

Return Address
Walla Walla County Commissioners
PO BOX 1506
Walla Walla, WA 99362

Document Titles (i.e.: type of document)

ORDINANCE NO. 435 - APPROVING A REQUEST BY WALLA WALLA COUNTY PUBLIC WORKS DEPARTMENT TO ADOPT AN ORDINANCE REVISING ESTABLISHED ROADWAY DESIGN STANDARDS, WHICH INCLUDES BASIC DESIGN STANDARDS FOR VARIOUS ROADWAY ELEMENTS IN BOTH THE URBAN AND RURAL PORTIONS OF WALLA WALLA COUNTY, AND AMENDING WALLA WALLA COUNTY CODE CHAPTER 12.06 TO REFLECT THE REVISED STANDARDS.

Auditor File Number(s) of document being assigned or released:

Grantor

1. **Walla Walla County Commissioners**
- 2.
- 3.

Additional names on page ____ of document.

Grantee

1. **The Public**
- 2.
- 3.

Additional names on page ____ of document.

Legal description (i.e.: lot and block or section township and range)

n/a

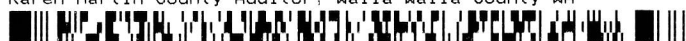
Additional legal is on page ____ of document.

Assessors Parcel Numbers

n/a

Additional parcel number is on page ____ of document.

The Auditor/Recorder will rely on the information provided on this form. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein. Please type or print the information. This page becomes part of document.



**BOARD OF COUNTY COMMISSIONERS
WALLA WALLA COUNTY, WASHINGTON**

ORDINANCE NO. 435

APPROVING A REQUEST BY WALLA WALLA COUNTY PUBLIC WORKS DEPARTMENT TO ADOPT AN ORDINANCE REVISING ESTABLISHED ROADWAY DESIGN STANDARDS, WHICH INCLUDES BASIC DESIGN STANDARDS FOR VARIOUS ROADWAY ELEMENTS IN BOTH THE URBAN AND RURAL PORTIONS OF WALLA WALLA COUNTY, AND AMENDING WALLA WALLA COUNTY CODE CHAPTER 12.06 TO REFLECT THE REVISED STANDARDS.

Whereas, RCW 36.75 authorizes counties to perform all acts necessary and proper for the administration of County roads; and

Whereas, Title 12 of the Walla Walla County Code, Streets, Sidewalks, and Public Places incorporates the Walla Walla County Road Design Standards by reference; and

Whereas, it is the desire of Walla Walla County to provide to developers, contractors, and county residents a stand-alone document containing current roadway design standards to guide design and construction of streets, sidewalks and public places throughout the County;

NOW THEREFORE,

BE IT ORDAINED, by the Walla Walla County Board of County Commissioners that:

Section I. The Board of County Commissioners Makes the Following Findings of Fact:

1. The Roadway Design Standards were last revised with Ordinance 377, in October 2009 and were based on accepted federal, state, local, and industry standards at that time.
2. Changes to federal, state and local industry standards over the past six years require revisions to the Walla Walla County Road Design Standards to reflect such changes and bring the standards up to date.
3. Developers, contractors and county residents have also identified some ambiguities within the current County standards. Proposed revisions will remove identified ambiguities, provide better definitions and clarify requirements.
4. Proposed revisions to the Walla Walla County Road design standards have been posted on the Public Works Department website since August 19, 2015 for public review and comment.

5. Chapter 12.06 of the Walla Walla County Code authorizes the Public Works Department
Ordinance No. 435 Page 1 of 3

to make minor changes to the Road Design Standards text and drawings to better implement the Standards and stay current with changing design, construction technology and methods of construction.

6. The County Community Development Department issued a SEPA Determination of Non-Significance on August 6, 2015. No comments or appeals were received regarding the Determination of Non-Significance.
7. Notices of a Public Hearing were published in the Waitsburg Times and Walla Walla Union-Bulletin on August 20 and August 27, 2015.
8. The Board of County Commissioners held a public hearing on September 8, 2015 for the purpose of receiving testimony on the proposed revisions.

Section II. The Board of County Commissioners Makes the Following Conclusions of Law:

1. The County has reviewed and evaluated comments received from the public.
2. Revisions to the Roadway Design Standards are necessary to provide consistency and guidance and to regulate the design and construction of streets, sidewalks and public places throughout the County.

Section III. The following amendment to Walla Walla County Code Section 12.06.020 is enacted:

12.06.020 - Adoption of road design standards.

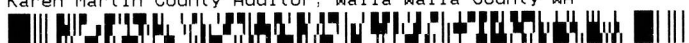
A. The "Walla Walla County Road Design Standards" adopted by Ordinance ~~377~~ 435, or as subsequently revised by the board, is hereby incorporated into this title as the Walla Walla county standards for the design and construction of all public and private roads.

B. The Public Works Department is hereby authorized to develop public rules and make minor changes to the text and drawings in order to better implement the Standards as needed and to stay current with changing design, construction technology and methods of construction.

Section IV. Adoption of the Roadway Design Standards. The revisions to the Roadway Design Standards are **adopted** as presented to the Board of County Commissioners on this date as attached in Exhibit A. These standards will not be published in the County Code; however, the standards will be available on the Walla Walla County Public Works Department's website.

Section V. Effective Date and Savings. This ordinance is effective as of the date of signing.

Section VI. 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.



Section VII. This ordinance will be published by an approved summary consisting of the title.

PASSED by the Walla Walla County Board of County Commissioners in regular session at Walla Walla, Washington, then signed by its membership and attested by its Clerk in authorization of such passage this 8th day of September, 2015.

Approved this 8th Day of September, 2015

Attest:

Connie R Vinti
Connie R. Vinti, Clerk of the Board

Perry L Dozier
Perry L. Dozier, Chairman, District 2

James K Johnson
James K. Johnson, Commissioner, District 1

James L Duncan
James L. Duncan, Commissioner, District 3

*Constituting the Board of County Commissioners
of Walla Walla County, Washington*

Approved as to form

Jesse D Nolte
Jesse D. Nolte, Deputy Prosecuting Attorney



WALLA WALLA COUNTY ROAD DESIGN STANDARDS

Department of Public Works

CHAPTER 1. GENERAL 3

1.1	PURPOSE	3
1.2	APPLICABILITY	4
1.3	EXEMPTIONS	4
1.3.1	Primitive Roads	4
1.3.2	Other Exemptions	4
1.4	ROAD NAMES	4
1.5	INTERPRETATION	4
1.6	REVISIONS	5
1.7	VARIANCES	5
1.8	OTHER SPECIFICATIONS AND GUIDELINES	5
1.9	SEVERABILITY	5

CHAPTER 2. DEFINITIONS 6

CHAPTER 3. ROAD DESIGN GUIDELINES AND STANDARDS 14

3.1	APPLICABILITY	14
3.2	ROAD DESIGN STANDARDS	14
3.2.1	General	14
3.2.2	Urban Principal and Minor Arterials	14
3.2.3	Collectors	14
3.2.4	Local Access Roads	14
3.2.5	Driveways	15
3.2.6	Standard Plans and Details	15
3.2.7	Construction	15
3.3	ROAD ELEMENTS	22
3.3.1	Right of Way	22
3.3.2	Alleys	22
3.3.3	Dead End Roads	22
3.3.4	Stub Roads	22
3.3.5	Cul-de-sac	22
3.3.6	Private Road and Driveway Approaches	23
3.3.7	Intersections	24
3.3.8	Medians	25
3.3.9	Pedestrian and Bicycle Facilities	26
3.4	SIGHT DISTANCE AND CLEAR ZONES	26
3.4.1	Sight Distances	26



3.4.2	Sight Distance Exemptions For Private Roads.	29
3.4.3	Clear Zones	29
3.5	SIDE SLOPES	30
3.5.1	Cut Slopes	30
3.5.2	Fill Slopes	30
3.6	ROAD SURFACING REQUIREMENTS.....	31
3.7	MONUMENTS	32

CHAPTER 4. PLAN REQUIREMENTS..... 33

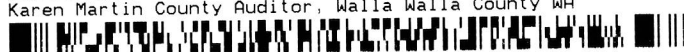
4.1	PURPOSE	33
4.2	PLAN AND PROFILE.....	33
4.3	RECORD DRAWINGS.....	37
4.4	GENERAL REQUIREMENTS.....	37
4.5	COMPLIANCE	37

LIST OF TABLES

Table 1	Design Standards for Urban Principal and Minor Arterial Roads.....	16
Table 2	Design Standards for Urban Collector	17
Table 3	Design Standards for Rural Collector	18
Table 4	Design Standards for Urban Local Access.....	19
Table 5	Design Standards for Rural Local Access.....	20
Table 6	Design Standards for Driveways.....	21
Table 7	Minimum Intersection Approach Lengths	25
Table 8	Approach Triangle-Uncontrolled or Yield Conditions.....	27
Table 8A	Departure Sight Triangle-Stop Control.....	28
Table 9	Design Clear Zone Distance.....	30
Table 10	Urban Road Minimum Road Thickness Requirements	31
Table 11	Rural Road Minimum Road Thickness Requirements	31

APPENDIX

Typical Rural Roadway Sections (Figure R-01 – Figure R-04)
Details for Rural Roadway Elements (Figure R-05 – Figure R-14)
Typical Urban Roadway Sections (Figure U-01 – Figure U- 06)
Details for Urban Road Elements (Figure S-01 – Figure S-08)



CHAPTER 1. GENERAL

1.1 PURPOSE

It is the purpose of these Walla Walla County (County) Road Design Standards (Standards) to establish guidelines and standards for public and private transportation facilities for vehicles, public transit, pedestrians, and bicycles, hereinafter constructed or improved as a condition of County approval of a development, or a transportation project constructed by the County. These Standards are intended to preserve the community's quality of life and to minimize total costs over the life of the transportation facility.

The County has adopted these Standards to:

1. Set forth specific and consistent road design elements for developers and other private parties constructing or modifying road or right of way facilities which require County approvals.
2. Establish uniform criteria to guide the County's own construction of new county roads or reconstruction of existing roads.
3. Support the County's goals for providing adequate facilities for development in an efficient manner and to balance these goals with the general safety and mobility needs of the traveling public.

In adopting these Standards, the County has sought to encourage standardization of road design elements where necessary for consistency and to insure, so far as practical, that the public safety and mobility needs are met. The County's permitting activities require the adoption of specific, identifiable standards to guide private individuals and entities in the administrative process of securing the necessary County approvals. At the same time the County must have flexibility to carry out its general duty to provide roadways for the diverse and changing needs of the traveling public.

These Standards cannot provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that surveyors, engineers and architects will bring to each project the best of skills from their respective disciplines. These Standards are also not intended to unreasonably limit any innovative or creative effort, which could result in better quality, better cost savings, or both. Any proposed departure from these Standards must be granted a variance in accordance with the provisions in Walla Walla County Code (WWCC) Title 12.

In order to remain current with technological changes and public needs, these Standards are subject to revision. This edition will be current at the time of issuance; however, it is incumbent for the holder to keep the manual current. These Standards may be amended from time to time in accordance with WWCC Title 12.

1.2 APPLICABILITY

These Standards are intended to be consistent with the transportation element of the Walla Walla County Comprehensive Plan and WWCC Title 12. These Standards shall apply to all new construction of public and private roads in unincorporated Walla Walla County and as far as practicable and feasible, to the reconstruction, resurfacing, restoration, and rehabilitation of existing private roads and roads comprising the county road system.

1.3 EXEMPTIONS

The following facilities and conditions are exempt from these Standards.

1.3.1 Primitive Roads

Primitive roads are low volume (<100 ADT), unpaved roads, as provided for in RCW 36.86.070. A primitive road is designated as such by signs placed where the primitive road begins or connects with other roads not considered as primitive. "No design or signing or maintenance standards or requirements, other than the requirement that warning signs be placed as provided in this section, apply to primitive roads." (RCW 36.75.300). The surfacing may or may not be considered as "all weather" and snow removal is not performed. Maintenance is performed on an infrequent and limited basis and may not be done at all for lengthy periods of time.

1.3.2 Other Exemptions

These Standards shall not govern the following:

1. Road and associated work done on roads under the authority, ownership or responsibility of other governmental agencies. In such cases, the standards of the other governmental agency shall apply.
2. Road maintenance work on private roads that does not affect the prior approved geometrics or adversely affects the safe passage of vehicles on the private road.
3. Temporary road repairs made on an emergency basis as determined by the County Engineer.
4. Resurfacing and restoration (2-R) projects.
5. Resurfacing, restoration, and rehabilitation (3-R) projects.

1.4 ROAD NAMES

The standards and procedures for road names are contained in the Walla Walla County Addressing Standards and Guidelines section of WWCC Title 12.

1.5 INTERPRETATION

Interpretation and enforcement of these Standards shall be the responsibility of the County Engineer or designated representative. Where the word "shall" is used in these Standards, the requirement is mandatory and must be complied with. Where the word "should" is used in these Standards, the requirement is considered to be advisable or recommended, but not mandatory.



1.6 REVISIONS

The County Engineer may make minor changes to the text or drawings in order to better implement the Standards or to stay current with changing design and construction technology and methods.

1.7 VARIANCES

Procedures and criteria for variances to these Standards are contained in WWCC Title 12.

1.8 OTHER SPECIFICATIONS AND GUIDELINES

The most current version of the following specifications and guidelines, as amended, are incorporated by reference and shall be applicable when pertinent, when specifically cited in the Standards, when required as a development condition, or when required by state or federal funding authority.

American Association of Highway and Transportation Officials (AASHTO). Policy on Geometric Design of Highways and Streets. Washington, DC.

Federal Highway Administration (FHWA). Manual on Uniform Traffic Control Devices (MUTCD), current editions, as amended and approved by WSDOT.

Walla Walla County. Walla Walla County Comprehensive Plan. Community Development Department.

Walla Walla County Long Term Arterial Plan. Included in the transportation element of the Walla Walla County Comprehensive Plan.

Walla Walla County. Transportation Impact Analysis Guidelines. Public Works Department.

Washington State Department of Ecology. Stormwater Manual for Eastern Washington. Publication No. 04-10-076.

Washington State Department of Transportation (WSDOT). Design Manual. Publication No. M 22-01.

Washington State Department of Transportation (WSDOT). Local Agency Guidelines. Publication No. M 36-63.01.

Washington State Department of Transportation (WSDOT). Standard Plans for Road and Bridge Construction. Publication No. M 21-01.

Washington State Department of Transportation (WSDOT). Standard Specifications for Road, Bridge, and Municipal Construction. Publication No. M 41-10.

1.9 SEVERABILITY

If any part of these Standards as established shall be found invalid, all other parts shall remain in effect.



CHAPTER 2. Definitions

Following are definitions of terms referenced in these Standards. All definitions should be consistent with definitions provided in WWCC Titles 12, 16, and 17. In the case of conflict between these definitions and those in WWCC Titles 12, 16, and 17, the definitions in those Titles shall govern.

2-R - Resurfacing and restoration – restoration of the pavement structure on the existing vertical and horizontal alignment and spot safety improvements. Minor widening costs are allowed as a part of this project type.

3-R - Resurfacing, restoration, and rehabilitation - less than fifty percent vertical or horizontal changes, and safety improvements.

AASHTO - American Association of State Highway and Transportation Officials. Standards setting body which publishes specifications, test protocols and guidelines which are used in highway design and construction throughout the United States.

ADT - Average Daily Traffic. The general unit of measure of traffic defined as the total volume of traffic on a road segment during a given time period, in whole days being less than one year but greater than one day, divided by the number of days in that time period. Design year ADT is 20 years from anticipated date of construction.

Alley - Alley is a strip of land that provides vehicular and pedestrian access to the rear or side of properties which abuts and is served by a public or private road and is not intended for general traffic circulation.

All-weather road - Gravel or paved road. The traveled way shall have a two percent crown and shall be surfaced with a minimum of six inches of crushed surfacing top or base course.

Applicant - Property owner, public or private agency, public or private utility, developer or designee responsible for a development proposal, permit or approval, or their successor or assignee.

Approach - An area within a road that provides access to and from a driveway or an area within a public road that provides access to and from a private road. Any area, construction or facility, within the public road right of way or private road that connects the public or private road to private property. The portion of a driveway within the public or private road is an approach.

Asphalt Concrete Pavement - A mixture of mineral aggregate and bituminous materials used in a pavement structure.



Auxiliary Lanes - Turn lanes, bicycle lanes, and lanes that do not provide for through-traffic.

Bikeway - Track, path or marked lane designated for use by bicyclists from which vehicular traffic is generally excluded.

Bituminous Surface Treatment - One or more applications of sprayed-on liquid asphalt followed by a layer of aggregate to protect and preserve the surface, maintain the structural integrity, or to restore the surface texture and skid resistance of the roadway.

BMP - Best Management Practice. Innovative and improved tool, practice, and/or method that has been determined to be the most effective, practical means of avoiding or reducing environmental impacts.

California Bearing Ratio - Penetration test for evaluation of the mechanical strength of road sub-grades, developed by the California Department of Transportation.

Clear Zone - Designates the area beyond the edge of the traveled way in which no obstacles interfere with sight distance, and is available for recovery of errant vehicles.

Collector - See Functional Classification.

Compaction - To make soil dense by mechanical manipulation which increases the density by reducing the voids in the soil.

County - Walla Walla County of the State of Washington.

County Engineer - Walla Walla County Engineer, having authority specified in RCW 36.75.050 and 36.80, or an authorized representative.

Cul-de-Sac - A dead end road with a circular area of sufficient size for turning vehicles around located at the closed end.

Design Speed - The maximum safe speed that can be maintained over a specified section of road when conditions are so favorable that the design features of the road govern.

DHV - Design Hourly Volume. Typically the thirtieth highest hour traffic volume of the future year chosen for design. On the average rural road, DHV is typically about 15 percent of design year ADT. For urban areas, DHV is typically between 8 and 12 percent of the design year ADT.

Driveway - A privately owned vehicular access route serving up to two lots.

Easement - A grant by a property owner to specific persons or to the public to use land for a specific purpose or purposes.

Easement, Private Access - Privately owned right of ingress and egress across land for the purpose of providing access to lots, parcels, tracts, or other easements.

Engineer - A professional engineer licensed for the specific discipline as needed by the State of Washington.

ESAL - Equivalent Single Axle Load. The effect on pavement performance of any combination of axle loads of varying magnitude equated to the number of 18,000 lb. (18 k or 80-kN) (18,000-lb.) single-axle loads that are required to produce an equivalent effect.

Functional Classification - Designation applied to all public roads under the County Comprehensive Plan that describes the relative mobility and access function of that road. The county classification system is based on and is intended to be in compliance with the federal functional classification system.

Urban Roads.

The County classifies urban roads as follows:

- **Principal Arterials** are regionally significant streets that link communities while also connecting important locations within an urban area, most often carrying the system's largest traffic volumes. Access to local streets and driveways is discouraged.
- **Minor Arterials** are major streets that provide important intra-city connections, but may also play a regional role. Access to local streets is encouraged while driveway access is discouraged.
- **Collectors** conduct traffic from local access roads to arterials, often serving a dual purpose between moving traffic and providing access to individual lands.
- **Local Access Roads** provide direct access to individual lands regardless of use. Typically, any urban road not classified as a principal arterial, minor arterial, or collector is a local access road.

Rural Roads.

The County classifies rural roads as follows:

- **Major Collectors** provide efficient routes of travel to towns or other rural centers not served by an arterial and are designed to collect a large volume of traffic. Access to individual lands is a secondary function of the road.
- **Minor Collectors** conduct traffic from local roads to major collectors and arterials, often serving a dual purpose between moving traffic and providing access to individual lands.

- **Local Access Roads** provide direct access to individual lands regardless of use. Typically, any rural road not classified as a major or minor collector is a local access road.

Hammer Head – A dead end road with a non-circular configuration of sufficient size for turning vehicles around at the closed end and which serves no more than three (3) lots.

Hazard – A side slope steeper than 3:1 (3 units horizontal to 1 unit vertical), an object, water, or a drainage device, which, if impacted, would apply unacceptable impact forces on the vehicle occupants, or place the occupants in a hazardous position. It can be natural or manmade.

Hot Mix Asphalt (HMA) – A form of Asphalt Concrete that is mixed at a contractor's Hot Mix Plant, transported to the roadway in dump trucks, placed using a paver, and compacted with steel-wheel or rubber-tired rollers. Hot mixed asphalt on public roads shall be CL ½" PG 64-28, unless approved otherwise by the County Engineer.

ITE – Institute of Transportation Engineers. International association of transportation professionals responsible for planning, designing, implementing, operating, and maintaining the surface and ground transportation systems of the world.

Level – See Terrain Classification.

Local Access Road – See Functional Classification.

Longitudinal Barrier – Beam guardrail or concrete barrier being parallel to nearly parallel to the road, which serves to contain or redirect errant vehicles from hazards within the clear zone.

Lot – Subdivided land having fixed boundaries, being of sufficient area and dimension to meet minimum zoning requirements for width and area. The term includes tracts or parcels.

Major Collector – See Functional Classification.

Minor Arterial – See Functional Classification.

Minor Collector – See Functional Classification.

Mountainous – See Terrain Classification.

Multi-Use Path – Track or path designated for use by pedestrians, bicyclists, and other non-motorized uses and upon which vehicular traffic is excluded

MUTCD – Manual of Uniform Traffic Control Devices. The manual approved by the Federal Highway Administration as the national standard for traffic control devices used on all public streets and highways.

Obstruction - Trees, sign supports, utility poles, light poles, fire hydrants and any other fixed objects within the right of way, sight distance, or clear zone that may damage an out-of-control vehicle.

Path - Continuous way intended for pedestrian or multi-purpose use and separated from the traveled way by open space or a barrier curb and open space.

Paved - Surfaced with a hard medium such as hot mix asphalt, asphalt concrete pavement, or Portland cement concrete pavement. Also used to identify those roads with a bituminous surface treatment surface.

Portland Cement Concrete (PCC) - Concrete mixture used in curb and gutter application.

Portland Cement Concrete Pavement (PCCP) - Mixture of Portland Cement, aggregate and water used in a pavement structure.

Principal Arterial - See Functional Classification.

Public Works - Walla Walla County Public Works Department.

RCW - Revised Code of Washington. Statutory laws of the State of Washington.

Reconstruction - Major construction of an existing road greater than 3-R which includes significant changes in cross section and/or shifts in vertical or horizontal alignment. A project is considered reconstruction if fifty percent or more of the project length involves significant vertical or horizontal alignment change.

Record Drawing - An engineered drawing or plan certified to contain a true and accurate representation of the actual field conditions for the project upon completion of construction.

Rehabilitation - Work similar to restoration except the work may include but is not limited to the following:

- Reworking or strengthening the base or subbase
- Recycling or reworking existing materials to improve their structural integrity
- Adding underdrains
- Replacing or restoring malfunctioning joints
- Substantial pavement resealing when essential for stabilization
- Grinding of pavements to restore smoothness, providing adequate structural thickness remains

- Removing and replacing deteriorated materials
- Crack and joint sealing when preceded by routing or sawing
- Improving or widening shoulders

Restoration - Work done on pavement or bridge decks to prepare them for an additional state of construction. This may include supplementing the existing road by increasing surfacing and paving courses to provide structural capability, widening up to a total of ten feet, and installing localized safety improvements. Restoration will generally be performed within the existing right of way.

Resurfacing - The addition of a layer or layers of paving material to provide additional structural integrity or improved profile and serviceability. This includes paving existing gravel roads if the improvement is not reconstruction, as defined in this section.

Right of Way - Land, property or property interest, usually in a strip, acquired for or devoted to transportation purposes or other public improvements.

Right of Way, Unopened Public - Vehicular access route, dedicated to the public which may or may not be surfaced and is not maintained by the County.

Road - A general term for a facility serving three lots or more that provides public or private vehicular circulation or principal means of access to abutting properties, and which includes the roadway and all other improvements inside of the right of way, tract or easement.

Road, County - See Road, Public.

Road, Dead End - A road having one end open to traffic and the other temporarily or permanently closed.

Road, Private - A road that is constructed on a private tract or other conveyance and that is under private ownership. The County does not construct, repair or maintain private roads.

Road, Public - A road constructed on right of way established, purchased or otherwise established for public use and not privately owned or maintained, which is considered as open to vehicular traffic and which has been adopted into the county road system.

Road, Rural - A road located outside a UGA.

Road, Stub - A road extended beyond an intersection for future expansion. Not intended to serve residential lots.

Road, Urban - A road located within a UGA.

Roadside - That portion of an easement or right of way lying on each side of the roadway, including curbs, sidewalks and ditches.

Roadway - The improved portion of an easement or right of way used for vehicular travel as measured from the outside of the shoulder or from the face of the curb.

Rolling - See Terrain Classification.

Rural - Geographic area located outside of a UGA.

Shall - A mandatory requirement. See Chapter 1.5.

Should - A recommended or advisable requirement. See Chapter 1.5.

Shoulder - Portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, for use by pedestrians and bicyclists, and for lateral support of subbase, base, and surface courses.

Shy Distance - Distance between a traveled, parking or turn lane and a curb, or the required increase of a shoulder when a roadside barrier is present.

Sidewalk - Continuous way intended for pedestrian use and separated from the traveled way by open space, curbing, pavement marking or barrier.

Slopes - Ratios referenced in the Standards are H/V.

Standards - The requirements contained in the Walla Walla County Road Design Standards.

Street - See Road.

Subdivision - The division or redivision of land into five or more lots, tracts, parcels, sites or divisions outside of an urban growth area boundary or nine or fewer lots, tracts, parcels, sites or divisions inside of an urban growth area boundary for the purpose of sale or lease and includes all resubdivision of land.

Superelevation - An increase in the normal roadway cross slope to flat before gradually tilting the roadway surface to partially counterbalance the centripetal force on a vehicle that is negotiating a horizontal curve. The process is reversed upon exiting the curve.

Surveyor - Professional land surveyor registered and licensed by the State of Washington.

Terrain Classification - Designation applied to the terrain on which a road is located, to establish a general basis for design criteria. The following terrain classifications are provided:

- **Level** - offers few or no obstacles to construction of a road with unrestricted horizontal and vertical alignment
- **Rolling** - includes hills and foothills with gently rising and falling slopes. Occasional steep slopes may cause some restriction to horizontal and vertical alignment
- **Mountainous** - primarily rugged foothills, relatively steep slopes and high drainage divides

Traveled Way - That portion of a roadway intended for the movement of vehicles, including turn lanes but exclusive of shoulders, bike lanes, and parking lanes.

Traffic Barrier - See Longitudinal Barrier.

UGA - Urban Growth Area. Areas designated by the County in the Walla Walla County Comprehensive Plan pursuant to the Growth Management Act (RCW 36.70A.)

Unified Soil Classification - A soil classification system used in engineering and geology disciplines to describe the texture and grain size of a soil. The classification system can be applied to most unconsolidated materials, and is represented by a two-letter symbol.

Urban - Geographic area located inside a UGA.

Utility - A company or individual providing public or private service such as gas, electric power, irrigation, telephone, telegraph, water, sewer or cable television, whether or not such company is publicly or privately owned or owned by a governmental entity.

Variance - A departure from the design or construction requirements in these Standards as provided in WWCC Title 12.

WWCC - Walla Walla County Code. Statutory laws of Walla Walla County.

CHAPTER 3. ROAD DESIGN GUIDELINES AND STANDARDS

3.1 APPLICABILITY

Work performed in the construction or improvement of county roads, whether by or for a private developer, by County forces, or by County contractor, shall be done in accordance with these standards and approved plans and specifications.

3.2 ROAD DESIGN STANDARDS

The standards presented in this section shall be incorporated into the construction of all new roads or the improvement of all existing roads in the County. The road design standards are presented as follows:

3.2.1 General

The following requirements apply to all roads:

1. Street jogs with centerline offsets of less than one hundred twenty-five feet shall be avoided.
2. A tangent at least one hundred feet long shall be introduced between reverse curves on arterial and collector streets, and at least ten feet long for minor streets.
3. When connecting street lines deflect from each other at any one point by more than 10 degrees, they shall be connected by a curve with a radius adequate to ensure a corner sight distance of not less than 100 feet for minor and collector streets, or as required by the County Engineer.
4. No street grade should be less than 0.5 percent.
5. Maximum street grades shall be as presented in the tables. Grades may be steeper for short distances (<500 feet.) upon approval by the County Engineer.
6. All roadway structures shall be designed according to the current edition of the WSDOT local agency guidelines manual.
7. Vertical clearance from roadway surface to overhead structures shall be in accordance to the current WAC; 20 feet for TV, 24 feet for power (WAC 468.34.290).

3.2.2 Urban Principal and Minor Arterials

Design standards for construction of new and reconstruction of existing urban principal and minor arterials are presented in **Table 1**.

3.2.3 Collectors

Design standards for construction of new and reconstruction of existing urban and rural collectors are presented in **Table 2 and 3**.

3.2.4 Local Access Roads

Design standards for urban and rural local access roads are presented in **Tables 4 and 5**.

3.2.5 Driveways

Design standards for rural and urban driveways are presented in **Table 6**.

The following requirements apply to all driveways:

1. On corner lots, driveways must be along the property line farthest from the intersection.
2. On lots adjacent to alleys, it is permissible for driveways to be positioned within 2' of the alley.
3. On mid-block lots, driveways shall be positioned to avoid having the water meter in the driveway.
4. Driveways shall be positioned to avoid catch basins, water meters, power poles, fire hydrants, street light, and traffic signs.
5. Driveways must be positioned to preserve a clear view triangle of 15' along the property line.
6. Driveways must provide access to a garage, carport, parking apron, or other structure on the property. Driveways that provide access only to the planting strip or that allow parking on the sidewalk are not permitted.

3.2.6 Standard Plans and Details

Standard plans and details are presented in **Appendix A**. The criteria presented in Tables 1 through 6 are intended for normal conditions. The County Engineer may require different standards at any time as deemed appropriate. Elements not shown shall conform to the most recent adoption of the "City and County Design Standards" as contained in the current Local Agency Guidelines (LAG) Manual and/or the current edition of "A Policy on Geometric Design of Highways and Streets". Other current references may also be used, such as guidelines published by the Institute of Transportation Engineers (ITE).

3.2.7 Construction

Unless specified elsewhere all materials and work shall follow the requirements of the current edition of the Washington State Department of Transportation Standards Specifications for Road, Bridge, and Municipal Construction.

Table 1 Design Standards - Urban Principal Arterial, Urban Minor Arterial Roads

Design Element	Classification	Principal Arterial	Minor Arterial	
	Type	Curb		No Curb ⁽¹⁾
	DHV	All		
Minimum Design ⁽²⁾ Speed (mph)	Level	40		
	Rolling	35		
	Mountainous	30		
Minimum Horizontal Curve Radius (ft.)	Level	533		
	Rolling	371		
	Mountainous	250		
Superelevation (%)	Maximum	4		
Maximum Grade ⁽³⁾	Level	5		
	Rolling	6		
	Mountainous	8		
Lane Width (ft.)	Travel	12	11	
	Interior Turn Pocket ⁽⁴⁾	11		
	Parking ⁽⁵⁾	8		
	Bicycle ⁽⁶⁾	5		
Pedestrian and multi-use Facilities	Multi-use Path width (ft.)	10	-	
	Sidewalk width (ft.) ⁽⁷⁾	6	-	
Curb and Gutter Width (ft.)		1.5	-	
Planting Strip/Buffer Width (ft.) ⁽⁸⁾		5	-	
Minimum Roadway width (ft.)	2 lanes	NA	30	38
	3 lanes	NA	41 ⁽⁹⁾	49 ⁽⁹⁾
	4 lanes	51	52	NA
Minimum Curb/Pavement Return Radii (ft.)		50	30	

1) No curb requires County Engineer's approval. Minimum shoulder width is 8 ft.

2) Design speed may be reduced to the posted speed for existing roads if approved by the County Engineer.

3) Maximum grade may be increased up to 2% for short distances (< 500 ft.) if approved by the County Engineer.

4) Wider width may be required for arterials that serve commercial/industrial business as determined by the County Engineer.

5) Only if required by the County Engineer. 10 ft. width may be required for arterials that serve commercial and industrial business.

6) Must be accommodated with two bicycle lanes. A multi-use path or 10 ft. wide shared use sidewalk is required on at least one side if only one bicycle lane is approved.

7) 5 foot wide sidewalk may be used if sidewalk is separated from roadway by curb and planting strip/buffer.

9) Only as a center turn lane.

Table 2 Design Standards - Urban Collector

Design Element	Classification	Urban Collector	
	Type	Curb	No Curb ⁽¹⁾
	DHV	All	
Minimum Design Speed (mph)	Level	35	
	Rolling	30	
	Mountainous	25	
Minimum Horizontal Curve Radius (ft.)	Level	371	
	Rolling	250	
	Mountainous	154	
Superelevation (%)	Maximum	4	
Maximum Grade ⁽²⁾	Level	7	
	Rolling	8	
	Mountainous	10	
Lane Width (ft.)	Travel	11	
	Interior Turn Pocket ⁽³⁾	10	
	Parking ⁽⁴⁾	8	
	Bicycle ⁽⁵⁾	5	
Pedestrian and multi-use Facilities	Multi-use Path width (ft.)	10	-
	Sidewalk width (ft.) ⁽⁶⁾	6	-
Curb and Gutter Width (ft.)		1.5	-
Planting Strip/Buffer Width (ft.) ⁽⁷⁾		5	-
Minimum Roadway Width (ft.)	2 lanes	30	34
	3 lanes	41 ⁽⁸⁾	45 ⁽⁸⁾
	4 lanes	NA	NA
Minimum Curb/Pavement Return Radii (ft.)		30	

1) Urban Collector with no curb requires County Engineer's approval. Minimum paved shoulder width is 6 ft.

2) Maximum grade may be increased up to 2% steeper for short distances(< 500 ft.) if approved by the County Engineer.

3) Wider width may be required for collectors that serve commercial/industrial business as determined by the County Engineer.

4) Only if required by the County Engineer. 10 ft. width may be required for collectors that serve commercial/industrial business.

5) Must be accommodated in two bicycle lanes. A multi-use path or 10 ft. wide shared use sidewalk is required on at least one side if only one bicycle lane is approved.

6) 5 foot wide sidewalk may be used if sidewalk is separated from roadway by curb and planting strip/buffer.

7) Planting strip/buffer may be omitted if bicycle lanes are installed and if approved by the County Engineer.

8) Only as a center turn lane.

Table 3 Design Standards - Rural Collector

Design Element	Classification	Rural Major and Minor Collector			
	TYPE	No Curb			
	Design Year ADT ⁽¹⁾	< 400	400-1499	1500-2000	>2000
Minimum Design Speed (mph) ⁽²⁾	Level	50			60
	Rolling	40			50
	Mountainous	30			40
Minimum Horizontal Curve Radius (ft.) ⁽²⁾	Level	833			1330
	Rolling	485			833
	Mountainous	231			485
Superelevation (%)	Maximum	6			
Maximum Grade ⁽³⁾	Level	7		6	5
	Rolling	8		7	6
	Mountainous	10		9	8
Lane Width (ft.)	Travel Lane ⁽⁴⁾	11			12
	Interior Turn Pocket	11			11
	Bicycle ⁽⁵⁾	5			
Paved Shoulder	Width (ft.) ⁽⁶⁾	4 ⁽⁷⁾	5 ⁽⁷⁾	6	8
Pedestrian and multi-use Facilities	Multi-use Path width (ft.) ⁽⁸⁾	10			
	Sidewalk width (ft.)	NA			
Planting Strip/Buffer	Width (ft.) ⁽⁸⁾	5			
Minimum Roadway Width (ft.)	2 lanes	30	32	34	40
Minimum Right of Way width (ft.)		60			
Minimum Pavement Return Radii (ft.)		50			

1) Design Year ADT is 20 years from anticipated date of construction.

2) May use AASHTO Geometric Design of Very Low-Volume Local Roads for ADT ≤ 400 if approved by the County Engineer.

3) Maximum grade may be increased by up to 2% for short distance (500 ft.) if approved by the County Engineer.

4) 12 ft. travel lane is required if shoulders are not paved

5) Only on the shoulder when required by the County Engineer.

6) Gravel shoulder may be provided if approved by the County Engineer.

7) Shoulder width may be reduced 1 ft. if approved by the County Engineer.

8) Only if required by the County Engineer.

Table 4 Design Standards - Urban Local Access

Design Element	Classification	Public	Public Subdivision		Private Subdivision	
	Type	Curb				
	Design Year ADT ⁽¹⁾	All	> 400	< =400	>250	< =250
Minimum Design Speed (mph)	Level	30	30	30	30	25
	Rolling	30	30	25	25	25
	Mountainous	25	25	25	20	20
Minimum Horizontal Curve Radius (ft.)	Level	250	333	198	198	107
	Rolling	250	333	107	107	107
	Mountainous	154	198	107	50	50
Superelevation (%)	Maximum	4	NC ⁽²⁾			
Maximum Grade ⁽³⁾	Level	6			7	
	Rolling	8			9	
	Mountainous	10			12	
Lane Width (ft.)	Travel	10	10		10	
	Interior Turn Pocket	10	10		NA	
	Parking ⁽⁴⁾	8	8		6	
	Bicycle	5 ⁽⁵⁾	NA		NA	
Planting Strip/Buffer Zone width (ft.) ⁽⁶⁾		5			3	
Pedestrian and multi-use Facilities ⁽⁷⁾	Multi-use Path width (ft.)	10				
	Sidewalk width (ft.) ⁽⁸⁾	6				
Curb and Gutter	Width (ft.)	1.5				
Min. Roadway Width (ft.)	2 lanes	31				
Minimum Curb/Pavement Return Radii (ft.)		20				

1) Design year is 20 years from anticipated date of construction.

2) Normal crown (no superelevation).

3) Maximum grade may be increased up to 2% for short distances (< 500 ft.) if approved by the County Engineer.

4) Required on at least one side of the road.

5) Only required if no multi use path is provided.

6) Planting strip/Buffer may be omitted if bicycle lanes are installed and if approved by the County Engineer.

7) Required on both sides of the road in a combination approved by the County Engineer.

8) 5 foot wide sidewalk may be used if a planting strip/buffer separates the sidewalk from the curb.

Table 5 Design Standards - Rural Local Access

Design Element	Classification	Public	Public Subdivision		Private Subdivision	
	Type	No Curb				
	Design Year ADT ⁽¹⁾	All	>250	< =250	>250	< =250
Minimum Design Speed (mph)	Level	50	40	30	35	30
	Rolling	40	30	30	30	25
	Mountainous	30	20	20	20	20
Minimum Horizontal Curve Radius (ft.)	Level	833	762	198	333	198
	Rolling	485	333	198	198	107
	Mountainous	231	107	50	50	50
Superelevation (%)	Maximum	6	NC ⁽²⁾			
Maximum Grade ⁽³⁾	Level	7		8		
	Rolling	10		10		
	Mountainous	12		12		
Lane Width (ft.)	Travel	11				10
	Bicycle ⁽⁴⁾	5				
Shoulder	Width (ft.)	5 ⁽⁵⁾		2	1	1
Pedestrian and multi-use Facilities ⁽⁶⁾	Multi-use Path width (ft.)	10				
	Sidewalk width (ft.)	NA	5			
Planting Strip/Buffer	Width (ft.) ⁽⁷⁾	5				
Min. Roadway Width (ft.)	2 lanes	32	32	26	24	22
Minimum Right of Way width (ft.)		60		50		40
Minimum Pavement Return Radii (ft.)		50		40		30

1) Design Year ADT is 20 years from anticipated date of construction.

2) Normal crown (no superelevation)

3) Maximum grade may be increased by up to 2% for short distance (500 ft.) if approved by the County Engineer.

4) Only on the shoulder when required by the County Engineer.

5) Shoulder width may be reduced if approved by the County Engineer.

6) Only if required by the County Engineer.

7) Planting strip/buffer to be used if multi-use path is required.

Table 6 Design Standards - Driveways

Design Element	Type	Curb	Shoulder	Curb	Shoulder
	Number of lots	1		2	
Minimum Design Speed (mph)	Level	20	20	20	20
	Rolling	20	20	20	20
	Mountainous	NA	NA	NA	NA
Minimum Horizontal Curve Radius (ft.)	Level	50	50	50	50
	Rolling	50	50	50	50
	Mountainous	NA	NA	NA	NA
Maximum Grade (%)	Level	8	8	8	8
	Rolling	10	10	10	10
	Mountainous	12	12	12	12
Minimum Roadway Width (ft.)		12	12	16	16
Minimum Easement Width (ft.)		20	20	20	20
Minimum Curb/Pavement Return Radii (ft.)		20	20	20	20

3.3 ROAD ELEMENTS

3.3.1 Right of Way

Right of way width shall be determined by adding the total of all applicable road elements from the appropriate Tables except that no widths shall be less than those shown in the appropriate Tables.

3.3.2 Alleys

General Requirements

1. Alley intersections and sharp changes in alignment shall be avoided, but where necessary, corners shall be cut off sufficiently to permit safe vehicular movement.
2. Dead end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turnaround facilities at the dead end as determined by the County Engineer.

Residential

1. The minimum width of a residential alley shall be 12 feet.
2. The maximum width of a residential alley shall be 24 feet.

Commercial and Industrial

1. Alleys shall be provided for commercial and industrial uses except that the County Engineer may waive this requirement where other definite and assured provision is made for service access, such as off-street loading, unloading, and parking consistent with and adequate for the uses proposed.
2. The minimum width of a commercial or industrial alley shall be 12 feet.
3. The maximum width of a commercial or industrial alley shall be 30 feet.

3.3.3 Dead End Roads

1. Dead end roads are limited to 150 feet in length.
2. Dead end roads longer than 150 feet are classified as culs-de-sac.

3.3.4 Stub Roads

1. Stub roads are limited to a maximum of 600 feet in length.
2. Stub roads are not meant to serve residential lots.

3.3.5 Cul-de-sac

General Requirements

1. All cul-de-sacs shall have a hammer head or circular area of sufficient size for turning vehicles around constructed at the closed end of the road.
2. Urban cul-de-sacs shall be limited to 400 feet in length as measured from the intersection of the public access street right of way to the turnaround. Cul-de-sacs shall have no more than 14 lots permitted on a single access.

Turnaround Area Radii

1. Cul-de-sacs shall have a right of way radius of 50 feet with the improved portion having a radius of 45 feet.

Paving

1. All or a portion of rural cul-de-sacs may be paved or not depending upon the size of the parcels or number of lots served.
2. Urban cul-de-sacs shall be paved.

3.3.6 Private Road and Driveway Approaches

General Requirements

1. Except for farm approaches any and all approaches that connect to a paved public road shall be paved for a minimum distance of 20 feet back from the edge of the traveled way of the intersected road or to the public right of way, whichever is less.
2. Farm approaches that connect to a paved public road shall be paved for a minimum distance of 8 feet back from the edge of the traveled way of the intersected road or to the public right of way, whichever is less.
3. Approaches that connect to a curb and gutter section of public road shall have a standard driveway apron constructed.
4. All approaches connecting to gravel roads may be required to be paved at the discretion of the County Engineer.
5. Except when sidewalk separates the road from private property, no concrete is allowed within the public right of way, unless approved by the County Engineer.

Private Road Approaches

1. All approaches shall be designed for a minimum angle of 70 degrees and maximum of 110 degrees as measured from the centerline of the approach and the road.
2. Approach grades within 15 feet of the edge of the traveled way will descend away from the road at a rate of 2% for paved and 4% for gravel approaches. The approach outside of the 15 feet shall have a maximum downgrade of 10% away from the road and a maximum rise of 4% or less, to a point being 10 feet outside the right of way.

Driveway Approaches

1. Approaches are not permitted to access urban arterials unless approved by the County Engineer.
2. A maximum of 2 approaches are permitted for each residential or non-agricultural lot or parcel.
3. The minimum spacing between approaches shall be at least 75 feet as measured from centerline to centerline. Approaches for lots that cannot meet this spacing standard shall be of a width and location as determined by the County Engineer based on public safety and the specific site conditions.

4. Approaches on corner lots shall access the lower classification road unless such access is not physically possible. When adjacent roads are of the same classification, the approach shall be located on the less traveled road unless determined otherwise by the County Engineer.
5. Nearest edge of the approach at roadway intersections shall be located no closer than 75 feet from the center line of the crossroad. Approaches for lots that cannot meet this minimum standard shall be of a width and location as determined by the County Engineer based on public safety and the specific site conditions.
6. Residential approaches shall have a maximum width of 24 feet as measured at the narrow part.
7. Commercial and industrial approaches shall have a maximum width of 30 feet except for farm approaches or other special applications, which may be 60 feet if approved by the County Engineer. Pavement and curb returns shall have a minimum radius of 20 feet.

3.3.7 Intersections

General Requirements

1. Tee intersections are encouraged and four way intersections should be minimized on local access systems.
2. Road intersections shall be as nearly at right angles as is practicable.
3. All intersecting roads, whether public or private, shall be designed for a minimum angle of 70 degrees as measured from the centerlines of both roads.
4. Existing intersections with angles of 60 to 70 degrees may require upgrading at the discretion of the County Engineer if the nature and use of the road is fundamentally changed.
5. Existing intersections with angles of less than 60 degrees shall be upgraded to the minimum or as required by the County Engineer.
6. Distances are measured from the centerlines of the respective roads.

Four-leg Intersections

Four-leg intersections (cross) shall be designed so that opposite legs are on the same alignment and conform to the general spacing guidelines below. Tee intersections shall also follow the guidelines as presented below. Spacing on split tee intersections shall follow the appropriate figure in the appendix.

Spacing

1. Roads located outside of a UGA shall have a minimum distance between local access intersections of 150 feet, and 600 feet between rural collectors unless approved otherwise by the county engineer.
2. Within a UGA, spacing of arterial intersections should average not less than $\frac{1}{2}$ mile. Urban collectors should average not less than $\frac{1}{4}$ mile apart. Local access streets should be spaced at a minimum of 300 feet and the distance between local access streets shall be a minimum of 150 feet.

Cross Slope



The cross slope (crown or superelevation) of the higher classified road shall be extended through the intersection with the grade and cross slope of the crossroad being adjusted as needed.

Curb Return

The minimum curb return shall conform to the requirements of the higher classified road.

Intersection Approaches

An intersection approach area is that portion of an intersecting road where vehicles are stored while waiting to enter an intersection. Intersection approaches shall meet the following requirements:

1. The intersection approach grades for public roads shall have a maximum grade approaching the intersection of 2.0%.
2. Intersection approach lengths and approach grades are measured from the face of curb, or from the edge of the pavement in the absence of curbs, of the intersected road.
3. The minimum intersection approach lengths will conform to **Table 7** for the road classifications shown and may vary at the discretion of the County Engineer depending upon site conditions.

Table 7...Minimum Intersection Approach Lengths

Average Daily Traffic (ADT) of Higher Classified Road	Minimum Intersection Approach Length 2% maximum grade		
	Urban Arterials and Collectors; and Rural Collectors	Urban and Rural Local Access	Private Roads
ADT < 1,000	50	25	25
1,000 < ADT < 5,000	75	50	50
5,000 < ADT < 7,000	100	75	75
Over 7,000	Analysis is required to determine the appropriate length of approach. Analysis should be completed according to AASHTO guidelines, or alternative guidelines as directed by the County Engineer.		

3.3.8 Medians

Medians are permitted only if authorized by the County Engineer and in general are discouraged. Medians may consist of two way left turn lanes or non-traversable medians depending on various factors. A median island may be permitted in certain cases on private roads and subdivisions but the nose of the median shall be no closer than 20 feet from the curb line of the intersecting street.

3.3.9 Pedestrian and Bicycle Facilities

General Requirements:

1. Pedestrians can be accommodated on sidewalks and on multi-use paths.
2. Pedestrian facilities can be provided in any combination of sidewalks and multi-use paths upon approval of the County Engineer.
3. Bicycles can be accommodated on bicycle lanes in the roadway and on multi-use paths.
4. Sidewalks are built using current WSDOT Standard specifications.
5. Dedicated bicycle lanes must be separated from the travel lane by an 8 inch wide painted stripe and contain pavement markings.
6. Shared bicycle lane/parking shall be separated from the travel way by a 6 inch wide paint stripe and shall contain pavement markings.
7. Planting strips and open space buffers between the roadway and pedestrian or bicycle facilities are not required at intersections on urban roads or on bridges.
8. No planting strip or buffer is required when a sidewalk is adjacent to the curb and the sidewalk is at least 6 feet in width.

Materials

1. Sidewalks shall be concrete.
2. Multi-use paths shall be concrete unless approved otherwise by County Engineer.
3. Bicycle lanes on the roadway shall be of the same material as the roadway.

Rural and Urban cul-de-sac and dead-end roads

1. Pedestrian facilities are not required on rural cul-de-sac roads 400 feet or less in length or on dead-end roads.
2. A 5-foot wide asphalt path may be required on one side of the road on rural cul-de-sac roads over 400 feet in length as required or approved by the County Engineer.
3. A sidewalk is required on an urban cul-de-sac.
4. Bicycle facilities are allowed only if required or approved by the County Engineer.

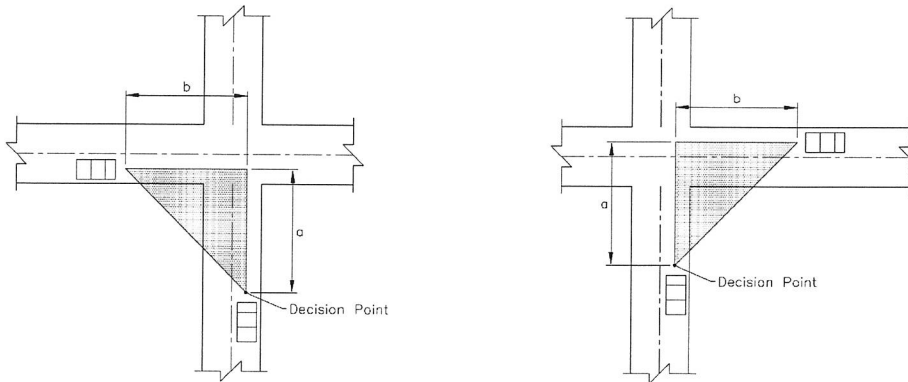
3.4 SIGHT DISTANCE AND CLEAR ZONES

3.4.1 Sight Distances

Minimum standards

Table 8 and 8A presents the minimum standards for sight distances at intersections with uncontrolled or yield conditions and stop controlled at one leg.

Table 8 ... Approach Sight Triangle – Uncontrolled or Yield Controlled

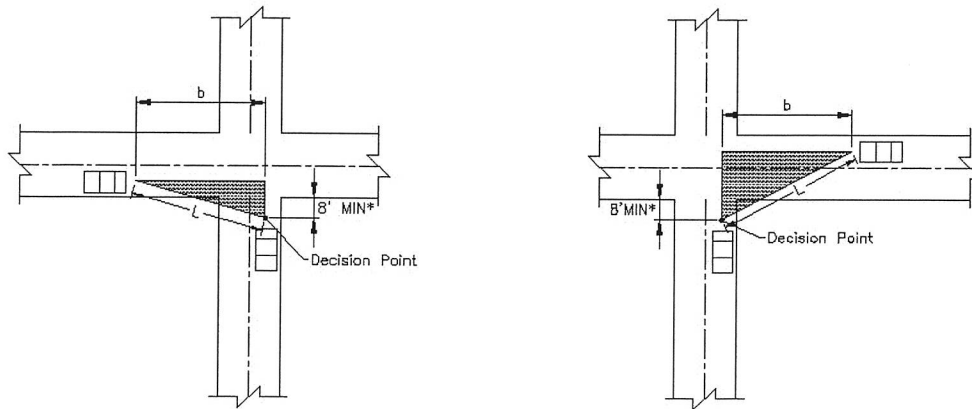


Approach Sight Triangle
Uncontrolled or Yield Controlled

Design speed (MPH)	Length of Leg (ft)
15	70
20	90
25	115
30	140
35	165
40	195
45	220
50	245
55	285

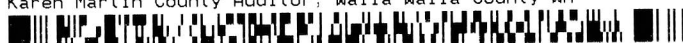
- 1) For approach grades $\geq 4\%$ and design speeds > 25 mph multiply length of leg by 1.10
 - 2) For approach grades $\geq 4\%$ and design speed > 35 mph multiply length of leg by 0.9
- Reference: AASHTO
- 3) Drivers eye height, 3.5 ft.
 - 4) Approaching vehicle height, 4.25 ft.

Table 8A ... Departure Sight Triangle – Stop Control



Departure Sight Triangle
Stop Control

- 1) Left turn from stop $L=1.47V_{\text{major}}(tg)$
 Passenger car $tg=7.5$
 Single unit truck $tg=9.5$
 Combination truck $tg=11.5$
- 2) Minor road approach grade > 3%, add .2s for each percent grade
- 3) Right turn from stop $b=1.47V_{\text{major}}(tg-1)$ and crossing from stop
- 4) Minor road approach grade > 3%, add .1s for each percent grade to tg
- 5) *15' for commercial approach or heavy truck traffic
- 6) Drivers eye height, 3.5 ft.
- 7) Approaching vehicle height, 4.25 ft.



Sight distance measurements

All sight distances shall be measured from the point of vision offsets described below to a point of vision positioned 4 feet from the centerline of the road to be entered in the appropriate direction:

1. Stop controlled conditions (all legs):
 - a. Stop controlled conditions (signal or stop signs) for all public roads and any private road approaches serving 3 or more residential lots shall measure sight distance from an offset of 15 feet from the edge of the traveled way.
 - b. Stop controlled conditions (signal or stop signs) for all public roads and any private roads approaches serving fewer than 3 residential lots shall measure sight distance from an offset of 10 feet from the edge of the traveled way.
 - c. Stop controlled conditions (signal or stop signs) for all commercial and agricultural approaches shall measure sight distance from an offset of 15 feet from the edge of the traveled way.
2. Uncontrolled stop conditions:
 - a. All driveways and private road approaches with uncontrolled stop conditions shall assume stop conditions on the driveway or approach.
3. Object and eye height:
 - a. Minimum vertical sight distance for urban and rural roads shall meet the AASHTO requirement for stopping sight distance.
 - b. Passing sight distance for rural roads shall be based upon an object height of 3.5 feet and an eye height of 3.5 feet in accordance with AASHTO.
 - c. Items within the clear view triangle shall be limited in height to 3.5 feet above the level of the adjacent and opposite roadways.

3.4.2 Sight Distance Exemptions For Private Roads.

Clear zone standards shall not apply to the following obstructions:

1. Bridges which were existing prior to adoption of these standards.
2. Existing public utility poles.
3. Trees that are not planted in the form of a hedge and are trimmed to a height of at least 10 feet above the grade level of the centerline of the intersection.
4. Official warning signs or signals.
5. Woven wire chain link fences provided there are no privacy slats in the fence or obstructing landscaping.

3.4.3 Clear Zones

All new, reconstructed or rehabilitated roads shall comply with the current clear zone policy as defined in the Local Agency Guidelines (LAG) Manual as published by Washington State Department of Transportation (WSDOT). Design clear zone distances are given in feet, measured from the edge of traveled lane.

Table 9... Design Clear Zone Distance

Posted Speed (mph)	Average Daily Traffic	Cut Section (Back Slope) (H:V)						Fill Section (H:V)				
		3:1	4:1	5:1	6:1	8:1	10:1	4:1	5:1	6:1	8:1	10:1
< or 35	All	The Design Clear Zone Distance is 10 feet										
40	Under 250	10	10	10	10	10	10	13	12	11	11	10
	251-800	11	11	11	11	11	11	14	14	13	12	11
	801-2000	12	12	12	12	12	12	16	15	14	13	12
	2001-6000	14	14	14	14	14	14	17	17	16	15	14
	Over 6000	15	15	15	15	15	15	19	18	17	16	15
45	Under 250	11	11	11	11	11	11	16	14	13	12	11
	251-800	12	12	13	13	13	13	18	16	14	14	13
	801-2000	13	13	14	14	14	14	20	17	16	15	14
	2001-6000	15	15	16	16	16	16	22	19	17	17	16
	Over 6000	16	16	17	17	17	17	24	21	19	18	17
50	Under 250	11	12	13	13	13	13	19	16	15	13	13
	251-800	13	14	14	15	15	15	22	18	17	15	15
	801-2000	14	15	16	17	17	17	24	20	18	17	17
	2001-6000	16	17	17	18	18	18	27	22	20	18	18
	Over 6000	17	18	19	20	20	20	29	24	22	20	20
55	Under 250	12	14	15	16	16	17	25	21	19	17	17
	251-800	14	16	17	18	18	19	28	23	21	20	19
	801-2000	15	17	19	20	20	21	31	26	23	22	21
	2001-6000	17	19	21	22	22	23	34	29	26	24	23
	Over 6000	18	21	23	24	24	25	37	31	28	26	25

3.5 SIDE SLOPES

3.5.1 Cut Slopes

1. Slopes within the clear zone shall be a minimum of 6:1 unless approved otherwise by the County Engineer.
2. Slopes outside of the clear zone in a cut section shall be 2:1 or flatter. Backslopes steeper than 2:1 in native soils shall be designed by a qualified engineer with erosion control measures approved by the County Engineer and included in the contract documents.
3. A minimum bottom ditch width of 5 feet shall be required for cut banks steeper than 2:1 unless approved otherwise by the County Engineer.
4. Ditch depths are normally 3 feet as measured from the outside shoulder but may vary at the discretion of the County Engineer.

3.5.2 Fill Slopes

1. Slopes within the clear zone shall be a minimum of 6:1 unless approved otherwise by the County Engineer.
2. Slopes outside the clear zone in a fill section shall be 2:1 or flatter.

3.6 ROAD SURFACING REQUIREMENTS

All roads in a UGA shall be paved. A pavement design must be provided for all roads using a design life of 20 years. **Table 10** and **Table 11** summarize the minimum acceptable thicknesses for the different types of public and private roads, and may be used in place of a separate pavement design. However, the County Engineer may require a pavement design when a road has an ADT > 1000 or a large number of trucks, as determined by the County Engineer.

Table 10... Urban Road Minimum Road Thickness Requirements

Road Type	Pavement Thickness Requirement	Standard Plan
Private Road	3-inch Hot Mix Asphalt 9-inch Crushed Surfacing Base Course ⁽¹⁾	U-06
Local Access	3-inch Hot Mix Asphalt 12-inch Crushed Surfacing Base Course ⁽¹⁾	U-04 U-05
Collector	3-inch Hot Mix Asphalt 12-inch Crushed Surfacing Base Course ⁽¹⁾	U-03
Principal and Minor Arterial	4 -inch Hot Mix Asphalt 12-inch Crushed Surfacing Base Course ⁽¹⁾	U-01 U-02

1. The top 4 inches of Crushed Surfacing Base Course may be Crushed Surfacing Top Course.

Table 11... Rural Road Minimum Road Thickness Requirements

Road Type	Pavement Thickness Requirement	Standard Plan
Private Road	3-inch Hot Mix Asphalt 9-inch Crushed Surfacing Base Course ^(1, 2, 3)	R-04
Subdivision Public Rd	3-inch Hot Mix Asphalt 9-inch Crushed Surfacing Base Course ^(2, 3)	R-03
Local Access	3-inch Hot Mix Asphalt 12-inch Crushed Surfacing Base Course ^(1, 2, 3)	R-02
Collector	3-inch Hot Mix Asphalt 12-inch Crushed Surfacing Base Course ^(2, 3)	R-01

1. 12-inch Crushed Surfacing if not paved.
2. The top 3 4-inch of Crushed Surfacing Base Course may be Crushed Surfacing Top Course.
3. Bituminous Surface Treatment, double shot with fog seal may be substituted for Hot Mix Asphalt. Pavement design is required and requires approval by the County Engineer.
4. Rural arterial will require pavement design & approval by County Engineer.

Tables 10 and 11 shall apply to the following Unified Soil Classifications (USC): GW, GP, GM, GC, SW, SM, SP and SC. For USC's ML, CL, OL, MH, OH and CH, and for any other soils or combinations thereof for which the California Bearing Ratio (CBR) is less than 10, an analysis of the soil types shall be made to a depth of 5 feet below the proposed subgrade. The pavement surfacing design will be based on the number of proposed 18-kip Equivalent Single Axle Loads (ESALs) however, the proposed thickness shall not be less than the minimum as stated in the tables. A preapproved method for the pavement design is the current AASHTO procedure, with the inputs required for the AASHTO method subject to approval by the County Engineer.

3.7 MONUMENTS

1. Brass cap survey monuments shall be placed at all street intersections; and at all points of curvature (PCs) and points of tangents (PTs) of horizontal curves.
2. Temporary survey monuments shall be set by a land surveyor, located in conformance with this Chapter and in place at final inspection.
3. Permanent survey monuments and control points shall be set under the supervision of a licensed professional land surveyor within 90 days of the final placement of asphalt surfacing.

CHAPTER 4. PLAN REQUIREMENTS

4.1 PURPOSE

The following requirements apply to the plans for all public and private road projects not subject to WWCC Title16 Subdivisions. The purpose of the requirements is to provide consistency and efficiency in reviewing plans. In the case of any ambiguity or dispute over interpretation of the requirements, the decision of the County Engineer or designee will be final.

4.2 PLAN AND PROFILE

All plans submitted to the Walla Walla County Public Works Department for review for the construction of private and public roads shall meet the following requirements.

A. Plan Sheet Sizes and Layout Format

Plans are to be made on 24-inch by 36-inch (full size) sheets. 11-inch by 17-inch (half size) sheets may alternatively be used only if authorized by the County Engineer.

Each sheet will have the following areas:

1. Designer Data Block

- Designer Initials and Date
- Drafter Initials and Date
- Reviewer Initials and Date

A registered Engineer, in accordance with State law, must review the plans for completeness and correctness and then stamp and sign each sheet of the plans before the County can review them. The designer and drafter shall initial and date the plans upon completion for the first submittal.

2. Revision Block

- Item Revised
- Revised By
- Revision Date

The revision block will be updated for subsequent changes that occur during the review process. This will allow tracking of changes made and the appropriate dates.

3. Sheet Title
4. Sheet Number (e.g. sheet 1 of 8)

B. Plan Sequence and Contents

1. Title Sheet.

The Title sheet contains the Project Name, Vicinity Map, Index and Legend

2. Road sections (main road, frontage roads, detours and others).

This sheet provides information on the structural and dimensional cross section of the road. Separate sections are required for each differing section of road used. Each section will contain the following:

- Centerline of construction will be centerline of road section.
- Distances from centerline of construction to edge of lanes.
- Shoulder dimensions.
- Percent crown and superelevation.
- Shoulder slope.
- In slope, out slope and back slopes.
- Distance to hinge point of broken back fill.
- Nominal ditch depths and a drainage profile for variable depths.
- Types and compacted thickness of materials.
- Stations listed below each section to indicate their location.

3. Grading sections (if applicable).

These plan sheets will show types of embankment, use of waste in slope flattening, drainage layers, slope tables, wetland sections, and soil stabilization details.

4. Quantity tabulation sheet (if applicable).

This contains a tabulation of the locations, quantities and notes pertaining to the many repeated items such as catch basins, curb inlets, drywells, manholes, drain rock, pipe, culverts, utility conduits and monuments. For projects involving only a few items, the quantities/ descriptions may be placed on the appropriate plan or profile sheets eliminating the need for the quantity tabulation sheet.

5. Alignment plans and profiles (main road, frontage roads, detours, and others).

The plan and profile will be placed on the same sheet. The horizontal scale will be the same on the plan as on the profile. The minimum scale for rural areas is 1 inch = 50 feet horizontal; and 1 inch = 10 feet vertical. Lot sizes of one acre or more in rural areas may use 1 inch = 100 feet with approval of the County Engineer. The minimum scale for urban areas is 1 inch = 20 feet horizontal and 1 inch = 10 feet vertical. Details for clarification may be shown at an appropriate

scale. Sheet breaks will occur at the same stations and be designated. Stationing will increase from left to right. The following information is required on the plan sheet:

- Bar scale and legend.
- True north arrow.
- Township and range lines. Show township and range at top center of each sheet if the township and range lines are not shown on the sheet.
- Township, section, quarter section, meander, and witness markers, marked and designated as "Found" or "Not Found" and a description of those found.
- Horizontal alignments including stationing, equation stationing, station ticks, tangent bearings, beginning and ending of curves, tangent points of intersection, angle points.
- Curve data with radius, delta, arc length and tangent.
- All horizontal alignment lines will be described on the plan.
- Distance, bearing, and station ties to survey monuments, and found corners.
- Railroad right of way and all pertinent railroad features.
- Right of way and easement lines and distance ties from center line to each break in the lines.
- Topography and contour lines.
- Names of rivers, streams, lakes and ponds and the direction of flow.
- Pavement removal and roads to be obliterated. Location of all structures to be removed or altered during construction.
- All other features that may be affected by or that may affect construction.
- On all projects that require grading, the slope catch lines will be shown and designated as either cut or fill.
- Centerline of special ditches with direction of flow, invert elevations, length and gradient.
- The beginning and end of project.
- Stationing to two decimal places.
- Existing utilities will be indicated and a note as to whether they are not to be disturbed, relocated, and if they are to be relocated the new location.
- Lot numbers and boundaries.
- Culvert locations, centerline station, skew, descriptions (size, material type, thickness), headwall treatment and invert elevations. For many culverts where the plan would become cluttered the designer should show the culverts on a drainage plan.

The following are required on the profile:

- The existing ground line and its designation accurate to 0.10 foot for unpaved and 0.01 foot for paved surfaces.

- The finish grade line and its designation.
- Gradients rounded to two decimal places
- Length of each vertical curve.
- Beginning and ending stations of each vertical curve.
- Elevation at each beginning and ending station of each vertical curve.
- Elevation and station at each break in gradient.
- Superelevation rate table or diagram with runout related to stationing.
- Limits of seeding, fertilizing, and mulching.
- Culverts at invert elevations.

6. Storm drainage items.

These items will be shown on the road plan and profile sheets. In addition to any and all existing drainage features, the following shall be shown:

- Curb and gutter with ramp locations and gradients if different than centerline of roadway.
- Locations of all proposed structures.
- Direction of flow, size, kind and type of pipe and structure.
- Invert elevations of inflow and outflow for each structure.
- Biofiltration swale profile and cross section with inslopes and outslopes
- Roadway centerline stationing.
- Detention/retention pond cross-sections with in slopes, out slopes, overflow and related elevations

7. Water and Sewer plan and profile (if applicable).

These are to be placed on the road plan and profile sheets unless directed otherwise by the County Engineer and will include the following items:

- All existing water and sewer facilities.
- Location, type, size and kind of water pipe
- Offset to roadway centerline and ties to roadway centerline stationing.
- Location of all valves, hydrants and blowoffs.
- Location of all service connections.
- Depth of all water lines.
- Location, type, size, kind, length and gradient of sewer pipe
- Offset to roadway centerline and ties to roadway centerline stationing.
- Location of all manholes with roadway centerline stationing and invert elevations.
- Location of all service connections.

8. Standard plans as needed.
9. Traffic signal plans and details (if applicable).
10. Traffic control plans (if applicable).
11. Detour routes and detour signing (if applicable).
12. The County Engineer may require information in addition to the items listed above.

4.3 RECORD DRAWINGS

Approved final plans must contain all information required in section 3.2 unless approved otherwise by the County Engineer. Approved final plans shall be printed 11X17 inch on Mylar. The designer may submit ink on vellum. If computer generated drawing files are also submitted, electronic files of record drawings must be submitted to the County Engineer on a compact disc or other acceptable media.

4.4 GENERAL REQUIREMENTS

All proper permits must be secured and all appropriate fees paid before construction is started. A preconstruction conference is required prior to the start of any construction activities. All proper traffic control devices shall be in place prior to any construction. All existing utilities will be located prior to construction. All roads shall be rough graded in the proper location and within 0.5 feet of finished subgrade prior to any other construction activities such as water, sewer and storm-sewer installation.

4.5 COMPLIANCE

The County Engineer shall have authority to enforce the Standards as well as other referenced or pertinent specifications. The County Engineer shall appoint project engineers, assistants, and inspectors as necessary to inspect the work and they will exercise such authority as the County Engineer may delegate.



APPROVED BY:
Randy Gleason
 DATE: 9/8/2015

ROAD DESIGN STANDARDS

TYPICAL ROAD SECTION

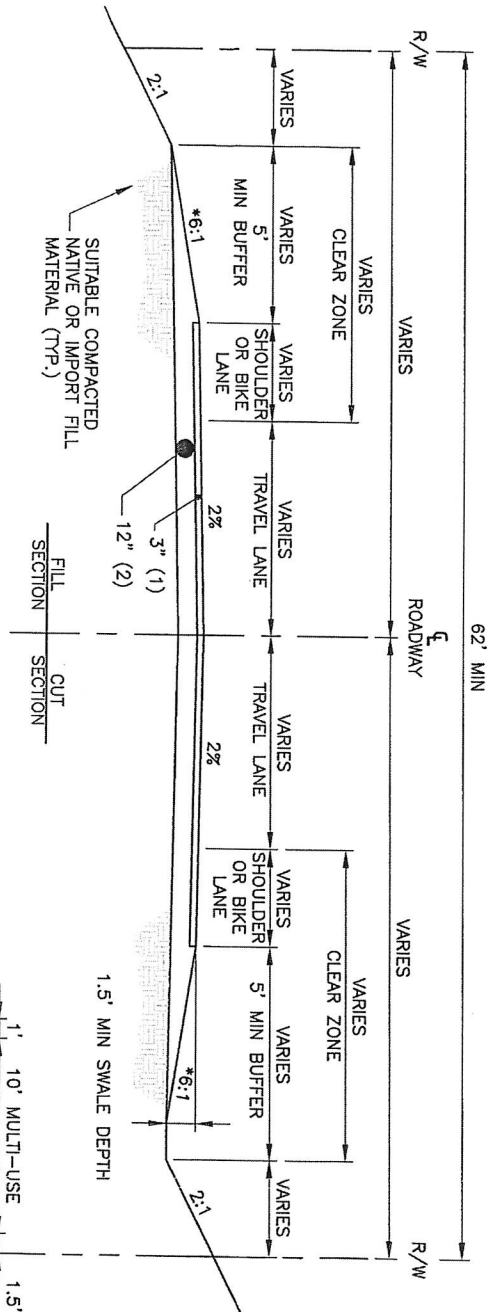
RURAL COLLECTORS

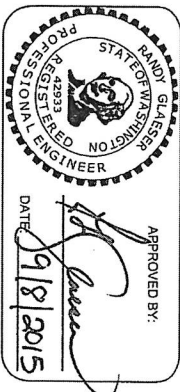
FIGURE
R-01

- NOTES:
- 1) THIS FIGURE ILLUSTRATES THE TYPICAL "LEVEL" CONDITION. ALL ROAD SECTION AND DESIGN CRITERIA SHALL BE PER TABLES 3 AND 11, AND OTHER APPLICABLE SECTIONS OF CHAPTER 3 OF THE ROAD DESIGN STANDARDS.
 - 2) VALUES SHOWN FOR PAVEMENT MATERIALS ARE MINIMUM COMPACTED DEPTHS.
 - 3) SHOULDERS MAY BE COMPOSED OF COMPACTED CRUSHED SURFACING PROVIDED A 12" PAVED LANE IS USED. BIKE LANE SHALL BE CONSTRUCTED OF SAME MATERIAL AS TRAVEL LANE WITH SAME SLOPE.
 - 4) THE TOP 4" OF CRUSHED SURFACING MAY BE COMPOSED OF CRUSHED SURFACING TOP COURSE.
 - 5) MULTI-USE PATH SEE FIGURE SW-05.

PEDESTRIAN FACILITY OPTIONS

- * STEEPER SLOPES MAY BE USED WITH JUSTIFICATION AND IF APPROVED BY THE COUNTY ENGINEER.
- PAVEMENT MATERIALS LEGEND:
- (1) HOT MIX ASPHALT, HMA
 - (2) CRUSHED SURFACING BASE COURSE, CSBC
 - (3) PORTLAND CEMENT CONCRETE, PCC



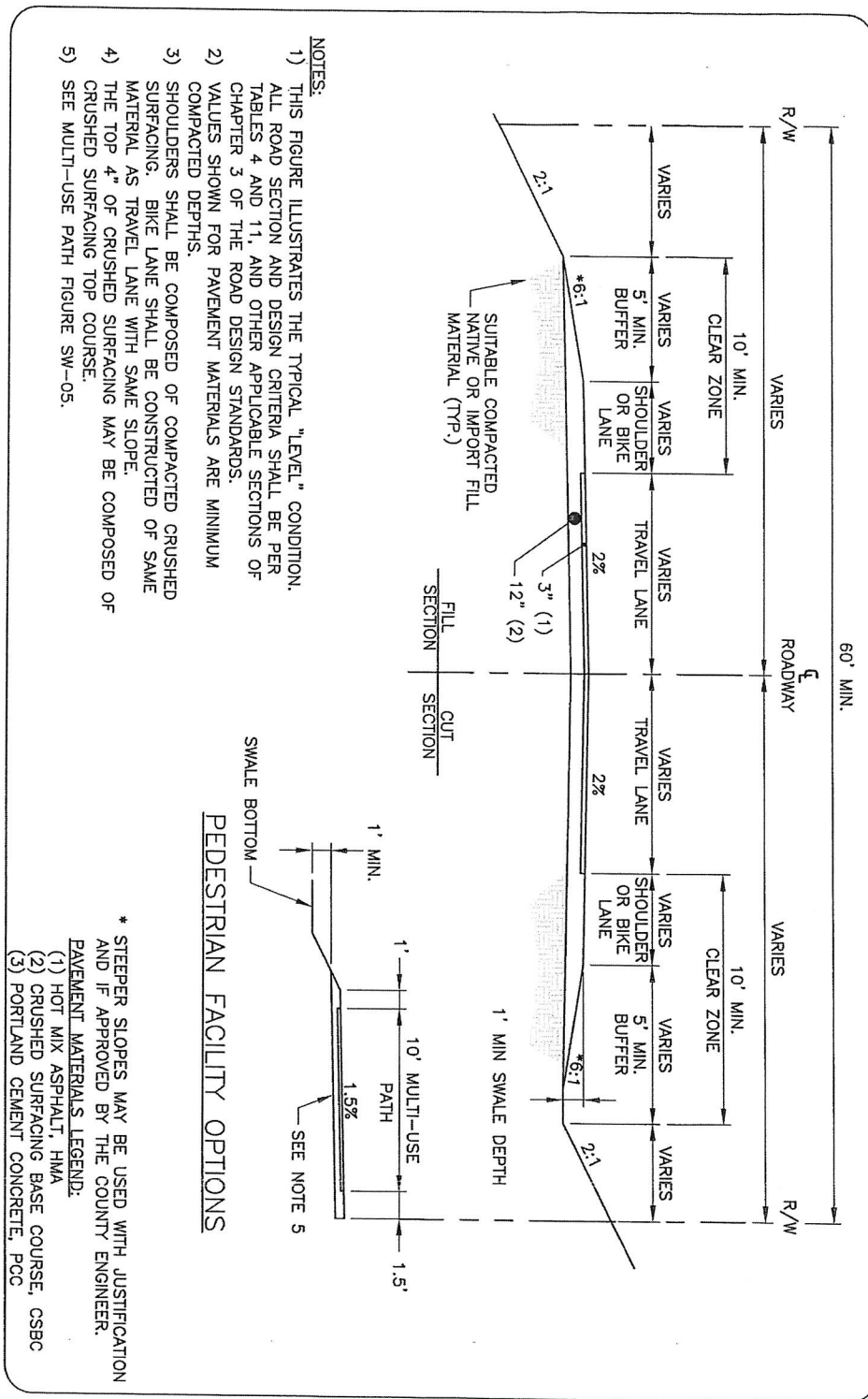


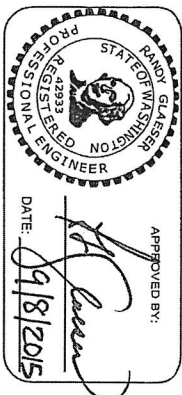
ROAD DESIGN STANDARDS

TYPICAL ROAD SECTION

RURAL LOCAL ACCESS - PUBLIC ROAD

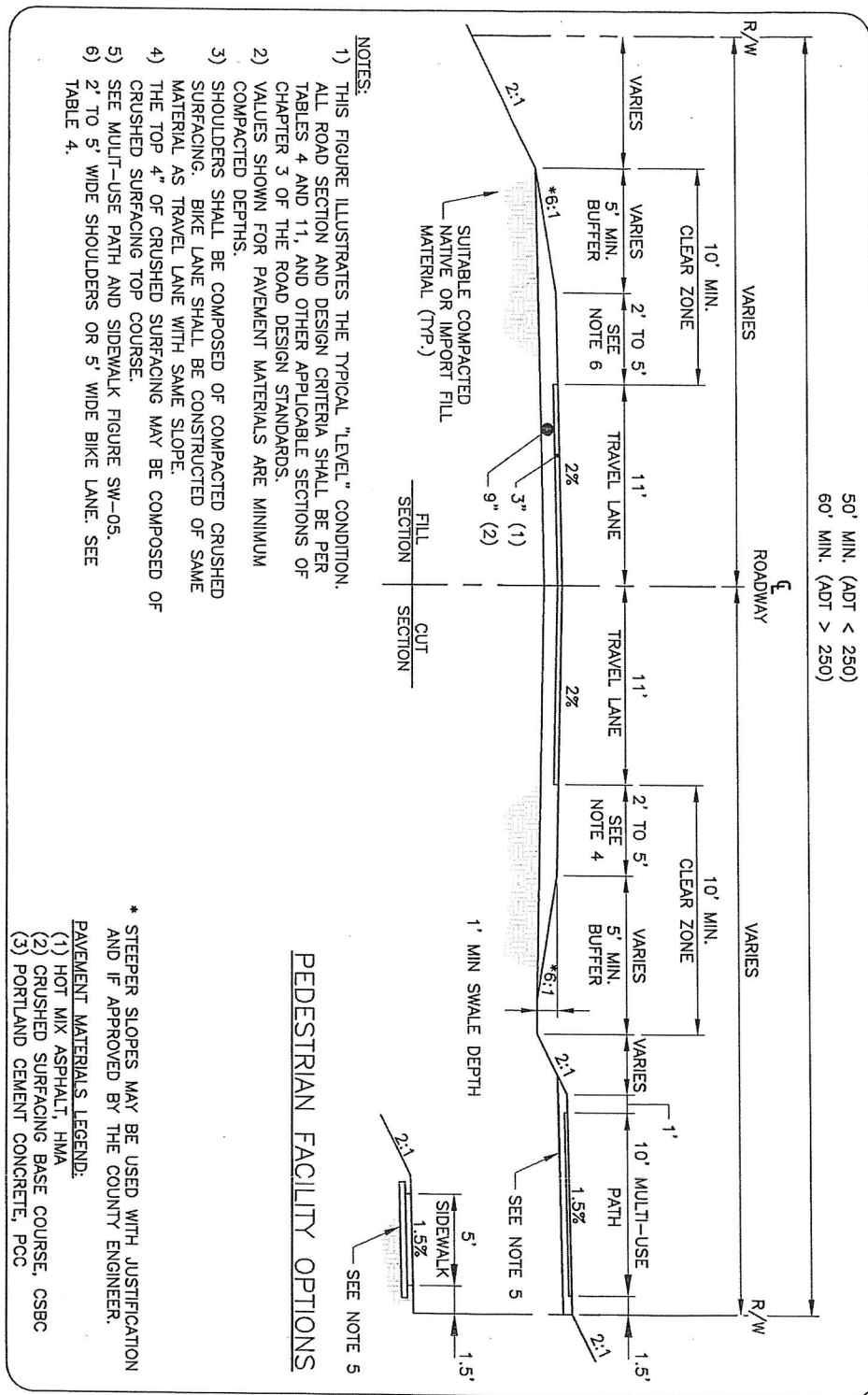
FIGURE
R-02

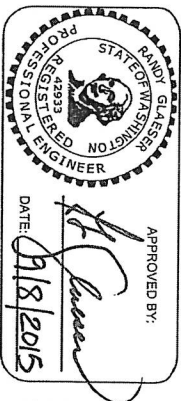




ROAD DESIGN STANDARDS
TYPICAL ROAD SECTION
RURAL LOCAL ACCESS - SUBDIVISION
PUBLIC ROAD

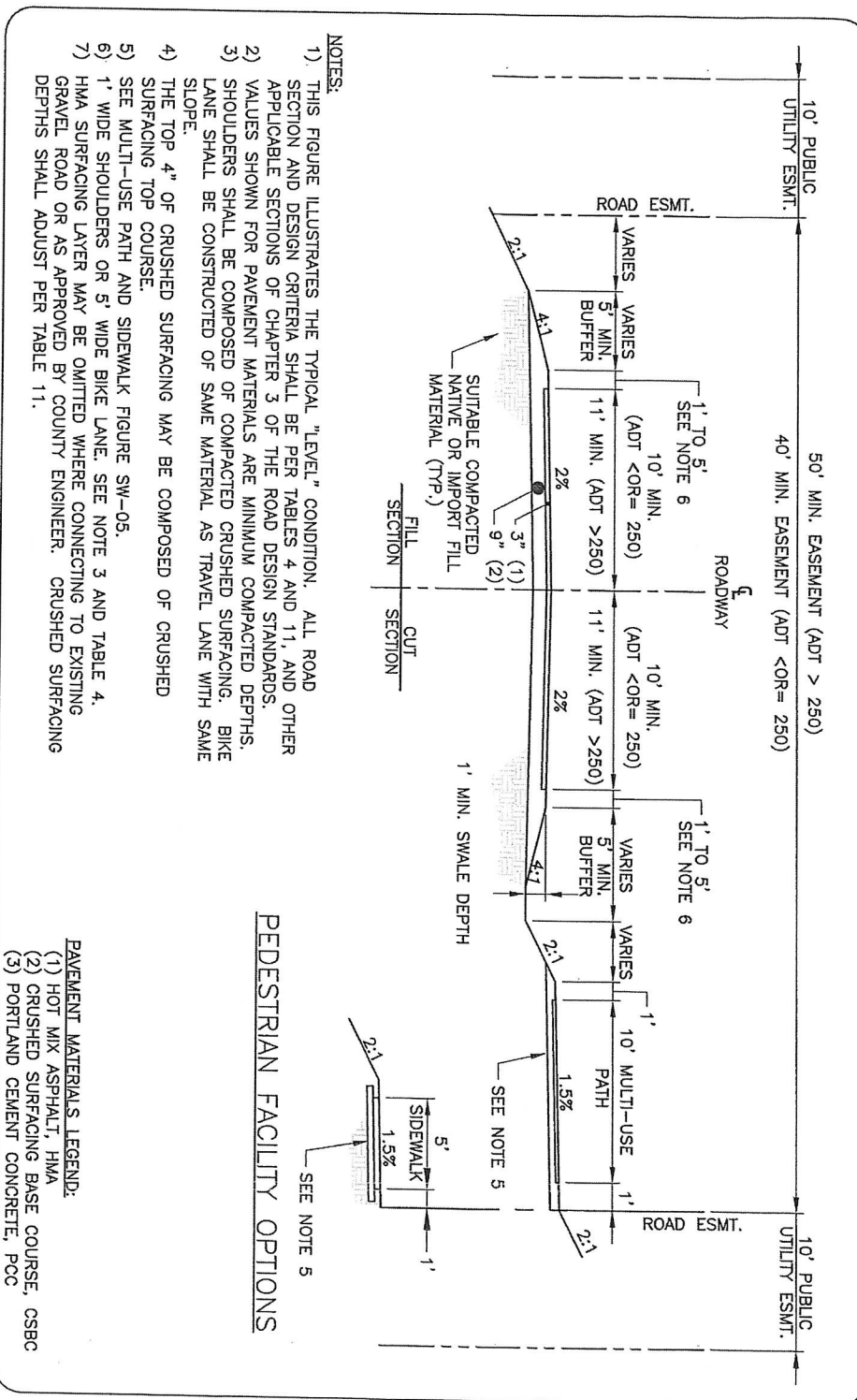
FIGURE
R-03

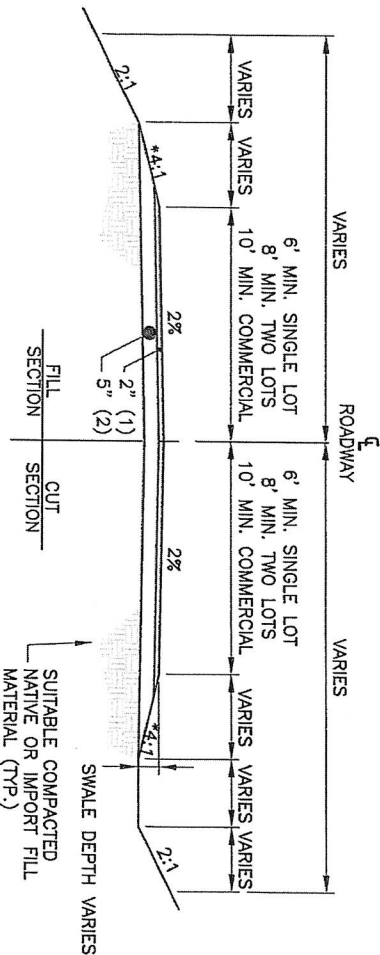




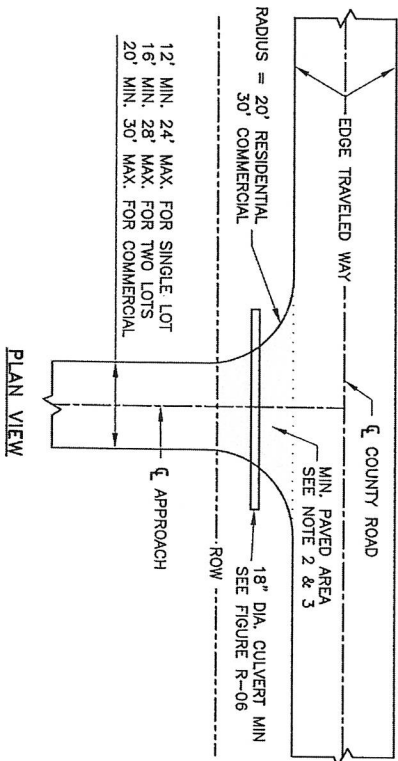
APPROVED BY: *[Signature]*
 DATE: 9/18/2015

FIGURE
R-04





TYPICAL ACCESS (DRIVEWAY) HALF SECTION



- * MATCH EXISTING SLOPE AT COUNTY ROAD BUT NO STEEPER THAN 4:1 WITHIN RIGHT OF WAY.
- PAVEMENT MATERIALS LEGEND:
- (1) HOT MIX ASPHALT, HMA
- (2) CRUSHED SURFACING BASE COURSE, CSBC
- NOTES:
- 1) CRUSHED SURFACING BASE COURSE ACCESS SHALL ONLY BE ON GRAVEL COUNTY ROADS AND SHALL BE AN ADDITIONAL 6" OF CSBC, 11" IN DEPTH TOTAL.
 - 2) MIN PAVED AREA FOR RESIDENTIAL OR COMMERCIAL ACCESS 20' FROM EDGE OF TRAVELED WAY OR RIGHT OF WAY, WHICH EVER IS LESS. NO CONCRETE PAVEMENT ALLOWED.
 - 3) MIN PAVED AREA FOR FARM APPROACH TO BE 8' BACK FROM EDGE OF TRAVELED WAY OR RIGHT OF WAY, WHICH EVER IS LESS.
 - 4) THE TOP 4" OF CRUSHED SURFACING MAY BE COMPOSED OF CRUSHED SURFACING TOP COURSE.

ROAD DESIGN STANDARDS

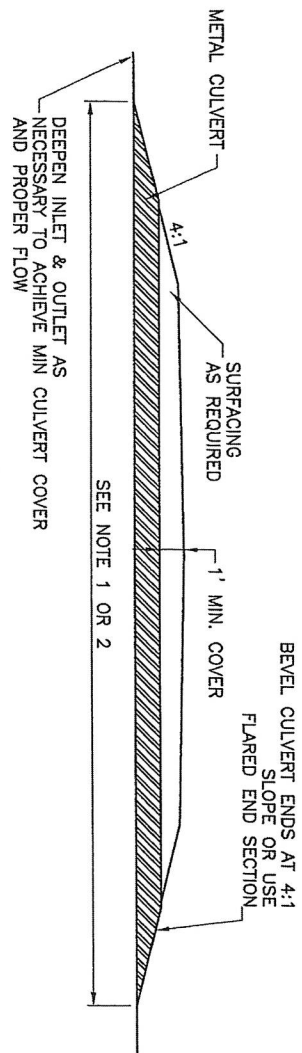
TYPICAL ROAD SECTION

ACCESS (DRIVEWAY)

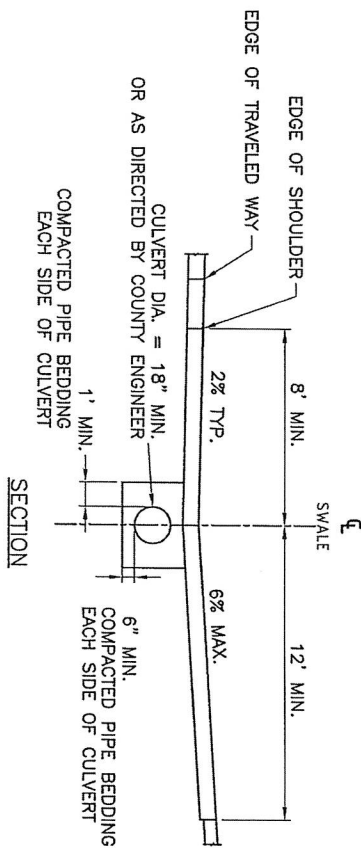
FIGURE
R-05



APPROVED BY:
Randy Glasner
DATE: 09/18/2015

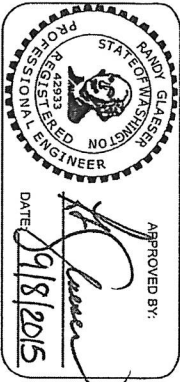


TYPICAL CROSS SECTION AT SWALE LINE



SECTION

- NOTES:
- 1) RESIDENTIAL CULVERT LENGTH = ACCESS WIDTH + 40' MIN.
 - 2) FARM OR COMMERCIAL LENGTH = ACCESS WIDTH + 60' MIN.
 - 3) THIS DRAWING IS FOR ACCESS (DRIVEWAY) SERVING ONE OR TWO LOTS AND PRIMARILY USED BY PASSENGER CARS AND LIGHT TRUCKS. ADDITIONAL MODIFICATIONS SUCH AS DECELERATION AND ACCELERATION TAPERS AND INCREASED TURNING RADII MAY BE REQUIRED TO ACCOMMODATE LARGER VEHICLES.
 - 4) THIS FIGURE ILLUSTRATES THE TYPICAL "LEVEL" CONDITION. ALL DRIVEWAYS SHALL CONFORM WITH PROVISIONS OF SECTION 3.3.6 AND TABLE 6, AND OTHER APPLICABLE PORTIONS OF CHAPTER 3 OF THE ROAD DESIGN STANDARDS.

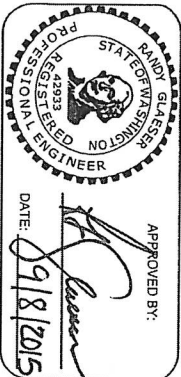


ROAD DESIGN STANDARDS

TYPICAL ACCESS (DRIVEWAY)

CULVERT DETAILS

FIGURE
R-06



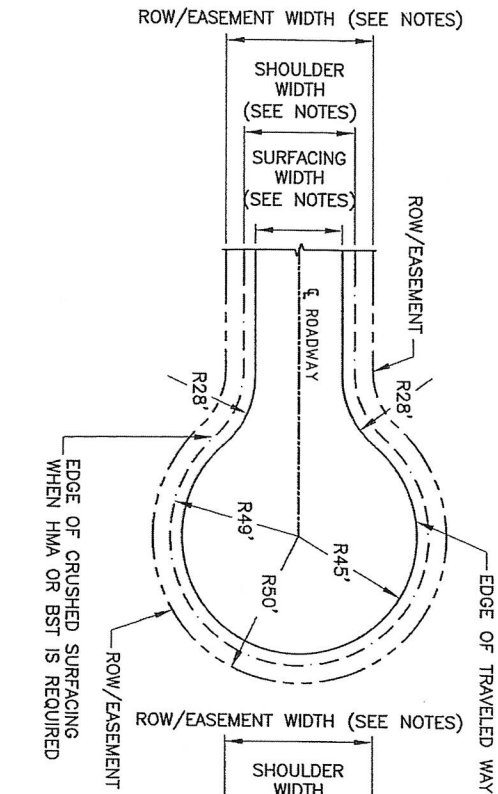
ROAD DESIGN STANDARDS
TYPICAL CUL-DE-SAC
DETAILS

R-07

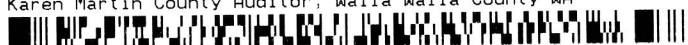
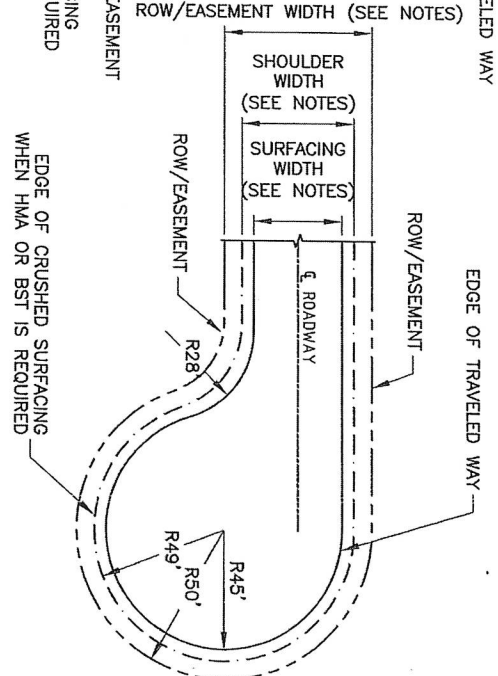
FIGURE

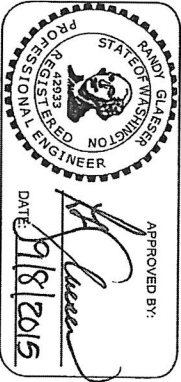
NOTES:
1) SEE APPROPRIATE ROADWAY STANDARD DRAWINGS FOR ROAD SECTION AND RIGHT OF WAY REQUIREMENTS.

STANDARD



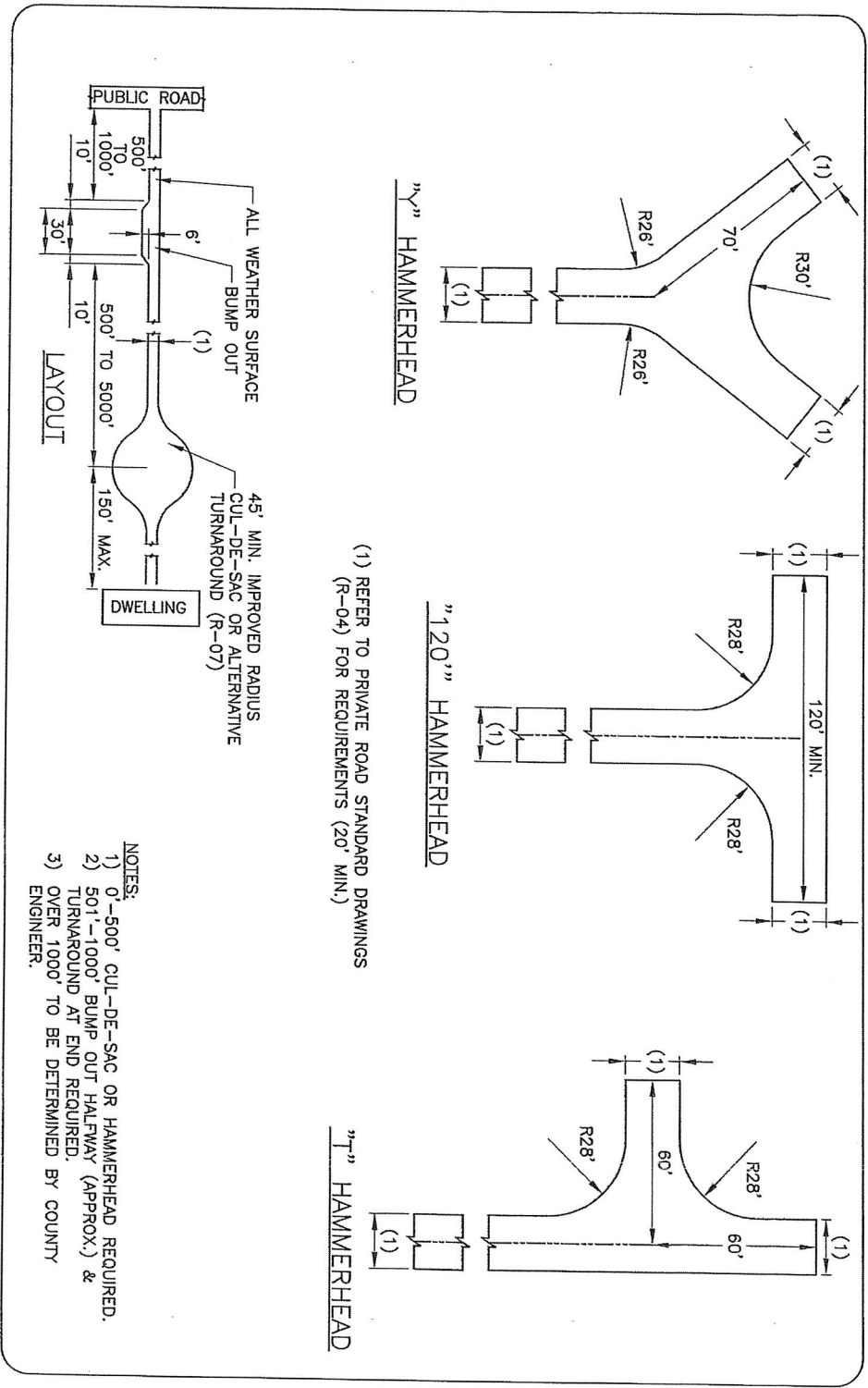
OFF-SET

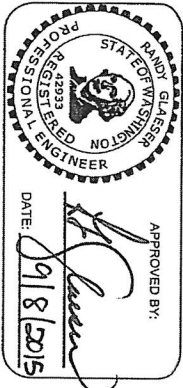




ROAD DESIGN STANDARDS
TYPICAL DEAD END PRIVATE
ROAD TURNAROUNDS

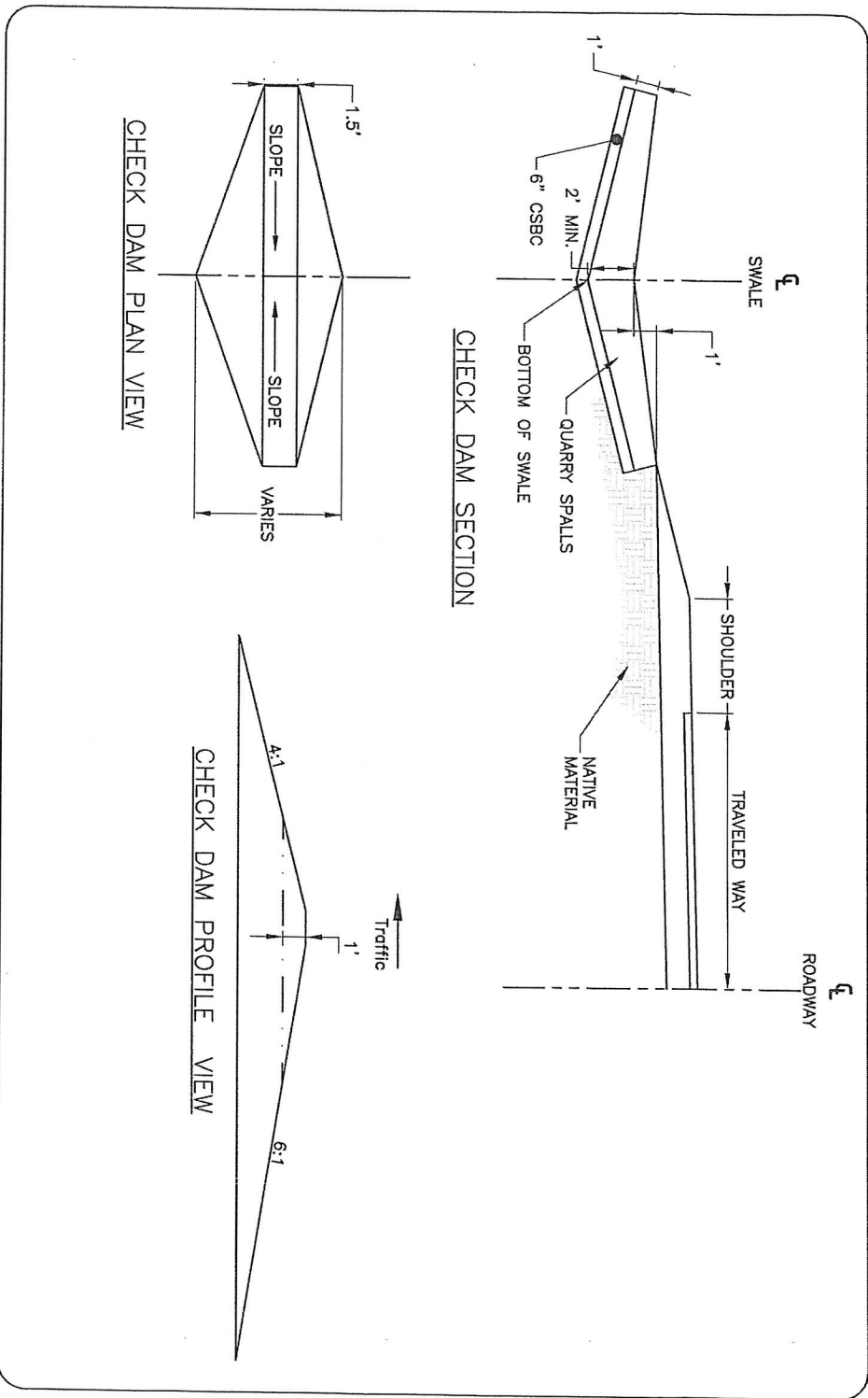
FIGURE
R-08

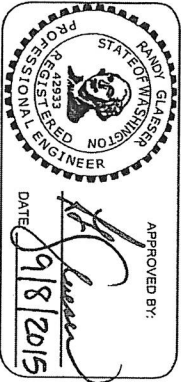




ROAD DESIGN STANDARDS
CHECK DAM

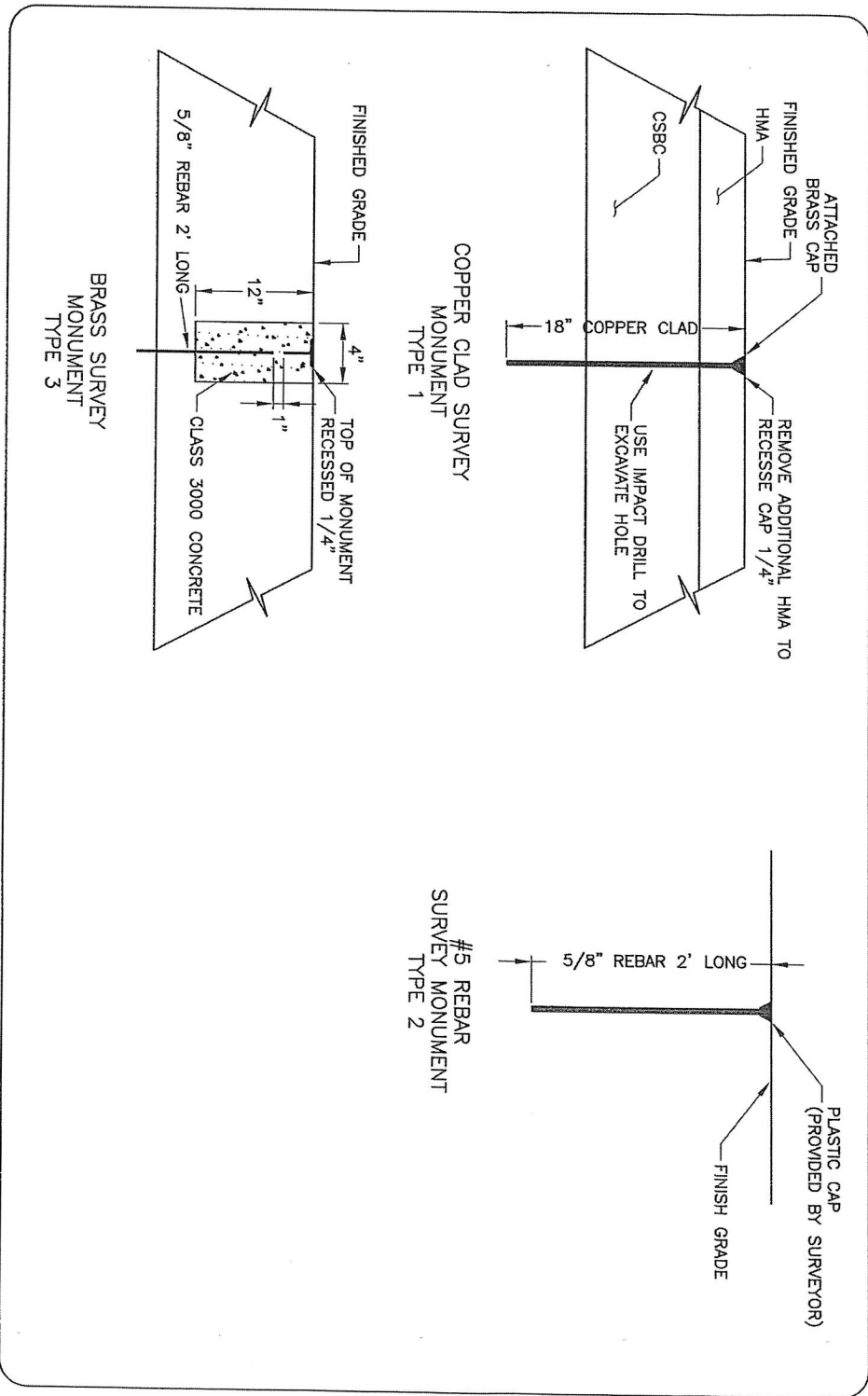
FIGURE
R-11

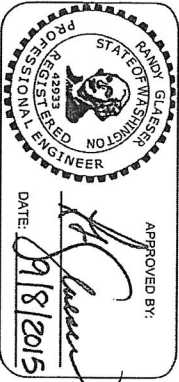




ROAD DESIGN STANDARDS
TYPICAL SURVEY
MONUMENTS

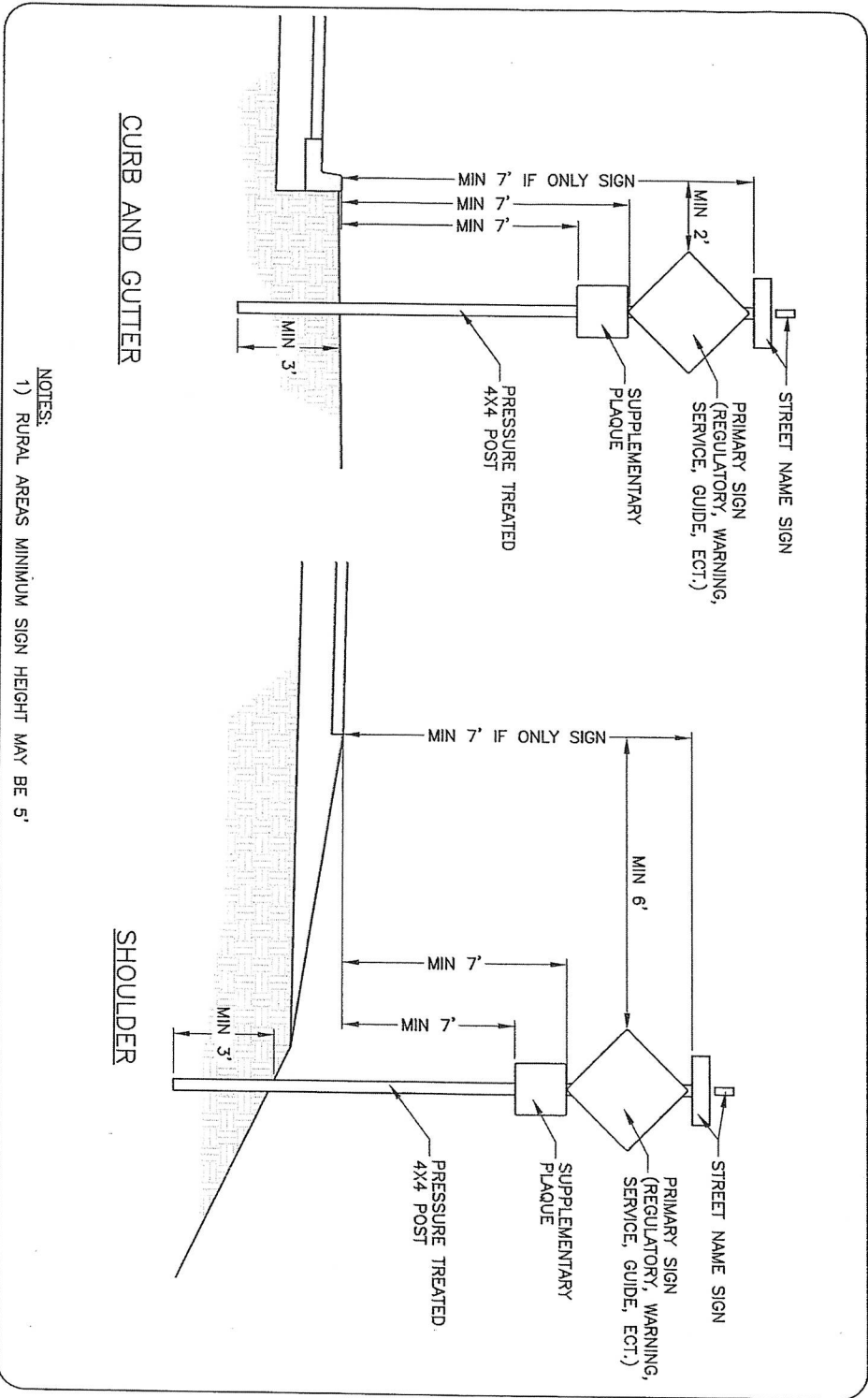
FIGURE
R-12



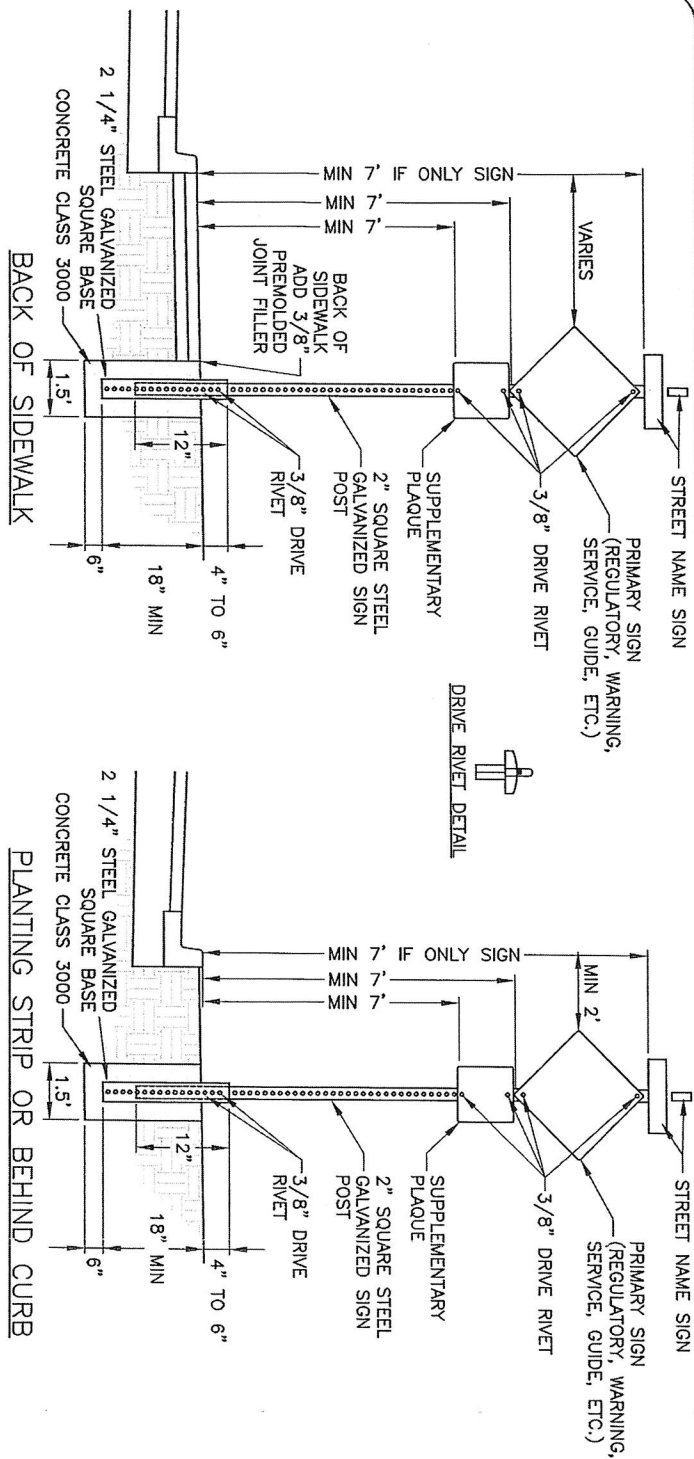


ROAD DESIGN STANDARDS
PRESSURE TREATED WOOD
STREET SIGN DETAIL

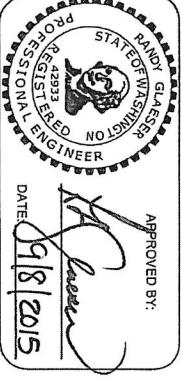
FIGURE
R-13



NOTES:
 1) RURAL AREAS MINIMUM SIGN HEIGHT MAY BE 5'

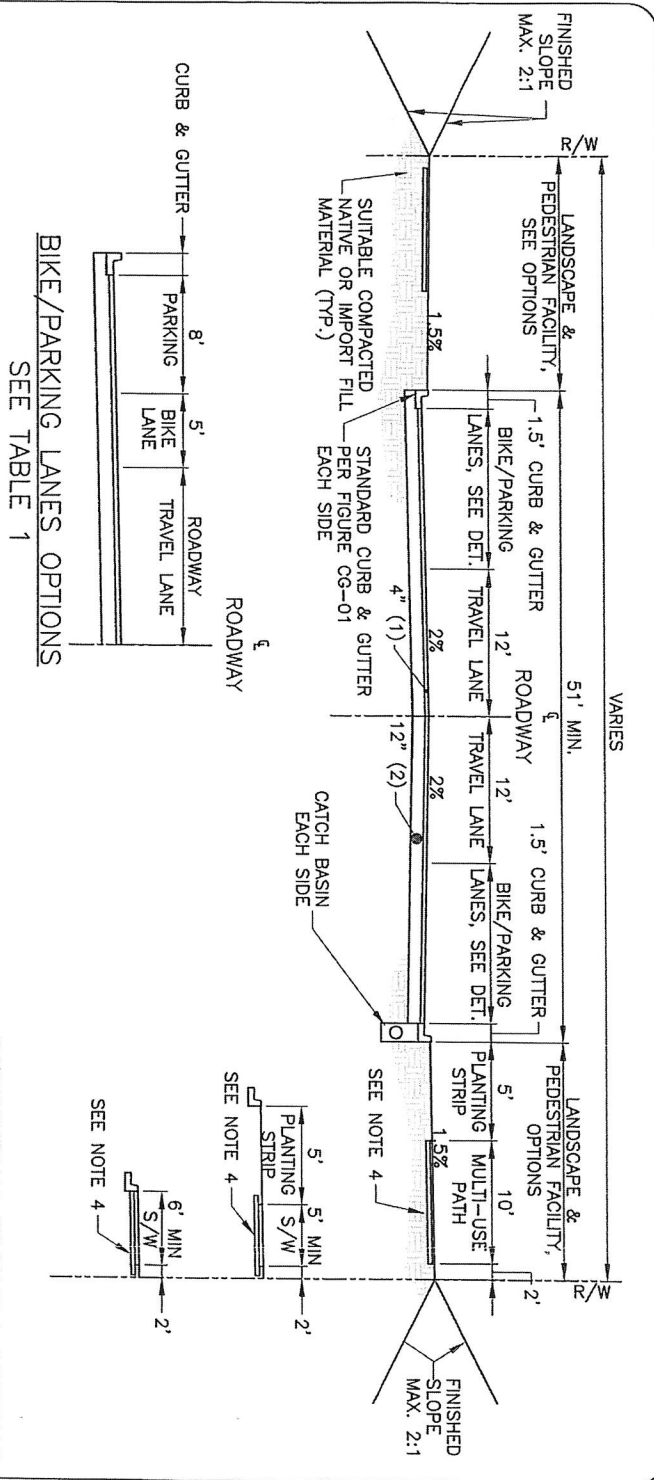


- NOTES:
- 1) SIGN SHALL BE LOCATED BEHIND SIDEWALK, IN THE PLANTING STRIP, OR BEHIND THE CURB. SIGNS IN SIDEWALK SHALL BE APPROVED BY THE COUNTY ENGINEER. LOCATIONS SHALL BE VERIFIED BY COUNTY ENGINEER.
 - 2) THE BASE MUST BE SUFFICIENT LENGTH TO BE 18" BELOW FINISH GRADE.
 - 3) TWO 3/8" DRIVE RIVETS SHALL BE INSTALLED TO CONNECT THE POST AND BASE, AND TWO 3/8" DRIVE RIVETS TO CONNECT THE SIGN TO THE POST.
 - 4) THE POST SHALL BE INSERTED A MIN. OF 12" INTO THE BASE.
 - 5) THE BASE LOCATED IN THE CONCRETE SHALL BE WRAPPED WITH DUCT TAPE OR OTHER APPROVED MATERIAL TO PREVENT CONCRETE FROM ENTERING THE BASE.
 - 6) THE SIGN POST SHALL BE A MIN. OF 14 GAUGE GALVANIZED PERFORATED STEEL AND SHALL BE 2" SQUARE. THE BASE SHALL BE A 2 1/4" SQUARE AND A MIN. OF 12 GAUGE GALVANIZED STEEL.



ROAD DESIGN STANDARDS
STEEL STREET SIGN
POST DETAIL

FIGURE
R-14



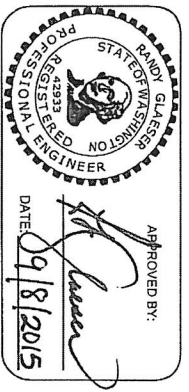
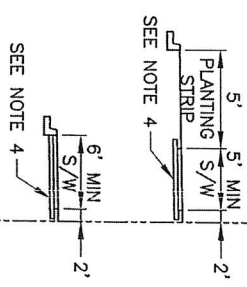
PAVEMENT MATERIALS LEGEND

- (1) HOT MIX ASPHALT, HMA
- (2) CRUSHED SURFACING BASE COURSE, CSBC
- (3) PORTLAND CEMENT CONCRETE, PCC

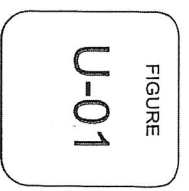
NOTES:

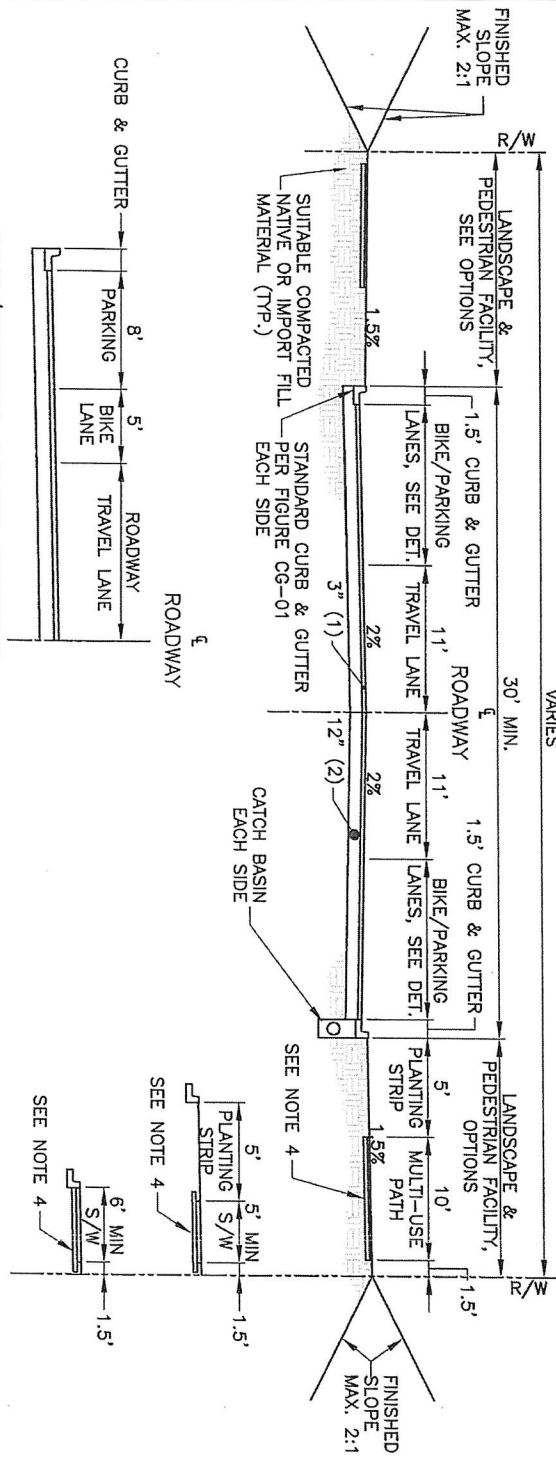
- 1) THIS FIGURE ILLUSTRATES THE TYPICAL "LEVEL" CONDITION. ALL ROAD SECTIONS AND DESIGN CRITERIA SHALL BE PER TABLE 1, TABLE 10, AND OTHER APPLICABLE SECTIONS OF CHAPTER 3 OF THE ROAD DESIGN STANDARDS.
- 2) VALUES SHOWN FOR PAVEMENT MATERIALS ARE MINIMUM COMPACTED DEPTHS.
- 3) UPPER 4 INCHES OF CRUSHED SURFACING MAY BE COMPOSED OF CRUSHED SURFACING TOP COURSE.
- 4) MULTI-USE PATH AND SIDEWALK SEE FIGURE SW-05

PEDESTRIAN FACILITY OPTIONS



ROAD DESIGN STANDARDS
TYPICAL ROAD SECTION
URBAN PRINCIPAL ARTERIAL




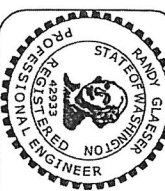


BIKE/PARKING LANES OPTIONS
SEE TABLE 2

PEDESTRIAN FACILITY OPTIONS

PAVEMENT MATERIALS LEGEND
(1) HOT MIX ASPHALT, HMA
(2) CRUSHED SURFACING BASE COURSE, CSBC
(3) PORTLAND CEMENT CONCRETE, PCC

- NOTES:**
- 1) THIS FIGURE ILLUSTRATES THE TYPICAL "LEVEL" CONDITION. ALL ROAD SECTIONS AND DESIGN CRITERIA SHALL BE PER TABLE 2, TABLE 10, AND OTHER APPLICABLE SECTIONS OF CHAPTER 3 OF THE ROAD DESIGN STANDARDS.
 - 2) VALUES SHOWN FOR PAVEMENT MATERIALS ARE MINIMUM COMPACTED DEPTHS.
 - 3) UPPER 4" OF CRUSHED SURFACING MAY BE COMPOSED OF CRUSHED SURFACING TOP COURSE.
 - 4) MULTI-USE PATH AND SIDEWALK SEE FIGURE SW-05

APPROVED BY:
Randy Slesinger
DATE: 09/18/2015

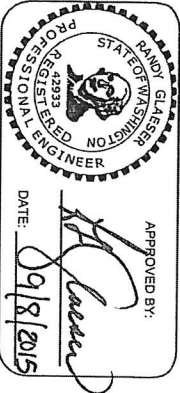
ROAD DESIGN STANDARDS

TYPICAL ROAD SECTION

URBAN COLLECTOR

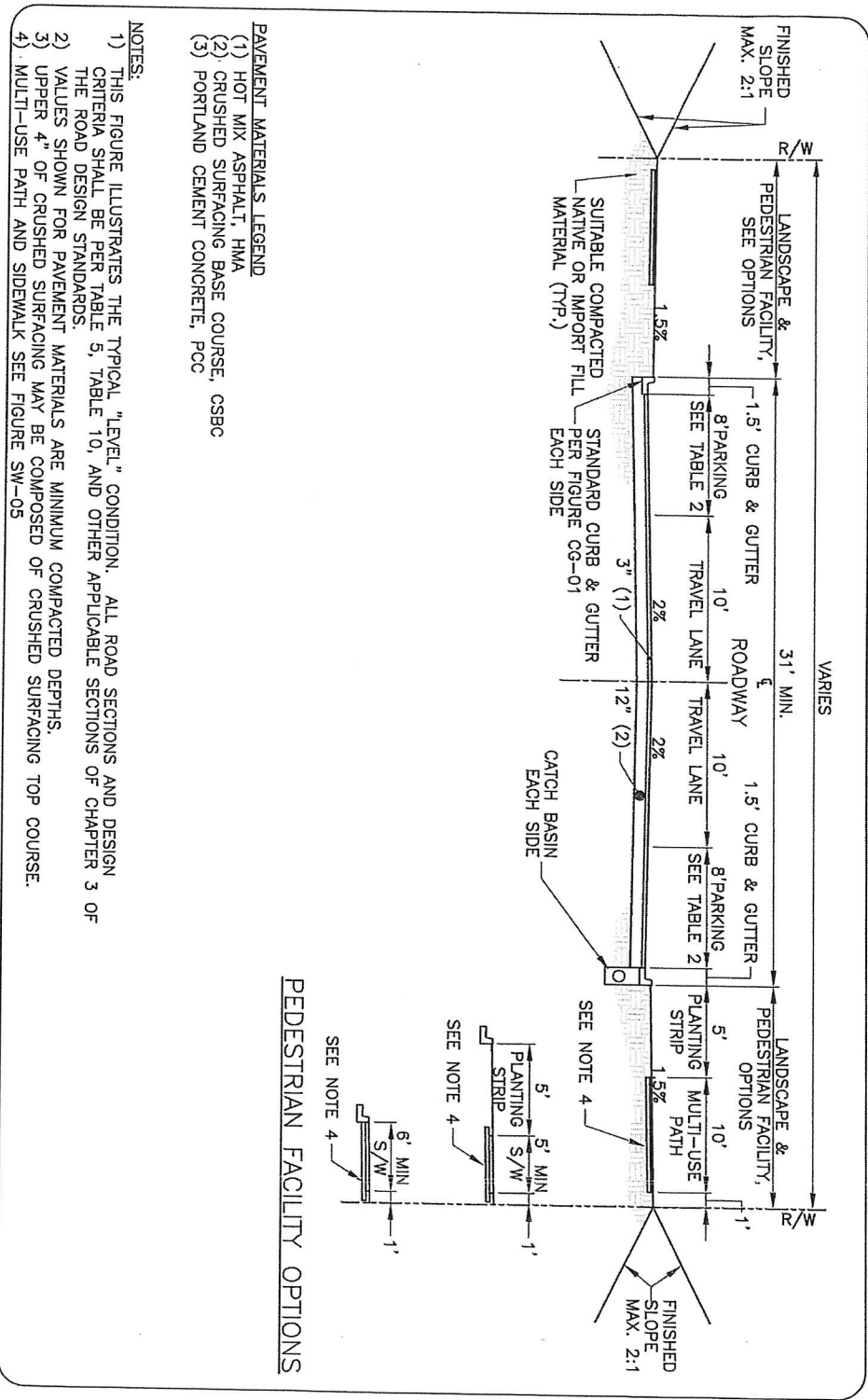
FIGURE

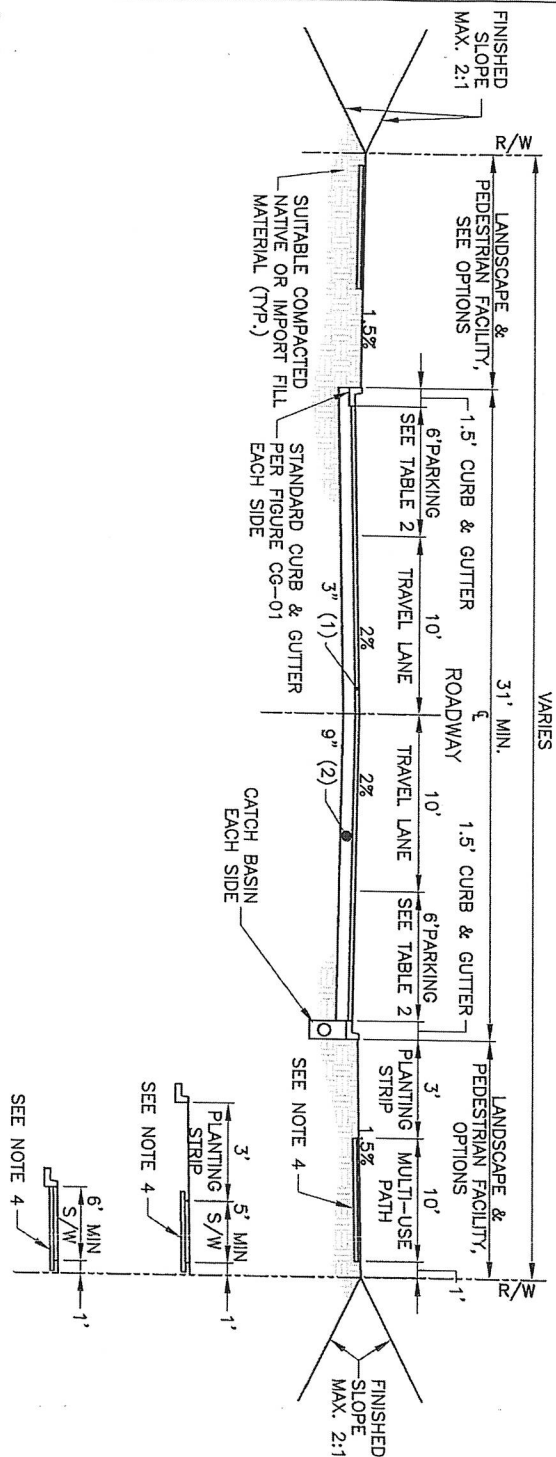
U-03



ROAD DESIGN STANDARDS
TYPICAL ROAD SECTION
URBAN LOCAL ACCESS -
SUBDIVISION PUBLIC ROAD

FIGURE
U-05





PAVEMENT MATERIALS LEGEND

- NOTES:
- 1) THIS FIGURE ILLUSTRATES THE TYPICAL "LEVEL" CONDITION. ALL ROAD SECTIONS AND DESIGN CRITERIA SHALL BE PER TABLE 5, TABLE 10, AND OTHER APPLICABLE SECTIONS OF CHAPTER 3 OF THE ROAD DESIGN STANDARDS.
 - 2) VALUES SHOWN FOR PAVEMENT MATERIALS ARE MINIMUM COMPACTED DEPTHS.
 - 3) UPPER 4" OF CRUSHED SURFACING MAY BE COMPOSED OF CRUSHED SURFACING TOP COURSE.
 - 4) MULTI-USE PATH AND SIDEWALK SEE FIGURE SW-05

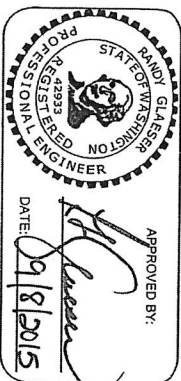
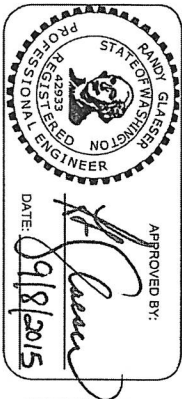


FIGURE
U-06



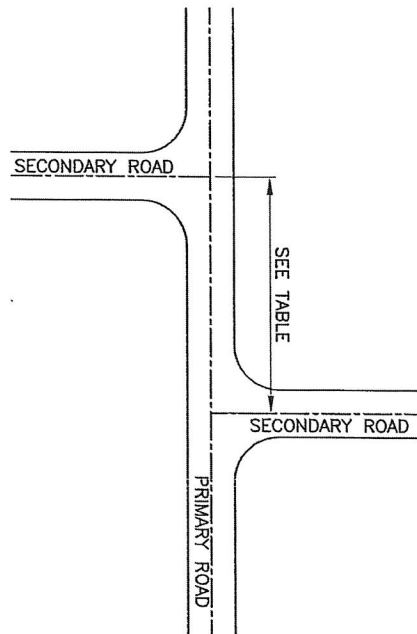
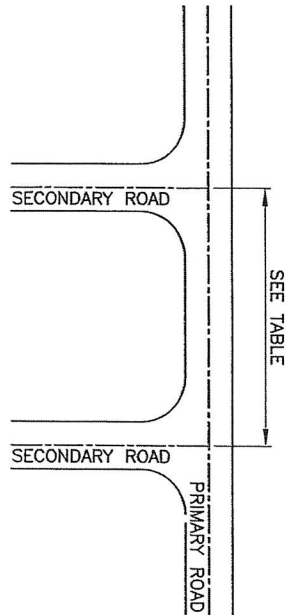
ROAD DESIGN STANDARDS
MINIMUM DISTANCE
BETWEEN INTERSECTIONS

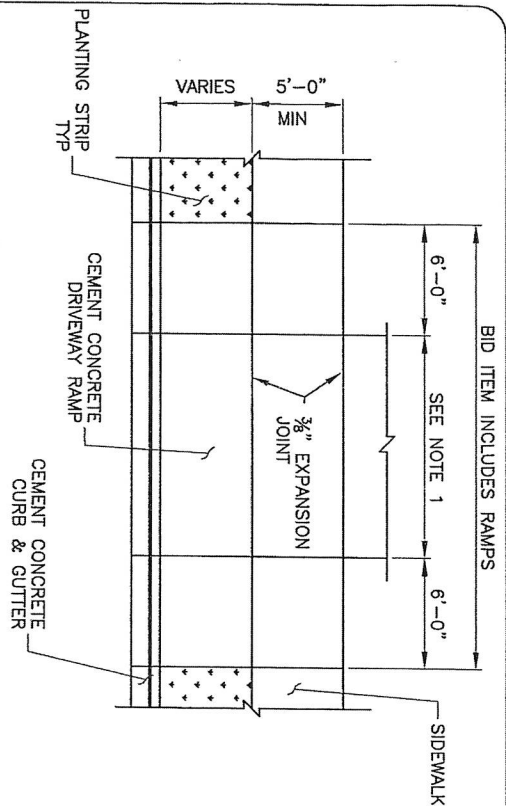
U-07
FIGURE

DISTANCE BETWEEN NEAREST INTERSECTIONS (FT)			
SECONDARY ROAD	PRIMARY ROAD		
	ARTERIALS	COLLECTORS	LOCAL ACCESS
COLLECTORS	1000	600	N/A
LOCAL ACCESS	600	300	150
PRIVATE	300	150	150

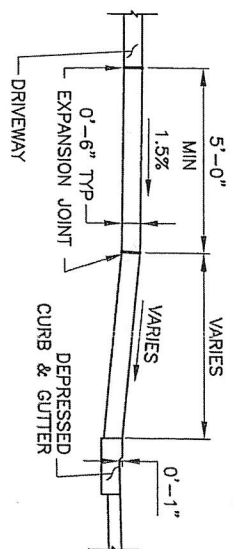
NOTES:

- 1) MAXIMUM ALLOWABLE OFFSET FOR SPLIT TEE INTERSECTIONS IS 6'

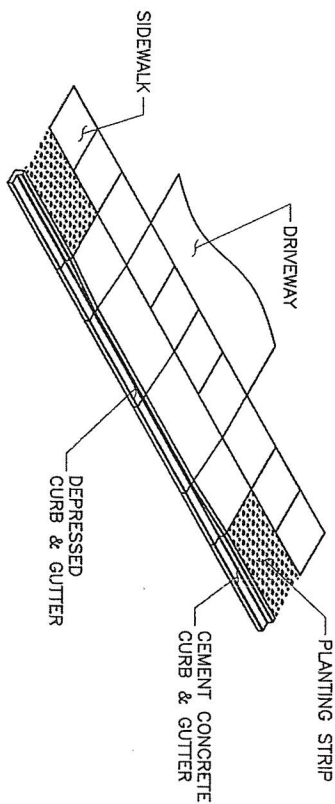




PLAN VIEW

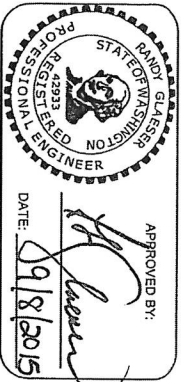


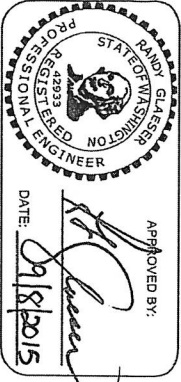
SECTION VIEW



ISOMETRIC VIEW

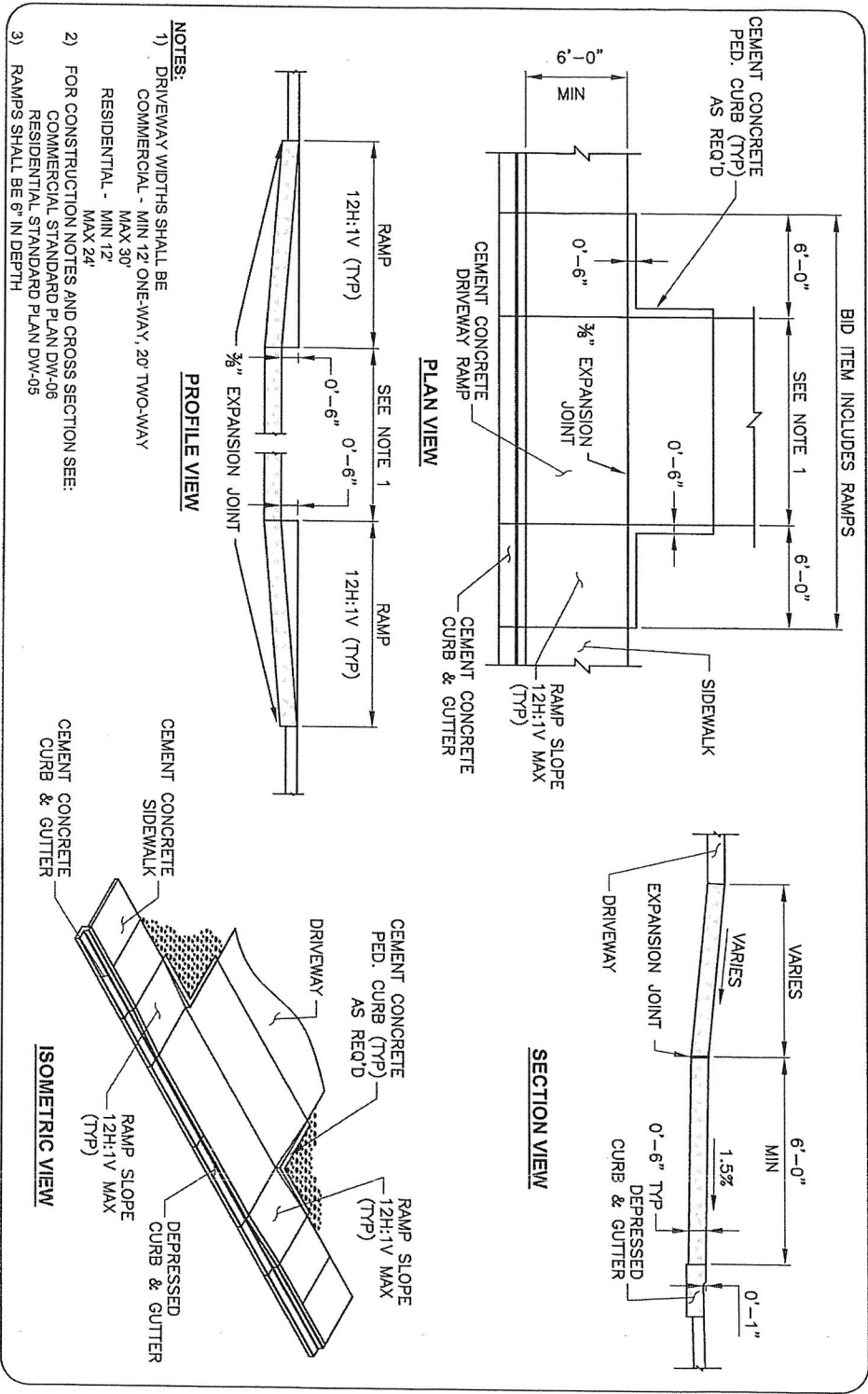
- NOTES:
- 1) DRIVEWAY WIDTHS SHALL BE
COMMERCIAL - MIN 12' ONE-WAY, 20' TWO-WAY
MAX 30'
RESIDENTIAL - MIN 12'
MAX 24'
 - 2) FOR CONSTRUCTION NOTES AND CROSS SECTION SEE:
COMMERCIAL STANDARD PLAN DW-06
RESIDENTIAL STANDARD PLAN DW-05
 - 3) RAMPS SHALL BE 6" IN DEPTH.

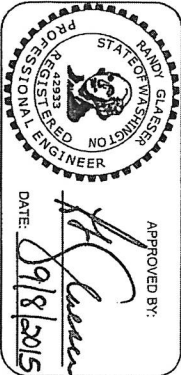




ROAD DESIGN STANDARDS
CEMENT CONCRETE DRIVEWAY &
ALLEY APPROACH WITH CURB
TIGHT SIDEWALK

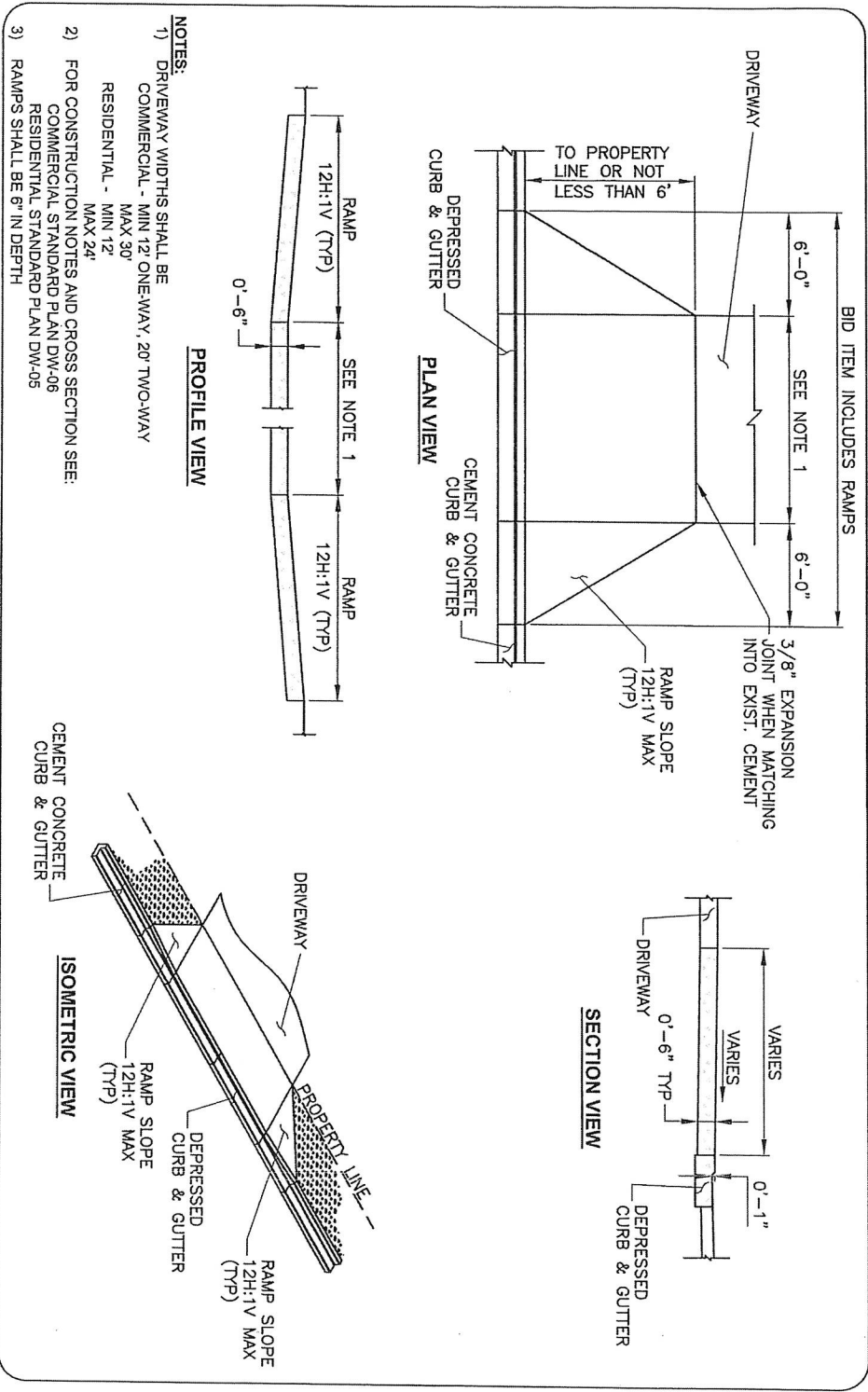
FIGURE
DW-02

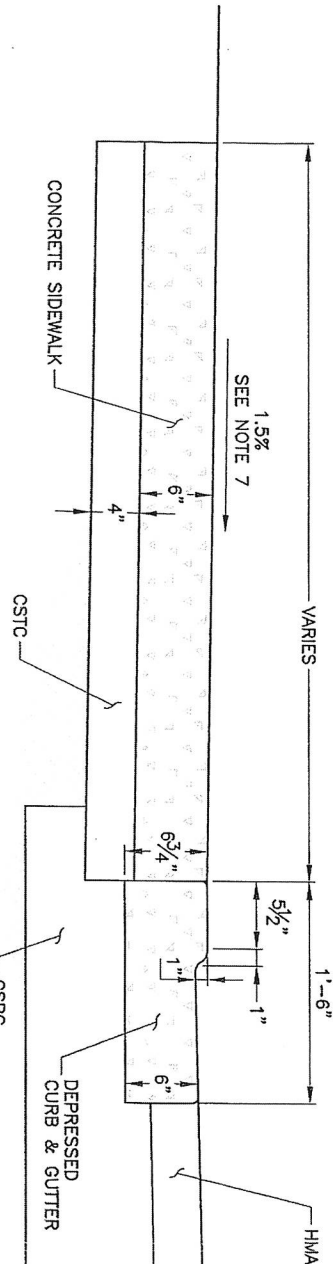




ROAD DESIGN STANDARDS
CEMENT CONCRETE DRIVEWAY & ALLEY
APPROACH WITH NO SIDEWALK

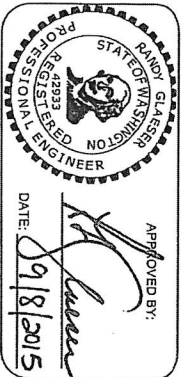
DW-03
FIGURE





NOTES:

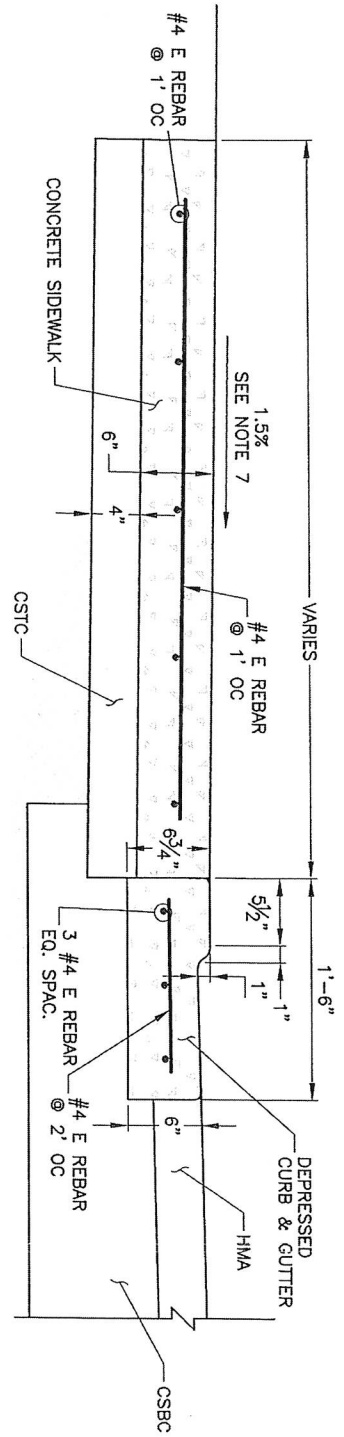
- 1) JOINTS
 - A) WHERE THE DRIVEWAY EXCEEDS 16' IN WIDTH, A 2" DUMMY JOINT SHALL BE PLACED LONGITUDINALLY ALONG THE CENTER LINE.
 - B) WHERE THE DISTANCE FROM THE FACE OF THE CURB TO THE FRONT OF THE SIDEWALK EXCEEDS 16' A 2" DEEP TRANSVERSE DUMMY JOINT SHALL BE PLACED AT ONE HALF THE DISTANCE TO THE FACE OF THE SIDEWALK.
 - C) A 3/8" THRU JOINT SHALL BE PLACED AT POINTS OF TANGENCY WITH STANDARD CURB & SIDEWALK. IF THE DRIVEWAY EXCEEDS 30' IN WIDTH, AN EXPANSION JOINT SHALL BE PLACED AT MID POINTS.
 - D) JOINTS SHALL BE CLEAN & EDGED WITH 1/2" RADIUS EDGER. HOT MIX ASPHALT (HMA) SHALL BE CUT BACK 12" & HAVE A SMOOTH EDGE BEFORE BEING PATCHED. (SEE STREET PATCH UT-03 OR UT-04)
- 2) CONCRETE SHALL BE CLASS 4000 & MEET REQUIREMENT OF THE CURRENT WSDOT STANDARD SPECIFICATIONS.
- 3) FORMS SHALL MEET REQUIREMENTS OF THE CURRENT WSDOT STANDARD SPECIFICATIONS.
- 4) THE ENTIRE CURB & GUTTER SECTION MUST BE COMPLETELY REMOVED & REPLACED.
- 5) NO MONOLITHIC POURS ARE ALLOWED. SIDEWALKS, CURB & GUTTER, & DRIVEWAYS SHALL BE POURED SEPARATELY WITH EXPANSION JOINTS AS NOTED
- 6) CROSS SLOPE SHALL NOT BE STEEPER THAN 1.5% UNLESS ALTERNATIVE ACCESSIBLE ROUTE IS PROVIDED. IF ADA ACCESS IS NOT REQUIRED, CROSS SLOPE SHALL NOT EXCEED 12:1 SLOPE. CRUSHED SURFACING TOP COURSE MUST BE MOISTURE CONDITIONED BEFORE PLACEMENT & COMPACTED TO A NON-YIELDING CONDITION. COMPACTON SHALL MEET REQUIREMENT OF THE CURRENT WSDOT SPECIFICATIONS.
- 7) THICKNESS SHALL BE 6" MIN. FOR ALL DRIVEWAY & ALLEY APPROACHES.
- 8) LOCATIONS OF ALL DRIVEWAYS SHALL BE APPROVED BY THE COUNTY ENGINEER. ADJACENT DRIVEWAYS SHALL HAVE A MIN OF 4' OF CURB SEPARATING THE APPROACHES OR MATCH SIDEWALK GRADE. FINISH SHALL BE LIGHT BROOMED.
- 9) COMPACTION OF SUBGRADE, SHALL MEET REQUIREMENT OF THE CURRENT WSDOT SPECIFICATIONS.
- 10)
- 11)
- 12)



ROAD DESIGN STANDARDS
RESIDENTIAL DRIVEWAY
APPROACH CROSS-SECTION

FIGURE
DW-05





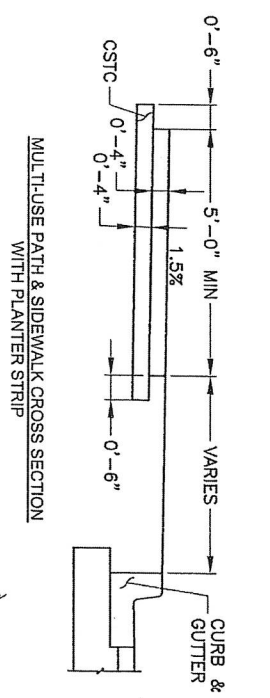
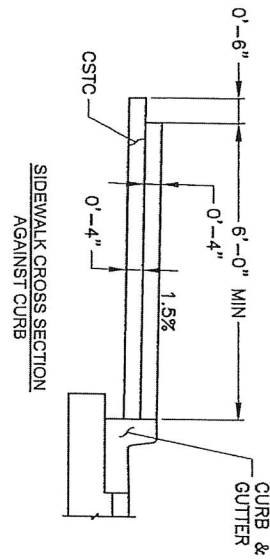
- NOTES:**
- 1) COMMERCIAL OR HEAVY VEHICLE LOAD DRIVEWAY & ALLEY APPROACHES SHALL HAVE REINFORCEMENT MATERIAL PLACED WITHIN THE CURB & GUTTER & SIDEWALK IN THE FOLLOWING MANNER.
 - A) CURB & GUTTER, 3 #4 BARS PLACED PARALLEL TO THE STREET WITH #4 CROSS TIES AT 24" ON CENTER.
 - B) SIDEWALK, #4 BARS AT 12" ON CENTER EACH WAY.
 - C) ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 - 2) JOINTS
 - A) WHERE THE DRIVEWAY EXCEEDS 16' IN WIDTH, A 2" DUMMY JOINT SHALL BE PLACED LONGITUDINALLY ALONG THE CENTER LINE.
 - B) WHERE THE DISTANCE FROM THE FACE OF THE CURB TO THE FRONT OF THE SIDEWALK EXCEEDS 16' A 2" DEEP TRANSVERSE DUMMY JOINT SHALL BE PLACED AT ONE HALF THE DISTANCE TO THE FACE OF THE SIDEWALK.
 - C) A 3/8" THRU JOINT SHALL BE PLACED AT POINTS OF TANGENCY WITH STANDARD CURB & SIDEWALK. IF THE DRIVEWAY EXCEEDS 30' IN WIDTH, AN EXPANSION JOINT SHALL BE PLACED AT MID POINTS.
 - D) JOINTS SHALL BE CLEAN & EDGED WITH 1/2" RADIUS EDGER. HOT MIX ASPHALT (HMA) SHALL BE CUT BACK 12" & HAVE A SMOOTH EDGE BEFORE BEING PATCHED. (SEE STREET PATCH UT-03 OR UT-04)
 - 4) CONCRETE SHALL BE CLASS 4000 & MEET REQUIREMENT OF THE CURRENT WSDOT STANDARD SPECIFICATIONS.
 - 5) FORMS SHALL MEET REQUIREMENTS OF THE CURRENT WSDOT STANDARDS SPECIFICATIONS.
 - 6) THE ENTIRE CURB & GUTTER SECTION MUST BE COMPLETELY REMOVED & REPLACED.
 - 7) NO MONOLITHIC POURS ARE ALLOWED. SIDEWALKS, CURB & GUTTER, & DRIVEWAYS SHALL BE POURED SEPARATELY WITH EXPANSION JOINTS AS NOTED.
 - 8) CROSS SLOPE SHALL NOT BE STEEPER THAN 1.5% UNLESS ALTERNATIVE ACCESSIBLE ROUTE IS PROVIDED. IF ADA ACCESS IS NOT REQUIRED, CROSS SLOPE SHALL NOT EXCEED 12:1 SLOPE.
 - 9) CRUSHED SURFACING TOP COURSE MUST BE MOISTURE CONDITIONED BEFORE PLACEMENT & COMPACTED TO A NON-YIELDING CONDITION. COMPACTON SHALL MEET REQUIREMENTS OF THE CURRENT WSDOT SPECIFICATIONS.
 - 10) THICKNESS SHALL BE 6" MIN. FOR ALL DRIVEWAY & ALLEY APPROACHES.
 - 11) LOCATIONS OF ALL DRIVEWAYS SHALL BE APPROVED BY THE COUNTY ENGINEER. ADJACENT DRIVEWAYS SHALL HAVE A MIN OF 4' OF CURB SEPARATING THE APPROACHES OR MATCH SIDEWALK GRADE.
 - 12) FINISH SHALL BE LIGHT BROOMED.
 - 13) COMPACTION OF SUBGRADE, SHALL MEET REQUIREMENT OF THE CURRENT WSDOT SPECIFICATIONS.



APPROVED BY:
Randy Glaeser
 DATE: 9/18/2015

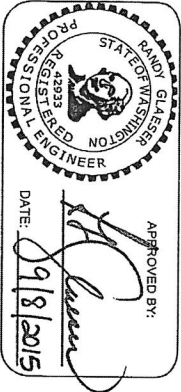
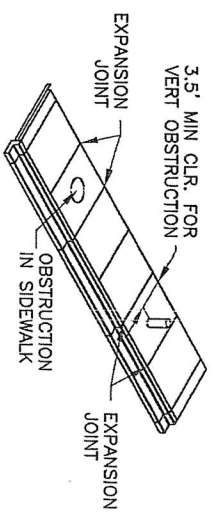
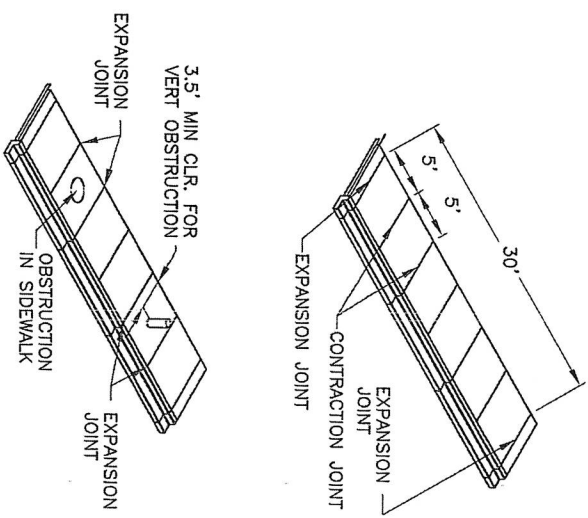
ROAD DESIGN STANDARDS COMMERCIAL DRIVEWAY APPROACH CROSS-SECTION

FIGURE
DW-06



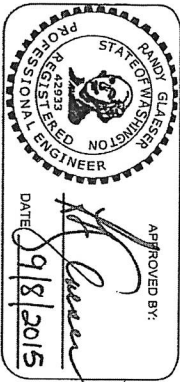
NOTES:

- 1) JOINTS
 - A) DUMMY (CONTRACTION) JOINTS SHALL BE TRANSVERSE 'V' GROOVE 1/4" TO 3/4" DEEP TO CREATE SQUARE PANELS NO GREATER THAN 5'.
 - B) FULL DEPTH & FULL WIDTH EXPANSION JOINTS SHALL BE INSTALLED WITH 3/4" THICK PREMOULDED JOINT FILLER MATERIAL AT A SPACING OF 30' MAX. AT THE HIGH POINT OF DRIVEWAY, ALLEY CUTS & ALL UTILITY POLES, METER BOXES, DRIVEWAYS, ALLEYS, MANHOLES, WATER VALVES, PHONE PEDESTALS, CURB RAMPS, & WHERE THERE IS A CHANGE IN DIRECTION.
 - C) ALL JOINTS SHALL BE CLEAN & EDGED WITH A 1/2" RADIUS EDGER. MATERIALS, CONCRETE, FORMS, & PROCEDURES SHALL MEET THE REQUIREMENTS OF THE WSDOT STANDARD SPECIFICATIONS.
 - 3) FINISH SHALL BE LIGHT BROOM.
 - 4) COMPACTION SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS.
 - 5) PLACE JOINT MATERIAL EITHER BETWEEN THE SIDEWALK & CURB OR BACK OF SIDEWALK & STRUCTURE WHEN THE SIDEWALK IS RESTRICTED ON ALL SIDES.
 - 6) ALL RETROFIT WORK SHALL BE SAW CUT SMOOTH & EVEN AT THE CURB, SIDEWALK, & GUTTER EDGES.
 - 7) CURB & GUTTER, DRIVEWAY, & SIDEWALK SHALL NOT BE POURED AS ONE SECTION.
 - 8) MINIMUM DEPTH FOR UTILITIES UNDER SIDEWALK IS 18" AND SHALL BE SLEEVED.
 - 9) ALL POSTS SET IN CONCRETE SIDEWALK SHALL BE STEEL, NO WOOD SHALL BE ALLOWED.
 - 10) MULTI-USE PATH SHALL BE 10' MIN WIDTH.
 - 11) WHEN REQUIRED ALL REINFORCING BAR SHALL BE EPOXY COATED.



ROAD DESIGN STANDARDS
SIDEWALK & MULTI USE PATH
CROSS-SECTION

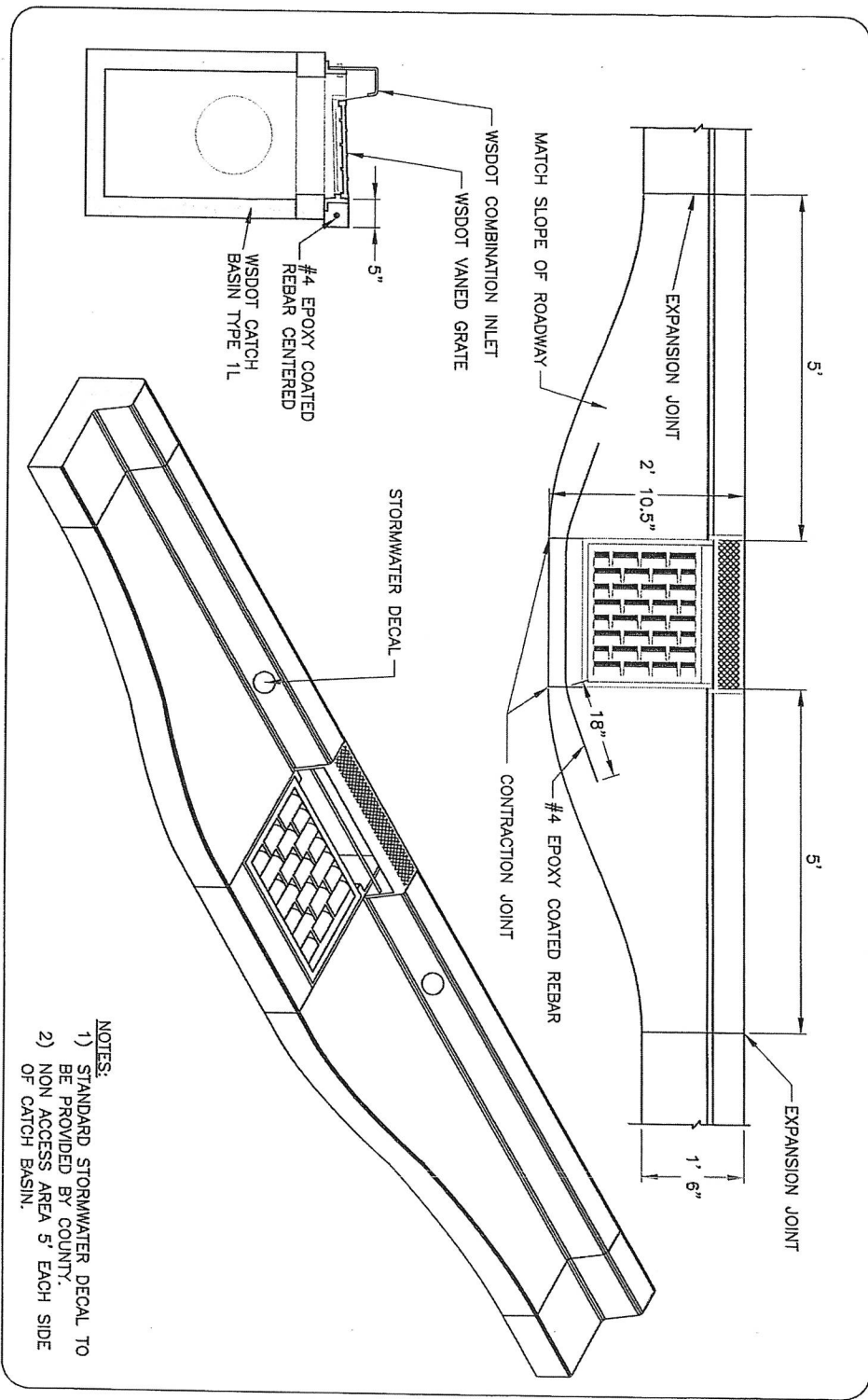
FIGURE
SW-05

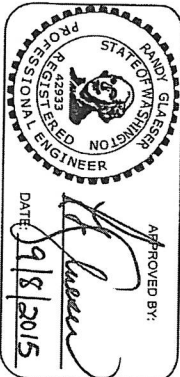


ROAD DESIGN STANDARDS

TYPICAL CURB AND GUTTER AT INLET

FIGURE
CG-02

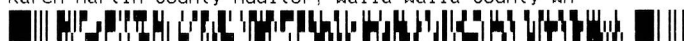
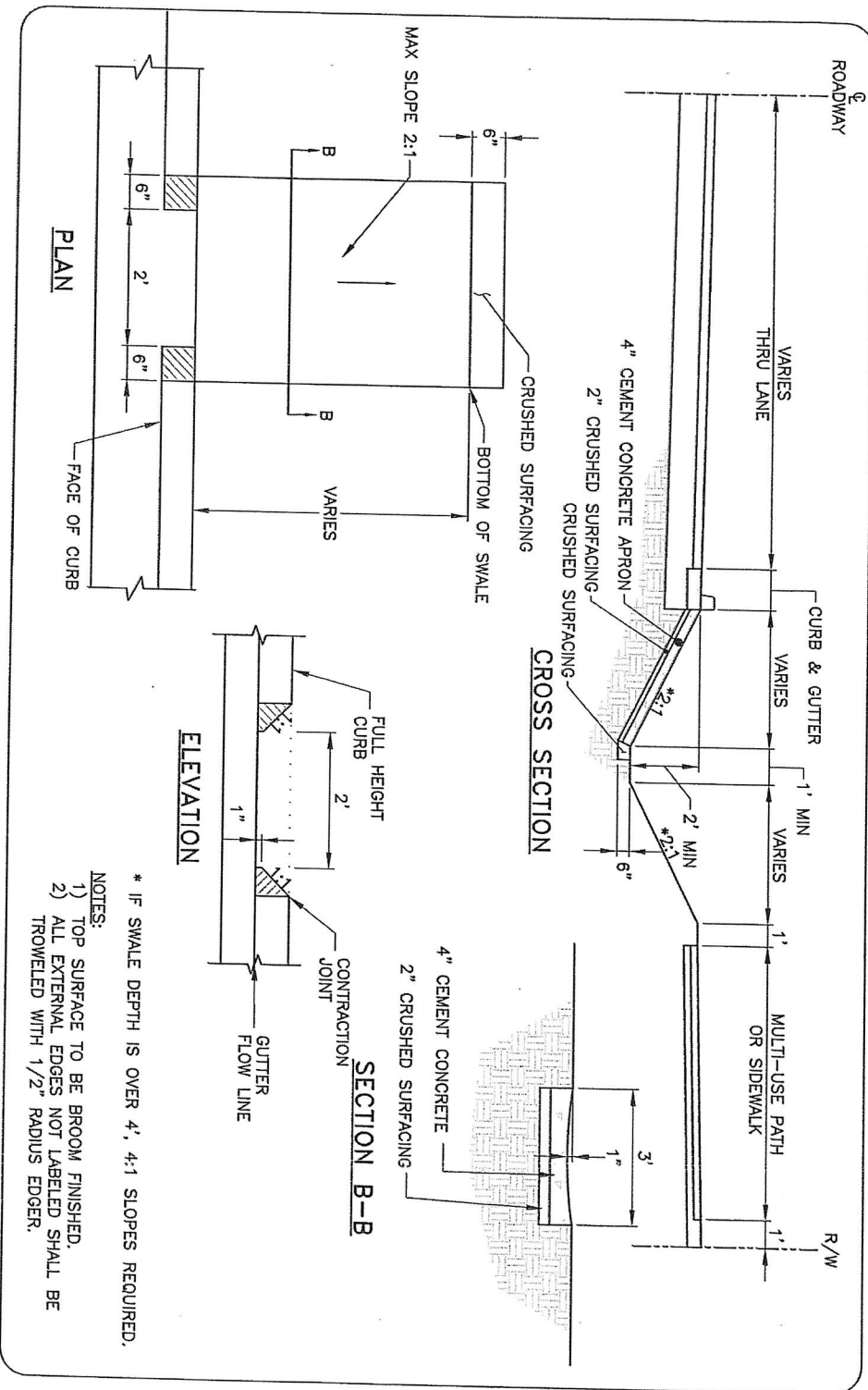


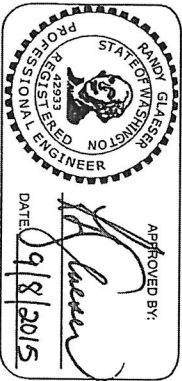


ROAD DESIGN STANDARDS CURB DRAINAGE CUT

S-02

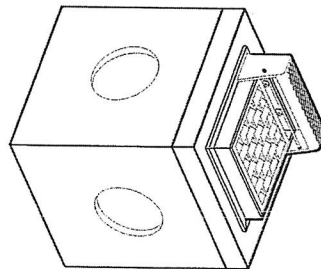
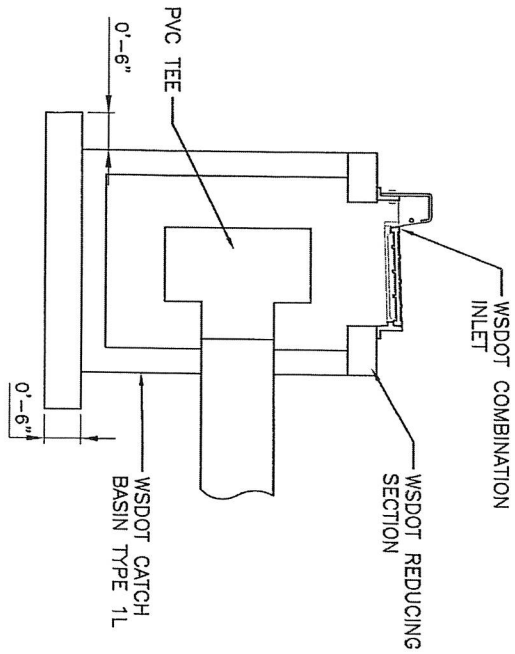
FIGURE





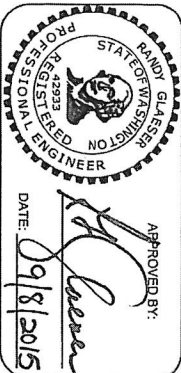
ROAD DESIGN STANDARDS TYPICAL CATCH BASIN

FIGURE
S-03



- NOTES:**
- 1) BOLT-DOWN CAPABILITY IS REQUIRED ON ALL FRAMES, GRATES, AND COVERS. THE BOLTS SHALL NOT REMOVED AND DELIVERED TO THE COUNTY.
 - 2) ALL OUTLETS IN CATCH BASINS SHALL HAVE A PVC TEE INSTALLED ON PIPE. THE TEE SHALL BE PUSHED TIGHT AS POSSIBLE TO WALL OF CATCH BASIN.

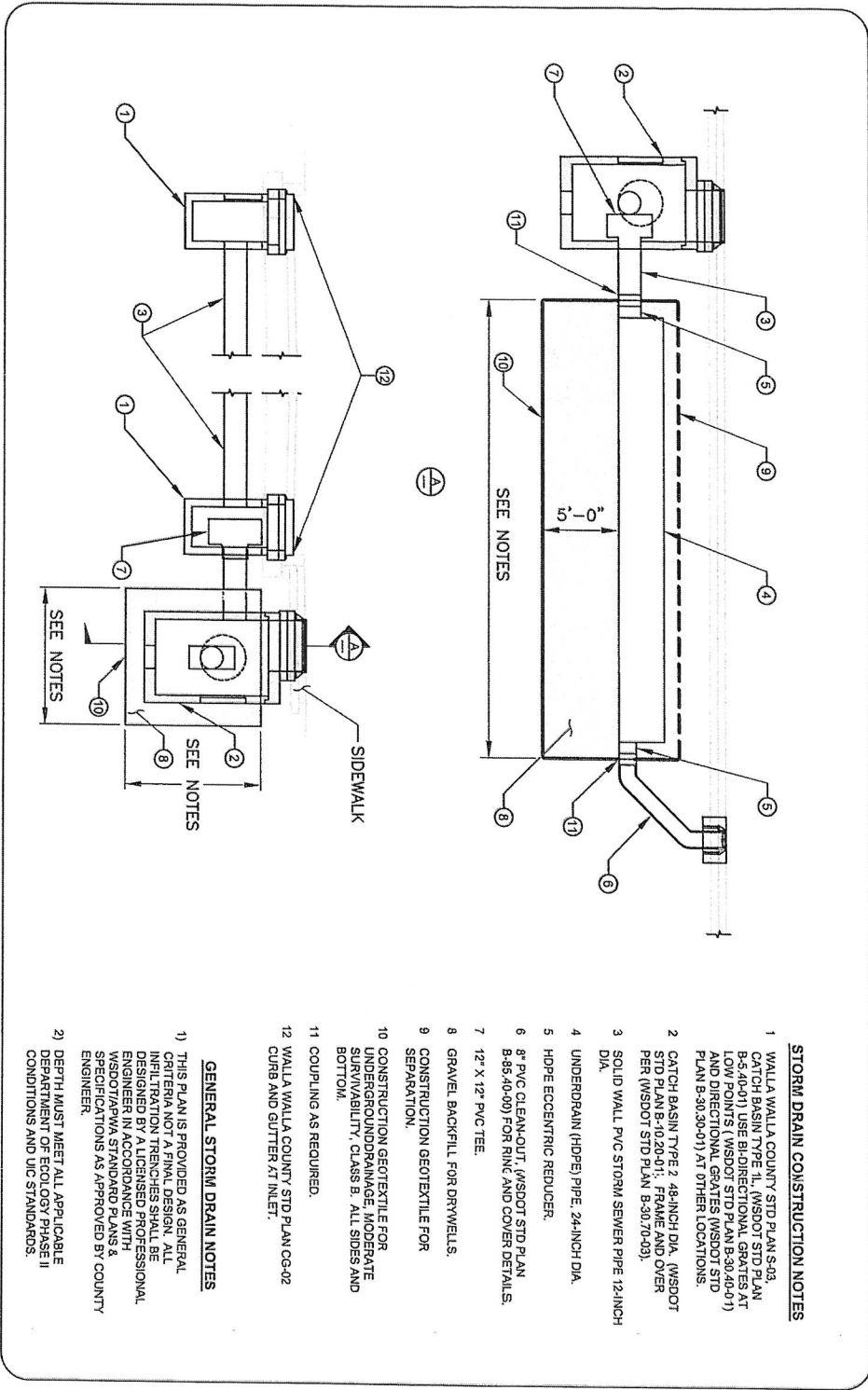




APPROVED BY: *Randy Glasser*
DATE: 09/18/2015

ROAD DESIGN STANDARDS LOW IMPACT DEVELOPMENT - INFILTRATION TRENCH

FIGURE
S-05

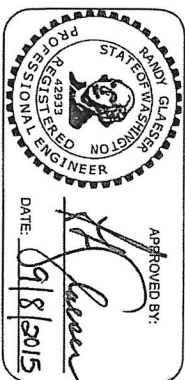


STORM DRAIN CONSTRUCTION NOTES

- 1 WALLA WALLA COUNTY STD PLAN S-03
CATCH BASIN TYPE 1L (WSDOT STD PLAN
B-5-40-01) USE BI-DIRECTIONAL GRATES AT
LOW POINTS (WSDOT STD PLAN B-3-40-01)
AND DIRECTIONAL GRATES (WSDOT STD
PLAN B-3-30-01) AT OTHER LOCATIONS.
- 2 CATCH BASIN TYPE 2 48-INCH DIA. (WSDOT
STD PLAN B-10-20-01; FRAME AND OVER
PER (WSDOT STD PLAN B-30-70-03).
- 3 SOLID WALL PVC STORM SEWER PIPE 12-INCH
DIA.
- 4 UNDERDRAIN (HDPE) PIPE 24-INCH DIA.
- 5 HDPE ECCENTRIC REDUCER.
- 6 8" PVC CLEAN-OUT (WSDOT STD PLAN
B-85-40-00) FOR RINK AND COVER DETAILS.
- 7 12" X 12" PVC TEE.
- 8 GRAVEL BACKFILL FOR DRYWELLS.
- 9 CONSTRUCTION GEOTEXTILE FOR
SEPARATION.
- 10 CONSTRUCTION GEOTEXTILE FOR
UNDERGROUND DRAINAGE MODERATE
SURVIVABILITY, CLASS B. ALL SIDES AND
BOTTOM.
- 11 COUPLING AS REQUIRED.
- 12 WALLA WALLA COUNTY STD PLAN CG-02
CURB AND GUTTER AT INLET.

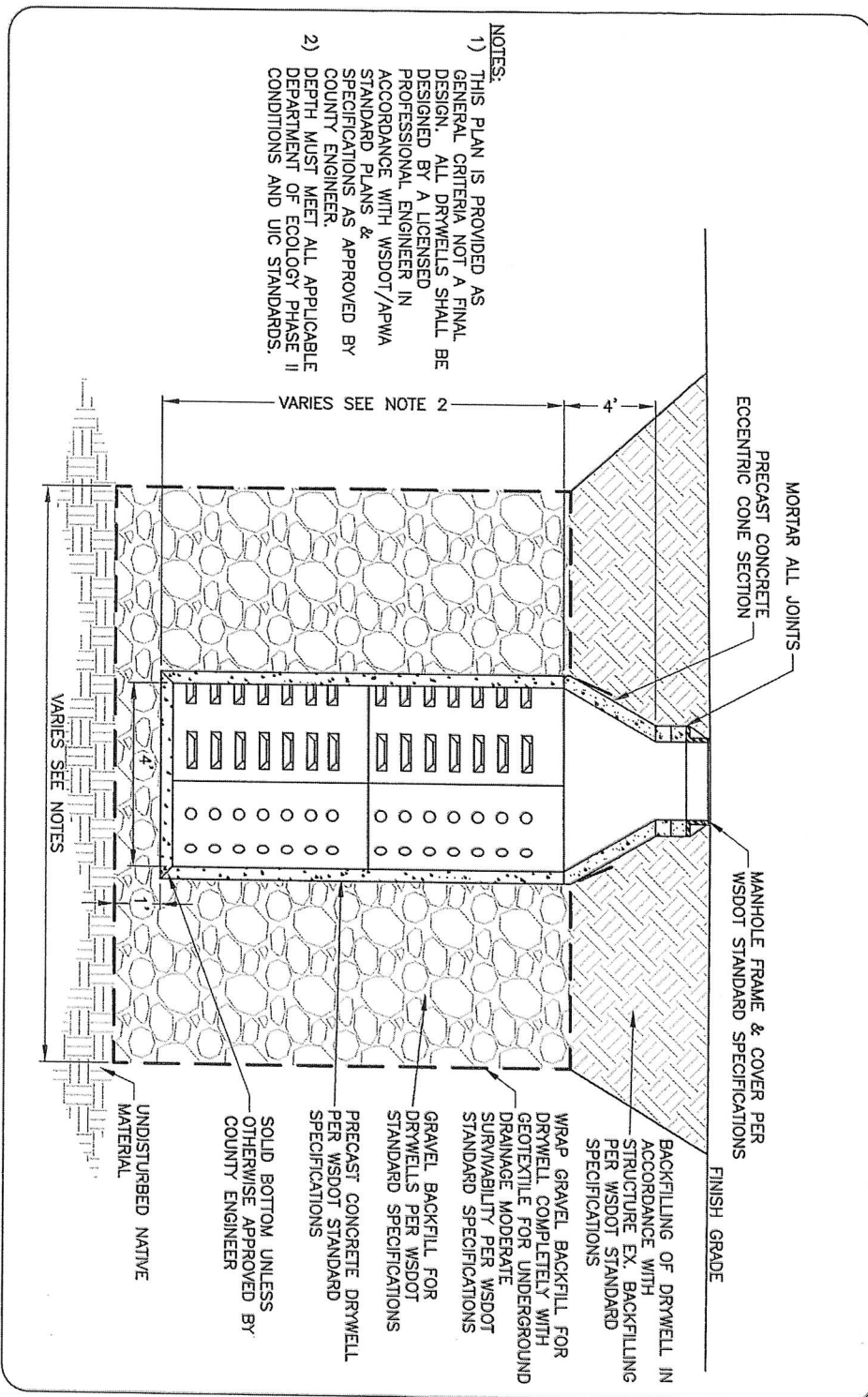
GENERAL STORM DRAIN NOTES

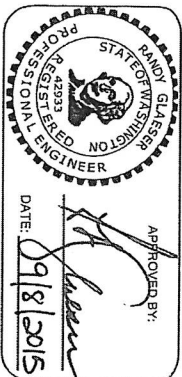
- 1) THIS PLAN IS PROVIDED AS GENERAL
CRITERIA NOT A FINAL DESIGN. ALL
INFILTRATION TRENCHES SHALL BE
DESIGNED BY A LICENSED PROFESSIONAL
ENGINEER IN ACCORDANCE WITH
WALLA WALLA STANDARD PLANS &
SPECIFICATIONS AS APPROVED BY COUNTY
ENGINEER.
- 2) DEPTH MUST MEET ALL APPLICABLE
DEPARTMENT OF ECOLOGY PHASE II
CONDITIONS AND UIC STANDARDS.



ROAD DESIGN STANDARDS STANDARD DRYWELL

FIGURE
S-06

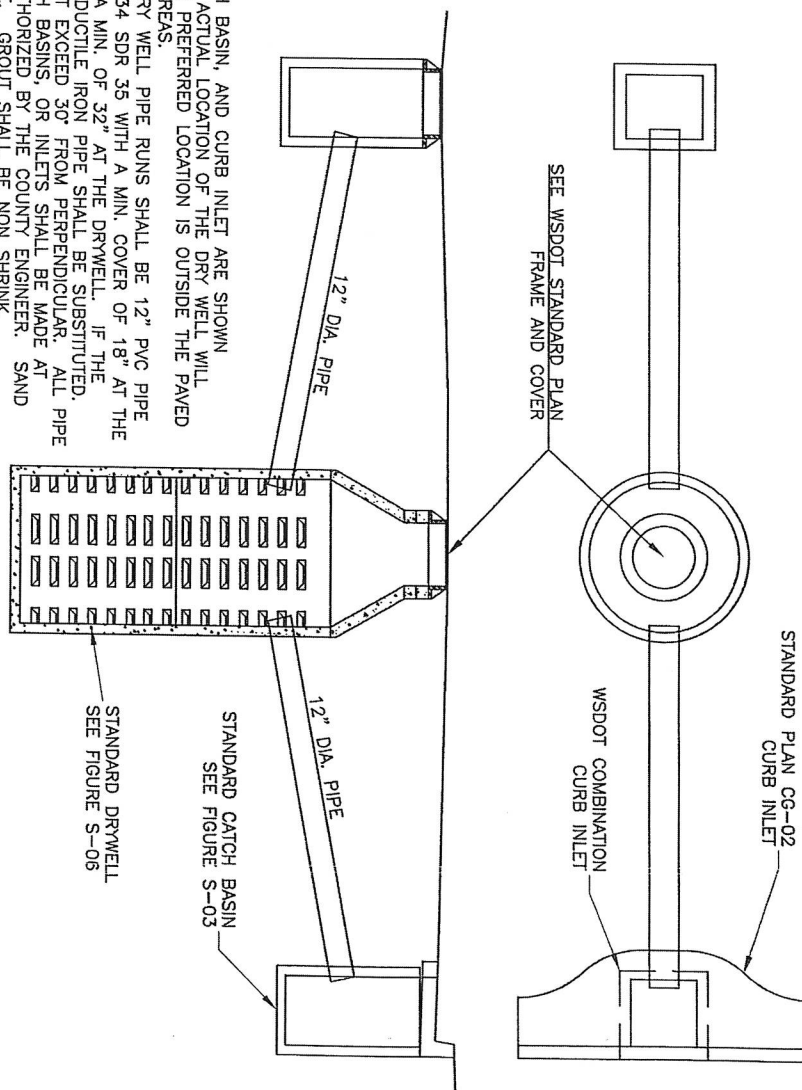


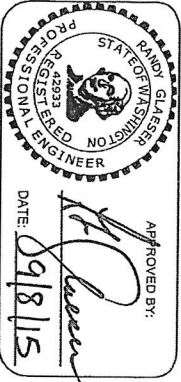


ROAD DESIGN STANDARDS CATCH BASIN, DRYWELL, CURB INLET DETAIL

FIGURE
S-08

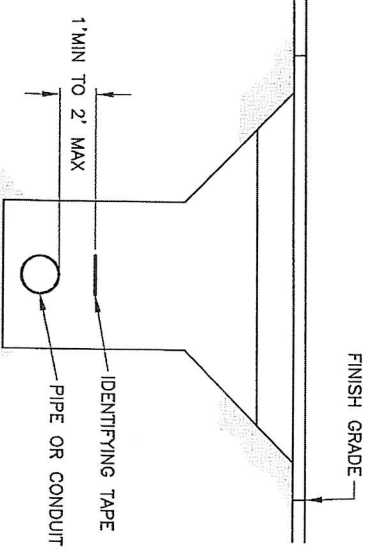
- NOTES:
- 1) LOCATION OF THE DRY WELL, CATCH BASIN, AND CURB INLET ARE SHOWN SCHEMATICALLY FOR CLARITY. THE ACTUAL LOCATION OF THE DRY WELL WILL DEPEND ON EXISTING UTILITIES. THE PREFERRED LOCATION IS OUTSIDE THE PAVED AREA, IN SIDEWALK OR IN GREEN AREAS.
 - 2) CATCH BASIN OR CURB INLET TO DRY WELL PIPE RUNS SHALL BE 12" PVC PIPE MEETING THE REQUIREMENTS OF 3034 SDR 35 WITH A MIN. COVER OF 18" AT THE CURB INLET OR CATCH BASIN AND A MIN. OF 32" AT THE DRYWELL. IF THE MINIMUM COVER CAN NOT BE MET, DUCTILE IRON PIPE SHALL BE SUBSTITUTED. THE ANGLE OF THE PIPE SHALL NOT EXCEED 30° FROM PERPENDICULAR. ALL PIPE CONNECTIONS TO DRY WELLS, CATCH BASINS, OR INLETS SHALL BE MADE AT KNOCKOUTS UNLESS OTHERWISE AUTHORIZED BY THE COUNTY ENGINEER. SAND COLLARS SHALL BE USED WITH PIPE. GROUT SHALL BE NON SHRINK.
 - 3) OPEN GRATES FOR DIRECT FLOW INTO THE DRY WELL WILL NOT BE PERMITTED UNLESS AUTHORIZED BY THE COUNTY ENGINEER. DRY WELL FRAME AND COVER SHALL BE SOLID, AND SHALL BE LABELED "STORM".





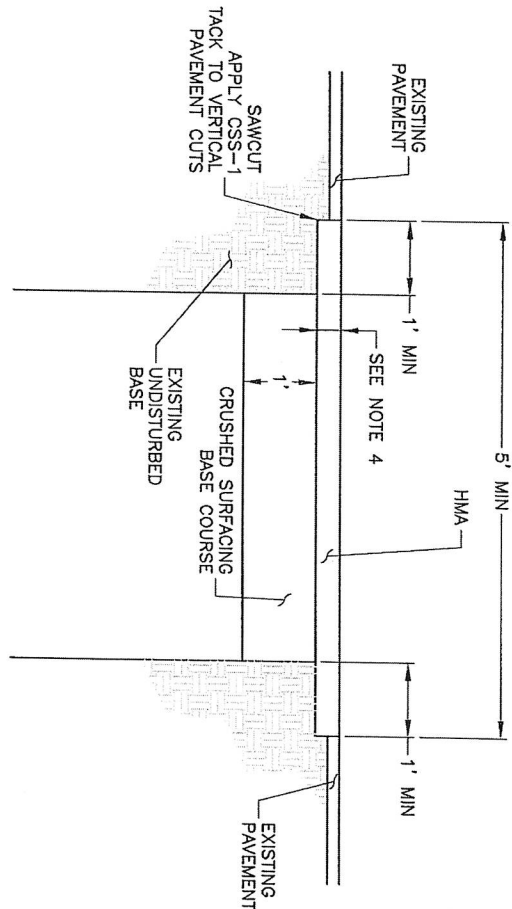
ROAD DESIGN STANDARDS IDENTIFYING TAPE DETAILS

FIGURE
UT-02



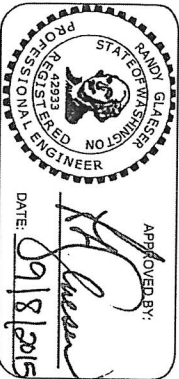
NOTES:
FOR SEWER PIPE LAID AT 6' IN DEPTH & DEEPER, PLACE IDENTIFYING TAPE 4' BELOW FINISH GRADE.

TYPE	COLOR	SIZE	DETECTABLE	IMPRINT
STORM SEWER	GREEN	3"	YES	CAUTION BURIED STORM LINE BELOW
SANITARY SEWER	GREEN	3"	YES	CAUTION BURIED SEWER LINE BELOW
WATER	BLUE	3"	YES	CAUTION BURIED WATER LINE BELOW
TRAFFIC CONDUIT	RED	3"	NO	CAUTION BURIED ELECTRIC LINE BELOW
ELECTRIC CONDUIT	RED	3"	NO	CAUTION BURIED ELECTRIC LINE BELOW
DIRECT BURY WIRE	RED	3"	NO	CAUTION BURIED ELECTRIC LINE BELOW



NOTES:

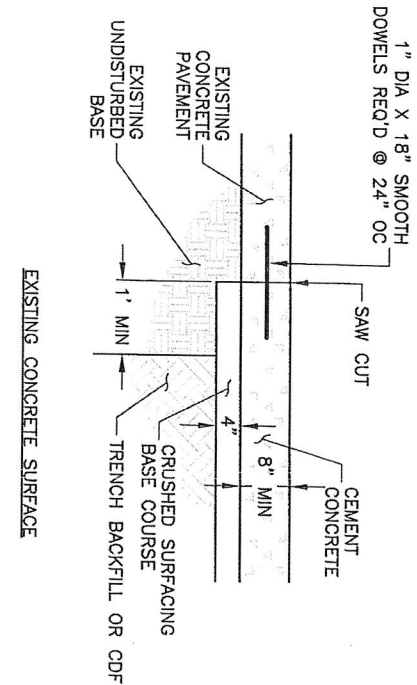
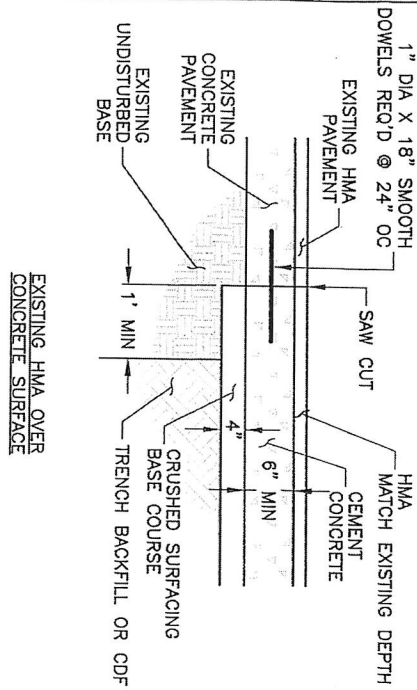
- 1) AFTER DITCH BACKFILL HAS BEEN COMPACTED, AN ADDITIONAL 12" WILL BE REMOVED FROM EACH EDGE OF THE ORIGINAL CUT. THE ENGINEER MAY REQUIRE MORE THAN THE 12" ADDITIONAL CUT IF THE EXISTING PAVEMENT HAS BEEN LIFTED IN THE REMOVAL PROCESS, IF THE JOINT DOES NOT OCCUR ON UNDISTURBED MATERIAL, OR IF THE JOINT FALLS WITHIN THE TRAVEL LANE.
- 2) ALL BACKFILL SHALL BE UNIFORMLY MOISTURE CONDITIONED & COMPACTED TO NO LESS THAN 95% MIN DENSITY. BASE ROCK & TOP COURSE SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
- 3) COLD MIX MAY BE USED TEMPORARILY ONLY UNTIL HOT MIX ASPHALT (HMA) IS AVAILABLE.
- 4) LOCAL & COLLECTOR STREETS SHALL HAVE 3" MIN OF HMA & ARTERIAL STREETS SHALL HAVE 4" MIN OF HMA PLACED IN TWO LIFTS.
- 5) THE COMPACTED CRUSHED SURFACING BASE COURSE CAN BE REPLACED WITH CONTROLLED DENSITY FILL (CDF)



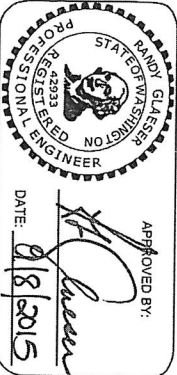
ROAD DESIGN STANDARDS
TYPICAL PATCH FOR
FLEXIBLE PAVEMENT

FIGURE
UT-03





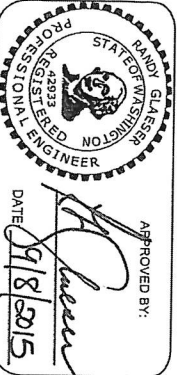
- NOTES:
- 1) AFTER DITCH BACKFILL HAS BEEN COMPACTED, AN ADDITIONAL 12" WILL BE REMOVED FROM EACH EDGE OF THE ORIGINAL CUT. THE ENGINEER MAY REQUIRE MORE THAN THE 12" ADDITIONAL CUT IF THE EXISTING PAVEMENT HAS BEEN LIFTED IN THE REMOVAL PROCESS, IF THE JOINT DOES NOT OCCUR ON UNDISTURBED MATERIAL, OR IF THE JOINT FALLS WITHIN THE TRAVEL LANE.
 - 2) ALL BACKFILL SHALL BE UNIFORMLY MOISTURE CONDITIONED & COMPACTED TO NO LESS THAN 95% MIN DENSITY. BASE ROCK & TOP COURSE SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
 - 3) COLD MIX MAY BE USED TEMPORARILY UNTIL HOT MIX ASPHALT (HMA) IS AVAILABLE.



ROAD DESIGN STANDARDS
TYPICAL PATCH FOR RIGID
PAVEMENT

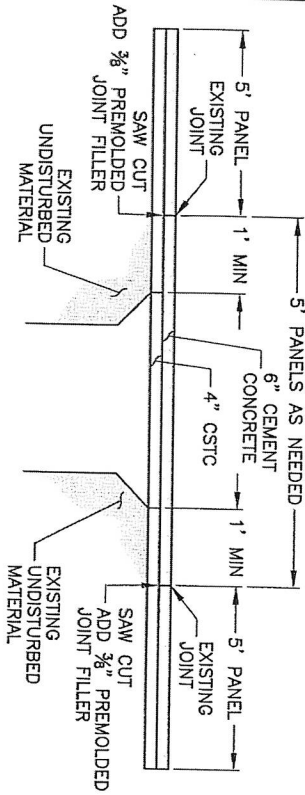
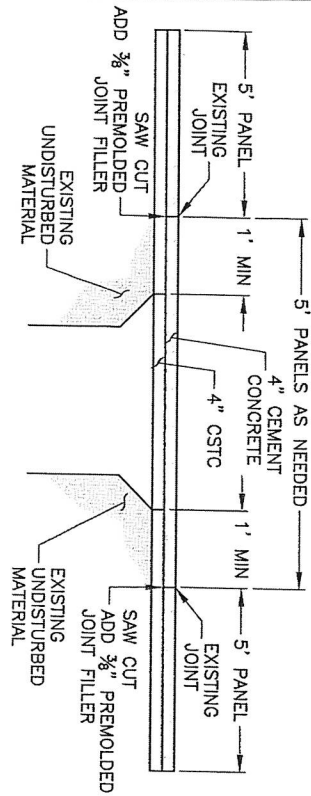
FIGURE
UT-04



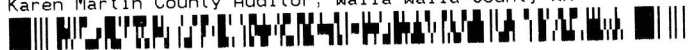


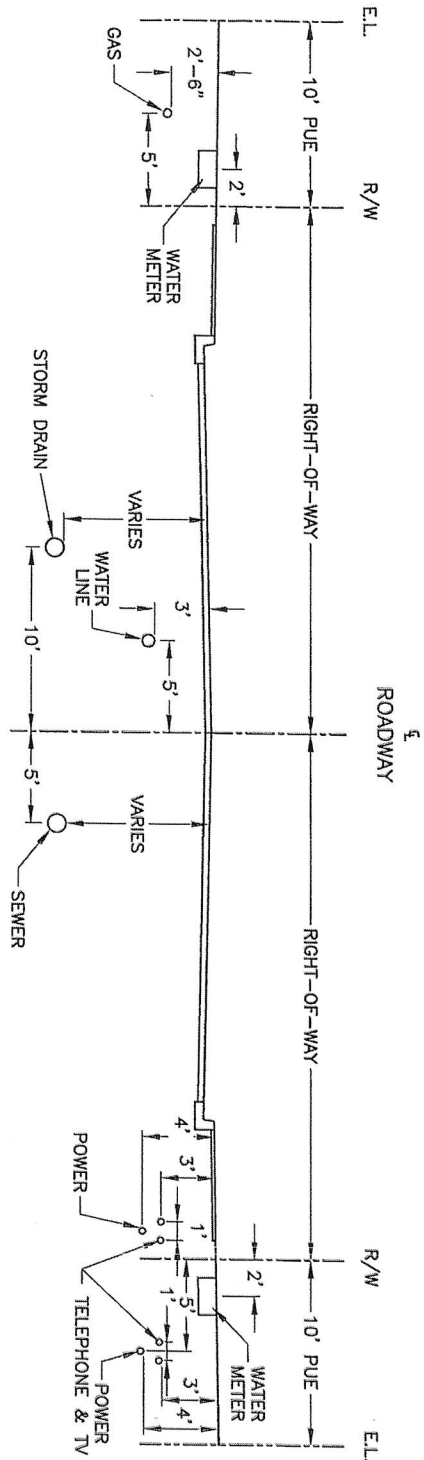
ROAD DESIGN STANDARDS
UTILITY CUT IN SIDEWALK
& DRIVEWAY

FIGURE
UT-05



- NOTES:**
- 1) MATERIALS SHALL MEET CURRENT REQUIREMENTS OF THE WSDOT STANDARD SPECIFICATIONS.
 - 2) SIDEWALK UTILITY PATCHES SHALL FOLLOW REQUIREMENTS OF WALLA WALLA COUNTY STANDARD SW-05.
 - 3) DRIVEWAY UTILITY PATCHES SHALL FOLLOW REQUIREMENTS OF WALLA WALLA COUNTY STANDARD DW-05.
 - 4) LIMITS OF SIDEWALK & DRIVEWAY REMOVAL SHALL FALL AT EXISTING JOINTS MAKING FULL PANELS TO BE REINSTALLED. JOINTS SHALL BE SAW CUT PRIOR TO REMOVAL OF CONCRETE.
 - 5) 3/8" PRE-MOLDED JOINT FILLER SHALL BE PLACED BETWEEN EXISTING CONCRETE AND PATCHED CONCRETE.
 - 6) 1" MIN OF UNDISTURBED MATERIAL SHALL BE MAINTAINED BETWEEN EXISTING CONCRETE AND TRENCH BACKFILL OR AN ADDITIONAL PANEL SHALL BE REMOVED.

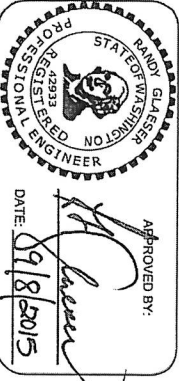




NOTES:

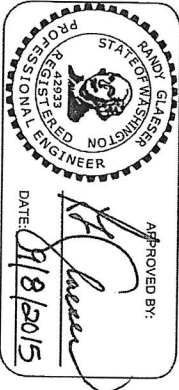
- 1) FLOW LINES SHALL BE ADEQUATELY COMPACTED SO THAT THE FLOW LINE DOES NOT BECOME A CHANNEL FOR STORMWATER.
- 2) ENCASUREMENT PIPES NEED TO BE EXTENDED AT LEAST 10' BEYOND THE PAVEMENT EDGE.
- 3) PIPE ZONE BACKFILL COMPACTED TO BE 90% MAX DENSITY. BACKFILL ABOVE PIPE ZONE TO BE MAX DENSITY OF 95%. WSDOT STANDARD SPECIFICATIONS, TRENCHES.
- 4) COMPACTION TESTS TO BE TAKEN EVERY 3' OF BACKFILL DEPTH IN ALL TRENCHES.
- 5) ALL UTILITY DEPTHS LISTED ARE MIN DEPTHS.
- 6) 1' MIN CLEARANCE REQUIRED FOR SEPARATION BETWEEN GAS LINES & OTHER PRIVATE UTILITY LINES.
- 7) ALL NEW UTILITIES SHALL BE LOCATED BEHIND CURB OR OUT SIDE OF ROADWAY PRISM UNLESS APPROVED BY COUNTY ENGINEER.

E.L. = (EASEMENT LINE)
 PUE = (PUBLIC UTILITY EASEMENT)
 RW = RIGHT OF WAY



ROAD DESIGN STANDARDS
URBAN UTILITY LAYOUT

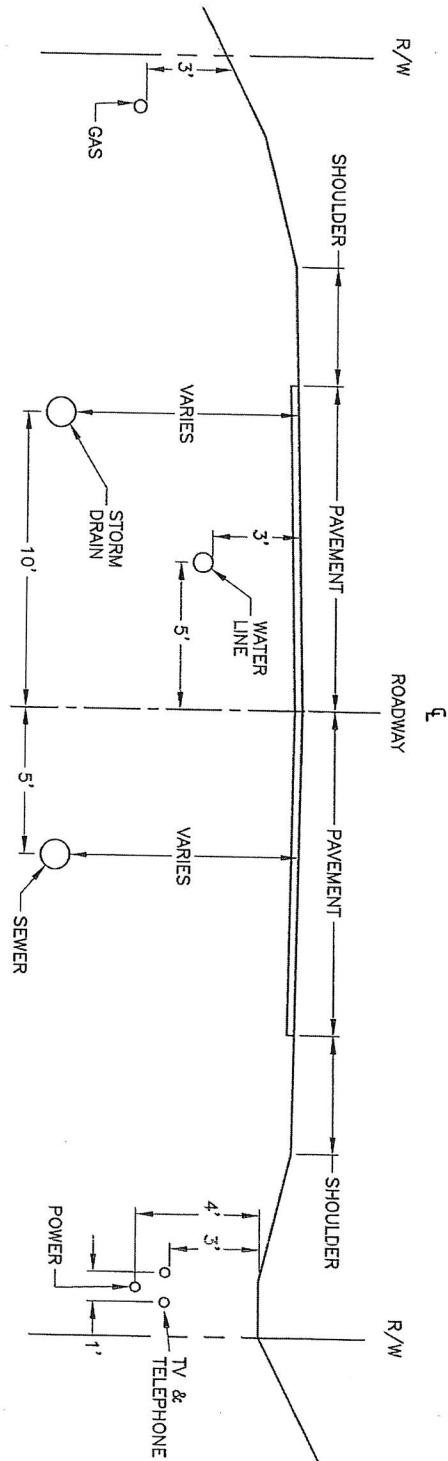
FIGURE
UT-06

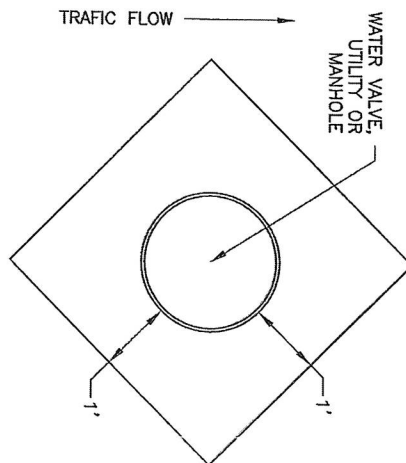
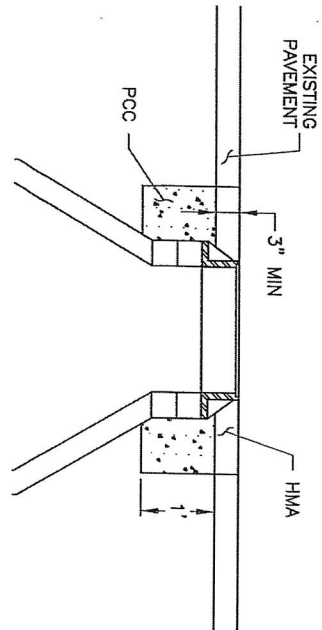


ROAD DESIGN STANDARDS RURAL UTILITY LAYOUT

FIGURE
UT-07

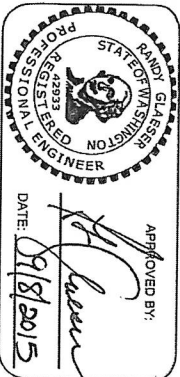
- NOTES:
- 1) UTILITIES CANNOT BE PLACED IN THE FORE SLOPE, DITCH BOTTOM, OR BACK SLOPE OF THE DITCH.
 - 2) UTILITY INSTALLATIONS NEED TO BE A MIN OF 3' FROM PAVEMENT EDGE.
 - 3) PLOW LINES SHALL BE ADEQUATELY COMPACTED SO THAT THE PLOW LINE DOES NOT BECOME A CHANNEL FOR STORMWATER.
 - 4) UTILITY MARKER POSTS TO BE PLACED BEHIND THE BACK SLOPE OF THE DITCH OR AT THE EDGE OF THE RIGHT OF WAY.
 - 5) ENCASEMENT PIPES NEED TO BE EXTENDED AT LEAST 10' BEYOND THE PAVEMENT EDGE.
 - 6) PIPE ZONE BACKFILL COMPACTED TO 90% MAX DENSITY. BACKFILL ABOVE PIPE ZONE TO BE MAX DENSITY OF 95%. (WSDOT STANDARD SPECIFICATION TRENCHES)
 - 7) COMPACTION TEST TO BE TAKEN EVERY 3' OF BACKFILL DEPTH IN ALL TRENCHES.
 - 8) 1' MIN CLEARANCES REQUIRED FOR SEPARATION BETWEEN GAS LINES & OTHER PRIVATE UTILITY LINES.
 - 9) ALL UTILITY DEPTHS LISTED ARE MIN DEPTHS.
 - 10) ALL NEW UTILITIES SHALL BE LOCATED TO EDGE OF RIGHT OF WAY





NOTES:

- 1) COLD MIX SHALL NOT BE USED, HOT MIX ASPHALT (HMA) SHALL ONLY BE USED.
- 2) CONCRETE CLASS 3000 SHALL BE USED.
- 3) LOCAL & COLLECTOR STREETS SHALL HAVE 3" MIN OF HMA & ARTERIAL STREETS SHALL HAVE 4" MIN OF HMA.
- 4) APPLY CSS-1 TACK TO VERTICAL CUTS IN ASPHALT AND TOP OF PCC.
- 5) LET CONCRETE CURE A MINIMUM OF 24 HOURS BEFORE PLACING HMA.



**ROAD DESIGN STANDARDS
TYPICAL UTILITY PATCH**

**FIGURE
UT-08**

