peak hour trip ends to an intersection.

(2) 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. 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 at the discretion of the County Engineer based on complexity of the TIA and/or County staff workload at the time of review and will be performed 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 LCVMPO 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 (HCM), 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 25 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 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; and
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

4.1 INTRODUCTION

The Developer is required to submit a complete drawing plan set and supporting calculations covering the design for all public (those within the right of way boundary) and private improvements (those outside the right of way boundary) 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. These elements may be modified at the discretion of the County Engineer.

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. Lettering for features to be constructed shall be printed in a darker ink, while lettering for existing features shall be printed in grayscale.

4.2.2 LINES AND SYMBOLS

Standard drafting lines and symbols shall be in accordance with Washington State Department of Transportation (WSDOT) Plans Preparation Manual. The Manual can be accessed at www.wsdot.wa.gov . All drawings submitted for review will use these Standards. Symbols and line types for plan features not available in the Plans Preparation Manual 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 plan view scales shall be 1 inch = 20, 30 or 40 feet. (1 inch = 50 feet or greater scales are not accepted without prior approval from County Engineer)
- Vertical profile scales shall have a vertical to horizontal scale ratio of 1:10 with exceptions provided for extremely steep terrain
- Overall Project Site Plan. 1 inch = 100 feet.
- Cross Sections. Vertical exaggeration ratio shall be proportional to depict all project area plan elements affected by the construction and provide scalable detail.

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 HORIZONAL 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 draftsperson is used, include their initials on plan);
- Revision date;
- Sheet number and total number of sheets;
- Name of owner/developer.

4.2.9 REQUIRED PLAN SHEETS

The plan set shall include at a minimum:

- Cover Sheet;
- Clearing and Grading Plan;
- Road Improvements sheets;

- On-site Improvement sheet;
- Drainage Plan;
- Erosion Control Plan sheet;
- Temporary Traffic Control Plan sheet;
- Permanent Traffic Control Plan sheet; and,
- Detail sheets, as needed.

4.2.10 PLAN SUBMITTALS (REVIEW AND FINAL)

The Developer shall submit one (1) complete set of plans to the County for review and shall clearly indicate on each plan sheet:

"DRAFT

FOR REVIEW ONLY

NOT FOR CONSTRUCTION"

These markings shall be located in the top right corner of each plan sheet and shall be boldly printed and of a size that is a minimum twice the size of the largest lettering on the plan sheet, excluding the title block.

Upon completion of review, the County will return the reviewed plan to the Developer for corrective actions. This process will continue until all items are addressed and the County notifies the developer that the review is complete and to submit a final set of plans for permit issuance.

Prior to issuance of the permit, the Developer will submit six (6) full plan sets (one (1) retained by the County, five (5) returned to Developer). The following shall be clearly indicated on each plan sheet:

APPROVED FOR CONSTRUCTION

_____

Asotin County Engineer

Only plans so marked will be allowed on the project site during construction. If non-approved plans are found on site, the County shall reserve the right to cease construction activity and cause the Developer to remove any construction element that was built using non-approved plans at the Developer's expense.

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 1/2x11 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 projects greater than one acre 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;
- Private Certification Statement. The note below will appear in bold lettering 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).

4.3.2 CLEARING AND GRADING SHEETS

4.3.2.1 Applicability

Clearing and grading sheets are required for projects applying for:

- A construction stormwater 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 depict the work to be done with the requested permit and shall include future phases, 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 one 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.
- Identification of locations where sub-level structure construction is not feasible.

4.3.3 ROAD IMPROVEMENTS SHEETS

The plans shall include road improvements sheets 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 (both overhead and underground).
- Sidewalks and/or bicycle pedestrian facilities.
- All proposed water, sewer, stormwater, 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.
- Centerline station and offsets, and finished grade elevation of all sewer manhole lids and grates.
- Centerline station and offset for all water valves, air vacuum assemblies, blow-off assemblies, and fire hydrant locations.
- Proposed drainage features including, centerline station and offset, 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 the County Engineer.

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 centerline (dashed) and topographic features based on field measurement accurate within 0.1' on unpaved surface and 0.05' on paved surface;
- Original ground line shown at the edges of right of way on either side of the centerline (dashed);
- Profiles for proposed curbed roads shall show the tops of both curbs and the centerline clearly labeled. Profiles for proposed shouldered roads shall show the centerline and flowline of roadside ditches or swales;
- On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements;
- Elevations of vertical grade breaks, grade and length of vertical curves, and at all ditch/swale low points;
- The datum used and all benchmarks, which must refer to established control when available;
- All proposed water, sewer, stormwater, underground power, phone, cable television and gas utilities that will be designed and constructed;
- All sewer and storm drainage manholes and structures shall show centerline station, structure identification number, type (make/model), diameter or size, finished grade of frames, grates, and covers, design invert elevations of all pipes entering/exiting the structure, invert elevations of all existing pipes entering or existing the structure, invert elevation of all sump depths;
- Centerline stations of all waterline valve boxes, covers, and lids of all other water line assemblies;

4.3.3.4 Minimum Typical Cross Section Elements

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

- Station limits;

- The centerline, offset dimensions and offset elevations from centerline for all traffic lanes, shoulders, gutter flowlines, back edges of sidewalks, swales, depths, planting strips, catch points to match existing ground, 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 in sufficient detail appropriate to the complexity of the project, following the guidance in the MUTCD Chapter 6.

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 standard details 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 County 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, stormwater BMPs such as inlet protection, 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.

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

Prior to site construction, the Contractor is responsible for locating underground utilities. Call the underground utility location service at 811 or 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.

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

Construction materials shall not be placed or staged in the public right-of-way.

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.

Contractor shall comply with all requirements of Erosion and Sediment Control plan or SWPPP prior to any land disturbing activities.

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, Contractor shall meet the requirements of Department of Ecology's Guidance for UIC Wells that Manage Stormwater. Contractor will register new drywells with Ecology.

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.

CHAPTER 5 –CLEARING AND GRADING

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 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 (BMPs) 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. Regular inspection and maintenance of these BMPs is mandatory.

This section relates to required State of Washington Department of Ecology Phase II Stormwater permitting and any regional and local stormwater ordinances. 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 environmental 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 flow patterns of stormwater runoff from both expected and unexpected site and weather conditions.

The Asotin County Construction Ordinance #10-08 governs stormwater provisions and permits shall be obtained in accordance with that ordinance prior to commencement of ground disturbing activities. 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 stabilization,

- 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 Practices (BMPS).

5.3 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 within 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 through 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 are considered ground disturbing activities and 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

Asotin County has no knowledge, nor makes any claim, as to the subsurface conditions that may be encountered within the scope of any given project. The Developer shall be responsible to provide all geotechnical evaluations as required and it shall include data regarding feasibility of the site for the proposed uses; recommendations for grading, including site preparation and placement and compaction 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 downstream 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.

The County Engineer may waive the requirement for geotechnical evaluation for minor developments not requiring new roads or minor modifications to existing roads that do not have the above-listed characteristics.

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 as soon as possible 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

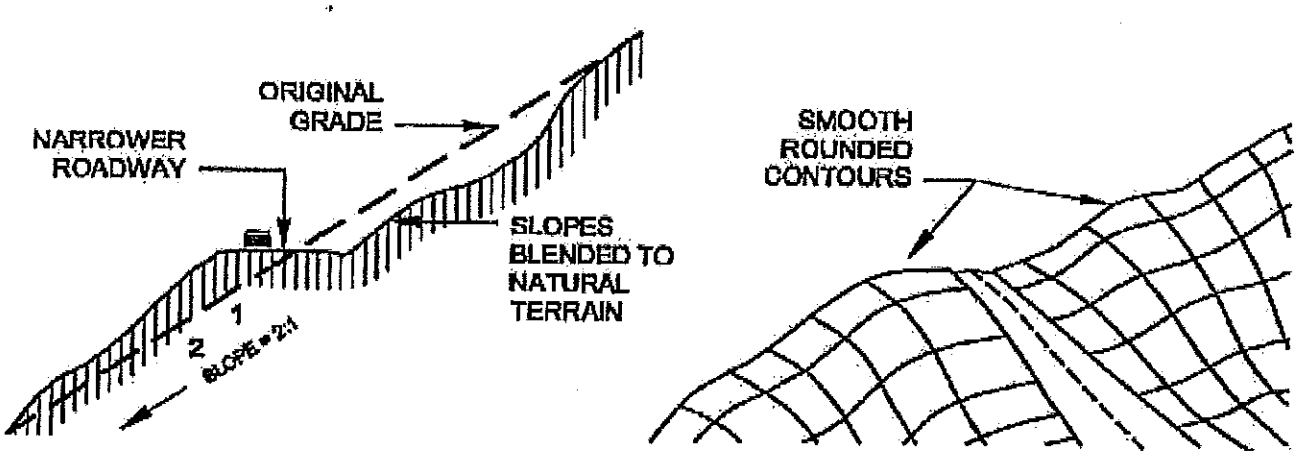


Figure 5-2 Development Cuts and Fills

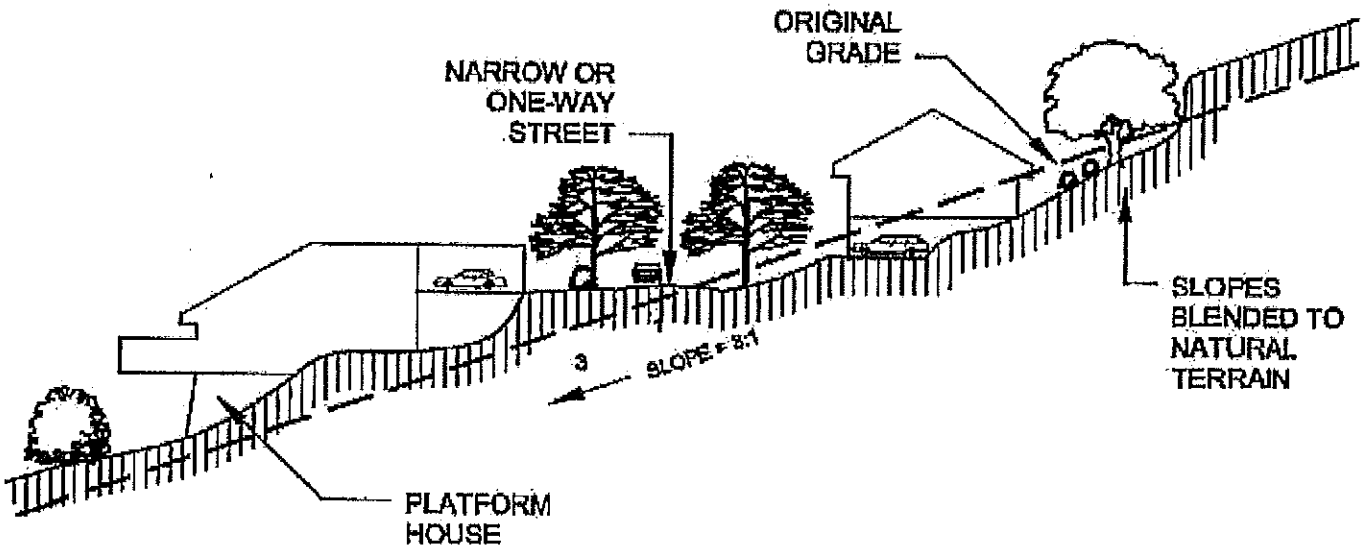
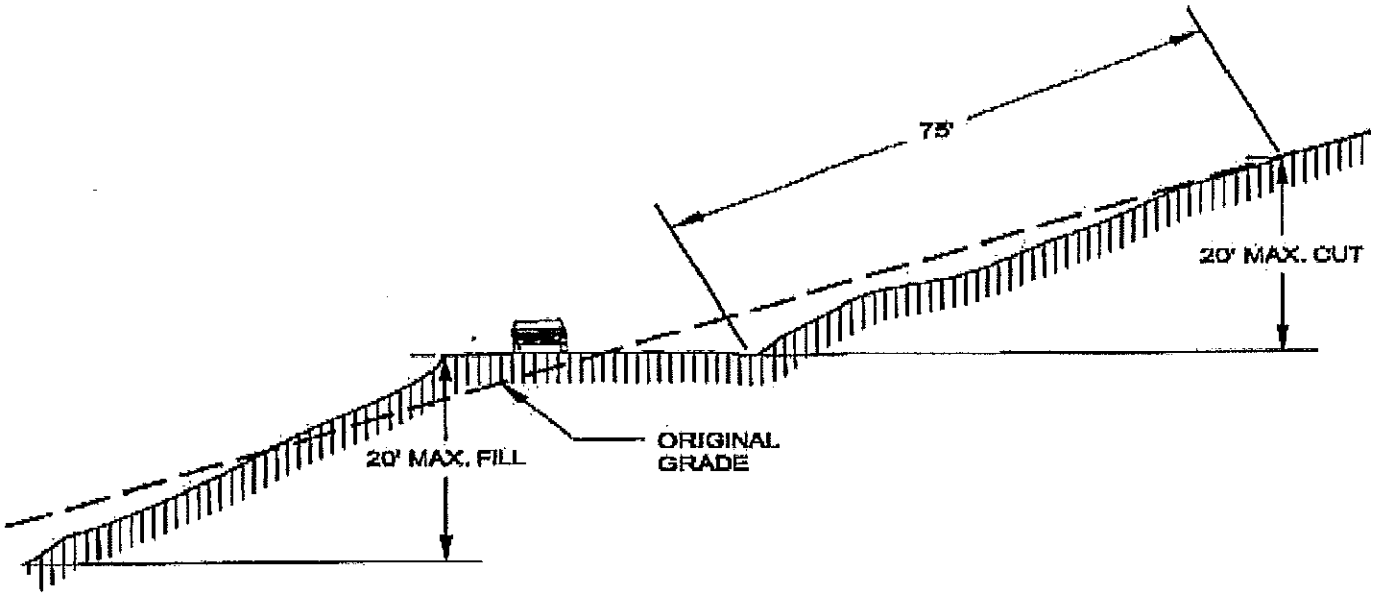


Figure 5-3 Maximum Heights and Lengths of Cut and Fill Slopes

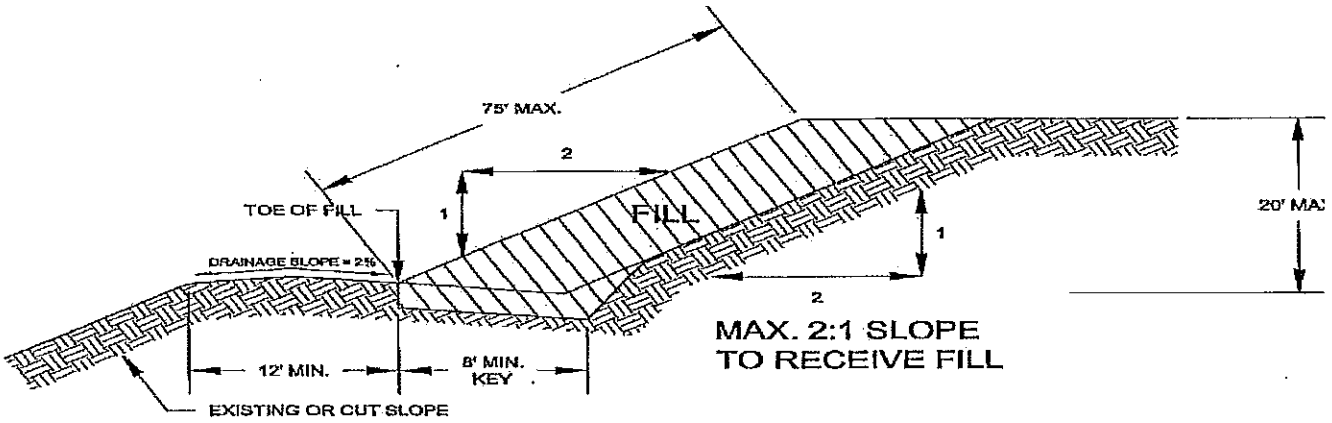


5.3.4 FILL SLOPES

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 plan is required;
- The toe of fill shall be greater 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 as soon as possible 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 or other infiltration methods for water management 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.

Figure 5-4 Minimum Key for Fill Slopes



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 property 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.

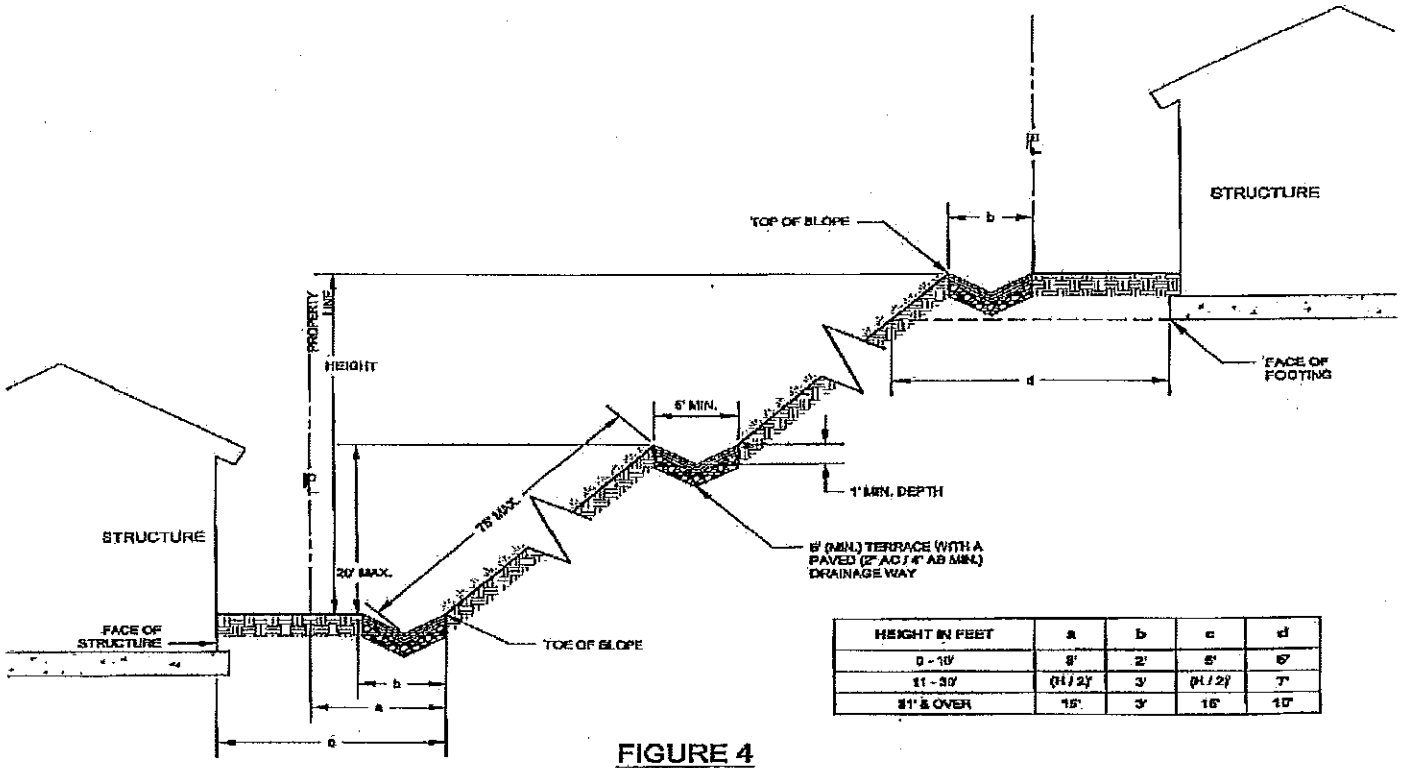
- Prior to any fill being placed, all vegetation, topsoil and other unsuitable material shall be removed.

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



HEIGHT IN FEET	a	b	c	d
0 - 10'	8'	2'	5'	5'
11 - 30'	(H / 2)'	3'	(H / 2)'	7'
31' & OVER	15'	3'	15'	15'

FIGURE 4

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, location and distance from the right-of-way 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 –ROAD ELEMENTS

CHAPTER 6 –ROAD ELEMENTS

6.1 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 design criteria based on the 20 Year Urban Planning Boundary Maps as established by the Lewis Clark Valley Metropolitan Organization (MPO).

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. All roadway design plans and specifications to be constructed within Asotin County shall be prepared and sealed by a Washington State licensed professional engineer.

6.2 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.

6.2.1 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, access easement, or private road.

This chapter provides design criteria and requirements for public roads.

6.2.2 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 7.

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 9). This language requiring a responsible owner or homeowners association shall be incorporated on the face of the recorded plat.

6.2.3 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 private driveway 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.

6.3 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 6.1. Typical roadway cross sections are shown in the Appendix, Figure A-1 – A-8. 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, Drainage. All concrete gutters will meet this standard within five (5) miles of the urbanized boundary of Asotin County. All roads which fall outside the five (5) miles of the urbanized area of Asotin County will require construction of roadside drainage swales. 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. Refer to Section 6.4.4 for definition of the Urbanized Area Boundary.

All roads shall be constructed with 2% cross slope, except as may be necessary to provide super elevation, unless a variation is reviewed and approved by Asotin County.

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

TABLE 6.1 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	30'	30'	25'	20'	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 [8]	50'	40'	30'	25'	20'
BIKE LANES [5]	5'	5'	5'	N/A	NO
ROADSIDE					
SIDEWALK WIDTH[6]	6'	6'	6'	Minimum 5'	N/A
STORMWATER DISPOSAL	Piped or ditched (typ. 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 -15 degrees	90° + or - 15 degrees
MIN. LANDING APPROACH LENGTH	30'	30'	20'	20'	20'
MAXIMUM LANDING APPROACH GRADE	2%	2%	2%	2%	2%

(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), at the discretion of the County Engineer. 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 County Engineer 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.
(8) If abutting to a designated Washington State Highway, increase to minimum of 55' radius.

6.3.1 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.

6.3.2 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.

6.3.3 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.

6.3.3.1 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.

6.3.3.2 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. As shown on Asotin County Standard Drawing GP-5. Cul-de-sac profiles shall be established to provide minimum one percent (1%) grades at all places along the gutter lines.

6.3.3.3 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.

6.3.4 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 Geotechnical report prepared by an engineer licensed in the State of Washington. 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.

6.4 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.

6.4.1 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. All planned access connections to existing roads shall be approved by County Engineer prior to issuance of the construction permit.

6.4.2 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.

6.4.3 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.

6.4.4 ROAD SURFACING REQUIREMENTS

All new urban travel ways shall be paved with HMA (hot mix asphalt). Rural travel ways shall be HMA if constructed within five (5) miles of the Lewis Clark Valley Metropolitan Planning Organization (LCVMPO) defined urban boundary, or, a triple shot BST beyond the five mile boundary. Paving requirements are specified in Chapter 7.

6.5 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/driveway approaches shall 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, except those driveways which are being constructed at the intersection of two (2) roadways.

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.

6.6 CLEAR ZONE

Clear Zone is defined as a relatively flat, graded, surface area void of fixed objects or obstructions beyond the edge of the improved 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.

6.7 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.

6.8 SIDEWALKS

Sidewalk requirements are based on road classifications as shown in the reference cross-section for each road classification, Table 6.1 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 shall be a minimum of 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 shall be placed on the native material, and the native material base 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. Driveway drop sections and curb approaches are required to be a minimum six (6) inches thick, placed on a base of 12-inch thick crushed surface top course (CSTC) compacted to 95% modified proctor.

The use of meandering sidewalks shall be approved by the County Engineer. 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, crossings, ramps and related appurtenances shall be designed and constructed according to latest 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).

Ramps shall be provided at all pedestrian crossings having vertical curb sections, at the terminating end of a sidewalk, and on each side of a median island. Every ramp shall have at least one receiving ramp. Unless otherwise approved by the County Engineer, each curb return will have two (2) ramps located on the tangent just ahead of the PC of the return and the tangent just beyond the PT of the return. Ramps may be constructed along the curvature of the curb return to enable passage across the return only with the written approval of the County Engineer. All ramps shall have detectable warning patterns formed with manufactured truncated domes painted yellow.

6.9 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.

6.9.1 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.

6.9.2 APPROACHES

6.9.2.1 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 100 PM 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.

6.9.2.2 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 inch galvanized pipe. 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.

6.9.2.3 Driveway Approach Horizontal and Vertical Grade

Refer to table 6.1

6.9.2.4 Driveway Approach Widths

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.

6.9.2.5 Driveway Approach Spacing on Local Access Roads

Single Family Residential

For approaches on residential local access roads, driveway approaches can be combined at the common property line or placed such that the minimum spacing between approaches is no less than 25 feet.

Residential Private Roads

For approaches on residential private roads, driveway approaches can be combined at the common property line or placed such that the minimum spacing between approaches is no less than 25 feet.

Commercial/Industrial

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

6.9.2.6 Corner Clearance From Intersections

Corner clearances shall be determined by the County Engineer based on existing or proposed conditions at the intersection if they cannot meet the criteria as described within this section.

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.

Single Family Residential

Residential driveway approaches shall be located when practicable along the property line furthest from the PC of the return but no closer than 35 feet from the PC 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.

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

Table 6.2 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 6.2 – 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.

6.9.2.8 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. A raised median shall be required and designed to prohibit left turn movements into or out of the property and shall be approved by the County Engineer.

The existing approaches in the vicinity that do not meet standards are not grounds for allowing further substandard approaches.

6.9.2.9 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 Engineer of Record (design engineer) or the County Engineer determines that adhering to said requirement would be unsafe.

6.9.2.10 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.

6.9.2.11 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.

6.9.3 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 County Engineer.

6.10 BIKEWAYS

The minimum design standards for bikeways shall be per the latest edition of "Guide for the Development of Bicycle Facilities," prepared by the AASHTO task force on geometric design. 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 commercial grade 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 or the Lewis Clark Valley MPO Bicycle Master 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.

6.11 TRAFFIC CALMING

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

6.11.1 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 cost of the installation of such devices shall be the responsibility of the residents of the neighborhood, based upon a petition signed by the majority of the neighborhood and verified by County staff.

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.

6.11.2 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

6.12 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. All lamination materials shall be approved by the County Engineer prior to installation.

6.13 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.

6.14 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.

6.15 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 survey monuments shall be placed inside an Asotin County monument case and lid per Asotin County Standard Drawings GP-6 and GP-7.

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.

6.16 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 County Engineer in consideration of topography and maintenance schedule regardless of speed and functional classification.

6.17 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.

6.18 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.

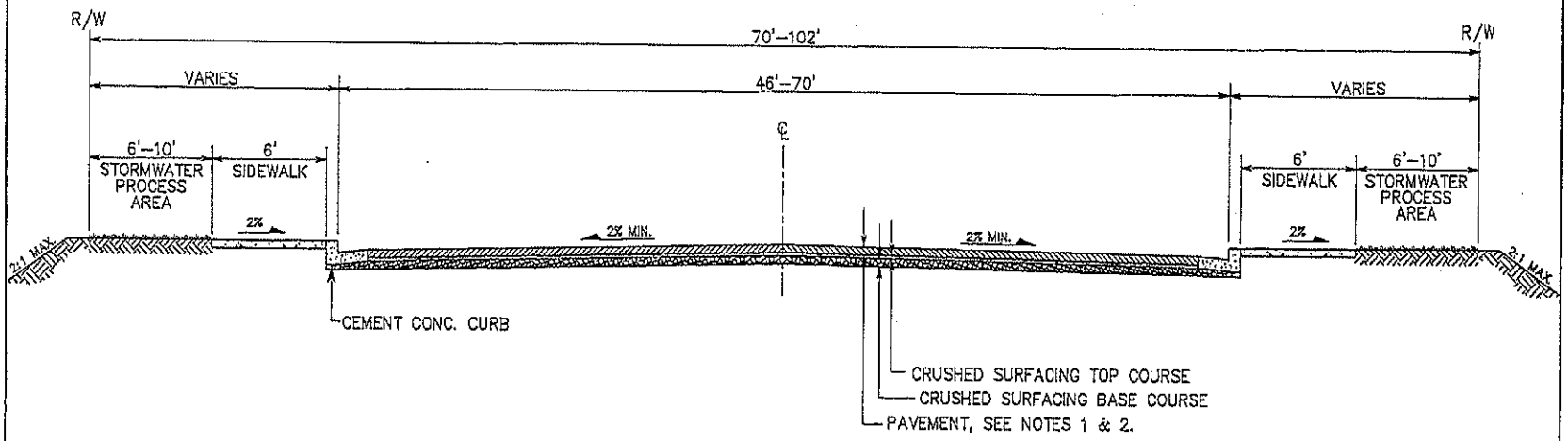
E. Where barricades are deemed necessary that restrict or impede pedestrian movements, provisions for re-routing and access for pedestrians shall be provided in accordance with MUTCD and ADA.

6.19 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.

CHAPTER 6 - APPENDIX INDEX



GENERAL NOTES

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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.

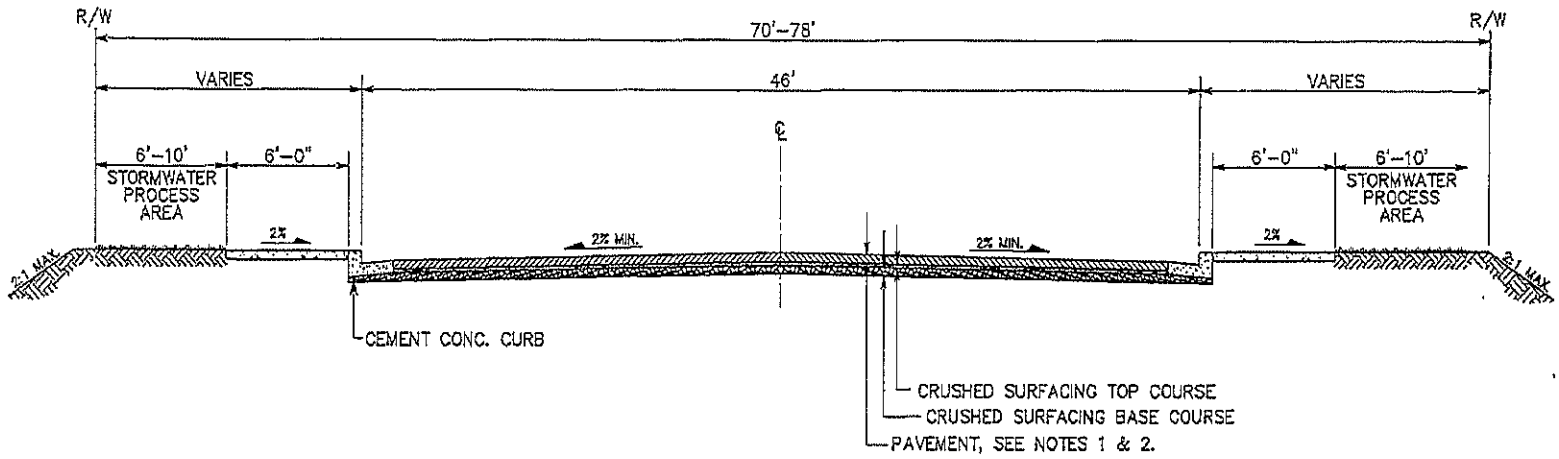
NO.	DATE	BY	CKD.	APPR.	REVISION

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

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION – PRINCIPAL ARTERIAL

SHEET A-1



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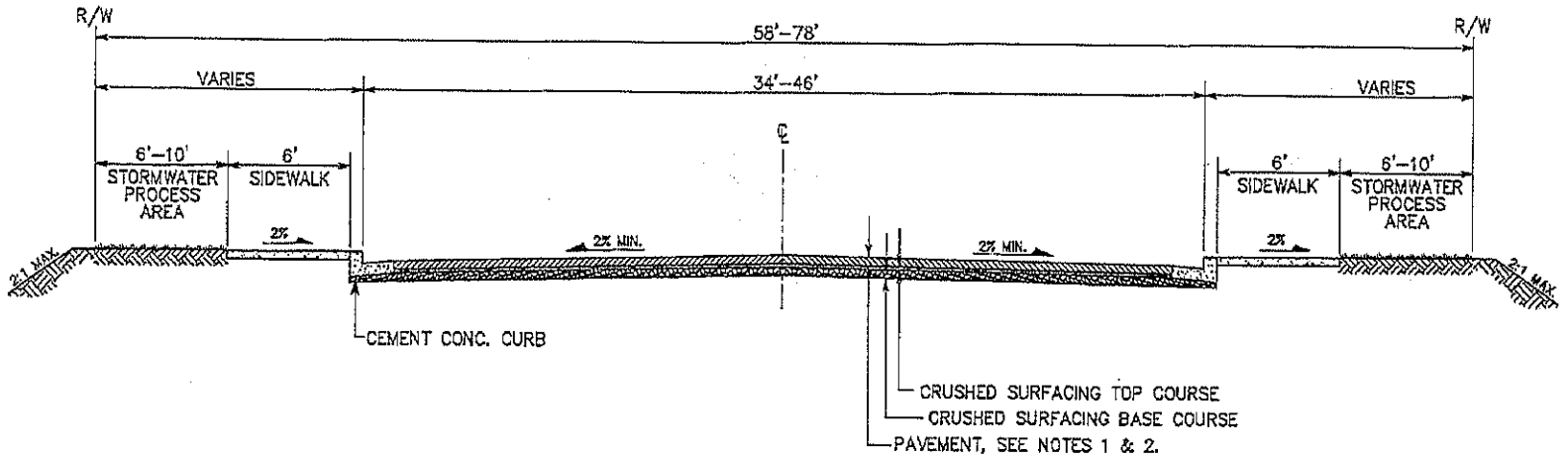
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05/09

ROADWAY SECTION – MINOR ARTERIAL

SHEET A–2



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NO.	DATE	BY	CKD.	APPR.	REVISION

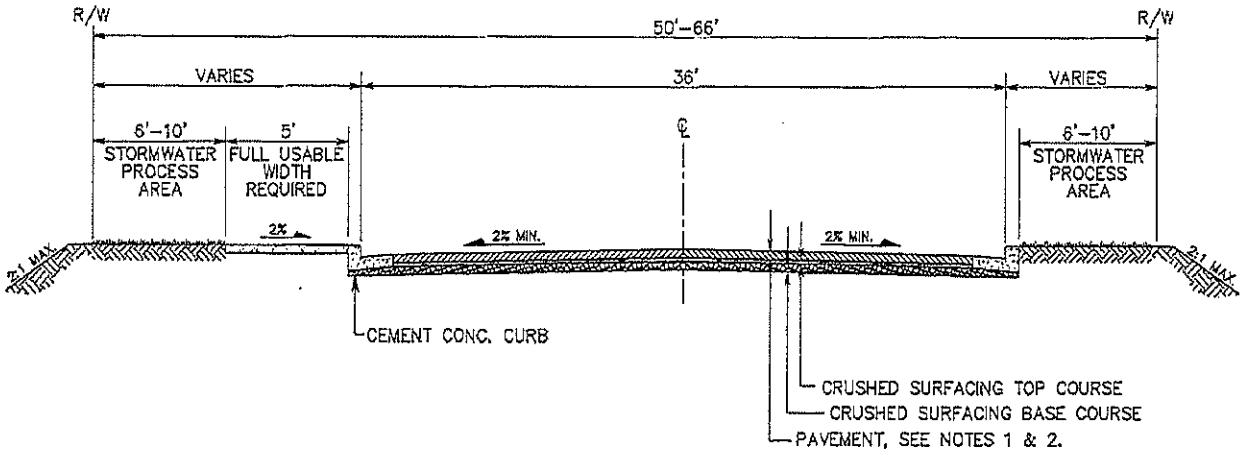
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05/09

ROADWAY SECTION
LOCAL AND COLLECTOR URBAN
COMMERCIAL/INDUSTRIAL STREET

AC-A1.2013

SHEET
A-3



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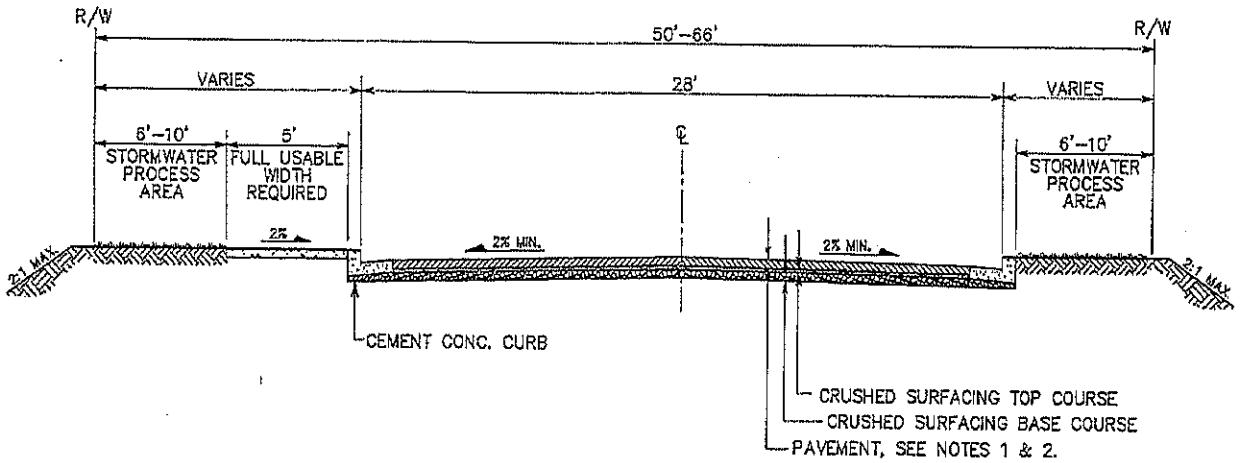
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION
LOCAL URBAN RESIDENTIAL STREET WITH PARKING

SHEET A-4



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NO.	DATE	BY	CKD.	APPR.	REVISION

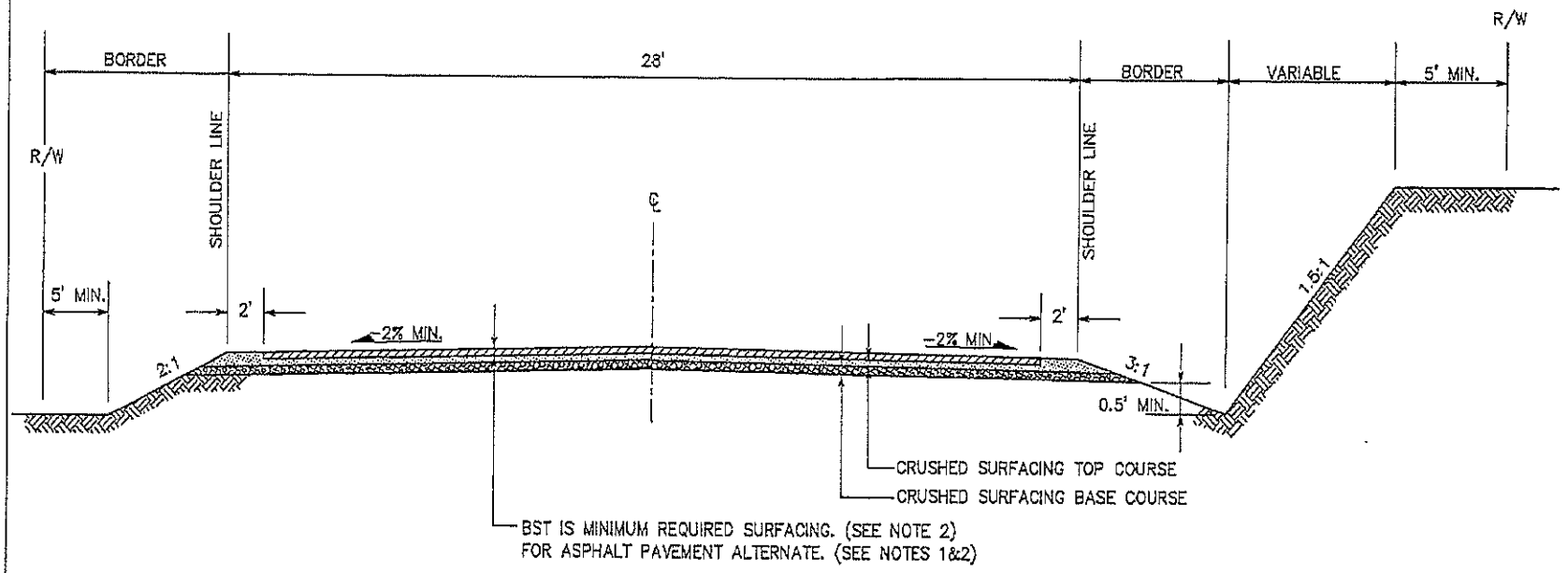
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

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

AC-ALDRD

ROADWAY SECTION
LOCAL URBAN RESIDENTIAL STREET WITHOUT PARKING

SHEET A-5



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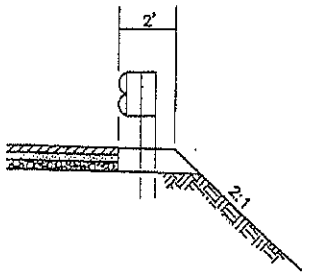
5. B.S.T. = BITUMINOUS SURFACE TREATMENT



WIDENING FOR BARRIER

NO.	DATE	BY	CKD.	APPR.	REVISION

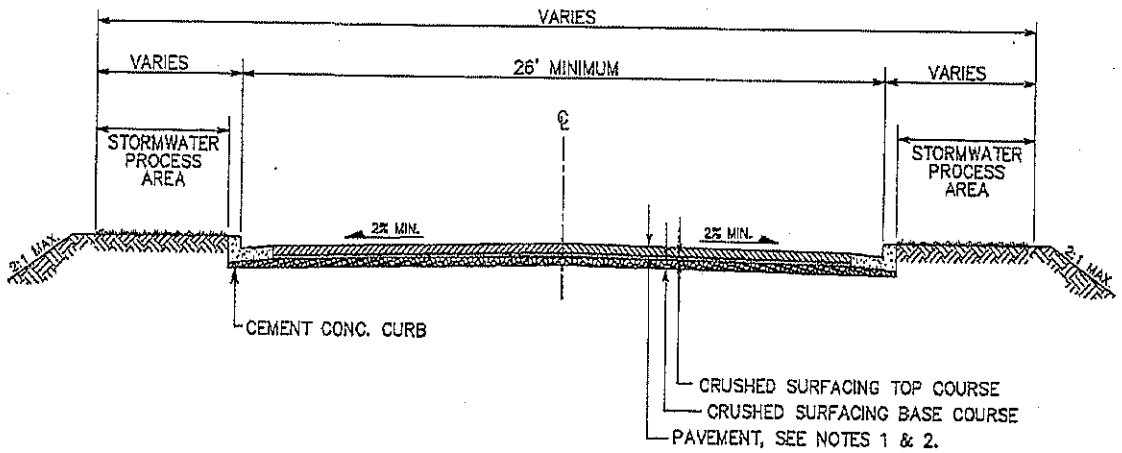
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION – RURAL STREET

AC-ALONG

SHEET A-6



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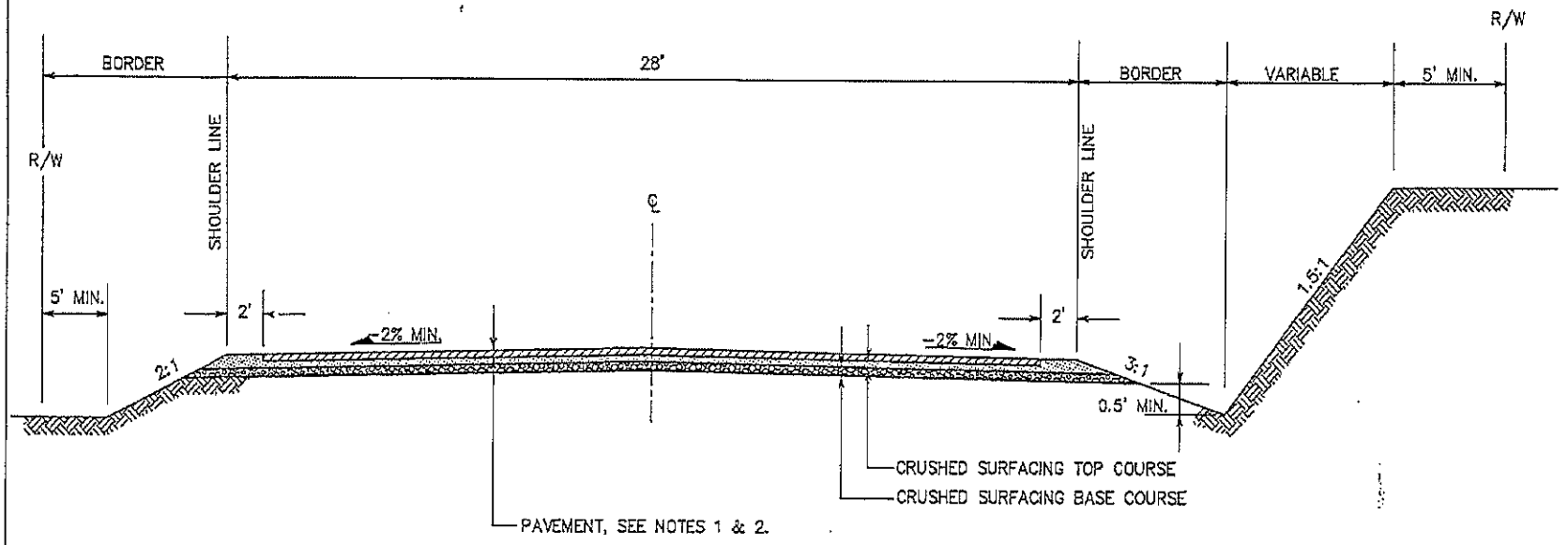
ASOTIN COUNTY
DEPARTMENT OF PUBLIC WORKS
ASOTIN, WA. 99402 509-243-2074

APPROVED:
COUNTY ENGINEER
DATE: 11/05-09

ROADWAY SECTION
PRIVATE LOCAL URBAN STREET PUD
WITH OPTIONAL SIDEWALK

SHEET
A-7



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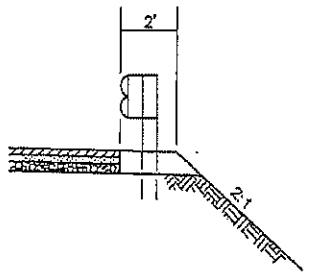


WIDENING FOR BARRIER

NO.	DATE	BY	CKD.	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-ALDWG
SHEET A–8

CHAPTER 7 – PAVEMENT DESIGN

CHAPTER 7 – PAVEMENT DESIGN

7.1 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 7.2.3. All roads shall be designed by a licensed engineer.

7.2 DESIGN REQUIREMENTS

7.2.1 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.

7.2.2 ROAD SUBGRADE

7.2.2.1 Geotechnical Evaluation

A geotechnical report shall be prepared by a Professional Engineer, licensed within the State of Washington, based upon field sampling within the project limits is required on all roadways being proposed and all pavement designs shall incorporate the recommendations of the report.

Each report shall include, but no be limited to, a site map showing the locations of the test samples, boring logs, soil classifications, methods to address construction to remove, replace, , or amend the native soils/materials encountered within the project limits that indicate non-suitable or borderline native materials, all supporting testing analysis, and structural analysis and recommendations.

7.2.2.2 Residential Roads (non-classified)

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 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 ML, 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 throughout this chapter.

7.2.2.3 Non-Residential Roads (functionally classified)

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.

7.2.2.4 Subgrade Preparation

The Geotechnical Report shall state to what degree of compaction must be applied to the native subgrade and to what depth 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 the Engineer of Record and approved by the Asotin County Engineer, and replaced with granular imported

material specified, placed, compacted and tested as directed by the Engineer of Record. Asotin County 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). Special drainage design and/or over-excavation and replacement of these subgrade soils may be necessary based on the results of the geotechnical design.

7.2.3 MINIMUM 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). A Professional Engineer, licensed within the State of Washington, shall be responsible for the design of all local non-residential roads, all collector and arterials roads per section 7.2.4. 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. See Chapter 6, Section 6.4.4 for urban or rural roadway paving boundaries.

7.2.4 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 AASHTO "Guide for Design of Pavement Structures" for flexible pavements and be based on the following criteria:

7.2.4.1 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:

Vehicle Type	Truck Factor (ESAL/vehicle)
School Bus	2.87

PTBA Bus	2.57
Refuse Truck	1.03
All other trucks (averaged)	0.42

7.2.4.2 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 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

7.2.4.3 Subgrade Evaluation

Prior to designing the pavement thickness, the subgrade soil shall be evaluated in accordance with Section 7.2.2. 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_{Reff}):

Winter (Jan)	1.00
Winter/Spring (Feb-May)	0.85

Summer (Jun-Sep)	1.00
Fall (Oct-Dec)	0.90

7.2.5 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 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.

7.2.6 RURAL ROAD BITUMINOUS SURFACE TREATMENT DESIGN GUIDELINES

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

7.2.6.1 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).

7.2.6.2 Sub Grade

- Subgrade soils shall be evaluated in accordance with Section 7.2.2.
- 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 soils are encountered during construction, Asotin County Public Works Department personnel must be notified immediately.

7.2.7 REPORT SUBMITTAL

The applicant must submit a roadway analysis report to Public Works Department, including a narrative of the site conditions, subgrade 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 8 - INSPECTION AND CERTIFICATION

CHAPTER 8 – INSPECTION AND CERTIFICATION

8.1 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.

8.2 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.
- New utility construction and repair of existing infrastructure.

8.3 RESPONSIBILITIES

8.3.1 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, excavations, fills and embankments, and utilities within the right-of-way and easements. The Onsite Inspector shall be present at all times for Hot Mix Asphalt (HMA) and BST placement, any trench work within the street prism, and for drywell installation;

- Coordinating required testing and frequencies of testing or inspection. (See Appendix 10A);

- 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.

8.3.2 DEVELOPMENT INSPECTOR

The Development Inspector is an 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 bonds/sureties;

- Performing final inspections of public streets for bond/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; Inspecting paved areas, curb and gutter, sidewalks, approaches, drainage improvements, excavations, fills and embankments, and utilities within the right-of-way and easements. The Development Inspector shall be present at all times for Hot Mix Asphalt (HMA) and BST placement, any trench work within the street prism, and for storm water utility and appurtenance installation;

8.3.3 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. The method of correction or changes to the approved plans shall be approved by the County Engineer.

8.4 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.

8.5 RIGHT-OF-WAY WORK PERMITS

Right-of-way work 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 identify the Onsite Inspector prior to securing a right-of-way construction permit for any given project.

8.6 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.

8.7 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.

8.7.1 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 8-1. The Contractor shall notify the Onsite Inspector within 72 hours of installing the sign(s).

FIGURE 8-1 TYPICAL SIGN

Road Work Next 600 Feet

Begin: May 25, 2013 –

End: Oct. 12, 2013

Work Includes: Sewer and Water Installation, Roadway Widening and Repaving

Contractor: Dee Caterpillar, (999) 636-3333, Pave la Tierra, Inc.

Engineer: Mike Mylar, (999) 111-2233, Pan Global Engineering

Developer: Ima Platter, (999) 555-1212, Progression Homes, LLC

Thank you for your patience.

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 8.1; and,
- The signs shall include the information required in Table 8.1.

TABLE 8.1 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

8.7.2 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.

8.7.3 NOTICES FOR INSPECTION

The Contractor shall inform the Onsite Inspector and the Development Inspector at least 24 hours in advance of paving operations or installation of all underground utilities that require open trench excavation. Seventy-two hour 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.

8.8 INSPECTION REQUIREMENTS

8.8.1 REPORTING

The 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.

8.8.2 MINIMUM MATERIAL TESTING FREQUENCIES

Material testing is required as specified in Appendix 10A. 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.

8.8.3 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.

8.8.4 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 8.14.2). Swales that do not percolate properly shall require corrective work or measures and these measures are the financial responsibility of the Applicant.

8.8.5 UTILITY INSPECTIONS

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

8.9 MISCELLANEOUS

8.9.1 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.

8.9.2 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 Development 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 and Development Inspector shall review 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 acceptance of both the utility operator and the Asotin County Engineer.

8.9.3 CONSTRUCTION COMPLAINTS

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

On major or high profile projects, Asotin County may require a Public Information Officer to notify the public of project schedule and provide weekly up-dates (See Section 8.7).

8.10 FINAL WALK-THROUGH

When requested by the Applicant, the Onsite Inspector shall prepare a punch list and submit it to the Development Inspector. 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 8.12. The Applicant continues to be responsible for correction of all deficiencies until the County accepts the project unless as noted in Section 8.12. 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).

8.11 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.

8.12 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 10A), 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 8.14.2 shall begin.

8.12.1 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 8.12, prior to issuing a final Certificate of Occupancy.

8.13 PERFORMANCE BOND/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 bond/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. The bond/surety amount shall be 150% of the completion amount as estimated by the Applicant's Engineer and approved by the County Engineer. See Section 8.13.1 for surety exclusion.

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

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

A bond or 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.

8.13.2 BOND/SURETY RELEASE

The performance bond/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 bond/surety for improvements in the public right-of-way and easements as specified in Section 8.14.

8.14 WARRANTY BOND/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.

8.14.1 BOND/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 performed. The Development Inspector will then calculate 20 percent of that total work 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.

8.14.2 WARRANTY DURATION

The warranty bond/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 warranty bond/surety. If the inspection is not conducted and the deficiencies are not repaired, the warranty bond/surety shall be renewed by the Applicant until this requirement is satisfied.

8.14.3 ACCEPTABLE SURETIES

The warranty bond/surety shall be in a form as specified under 'Performance Bond/Surety' and 'Warranty Bond/Surety' in Section 1.5 Definitions.

8.14.4 TIME FRAMES TO COMPLETE REPAIR

The warranty bond/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 bond/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.

8.14.5 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 bond/surety for all costs for related work plus a $500.00 administrative fee.

8.15 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 8.14. The Applicant is responsible to repair failures during the warranty period in accordance with Section 8.14.2. 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.

CHAPTER 9 – MAINTENANCE

CHAPTER 9 – MAINTENANCE

9.1 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.

9.2 MAINTENANCE RESPONSIBILITY

9.2.1 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, private 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 including tree trimming, mowing, irrigating, and replacing when necessary the lawn turf within the swales.

Asotin County shall only be responsible for the preservation of the original area, volume, configuration and function of the stormwater facility as described in the plans. Private landowners who landscape the areas within the public right of way shall do so at their own risk and Asotin County will not be financially responsible for any damage to the landscaping during the performance of any County effort to preserve these areas.

9.2.2 PRIVATE ROADS AND DRIVEWAYS

The County does not maintain any 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.

9.3 REQUIRED DOCUMENTS

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

- All private roadways shall be clearly marked on the face of the plat or other legal land subdivision document recorded with the Asotin County Assessor's office.

- 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.

9.3.1 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 9.3.2), and include a copy of the sinking fund calculations and Financial Plan (Section 9.3.3). 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).
- 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.

9.3.2 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;

- 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.

9.3.3 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.

9.3.4 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.

CHAPTER 10 – GENERAL PROVISIONS

CHAPTER 10 - GENERAL PROVISIONS

GP-1 INTENT OF SPECIFICATIONS AND DRAWINGS

The intent of these specifications and standard drawings is that the Contractor shall furnish all materials, tools, labor, equipment, and services, except as may be specifically noted otherwise, which are required or necessary to fully complete the work. Unless otherwise approved, the construction within the County Rights of Way shall comply with the applicable County Standard.

The terms "Private development", "Contractor", or "Developer", and any variation thereof, are used throughout these specifications and shall apply on all requirements as specified within these specifications. Asotin County shall not be held financially or materially responsible for any and all claims, cost over-runs, or damages resulting from any omission of the terms "Private development" or "Contractor", or "Developer" in any section or sub-section within these specifications. Further, it shall be the sole responsibility of all private developers and their contractors to comply fully, without any compensation from Asotin County, to meet all requirements as specified herein and/or shown on the Standard Details. Any change required by the County on the plans submitted for review and approval of any private development, or change required by the County during construction as a result of differing plans or, unforeseen conditions, does not constitute an agreement or obligation by the County to compensate the developer or their contractors for said changes. The County recognizes private developments may seek and receive bids prior to plan approval by the County and it shall be the responsibility of the private developer and their contractors to comply with all conditions of approval on the recorded set of plans on record with the County at the time of issuance of all permits and inspections. The County takes no responsibility for financial impacts that this may have on any private development and the private developer and the Contractor shall not be entitled to any claim for compensation as a result of complying with the recorded plan set.

GP-2 STANDARD SPECIFICATIONS, ABBREVIATIONS, DEFINITIONS, AND DETAILED DRAWINGS

Except as hereinafter supplemented, revised, or superseded by the latest edition of the Asotin County Right of Way Management Plan, Roadway Standards, General Provisions, and Standard Details, all work performed within the current or future County right of way by a private developer shall be governed by these standard specifications and supplemented with the latest edition of the State of Washington Standard Specifications for Road and Bridge Construction.

2.1 ABBREVIATIONS

American Association of State Highway Transportation Officials.....AASHTO

American Society for Testing and Materials .....ASTM

American Waterworks Association.....AWWA U.S.

Federal Specifications.....Fed. Specs.

Federal Highway Administration Manual on Uniform Traffic Control Devices. ....MUTCD

National Electrical Manufacturer's Association .....NEMA

W.S.D.O.T. Standard Specifications for Road and Bridge Construction, (Latest Edition).....SWSS

Asotin County Ordinances.....ACO

U.S. Department of Transportation.....USDOT

2.2 DEFINITIONS

Hereinafter, the following references in these specifications shall be applied to mean:

A. County-- Asotin County, Washington, and its appointed or elected officials.

B. Engineer--The County Engineer of Asotin County or his designated representative.

C. Inspector--The County's authorized representative assigned to make all necessary inspections of the work performed or being performed, or of materials furnished by the Contractor, and/or supplier.

D. Traffic Engineer--The County Engineer or his designated representative.

E. Standard Specifications—Asotin County Standard Specifications and Details

F. Private Development – Any necessary or required work performed within the boundaries of any existing or proposed future public rights of way to construct or maintain roadways and, or, for the construction and maintenance of public utilities, for the purposes of creating access and, or utility systems for development on private property. No part of the work or project is paid for, nor contracted with Asotin County to use public road funds, grants, loans, or bond monies for the construction or maintenance thereof.

G. Private Developer – Any private person, corporation, or partnership, or any Public Utility purveyor holding a current franchise agreement proposing to, or engaged in the construction and maintenance of roadways or utilities (both public and private) within any existing or proposed future County rights of way.

H. Engineer of Record – a licensed Registered Professional Engineer in the State of Washington, who has been contracted by the Private Developer/Contractor, who has prepared the project plans, specifications and reports for the proposed project.

2.3 DETAIL DRAWINGS

Any standard detail drawings bound with, or called out within the project specifications are hereby made a part of the approved drawings for this project.

GP-3 BEGIN WORK

The Contractor shall not begin work until the issuance of a written permit issued by Asotin County, and they shall provide at least two working days advance notice to the Engineer prior to beginning each phase of the work.

GP-4 EXCAVATION AND BORING NEAR EXISTING UTILITIES

4.1 GENERAL

Asotin County does not guarantee, represent, or claim any knowledge, to show the exact locations, size, or depth of all underground utilities. It shall be the responsibility of the Excavator, or boring Contractor, to contact the ONE CALL LOCATE SYSTEM, 811 or 1-800-424-5555, a minimum of forty-eight (48) hours in advance of any digging or boring, to verify the locations of any and all existing underground utilities.

4.2 EMERGENCY PROCEDURES

Boring Contractors are fully responsible to control boring alignments, to maintain an adequate horizontal and vertical spacing, during underground vertical and horizontal jacking and boring operations.

Excavators and boring Contractors are to contact the Engineer and notify the utility operator immediately if their work damages any underground utility. In addition, if the damage results in a release of natural gas, or other hazardous substance, or potentially endangers life, health, or property, the Contractor shall immediately call 911.

4.3 SUBSURFACE UTILITIES

Prior to construction excavations, the Contractor shall determine the exact location by any method, as approved by the Engineer. Approval of the method does not relieve the Contractor, or assign any liability to the County, as a result of damages that may occur during the uses of the method of exploration. By obtaining a construction permit, the Contractor agrees to be fully responsible for any and all damages, resulting from the Contractor's failure to exactly locate and preserve any and all underground utilities. The Contractor shall call 811 or 1-800-424-5555, a minimum of 48 hours before commencing any excavations.

GP-5 WATER SUPPLY

The Contractor shall be responsible to obtain the necessary water for use on the project for dust control, compactions of embankments, surfacing, and trenches, and clean up

GP-6 STORMWATER

Contractor shall be responsible to construct and maintain throughout the duration of the project all necessary and approved methods to control stormwater runoff per the conditions of the Stormwater Construction Permit. Drainage facilities, such as inlets, catch basins, culverts, and open ditches shall be protected at all times and cleaned of all debris.

If the Contractor/Developer fails to perform the required stormwater runoff measures, and in the opinion of the County, refuses to cooperate with the requirements specified herein, the County shall reserve the right to hire an independent contractor to perform this task, or employ the services of the County maintenance staff and equipment as needed. The direct costs to hire an independent contractor or use County staff shall be billed directly to the Contractor/Developer and failure to pay these charges shall result in the denial of issuance of any final acceptance, including Certificates of Occupancy and the submission and acceptance of final platting requirements by the Asotin County board of Commissioners.

GP-7 DUST CONTROL

The Contractor/Developer shall, at all times during construction, maintain proper dust control in accordance with the requirements of the Asotin County construction permit. It is required that the Contractor have one person at the job site during construction hours who is responsible for dust control. In addition, one person will be available during non-working hours and shall have equipment and manpower available to control dust. Any problems caused by dust from the construction site will be cause for immediate shutdown of all operations except dust control, and the Contractor shall not be entitled to make a claim against the County for lost time.

If the Contractor/Developer fails to perform the required dust control measures, and in the opinion of the County, refuses to cooperate with the requirements specified herein, the Asotin County shall reserve the right to hire an independent contractor to perform this task, or employ the services of the County maintenance staff and equipment as needed. The direct costs to hire an independent contractor or use County staff shall be billed directly to the Contractor/Developer and failure to pay these charges shall result in the denial of issuance of any final acceptance, including Certificates of Occupancy and the submission and acceptance of final platting requirements by the Asotin County board of Commissioners.

If water is not available, the Contractor shall still be responsible for dust control by any means approved by the Asotin County Engineer. No additional payments shall be made for any dust control measures.

GP-8 EXISTING MONUMENTS

Prior to construction, and pursuant to WAC Chapter 332-120, the Contractor's surveyor shall be responsible for obtaining and filing a permit from the Dept. of Natural Resources for the temporary removal or replacement of any monument or the perpetuation thereof. The Contractor shall submit evidence to the Engineer that a permit has been obtained and filed.

On all projects within the Asotin County limits, the Contractor shall reference all known existing monuments within the limits of the construction area. The Contractor shall take special care to protect all monuments or reference points. The Contractor shall be responsible for all monuments or reference points which are damaged or destroyed during the construction of the project. The

Contractor shall have all monuments reset by a Professional Land Surveyor, licensed within the State of Washington, at no additional cost to the County.

Upon completion of construction the Contractor shall submit evidence that all survey monumentation disturbed as a result of their activities has been reset to its original location, or so referenced and perpetuated as may have been be required due to construction. If the Contractor fails to provide such evidence, and in the opinion of the County Engineer, refuses to cooperate with the requirements specified herein, the Asotin County shall reserve the right to hire an independent contractor to perform this task. The direct costs to hire an independent contractor shall be billed to the Contractor and/or their Bonding Agent for complete payment. Should the Contractor fail to remit this cost to the County, the Asotin County reserves the right to withhold finalization and acceptance of any plats, and, or, certificates of final occupancy .

GP-9 ACCEPTANCE TESTING AND SAMPLING

The Contractor shall be required complete all field-testing of materials and compaction. On all development projects the Developer and their Contractor shall be responsible for all testing requirements and costs as stated herein including all re-tests as may be required.

The Contractor shall provide mix designs on asphalt concrete pavement and concrete for approval. Use of mix designs by WSDOT may be approved. Certification of materials meeting the specifications and tests shall be provided for all materials to be installed prior to delivery.

The Contractor/Developer shall schedule, during the proposed work, all testing required in the specifications and the minimum tests listed below to be witnessed by the County and performed by the approved testing company. The Contractor shall provide the equipment and labor to provide test sites and/or pits (holes) at the locations and depths selected by the Engineer of Record. If a test fails, additional tests will be performed to establish the limits of failure. After any rejected work is redone, the testing procedure shall be implemented again. If a test fails again, additional tests will be performed to identify the area of failure under the direction of the Engineer of Record, and all testing and rework will be done at the cost of the Contractor/Developer until the County Engineer accepts the recommendation of the Engineer of Record to accept the work.

Concrete pours:	Two (2) slump and four (4) cylinders per ten (10) cubic yards.
Asphalt:	One (1) sample per daily production lot.
Asphalt compaction:	One (1) per 3,000 sq. ft. based upon fifteen-foot (15) paving width, plus two (2) when determining the compaction method, and rolling pattern.
Base rock compaction:	Two (2) plus one (1) per 200 lineal feet per lane (12 ft lane width) of construction (allow 48 hours for proctor test).
Embankment compaction:	Two (2) plus one (1) per forty (40) cubic yards (allow 48 hours for proctor test).
Subgrade Compaction:	Two (2) plus one (1) per 200 lineal feet per lane (12 ft lane width) of construction (allow 48 hours for proctor test).
Trench compaction:	Two (2) plus one (1) per fifty (50) feet of trench (allow 48 hours for proctor test).

The following compaction requirements of the test method shown shall be met:

Asphalt – minimum 92% AASHTO T230-68 (Rice)

Base rock - 98% ASTM D 1557 or AASHTO T 180 Modified

Trench pipe zone - 95% ASTM D 1557 or AASHTO T 180 Modified

Class D trench backfill - 95% ASTM D 1557 or AASHTO T 180 Modified

Class C trench backfill - 95% ASTM D 1557 or AASHTO T 180 Modified

Soil embankment - 95% ASTM D 1557 or AASHTO T 180 Modified

Granular embankment - 95% WSDOT test Method

GP-10 COMPACTION

10.1 GENERAL

Unless stated elsewhere in the Asotin County Standard Specifications, all compaction shall be accomplished in such a manner as to preclude future settlement, except, that regardless of the estimate of future settlement; all compaction shall provide a minimum dry density per Section GP 10 of the Asotin County General Provisions. Deviation from minimum density requirements will only be allowed with the written approval of the Engineer.

10.2 UTILITY TRENCHES

During utility line installation, the Contractor shall have density tests taken on the backfilled material. All compactions testing for utility trenches shall be per Section GP-10 of the Asotin County General Provisions. Each side lateral shall have at least one test within the public right of way, at a point that is midway between the mainline and the right of way.

For any perpendicular street crossings and installations a minimum of two compaction tests are required.

10.3 STREET AND STRUCTURES

All sub-grade for street and structures, including footings and retaining walls, in both cut and fill areas, shall be compacted or re-compacted as specified in Section GP-10. In cut sections, compaction tests will be taken on the re-compacted subgrade, at maximum 200 foot intervals per lane (12 ft lane width) of construction.

All fill material required to be placed to construct the roadway sections, footings, retaining walls, or other structures shall be per SWSS Section 9.03.17 Foundation Class C, unless otherwise modified by any geotechnical report prepared exclusively for the project.

In fill areas, compaction tests will be taken on each 1 foot lift, at a minimum of every 200 lineal feet per lane (12 ft lane width) of construction. There shall be a minimum of two (2) tests to determine if the methods the Contractor is using are sufficient to obtain the required

compaction. Tests will be taken randomly across the construction section at locations determined by the Engineer of Record.

10.4 UN-TESTABLE MATERIAL

For all roadway construction projects, where the material is considered to be too rocky to test, a laboratory test report to that effect will be placed in the project file. The Contractor shall be required to proof roll all lifts prior to acceptance by the County. Proof rolling shall consist of a minimum of four (4) full passes over the lift section and be performed by a fully loaded water truck capable of containing a minimum 2,000 gallons of water. The Contractor shall be required to repair all areas where any deflection of the material is noted by the Engineer. The Contractor shall be responsible for all costs for any repairs and additional materials, labor, and equipment necessary to meet the compaction requirements of this section.

GP-11 SOIL AND GROUND WATER CONDITIONS

Asotin County has no knowledge, nor makes any claim, as to the subsurface conditions that may be encountered within the scope of any project. The Contractor shall be prepared to use the appropriate safe construction practices, means, and methods to construct the items identified within the scope of this project, through varying subsurface conditions. Due to the nature of the proposed projects the Engineer may require the Developer to obtain a Geo-technical report, prepared by a licensed, Registered Professional Engineer by the State of Washington prior to issuance of any permit for work.

It is the Contractors responsibility to maintain a neat line excavation area or trench section, the Contractor shall be fully responsible and bear all costs to restore the site to the pre-existing condition prior to construction, including all costs to restore the site as directed by the Engineer. These costs shall include but not be limited to the necessary costs for all equipment, materials, and labor to perform this work activity, all repair materials, and the amount thereof, and all compaction efforts to restore the site to the satisfaction of the Engineer. Materials for site restoration may include but are not limited to the following materials: crushed aggregate, pit run material, controlled density fill (CDF), suitable native material, asphalt, and concrete.

Any verbal claims of specific knowledge of subsurface conditions by any agent of the County shall not be considered by the Contractor to be proof of the existing subsurface conditions and any claim by the Contractor shall be denied.

GP-12 GUARANTEE

The Contractor shall provide the County with a guarantee or warranty for all work as provided with this Section in the form of a bond.

All work completed for the project, and accepted by Asotin County, shall be guaranteed for a period of one (1) year from the date of acceptance thereof against defective materials, equipment, and workmanship. Upon receipt of notice from the County of failure of any part of the material, equipment or workmanship during the guarantee period, the affected part or parts shall be replaced

with new material or equipment by and at the expense of the Contractor, along with all costs associated with the repair, replacement, and restoration of the site to new condition.

Asotin County shall reserve the right to hire an independent contractor to perform any and all tasks arising from the removal and replacement of any defective finished surface or installed utility system or employ the services of the County maintenance staff and equipment as needed. The direct costs to hire an independent contractor or use County staff shall be billed directly to the Contractor/Developers bonding agent on record and failure to pay these charges shall result in the denial of issuance of any final acceptance, including Certificates of Occupancy and the submission and acceptance of final platting requirements by the Asotin County board of Commissioners. If the project has already received final approvals the County shall file all necessary and appropriate financial liens against the developer/contractor until such time that full payment, and any additional costs for accrued interest, filing fees, and Asotin County personnel costs has be remitted.

The County reserves the right to lengthen the time period of the guarantee in the event that the Contractor/Developer installs or constructs any portion or material of the described project that does not meet the minimum standards of these specifications per GP-14.

GP-13 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

If the County deems it not expedient to require the Contractor to correct any work not done in accordance with the contract documents and, or, the permit, the County shall require that the Contractor provide an extended warranty for a length of time as agreed to between the Contractor and the County.

GP-14 PRECONSTRUCTION CONFERENCE

A preconstruction conference is required for all permitted projects and the Developer/Owner and their prime Contractor shall be required to attend a preconstruction conference along with the known principal Sub-Contractors, except for construction of a driveway and utility services for the construction a single, individual residence.

The Developer / Contractor shall be required to pay any and all applicable fees per Asotin County Ordinances and, or permits.

GP-15 CONSTRUCTION SCHEDULE

All projects, with the exception of a single, individual residence, shall submit a progress schedule to the Engineer at the pre-construction conference. The Contractor shall submit to the Engineer two copies of an estimated construction progress schedule in a form satisfactory to the Engineer, showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the contract documents.

The Engineer may require (no later than the tenth (10th) calendar day of each month), the Contractor to submit a new construction schedule, which shall show in detail, work completed and whether the Contractor is ahead of schedule or behind schedule on each of the various subdivisions of work.

GP-16 CONTRACTOR SUPERINTENDENT

The Contractor shall provide at all times, a Superintendent who is familiar with all phases of the work and who has the full authority of the Contractor and who is fluent in reading, writing, and speaking of the English language. The Superintendent shall be assigned prior to starting construction and shall be on the job at all times until completion. The Superintendent assigned shall be the sole liaison between the Engineer and any Sub-Contractors. The Owner/Developer shall be responsible to notify the Engineer should there be a change of Superintendents prior to the project completion.

GP-17 COOPERATION BY CONTRACTOR

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer, his inspectors, other Contractors, and the utility companies and their personnel in every way possible.

GP-18 REGULATIONS FOR OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR CONSTRUCTION WORK ON THIS CONTRACT

The Contractor shall comply with all requirements of the "Occupational Safety and Health Act" and "The Washington Industrial Safety and Health Act," which apply to all operations within this contract. The Contractor shall make any such reports and maintain such records as the acts require.

The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

The duty of the Engineer to conduct construction inspections of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.

The County reserves the right to shut down any operations in which it appears to the County representative that there may be a safety code violation or hazardous condition exists which may endanger County personnel, or the public, until corrections are made. The total cost of such shutdowns and corrections will be met by the Contractor and the Contractor shall not be entitled to make a claim against the County for lost time.

GP-19 STREET CLOSURE AND MAINTENANCE OF TRAFFIC

Unless approved by the County Engineer, the Contractor shall maintain two-way traffic during construction operations. Street closures are expressly forbidden without the written consent of the Engineer. The Contractor shall request and receive approval for necessary street closure or detours at least three working days (not including weekends or holidays) before the closure or detour is to be put into effect. Streets are to remain open on weekends and holidays.

The Contractor shall provide all markings, lighting and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operations of public traffic, emergency vehicles, and Asotin County maintenance vehicles and personnel.

The Contractor shall keep all roads, streets, and pedestrian accessible routes open at all times during the project and provide all maintenance required to maintain these locations free of dirt, dust, mud, aggregate materials or other such construction debris as may accumulate during the progress of work. The Contractor shall be required to perform these type of maintenance activities at a minimum of once per week or as required by the Engineer.

The Contractor shall furnish, erect and install, and maintain all required barricades, warning signs, traffic control personnel and other such devices in reasonable conformity with the Manual of Uniform Traffic Control Devices. The Contractor shall also maintain all temporary access connections within the project limits for ingress and egress for adjoining properties, roadways, and pedestrian accessible routes. The County shall not be held financially responsible for the requirements of this section.

Contractor access routes to the project shall be identified on the Plans unless otherwise agreed to in writing by the Engineer. All access routes and haul roads shall be maintained at all times including dust control. All haul routes on public roadways shall conform to all applicable local, county, and state laws. The Contractor shall be responsible to control all of their construction vehicle and equipment traffic within the work zone to avoid unnecessary crossings of existing asphalt or concrete roadways, curbs, gutters, and sidewalks as much as practicable. At no time after the completion of all paving operations may the Contractor utilize the newly paved surface as a construction entrance or haul route except as necessary for the construction or adjustment of surface features and utilities that may exist on or directly adjacent to newly paved surface. Any damage that may occur during the above described task shall be repaired to the satisfaction of the Engineer at the expense of the Contractor.

Where necessary or as required by the Engineer, the Contractor shall provide protection from damage to asphalt or concrete roadways, curbs, gutters, and sidewalks from steel tracked equipment, and minimize as practicable severe turning movements. The Contractor shall be responsible for any damage that may result from the use steel tracked equipment and shall be required to repair or replace to the satisfaction of the Engineer all such damage to asphalt or concrete roadways, curbs, gutters, and sidewalks as a result of the of their work activities.

Loading and unloading of steel tracked equipment directly onto a paved or concrete surface shall not be allowed unless given permission by the Engineer. The Contractor shall notify the Engineer prior to these operations to observe any possible damage that may occur as a result of these activities.

In an emergency situation as defined by anything that represents an immediate danger to life or personal property, the Contractor shall close off that area of danger in the project and notify as soon as possible the Engineer and all emergency, school, and Post Office officials, together with adjacent property owners of the closure. Further, the Contractor shall be required to take direct orders, including means and methods, from the Engineer to remedy the situation until such time as the dangerous or hazardous condition(s) no longer exists or has been eliminated. In addition, the Contractor shall notify other agencies, media, etc. as determined by the Engineer to be essential to the safety of the closure.

All street closures regardless of their nature shall provide for a minimum of inconvenience to local pedestrian and vehicular traffic. See General Provision 1-24 for additional information. The Contractor shall not be entitled to any compensation or claim for damages from the County as a result of any corrective action or order given by the Engineer during the time period required to remedy the situation.

GP-20 CONSTRUCTION WITHIN RIGHT-OF-WAY OR EASEMENT LINE

It shall be the Contractor's responsibility to confine his activities to the project limits as shown on the plans. Any damage resulting from the Contractor's operations trespassing onto private property beyond these limits shall be the sole responsibility of the Contractor.

If the Contractor chooses to create waste sites, storage sites, or any type of obstructions, and to otherwise encroach upon privately owned property, he shall give written evidence to the Engineer that such permission for use has been granted by the landowner before commencing work.

A permit is required for all construction within County rights of way or easements. Contact the County Public Works department for permit requirements. All utility companies shall submit a "Notice of Intent" and/or detailed and dimensional construction plans and location drawings prior to applying for a permit.

GP-21 PERMITS, LICENSES, AND EASEMENTS

On developer-administered projects, it shall be the full responsibility of the developer to obtain all necessary permits, licenses and easements.

The Contractor shall be required to perform all work within the limits of such permits, licenses, and easements in accordance with their terms and conditions. The regulations and requirements of all agencies and private landowners granting easements and permits shall be strictly adhered to in the performance of the work required under this contract.

The Contractor shall not do any work on public or private property until authority has been granted by the County. After authority has been obtained, the Contractor shall give said party due notice of his intention to begin work and to provide said party with access for inspection and protection of its property and its improvements.

GP-22 WORKING HOURS

The Contractor may use the equipment specified and necessary to complete the work during the normal weekday working hours; of 7:00 a.m. to 6:00 p.m. Approval to work outside of the specified work hours will be subject to approval of the Engineer.

GP-23 VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL MEASURES

Projects involving vehicular and pedestrian travel ways shall require a "TRAFFIC CONTROL PLAN" submitted by the Contractor to the Engineer for his approval prior to starting any work. The traffic control plan shall conform to the requirements of MUTCD, the Engineer, or any other governmental agency that may have jurisdiction over adjoining Rights of Way or easements that may be affected by the project.

GP-24 SALVAGE OR ABANDONMENT OF UTILITIES

County personnel shall identify all materials to be salvaged, including but not limited to signal system electrical system components, drainage structures and pipes, and excavated soil and granular materials, which shall be delivered to the appropriate County storage yard by the Contractor or

stockpiled where directed to on the plans or by the Engineer, prior to or at the time of removal. Abandoned manholes shall be backfilled with 1 ½ - inch minus crushed aggregate material after all pipes terminating within the manhole have been properly plugged and sealed and the casting, cover and cone shall be salvaged. The Contractor shall be financially responsible for the provisions of this section.

GP-25 DEVELOPMENT CONSTRUCTION PLANS

Construction plans for all developments shall be submitted, for review and acceptance, at a maximum horizontal scale of 1-inch = 50 feet on 24-inch x 36-inch media, with the exception of half-size plan sheets intended to be used on-site during construction only. All plans shall also incorporate standard drafting symbols and symbology as developed by the American Public Works Association (APWA). The vertical scale for any profile drawing shall be as follows: 1-inch = 1, 2, 3, 4, 5, or any multiple of ten thereof. The requirements of these standard specifications and drawings shall be referenced on the construction plans cover sheet. At a minimum, the construction plans shall incorporate all requirements of the preliminary plat and be acceptable to the County Engineer, prior to a construction permit being issued.

All construction plans shall be prepared and sealed by a Licensed Professional Engineer, or Architect, as provided by and within the Revised Code of Washington, with the exception of the extension of utility service lines, or driveways, for the construction of one (1), single, family residence.

GP-26 CONSTRUCTION STAKING

26.1 GENERAL

On private contracts, the developer shall provide the specified construction staking and other survey control as required to allow proper grade and alignment control for the Contractor's operation and verification by the County personnel.

26.2 ROADWAY STAKING

CURB – Top of curb offset control stakes shall be established at maximum 50 foot intervals on tangents and maximum 25 foot intervals in vertical and horizontal curves. Curb returns shall be staked as shown on the plans, with the minimum staking at the PC, PT, 1/4, 1/2, & 3/4 delta, and at the low point as needed for installation of any storm drainage structures.

SUBGRADE:

1. For residential streets, subgrade is to be blue-topped on centerline and curb line. For 40' and wider streets, subgrade shall also include quarter crown stakes.
2. All stakes are to be at 50' intervals on tangents.
3. Vertical Curves:

    a) 25' stations

b) Beginning point of vertical curves (BVC)

c) Ending point of vertical curves (EVC)

d) High or Low Points

26.3 BASE COURSE

1. For residential streets, top course to be red-topped on centerline. For 40' and wider streets, top course stakes shall also include quarter crown stakes.
2. All stakes are to be at intervals as specified for subgrade staking above.
3. All redtops are to be staked to the plan elevations. This is required, since the curb may have been adjusted to provide flow or smooth transitions.

26.4 TOP COURSE

1. For residential streets, top course to be red-topped on centerline. For 40' and wider streets, top course stakes shall also include quarter crown stakes.
2. All stakes are to be at intervals as specified for subgrade staking above.
3. All redtops are to be staked to the new curb grade – not the plan elevations. This is required, since the curb may have been adjusted to provide flow or smooth transitions.

26.5 UNDERGROUND UTILITIES

1. POWER, PHONE, IRRIGATION, GAS, ETC. - Coordinate with the installer and provide control as needed to insure that proper alignment and depth is maintained.
2. STORM SEWER – to be staked for offset centerline and inverts. The minimum staking required is that each manhole shall be staked, with the first offset stake set 25' upstream.
3. STREET LIGHTS AND J-BOXES – stake locations, including top of curb, or back of walk location and elevation.

GP-27 WATER, SEWER, AND STORMWATER UTILITY CONSTRUCTION

27.1 GENERAL

The work covered in this section shall be limited to all work within existing and proposed future County rights of way for work involving the excavation of utility trenches, placement, and location, general installation of water, sewer, and stormwater mains and service lines, and backfilling of trenches and restoration of County roadways.

27.1.1 INSTALLATION

Construction and installation of water and sewer pipes, service lines and other appurtenances are under the authority of Asotin County Public Utility District or any other utility purveyor within the County. All water and sewer line construction (mains and

service lines) located within any existing or proposed future County rights of way shall be done in accordance with acceptable industry standards for underground utility piping as well as in accordance with the manufacturer's specifications for the type of pipe and fittings used. The Contractor shall construct the pipeline in accordance with Standard Drawings.

27.1.2 TRENCH EXCAVATION AND BACKFILL

Trench excavation for utility line construction shall be in accordance with SWSS Section 7-09.3(7) except as herein modified. Trench excavation shall provide for a minimum of 36 inches of cover material over the top of the finished pipe grade. Trench backfill material shall be per Standard Detail GP-1 and compacted by means approved by the Engineer, as required to preclude future settlement and to achieve a minimum of 95 percent maximum density when tested in accordance with Section GP-10 of these specifications.

As a minimum, all trenches shall be compacted with a hoe-mounted or double drum vibratory mechanical compactor. Hand operated jumping jacks or shoe-type mechanical tampers will not be approved for use within the main portion of the trench and shall only be used for locations around valve boxes or other ground level encasements. Water settling of trench back fill material may be used only upon the approval of the County Engineer

27.1.3 TRACER WIRE

The Contractor shall install a tracer wire over all water mains and non-metallic water and sewer service lines. The tracer wire shall be 12 gauge copper wire with blue coded UF insulation for water lines and green coded UF installation for sewer lines. The tracer wire shall be installed as shown on the Asotin County Standard Drawing GP-3. Bare wire contact points shall be provided at valve boxes, air release and blow off installations, and cleanouts for side sewer service lines.

27.1.4 PRESSURE TESTING

27.1.5 WATER MAIN LINES

With the exception of building fire system lines, the pressure testing of new water lines, including all connections and appurtenances, shall be in accordance with SWSS Section 7-09.3(23) as herein modified. The hydrostatic test pressure for all types of pipe shall be 150 PSI for a length of one hour. Proof of acceptable test results shall be submitted to the Engineer prior to trench backfill and roadway restoration.

27.1.6 TRENCH SAFETY SYSTEMS

All trench excavations shall have adequate safety systems for the trench excavation that meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW. The Contractor shall be fully responsible for providing the necessary back sloping,

cribbing, trench boxes, etc., as required to meet the specified safety requirements for the trench.

27.1.7 SERVICE LINES

27.1.8 GENERAL

Where shown on the plans or indicated in the proposal, the Contractor shall provide the materials, trench excavation, necessary bedding, and backfill for the service line from the main to the property line. The Contractor shall take necessary measures to limit the impact to the existing improvements as much as possible, including tunneling or missiling under major tree roots, curbs, walks, fences, and similar obstructions.

Trench excavation, including rock excavation, and compaction and shall be completed in accordance with Section GP-28-1.03, GP 28-2, and GP-10 of these specifications. Pipe bedding material shall meet the requirements of Section GP-28-2.02 and GP 28-3.03 of these specifications.

Following installation of new concrete curb and gutter which crosses over a newly installed service line, the Contractor shall permanently mark the face of the fresh concrete curb with a "W" for water services and "S" for sewer services.

27.2 TRENCH BACKFILL

27.2.1 GENERAL

It is the intent of this specification to use imported granular crushed aggregate for all backfill around the pipe, from the invert of the excavated trench to the bottom of the finished asphalt or concrete surface.

27.2.2 NATIVE BEDDING MATERIALS

Select native material may only be used upon the approval of the Engineer for bedding flexible and rigid pipe. If approved, it shall be free of wood waste, organic material and other extraneous or objectionable material and shall have a maximum aggregate dimension of one-inch (1") for flexible pipe and a maximum dimension of 2-inches (2") for rigid pipe. The trench typical section shall be per Asotin County Standard Drawing GP-1

27.2.3 IMPORTED BACKFILL MATERIALS

All trench excavation, including that portion of the side service trench, located within the public right of way shall be backfilled with 1 ¼" minus crushed aggregate material per SWSS Section 9-03.9(3), above the pipe zone bedding to within three (3) inches of the finish asphalt grade. The material shall be placed and compacted to achieve a minimum of 95 percent maximum density when tested in accordance with Section GP-10 of these general provisions. Side service trenches located outside and extending beyond the right of way may be backfilled with select native material.

27.2.4 COMPACTION

The bedding material shall be placed and compacted in lifts not to exceed six inches (6"). The pipe bedding shall be compacted to not less than 95 percent of maximum density. Compaction shall be done in such a manner as to preclude future settlement.

27.3 ADJUST EXISTING AND NEW CASTING TO GRADE

27.3.1 GENERAL

When constructed in conjunction with a street construction project or pavement overlay, existing and new water valve boxes, air release and blow-off assembly castings, manholes and cleanouts which are required to be adjusted to finished grade, shall be adjusted in accordance with the requirements of this section of the Asotin County Standard Specifications for Roadway and Standard Drawing GP-4 to which the Contractor's attention is hereby directed.

On utility line projects which do not include new street construction or pavement overlays, the existing and new valve boxes and utility boxes or other utility castings within the pavement restoration limits shall be adjusted prior to pavement restoration. Where the new utility castings fall outside of the pavement restoration limits and in unpaved areas, the casting shall be adjusted to conform to the adjoining grade and set in a 30" x 30" x 8"-thick concrete collar.

27.4 ABANDONED CONDUITS

All pipes, conduits and other openings determined to be abandoned, which are cut or opened during utility installation, shall be capped or concrete plugged prior to backfilling of the trench.

GP-28 SANITARY SEWER UTILITY CONSTRUCTION

28.1 STUB MARKERS AND CAP

At all new sewer service locations, the Contractor shall install a tracer wire from the wye at the main along the entire length of the service line and terminate the wire at the top of the locating marker post. Tracer wire shall be 12 gauge copper wire with green coded UF insulation. The ends of new sewer service line stubs shall be capped to provide a watertight seal and shall be referenced with a two-inch by four-inch (2" x 4") eight (8) foot long steel stud reinforced with a ground contact pressure treated wood 2 x 4, inserted in the steel stud. The post is to be painted green and left protruding two (2) foot above finished grade at the property line.

28.1.1 MANHOLE CONNECTIONS AND JOINTS

All tapping of existing manholes shall be done using concrete core drilling equipment and all cores will be sized and fitted with a Kor-N-Seal boot for the size of pipe to be installed. The Contractor shall not be allowed to chip, break or jack hammer any openings into the

existing manhole. All internal joints, picking holes, and step holes shall be completely grouted prior to acceptance.

28.1.2 SEWER MAIN LINE REPAIR

28.1.3 GENERAL

Where shown on the plans, the Contractor shall make all appropriate repairs to the sewer main line. As stated previously within this section, the Contractor shall use only gasketed repair couplings on all PVC pipe and new pipe spool pieces for all main repairs. On all non-PVC main lines, the Contractor shall submit the type of repair device to the Engineer for approval prior to installation. The Contractor shall use all appropriate trench safety systems during all repairs.

At no time shall the Contractor make any repair or connection within any existing or future proposed County rights of way to a sewer main using FERNCO Adaptors.

GP-29 FINAL ACCEPTANCE

On all projects, the County shall attach a check list of completion for the water, sewer, and storm drainage systems and components. This checklist shall be maintained throughout the duration of the project by the Engineer or his designee. The purpose of the checklist is to expedite the final acceptance of the project. As items are installed and tested the check list will be signed by the Engineer, Utility Purveyor, and the Contractor that all testing has been completed.

When the Contractor notifies the County that the project is substantially complete, the County and the Contractor shall use this checklist to verify the items constructed are in compliance with the County standards and project plans. After any necessary corrections are made and upon final completion of the checklist, the County shall notify the project developers that the installed systems are formally accepted and that the required warranty period will begin. No system shall be considered complete until the checklist has been certified and Contractor shall be fully responsible to maintain any and all parts of that system until issuance of the formal acceptance for the project has been received from the County.

APPENDIX 10A– 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:		Sidewalk Vaults:		
Gutter Inlets:		Drainage Ditches:		
Culverts:		Other:		
Incoming/Outgoing Correspondence				

ASOTIN COUNTY STANDARD DRAWINGS

GP-1 TRENCH BACKFILL & PIPE BEDDING FOR UNDERGROUND UTILITIES LOCATED IN COUNTY R.O.W.

GP-2 TYPICAL ROADWAY ASPHALT CONCRETE PAVEMENT RESTORATION

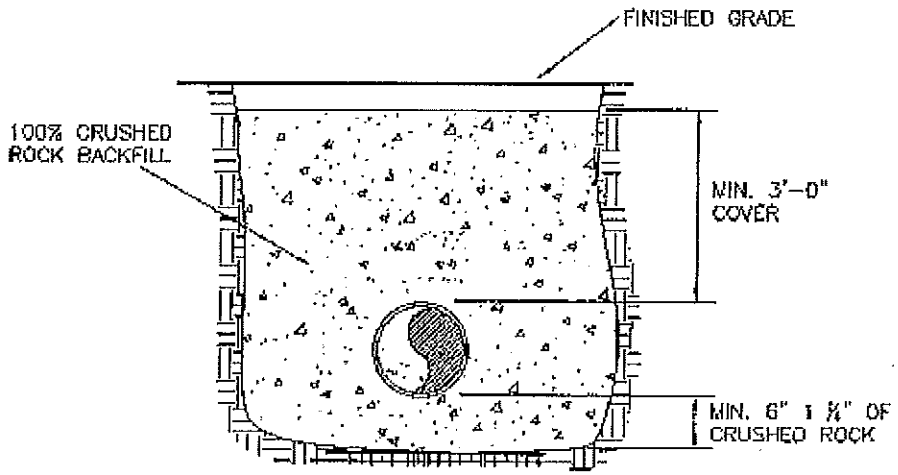
GP-3 TRACER WIRE INSTALLATION AND VALVE STEM EXTENSION DETAIL

GP-4 UTILITY/MON. ADJUSTMENTS

GP-5 CUL-DE-SAC

GP-6 ASOTIN COUNTY MONUMENT LID

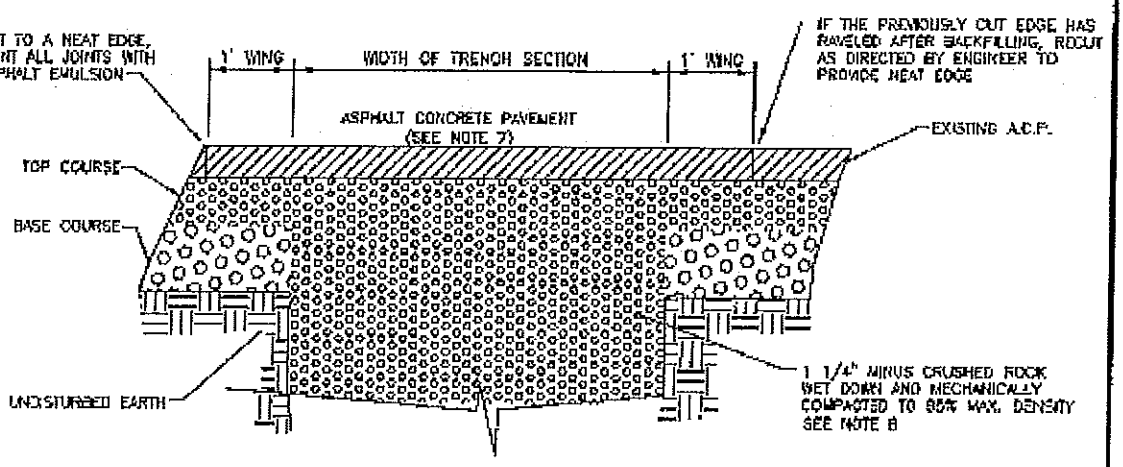
GP-7 ASOTIN COUNTY MONUMENT CASE



1. IMPORTED BEDDING & TRENCH BACKFILL MATERIAL ABOVE AND BELOW ALL UNDERGROUND SHALL BE 1 1/4" MINUS IN ACCORDANCE WITH THE ASOTIN COUNTY ROAD STANDARDS AND ENGINEER.
2. TRENCH WIDTH SHALL BE 40 INCHES MAXIMUM FOR PIPE 15 INCHES I.D. OR SMALLER AND 1 1/2 INCH I.D. PLUS 16 INCHES FOR PIPE 18 INCHES OR LARGER.
3. HAND TAMP UNDER PIPE HAUNCHES.
4. PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.
5. COMPACT TRENCH BACKFILL MATERIAL TO 95% MAXIMUM DENSITY EXCEPT DIRECTLY OVER THE PIPE, WHERE BEDDING MATERIAL SHALL BE HAND TAMPED ONLY.
6. PAVEMENT WIDTH FOR EXCAVATION AND PAVEMENT REPAIR.... SEE ASOTIN COUNTY DRAWING GP-2.

TRENCH BACKFILL & PIPE BEDDING FOR UNDERGROUND UTILITIES LOCATED IN COUNTY R.O.W.

ASOTIN COUNTY PUBLIC WORKS		DATE 2/4/15 DWN MCL REV CHK JB SCALE NTS	DWG. NO. GP-1



ASPHALT CONCRETE PAVEMENT REQUIREMENTS

1) ALL STREETS: "CLASS B MODIFIED" ASPHALT, AS PER THESE SPECIFICATIONS SECTION 2-8.02.

2) ASPHALT CONCRETE PAVEMENT SHALL BE PLACED IN LIFTS NOT TO EXCEED 3" IN DEPTH.

NOTES:

1) ALL ROADWAY ACCESSORIES, INCLUDING SIGNS, ARE TO REMAIN IN PLACE AND TO BE PROTECTED. ONE WAY TRAFFIC IS TO BE MAINTAINED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. CONTRACTOR SHALL INSTALL TEMPORARY LANE STRIPING AS PER WSDOT STD. SPEC. 8-04.3(7) WHERE DIRECTED BY CITY ENGINEER.

2) DO NOT BEGIN STREET CUT UNTIL COMPACTION EQUIPMENT IS ON SITE.

3) DO NOT BEGIN STREET CUT UNTIL WATER (TRUCK OR HOSE) IS ON SITE.

4) WATER SETTLING PERMITTED ONLY WITH APPROVAL OF THE ENGINEER.

5) MATERIAL REMOVED IN TRENCHING WHICH IS DETERMINED BY THE ENGINEER AT TIME OF EXCAVATION TO BE UNSUITABLE FOR REPLACEMENT IN THE BACKFILL IS DEFINED AS UNSUITABLE BACKFILL.

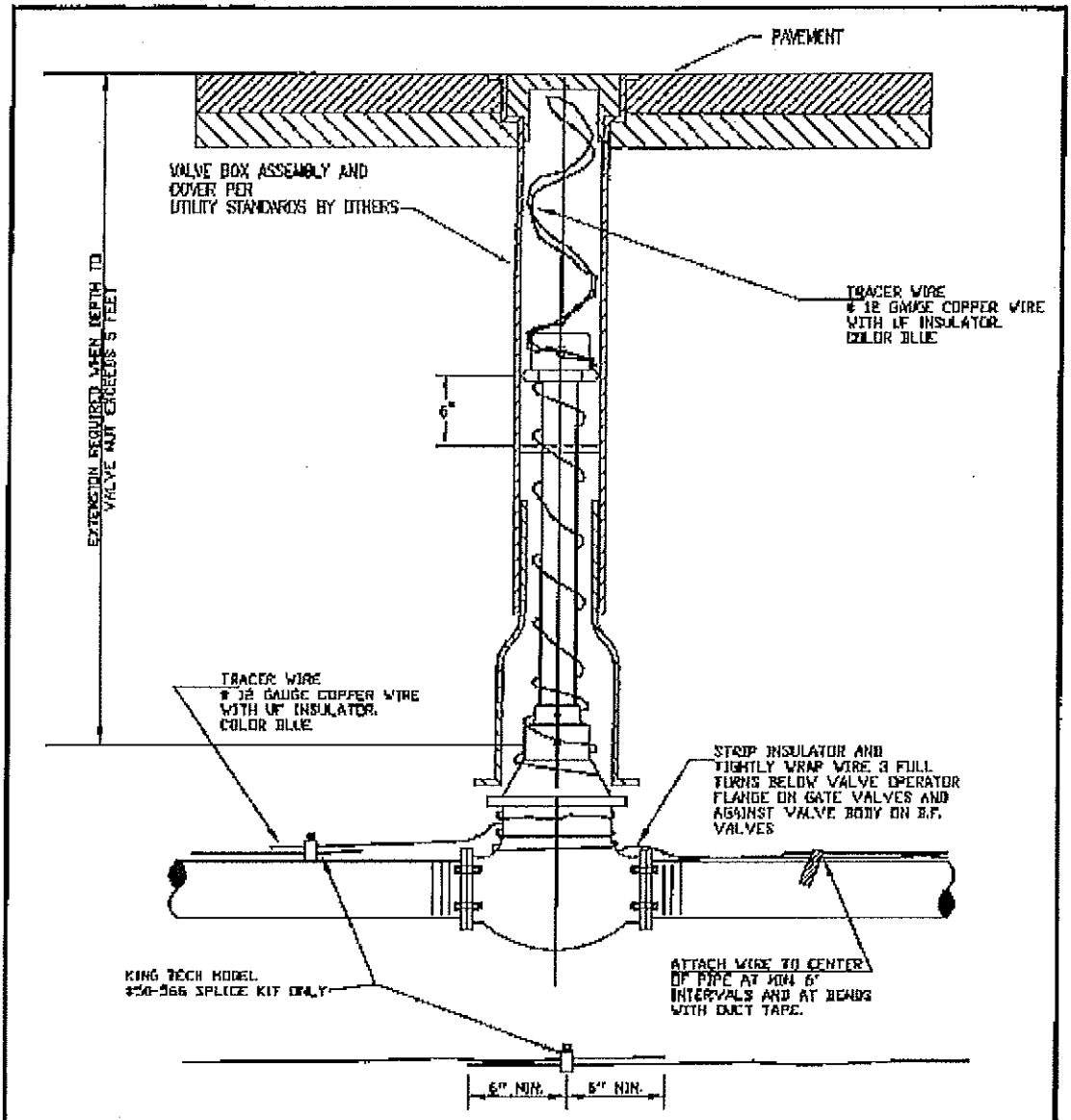
6) IF PERMANENT PATCH CANNOT BE PLACED, AND IF DIRECTED BY THE ENGINEER, A TEMPORARY COLD MIX PATCH SHALL BE PLACED IMMEDIATELY AFTER BACKFILLING AND COMPACTION OPERATIONS. THE COLD MIX PATCH SHALL BE REMOVED AND A PERMANENT PATCH PLACED AS SOON AS CONSTRUCTION AND WEATHER CONDITIONS PERMIT UNLESS STATED OTHERWISE IN THE SPECIAL PROVISIONS OR DIRECTED BY THE ENGINEER.

7) THE DEPTH OF THE ASPHALT PATCH SHALL BE THREE INCHES (3") DEEP ON ALL STREETS 40' AND LESS IN WIDTH AND FOUR INCHES (4") DEEP ON ALL STREETS GREATER THAN 40' IN WIDTH AND THREE INCHES (3") DEEP ON 36' WIDE MINOR ARTERIALS.

8) ALL TRENCH BACKFILL ON COUNTY ROADS TO BE 100% CRUSHED ROCK AND COMPACTED TO 95%. (FULL WIDTH AND DEPTH OF TRENCH)

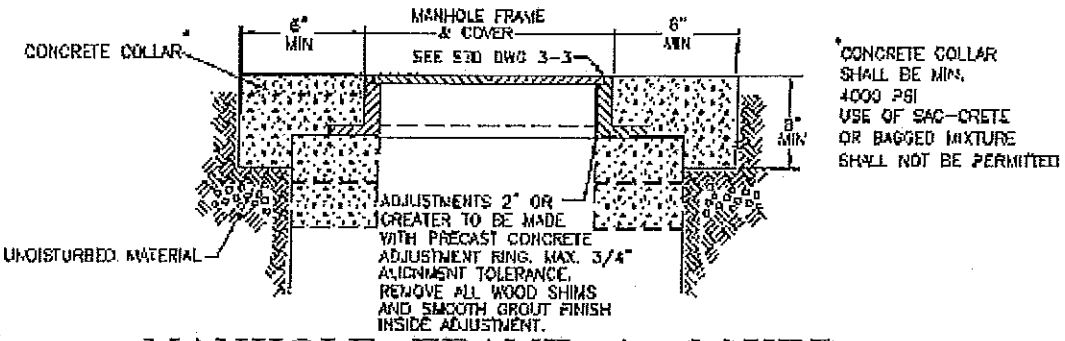
TYPICAL ROADWAY ASPHALT CONCRETE PAVEMENT RESTORATION

ASOTIN COUNTY PUBLIC WORKS		DATE 2/4/15 DWN MCL REV CHK JB SCALE NTS	DWG. NO. GP – 2

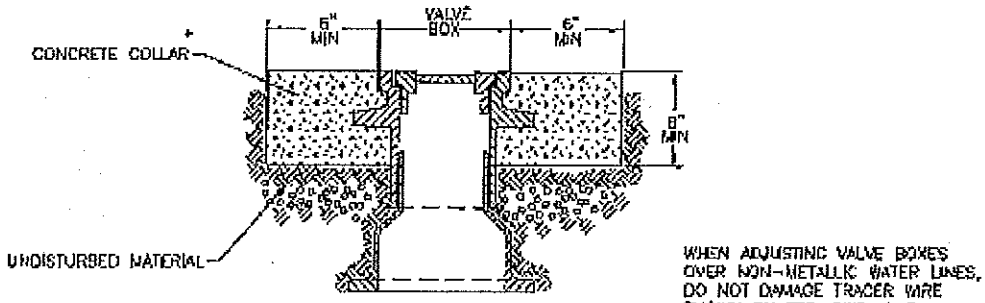


TRACER WIRE INSTALLATION
AND VALVE STEM EXTENSION DETAIL

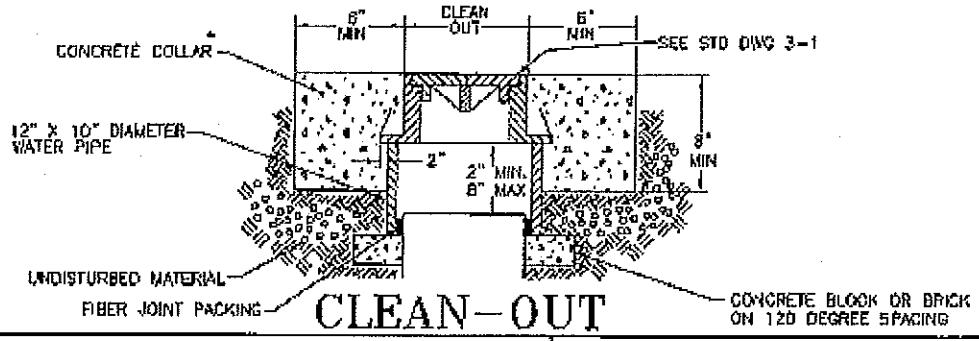
ASOTIN COUNTY PUBLIC WORKS		DATE 2/4/15 DWN MCL REV CHK JB SCALE NTS	DWG. NO. GP – 3



MANHOLE FRAME & COVER



VALVE BOX



CLEAN-OUT

NOTE:

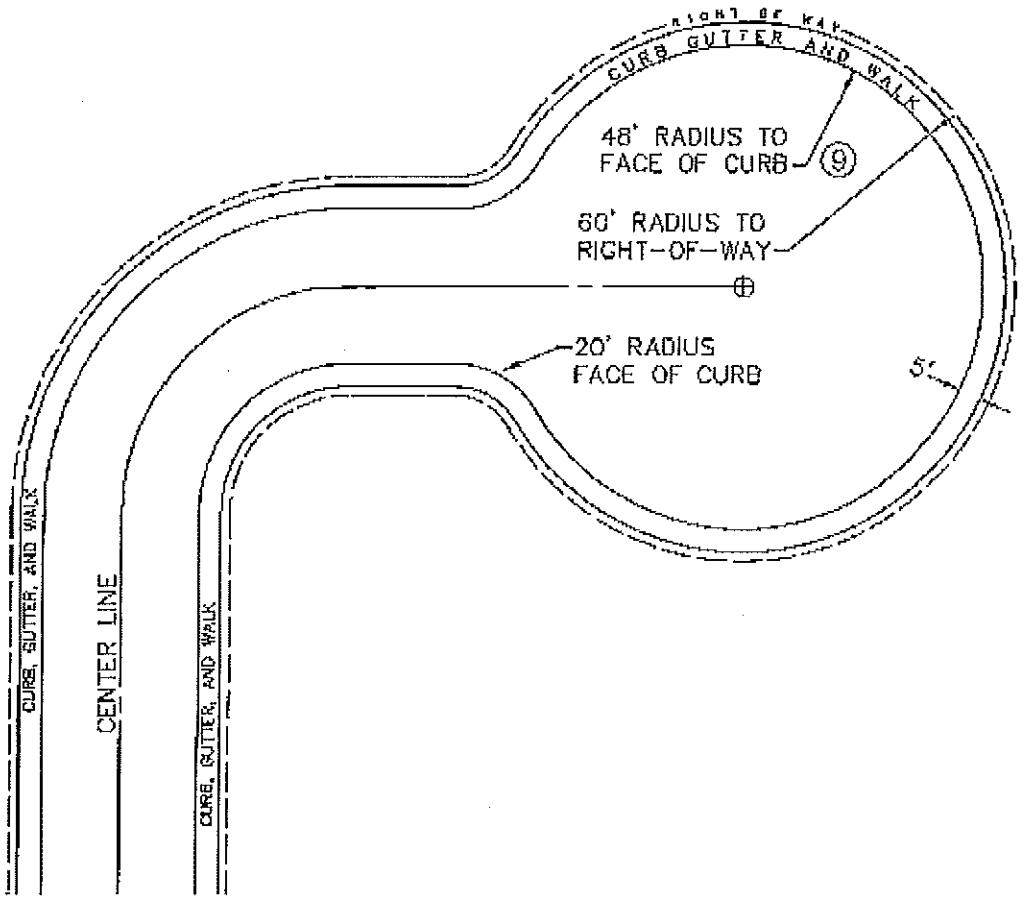
A CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS. IN UNIMPROVED OR UNPAVED AREAS, INSTALL AN 8" THICK CONCRETE COLLAR AS FOLLOWS:
30"X30"X8" FOR VALVE AND CLEANOUT COVERS
42"X42"X8" FOR MANHOLE COVERS

UTILITY/MON. ADJUSTMENTS

ASOTIN COUNTY
PUBLIC WORKS

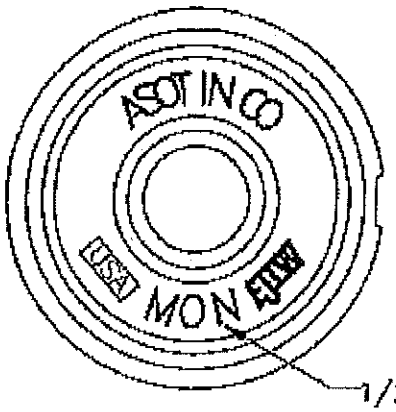
DATE 2/4/15
DWN MCL
REV
CHK JB
SCALE NTS

DWG. NO.
GP-4

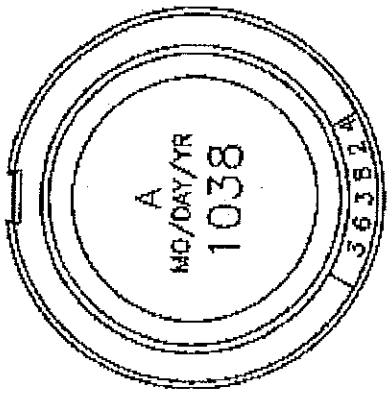


CUL-DE-SAC

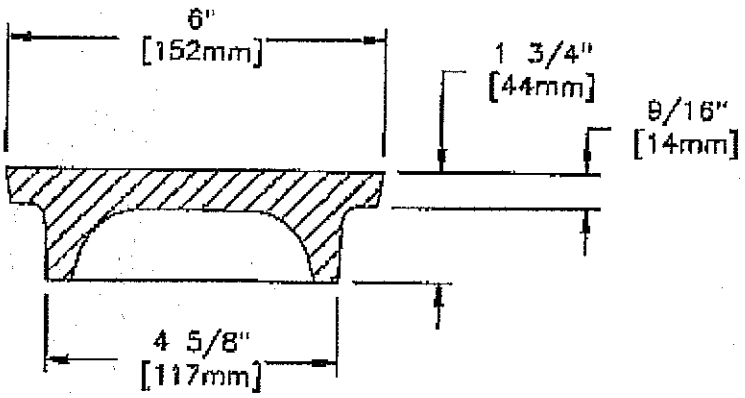
ASOTIN COUNTY PUBLIC WORKS		DATE 2/4/15 DWN MCL REV CHK JB SCALE NTS	DWG. NO. GP-5



PLAN VIEW



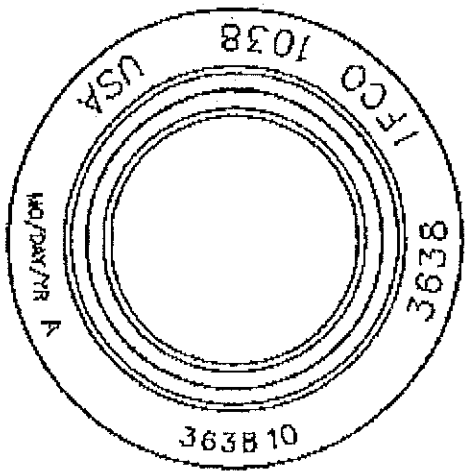
BOTTOM VIEW



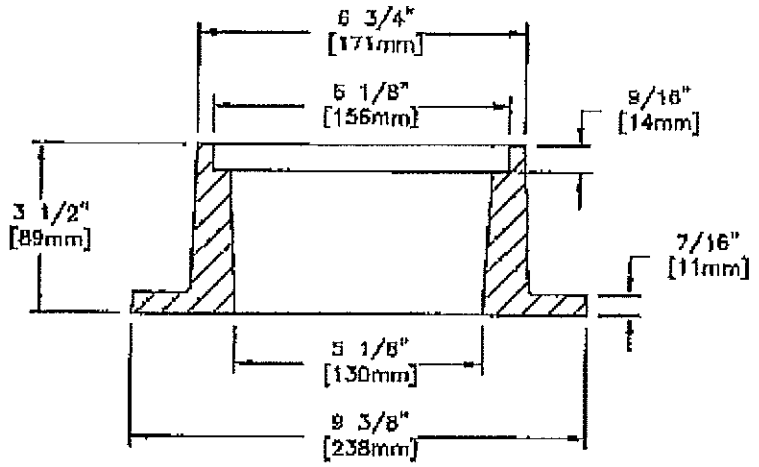
SECTION VIEW

ASOTIN COUNTY
MONUMENT LID

ASOTIN COUNTY PUBLIC WORKS		DATE 2/15 DWN MCL REV CHK JLB SCALE NTS	DWG. NO. GP-6



PLAN VIEW



SECTION VIEW

ASOTIN COUNTY
MONUMENT CASE

ASOTIN COUNTY PUBLIC WORKS		DATE 2/4/15 DWN MCL REV CHK JB SCALE NTS	DWG. NO. GP – 7