



Public Infrastructure Design Standards

2017 Edition

City of Sheridan
Public Works Department
Engineering and Utilities Division
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Acknowledgements

Mayor
Roger Miller

City Council

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Richard Bridger	Councilor
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City Staff

Mark Collins	City Administrator
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Dan Roberts, P.E.	Utilities Manager
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General Provisions

Short Title

These regulations, together with all future amendments, shall be known as the *City of Sheridan Public Infrastructure Design Standards* (hereinafter called Design Standards). They are intended to identify the specific design criteria that must be followed and typical design methods to be utilized in designing public infrastructure to the minimum the city will accept. Proven alternative design methods may be accepted to accomplish the same.

Jurisdiction

These Design Standards, along with the City of Sheridan Standard Specifications (hereinafter referred to as Standard Specifications) and the City of Sheridan Standard Plates (hereinafter referred to as Standard Details), shall apply to all public improvements within the incorporated area of the City of Sheridan except where superseded by federal or state requirements.

Amendments and Revisions

These standards and criteria may be amended as new technology is developed or experience gained in the use of these Design Standards. The City Engineer and Public Utilities Director shall consider annual revisions and/or amendments to these Design Standards.

Enforcement Responsibility

It shall be the duty of the City Engineer and Public Utilities Director under the direction of the Public Works Director to enforce the provisions of these Design Standards.

Review Process

The City will review all submittals for compliance with the specific Design Standards. Acceptance by the City does not relieve the Owner, Design Professional, or Contractor from responsibility for ensuring that the calculations, plans, specifications, construction, and record drawings are in compliance with the Design Standards.

Prior Approval

These Design Standards shall not abrogate or annul: (a) any permits issued before the effective date of these Design Standards; (b) any construction plans approved before the effective date of these Design Standards; (c) any final plat documents that have been recommended for approval by the City of Sheridan Planning Commission prior to the effective date of these standards; or (d) any easements or covenants already in effect.

Relationship to Other Standards

If special districts impose more stringent standards, this difference is not considered a conflict and the more stringent standard shall apply. If state or federal government imposes more stringent standards, criteria, or requirements, these shall be incorporated into these Design Standards in accordance with Section 1.3 of this Manual.

Variances

Variations from these Design Standards will be considered on a case-by-case basis by the City Engineer or Public Utilities Director as applicable.

Private Facilities

If an owner of private street or utility facilities wishes to dedicate these facilities for public use and maintenance, the facilities must meet the standards set forth herein prior to being accepted by the City.

Resolution 14-17

A RESOLUTION ADOPTING THE CITY OF SHERIDAN PUBLIC INFRASTRUCTURE DESIGN STANDARDS, 2017 EDITION ESTABLISHING PROCESS AND RULES FOR ADMINISTRATION, DESIGN, PERMITTING, AND ENFORCEMENT OF ALL PUBLIC INFRASTRUCTURE CONSTRUCTION WITHIN THE CORPORATE BOUNDARIES AND DESIGNATED SERVICE AREA BOUNDARIES.

WITNESSETH

WHEREAS, the City of Sheridan's currently two sets of engineering design standards formally referred to as "City of Sheridan Design Standards and Permitting Procedures for Water and Sewer Utility Construction" and "City of Sheridan Engineering Design Standards for Public Improvements" both which establish rules and govern respective areas of administration, design, permitting, and enforcement of public infrastructure construction, and

WHEREAS, the City of Sheridan has identified considerable benefit in combining its engineering design standards into a single document, and

WHEREAS, City Staff has worked in consultation with the local engineering community to develop a combined set of design and permitting standards and entitled them "City of Sheridan Public Infrastructure Design Standards, 2017 Edition"; and

WHEREAS, it is hereby acknowledged that the City of Sheridan Public Infrastructure Design Standards, 2017 Edition, are the established rules, regulations, and standards for the issuance of permits required under W.S. 35-11-301 (a)(iii) and (v), which are at least as stringent as those promulgated by the State under W.S. 35-11-302(a)(iii), and

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF SHERIDAN, WYOMING,

That the City of Sheridan Public Infrastructure Design Standards, 2017 Edition are adopted by City Council thereby superseding and replacing the latest adoptions of the "City of Sheridan Design Standards and Permitting Procedures for Water and Sewer Utility Construction" and the "City of Sheridan Engineering Design Standards for Public Improvements"; and shall hereby be administered and enforced upon the effective date of this Resolution.

BE IT FURTHER RESOLVED, that the Public Utilities Director and City Engineer are hereby designated as the local officials authorized, on behalf of the City of Sheridan Governing Body, to administer, enforce, and update the City of Sheridan Public Infrastructure Design Standards, 2017 Edition, in accordance with the provisions provided therein.

PASSED, APPROVED AND ADOPTED THIS 18th day of May, 2017.



Roger Miller, Mayor

Attest:



Jim Harmon, Finance and Administrative Services Director/Clerk

Resolution 15-17

A Resolution regarding the Wyoming Department of Environmental Quality (WDEQ) and the delegation of certain powers in favor of the City of Sheridan.

WHEREAS, the WDEQ wishes to delegate certain powers to the City of Sheridan, pursuant to a written agreement between WDEQ and the City of Sheridan.

A RESOLUTION AUTHORIZING AND DIRECTING THE MAYOR TO SIGN AND THE CITY CLERK TO ATTEST AN AGREEMENT WITH THE STATE OF WYOMING ACTING THROUGH THE DEPARTMENT OF ENVIRONMENTAL QUALITY DELEGATING CERTAIN DESIGN APPROVAL RESPONSIBILITIES PURSUANT TO WYOMING STATUTE §35-11-304; DESIGNATING THE CITY'S PUBLIC UTILITIES DIRECTOR AS THE DELEGATED LOCAL OFFICIAL; ADOPTING PERMITTING PROCEDURES; AND CONFIRMING CHAPTER 28, ARTICLE VI., SECTION 64 OF THE SHERIDAN CITY CODE, PREVIOUSLY ADOPTING THEREIN THE CITY OF SHERIDAN CONSTRUCTION AND DESIGN STANDARDS FOR EXTENSION OF LARGE DIAMETER WATER AND SEWER MAINS AND PRIVATE SERVICE LINES

BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF SHERIDAN, WYOMING:

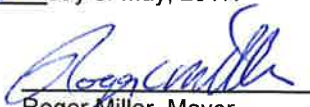
SECTION ONE. The Mayor is authorized and directed to sign and the City Clerk is authorized and directed to attest the Delegation Agreement with the State of Wyoming acting through the Administrator of the Water Quality Division and the Director of the Department of Environmental Quality pursuant to W.S. §35-11-304 which is incorporated herein by this reference.

SECTION TWO. The City of Sheridan hereby designates the Public Utilities Director as the Delegated Local Official who is authorized to enforce and administer the permitting program delegated by the State of Wyoming, acting through the Administrator of Water Quality Division of the Department of the Department of Environmental Quality in accordance with W.S. § 35-11-301(a)(iii). Engineering review, permitting and inspection of all facilities shall be administered by the City's Public Utilities Director. The City's Public Utilities Director is required to be a licensed Civil Engineer registered in the State of Wyoming per the description of job duties for this appointed position.

SECTION THREE. The City of Sheridan hereby adopts the "Permitting Procedures" described and incorporated by reference as Attachment D to the Delegation Agreement between the City and the State of Wyoming, acting through the Administrator of the Water Quality Division and the Director of the Department of Environmental Quality to implement and exercise the authority delegated in that agreement.

SECTION FOUR. Article VI. Section 28-64(a) through (c) of the Sheridan City Code has previously been adopted and

PASSED, APPROVED AND ADOPTED this 18th day of May, 2017.


Roger Miller, Mayor

Attest:


Jim Harmon, Finance and Administrative Services Director/Clerk

Section 101

General Pre-Construction Requirement & Procedures

Plans and specifications shall be developed in accordance with:

Appendix B of *Sheridan City Code* for “Subdivision Development Projects”,

The following “General Pre-Construction Requirements and Procedures” are intended to clarify, augment, and/or further define the water and wastewater application, engineering and permitting processes and requirements identified within the aforementioned Sheridan City Code references. Where in conflict, requirements within Appendix B of Sheridan City Code shall prevail over this section.

101.00 Water and Wastewater Preliminary Plan Submittal Requirements and Procedures

Engineers seeking review of preliminary plans for potable water and wastewater systems for subdivisions and other public improvements within the City / SAWS-JPB / DNISD service areas shall follow the requirements and submittal procedures outlined in this section. Plans should be labeled “PRELIMINARY PLANS.”

101.01 Water and Wastewater Preliminary Plan Requirements

- A. PRELIMINARY PLAT - A copy of the preliminary plat shall be submitted with the PRELIMINARY WATER AND WASTEWATER PLANS.
- B. UTILITY PLAN - The Utility Plan shall include existing and proposed location of water, sanitary sewer, electric, gas, cable TV, and phone lines. Existing and proposed easement for each utility shall be identified on this plan. The proposed locations of all fire hydrants, water valves and manholes; shall be show on this plan. The size and type of material for the proposed water mains and sanitary sewer mains shall be shown on this plan. The Utility Plan shall also include the location of all existing utilities and shall indicate the location of the proposed connections to these existing utility systems. The utility plan shall be prepared using the following horizontal and vertical datum:

Horizontal: NAD 1983 (1993) State Plane Wyoming East Central Feet (US Survey Feet)

Vertical: NAVD 88, Feet (U.S. Survey Feet)

- C. STREET, DRAINAGE AND GRADING PLANS - A copy of the “Preliminary Street, Drainage and Grading Plan” shall be provided to the Utilities Department.
- D. OFFSITE PUBLIC IMPROVEMENTS - If offsite public improvements are required in order to connect into existing city facilities, the offsite plans shall include the proposed lines, connection locations, and identify the status of the right-of-way or easements for the improvements.

101.02 Additional Information to be Submitted with the Water and Wastewater Preliminary Plans

PRELIMINARY GEOTECHNICAL REPORT - A copy of the preliminary geotechnical report shall be provided to the Utilities Department. The purpose of this report is to identify potential subsurface issues like contaminated soil, contaminated groundwater, high groundwater levels, slope stability concerns etc. that might interfere with traditional construction methods for water and wastewater facilities. If no subsurface or geotechnical concerns are identified during this preliminary assessment, the engineer shall state such within this report.

101.03 Preliminary Submittal Procedure

- A. The Engineer shall submit Two (2) 11X17 paper and 1 digital copy of the preliminary plans to the City of Sheridan Utilities Department for review. The Application for Permit to Construct is not required at the preliminary stage.
- B. The preliminary plans shall be submitted to the Utilities Department at the same time the preliminary plat is submitted to the Planning Division for consideration by the City Planning Commission. The Utilities Department will review the plans and make any comments regarding the plat to the Planning Division.
- C. The Utilities Department will also review the preliminary geotechnical report, if submitted, and may request additional testing or information, if necessary.
- D. After reviewing the preliminary plans, the Utilities Department will return one (1) copy, with comments and suggested revisions, of the plans back to the Applicant.
- E. The Applicant shall then revise and resubmit the plans as Final Water and Wastewater Construction Plans in accordance with Section 101.20 – FINAL WATER AND WASTEWATER SUBMITTAL REQUIREMENTS AND PROCEDURES

101.10 Minor Plat Approval

A plat is considered a Minor Plat when the following conditions are met:

1. The plat is a subdivision or a re-subdivision consisting of five or fewer lots.
2. Street dedications are not required on the plat.

According to the Subdivision Regulations, once the plat is declared a Minor Plat, the sub-divider may proceed directly to the preparation of the final plat.

- A. In order to coordinate the Utility Department's recommendations on the Minor Plat with the Planning Division, the preliminary plans must be submitted to the Utilities Department at least fourteen (14) days before the final plat is submitted to the Planning Commission. The Utilities Department will review the

Preliminary Plans and make any comments regarding the plat to the Planning Division.

The preliminary plans shall include only the information from Section 101.01 WATER AND WASTEWATER PRELIMINARY SUBMITTAL REQUIREMENTS that would apply to the Minor Plat.

- B. Approval of the Final Plans and issuance of the Permit to Construct on a Minor Plat shall follow Section 101.20 on FINAL WATER AND WASTEWATER SUBMITTAL REQUIREMENTS AND PROCEDURES.

101.20 Final Submittal Requirements

Applicants/Developers seeking approval of Final Water and Wastewater Plans for construction of subdivisions and other public improvements on private developer contracted projects shall follow the requirements and submittal procedures outlined in this section.

101.21 Final Water and Wastewater Submittal Requirements

- A. CONSTRUCTION DRAWINGS/FINAL PLANS. The final water and wastewater plans shall include the following, if applicable:
 - 1. Cover sheet
 - 2. Plat (latest version)
 - 3. Utility plan (including all proposed private utilities including electric, natural gas, telephone, cable television, fiber optic and other telecommunication utilities.)
 - 4. Street plan and profiles
 - 5. Water and waste water plan and profiles
 - 6. Storm sewer plan and profiles
 - 7. Overlot grading and drainage plan
 - 8. Erosion and sediment control plan during construction of the water and waste water system
 - 9. Temporary traffic control plan during water and waste water system construction
 - 10. Water and waste water details
 - 11. General notes
- B. OVERLOT GRADING PLAN. The overlot grading plan shall include, in general, a building envelope area showing recommended top of foundation elevations for each lot within the subdivision and contour lines showing the grading on the lot required to coordinate with the subdivision grading and drainage plan.
- C. GEOTECHNICAL INVESTIGATION REPORT. If determined to be necessary during development of the "Preliminary Water and Wastewater Submittal" (Section 101.02), the final submittal shall include a subsurface and/or geotechnical investigation report, prepared by an Engineer registered to practice in Wyoming, which identifies any special subsurface or geotechnical

concern that would otherwise affect the successful completion of the water and wastewater systems proposed. The report shall provide recommendations and solutions to the subsurface and/or geotechnical concerns.

- D. **WATER AND WASTE WATER DESIGN REPORT.** The final submittal shall include a water and waste water design report, prepared by an Engineer registered to practice in Wyoming. The report shall conform to the requirements of Wyoming Department of Environmental Quality (DEQ) Water Quality Division Rules & Regulations Chapters 11 and 12.
- E. **SUBMITTAL OF FORMS.** The Application for Permit to Construct and Final Submittal Check List shall be filled out, signed, and submitted with the final plans.
- F. **VARIANCES.** If the private developer or contractor responsible for public improvements desires to design and construct such improvements in variance to criteria in these standards, such variance(s) should be in the initial submittal of the construction plans. The variance request(s) shall consist of:
 - 1. Identification of the criteria provisions to be waived or varied.
 - 2. Identification of the alternative design or construction criteria to be adhered to.
 - 3. A thorough justification of the variance request including impact on capital and maintenance requirements and cost.

101.22 Final Submittal Procedures

- A. The Engineer shall submit two (2) 11X17 paper and 1 digital copy of the GEOTECHNICAL INVESTIGATION REPORT (if required), two (2) paper and 1 digital copy of the WATER AND WASTE WATER DESIGN REPORT, and two (2) 11X17 paper and 1 digital copy of the FINAL PLANS to the City of Sheridan Public Utilities Director for review and approval. The Application for Permit to Construct and the Final Submittal Check List must be submitted with the Final Plans.
- B. The City of Sheridan has received authority from the State of Wyoming Water Quality Division of the Department of Environmental Quality to regulate publicly owned or controlled sewage collection facilities and publicly owned or controlled water distribution facilities. The delegation of this authority to the City of Sheridan requires that the City administer the Permit to Construct (See Section 101.30 for PERMITTING PROCEDURES).
- C. The Geotechnical Investigation Report (if required), Water and Waste Water Report, Final Plans and Application for Permit to Construct must be approved by the Public Utilities Director before the Permit to Construct will be issued.

- D. For water/wastewater infrastructure that will be dedicated to the public, the Permit to Construct will be issued following final approval by the appropriate governing body.
 - 1. Approval of the “Final Plat” AND acceptance of a “Subdivision Agreement” by the Sheridan City Council; OR approval and acceptance of an “Infrastructure Agreement” by the Sheridan City Council (for water/wastewater projects that do not require a plat).
 - or-
 - 2. Approval of a FINAL “Water Service Agreement” by the Sheridan Area Water Supply Joint Powers Board AND approval of the final plat by the Board of County Commissioners of Sheridan County.
- E. No water or waste water construction will begin on a project before the Permit to Construct has been issued.

101.30 Permitting Procedures

The City of Sheridan has received authority from the State of Wyoming Water Quality Division of the Department of Environmental Quality to regulate publicly owned or controlled waste water collection facilities and water distribution facilities. The delegation of this authority to the City of Sheridan requires that the City administer the Permit to Construct.

No construction for developments or other public improvements on private development contracted projects as deemed necessary by the Public Utilities Director, and no construction, installation, or modification of public infrastructure including but not limited to: a public water supply, sewerage system, treatment works, disposal systems, or other facility capable of causing or contributing to pollution shall be allowed unless a Permit to Construct has been obtained from the Public Utilities Director.

101.31 Application Requirements

- A. No construction, installation or modification of a public water supply, sewerage system, treatment works, disposal system, or other facility capable of causing or contributing to pollution shall be allowed unless a permit to construct, install, or modify has been obtained from the Public Utilities Director.
- B. Any person who proposes to construct, install or modify a facility required to be permitted shall submit one (1) signed original of a written application and check list on the attached forms, which is incorporated herein by this reference.
- C. The application for a permit to construct, install or modify must be accompanied by two (2) copies of plans, two (2) copies of specifications, design data or other pertinent information covering the project, one (1) digital copy of all the above and any additional information required by the Public Utilities Director and City Engineer.

- D. All design reports, plans, and specifications submitted shall carry the seal and signature of the designing engineer, who must be a professional engineer registered in the State of Wyoming.

101.32 Application Processing Procedures

All permit applications received will be processed in the following manner:

- A. The Public Utilities Director, City Engineer or designee, shall review each complete application to determine if it:
 - 1. Meets minimum requirements of the City of Sheridan Public Infrastructure Design Standards and should be authorized; or
 - 2. Should be authorized with modification.

- B. Incomplete applications will be processed in the following manner:
 - 1. Additional information will be requested from the applicant in order to complete the review.
 - 2. If the application is grossly incomplete, it will be returned to the applicant with a request for completion and re-submittal on a new application.
 - 3. If an application is returned to the applicant because of incompleteness, the applicant shall have a maximum of six (6) months to provide the additional information. If the applicant fails to provide the requested information within that period, the entire incomplete application shall be denied and the application returned to the applicant.
 - 4. If the applicant does not address all comments and make the appropriate revisions identified in the initial review on the re-submittal, a charge at a rate of \$100.00 per hour will be assessed for review of re-submittals thereafter.

- C. The application will be reviewed and final action taken by the Public Utilities Director within fifteen (15) working days. The review time will be lengthened if the submittal is incomplete and additional information is requested.

- D. All plans and specifications must meet or exceed the City of Sheridan Design Standards and applicable regulations.

- E. Each application will be reviewed on its own merit. Processing of an application with respect to recommendations or required changes will be done in accordance with the provisions of applicable statutes, rules and regulations enforced by the Public Utilities Director.

- F. The Public Utilities Director, City Engineer or his designee, shall promptly notify the applicant in writing of the final action taken on the application. If the

conditions of the permit are different from the proposed application submitted by the applicant for review, the notification shall include reasons for the changes made.

- G. If upon review of an application, the Public Utilities Director determines that a permit is not required, the Public Utilities Director, or his designee, shall notify the applicant of this determination in writing. Such notification shall constitute final action on the application.

101.33 Duration, Termination of Permits and Transfer of Permits

- A. The Public Utilities Director may require an expiration date less than two (2) years on the permit issued. Those permits issued without a specified expiration date will be in force no more than two (2) years from the date of issuance.
- B. Permits will be issued only to the official applicant of record, who must be the owner of the permitted facility, for only the type of construction of record and shall be automatically terminated:
 - 1. Within sixty (60) days after sale or exchange of the facility.
 - 2. Upon issuance of a new, renewed or modified permit.
 - 3. Upon Written request of the permittee.
- C. Permits may be transferred to new owners by completion and submittal of application forms by the new owner to the Public Utilities Director. The new owner shall also submit a written request from the existing owner to transfer ownership. The Public Utilities Director shall act within ten (10) working days after receipt of the request.
- D. Any conditions established in a construction, installation or modification permit would be automatically transferred to the new owner whenever a transfer of ownership of the facility occurs.

101.34 Renewal of A Permit

A permit may be renewed on the following conditions:

- A. A written statement is filed with the Public Utilities Director or City Engineer stating that there will not be any changes in the plans for construction, installation, or modification of a permitted facility. The written statement should be filed with the Public Utilities Director prior to the expiration date of the permit; and
- B. No modifications to the permit are required under Section 101.36 of these regulations.

101.35 Denial of a Permit

- A. The Public Utilities Director may deny a permit for any of the following reasons:
 - 1. The application is grossly incomplete or does not meet applicable City of Sheridan Design Standards
 - 2. The project, if constructed, will cause violation of applicable State surface or groundwater standards;
 - 3. The project does not comply with applicable State and local water quality management plans;
 - 4. The project, if constructed, would result in hydraulic and/or organic overloading of wastewater facilities;
 - 5. The project, if constructed, would result in public water supply demand in excess of source, treatment or distribution capabilities; or
 - 6. Other justifiable reasons necessary to carry out the provisions of the City's Agreement with WDEQ and the Environmental Quality Act.
- B. If the Public Utilities Director proposes to deny issuance of a permit, the applicant shall be notified by registered or certified mail of the intent to deny and the reason for denial.
- C. In the case of denial of a permit by the Public Utilities Director, the applicant, if he so desires, may request a hearing before the Wyoming DEQ Water Quality Administrator. The request for a hearing shall be made in writing within twenty (20) days of notification of this denial to the Wyoming DEQ Water Quality Administrator, and shall state the grounds for the request.
- D. In case of denial of a permit by the City Engineer, the applicant may choose to take it up the chain to the Public Works Director.

101.36 Modification of Permit

- A. When reviewing an application or before construction on a facility is completed, the Public Utilities Director may modify a permit due to the following reasons:
 - 1. Changing site conditions which would result in violations of the City's standards and regulations;
 - 2. Receipt of additional information; or
 - 3. Any other reason necessary to meet applicable statutes, standards or regulations.
- B. The Public Utilities Director shall notify the permittee by registered or certified mail of intent to modify the permit.
- C. Such notification shall include the proposed modification and the reasons for modification and time frame to have modifications constructed, installed and operational. Modification requirements shall be implemented before construction, installation, or modification of a facility is completed.

- D. The modification shall become final within twenty (20) days from the date of receipt of such notice unless within that time the permittee requests a hearing before the appropriate body. Such request for a hearing shall be made in writing to the Public Utilities Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to Chapter 29 of the City of Sheridan City Code.
- E. A copy of the modified permit shall be forwarded to the permittee as soon as the modification becomes effective.

101.37 Suspension or Revocation of a Permit

- A. The Public Utilities Director or City Engineer may suspend or revoke a permit before construction, installation or modification of a facility is completed for the reasons set forth below, in item C.
- B. Before a permit may be suspended or revoked, the permittee shall be given an opportunity to show compliance with all lawful requirements for the retention of the permit.
- C. The Public Utilities Director or City Engineer shall notify the permittee by registered or certified mail of its intent to suspend or revoke the permit in the event that it becomes necessary due to:
 - 1. non-compliance with the terms of the permit; or
 - 2. unapproved changes in design or construction; or
 - 3. false information submitted in the application; or
 - 4. conflict with an approved water quality management plan prepared under Sections 303, 208 and/or 201 of the Federal Clean Water Act, as amended.
 - 5. any other reasons necessary to meet applicable statutes, standards or regulations.
- D. The notification shall include the reasons for suspension or revocation.
- E. The suspension or revocation shall become final twenty (20) days from the date of receipt of such notice unless within that time the permittee requests a hearing before the appropriate body. Such a request for a hearing shall be made in writing to the Public Utilities Director and shall state the grounds for the request. Any hearing held shall be conducted pursuant to Chapter 29 of the City of Sheridan City Code.
- F. The Director of Environmental Quality Council may suspend or revoke permits issued by the Public Utilities Director in the event that there is non-compliance with any of the provisions of item (C) above. Suspension or revocation shall become effective and final twenty (20) days from the receipt of such notice unless within that time the permittee or delegated local entity

requests a hearing before the Environmental Quality Council. Such a request shall be made in writing to the Director and shall state the grounds for the request. Any hearing shall be conducted pursuant to the regulations of the Department of Environmental Quality.

101.38 Providing Information

The Public Utilities Director shall return one (1) copy of permitted plans and specifications, design data, and other pertinent information to the permit applicant and retain one (1) copy as a permanent record. Other copies will be retained by the City of Sheridan as “working copies” during the course of the construction.

101.40 Notice of Change in Engineering Service

If the Owner changes the construction engineering firm or the engineering materials testing firm during the construction phase of the project, the City shall be notified immediately.

101.50 Forms

- Application for Permit to Construct ([Form 101-1](#))
- Final Submittal Check List ([Form 101-2](#))

101.60 Preconstruction Meeting

The Developer, Engineer, Inspector, and the Contractor’s Superintendent shall meet for a preconstruction meeting with the Public Utilities Director, or his representative, before construction begins. The purpose of the meeting is to discuss the following: contractor’s schedule, any road closures, construction traffic routes, construction traffic control plans, dust prevention, erosion and sediment control plans, locations of fill disposal sites, locations of imported borrow sites and any special conditions of the Permit to Construct.

CITY OF SHERIDAN – FORM 101-1

APPLICATION FOR PERMIT TO CONSTRUCT

1. **Name of Project** _____
2. **Location of Project** _____ 1/4, _____ 1/4, Sec _____, T _____, N _____, R _____ W
 General Physical Address: _____

3. Does this project include:

- A. Public water supply well? Yes No
 If yes, list State Engineer permit number(s) _____
- B. Potable water supply pumping station? Yes No
 If yes, what is the design flow? _____ gpm
- C. Potable water storage facility? Yes No
 If yes, what is the size? _____ Gallons
- D. Potable water mains? Yes No (New Replacement)
 If yes, what is the additional peak day demand? _____ Gallons per day
- E. Sanitary sewage pumping station and force main?
 Yes No (New Replacement)
 If yes, what is the design flow? _____ gpm
 What are the total lineal feet of force main? _____ L.F.
- F. Sanitary sewage collection lines? Yes No (New Replacement)
 If yes, what is the additional average daily volume of wastes?
 Gallons per day (WDEQ Criteria)
 What are the total lineal feet? _____ L.F.
- G. Storm sewer lines? Yes No (New Replacement)
 If yes, what is the total lineal feet? _____ L.F.
- H. Public Streets? Yes No (New Replacement)
 If yes, how many lineal feet of:

Arterial Streets	_____	Total Lanes	_____
Collector Streets	_____	Total Lanes	_____
Local Through Streets	_____	Total Lanes	_____
Local Streets	_____	Total Lanes	_____

- I. Earthwork/Overlot Grading Yes No
 If yes, how many cubic yards of cut? _____
 how many cubic yards of fill? _____
 Maximum cut _____ feet; maximum fill _____ feet.
 Total area disturbed _____ AC
 NPDES Permit Yes No
 If yes, provide a copy of the Notice of Intent (NOI) and Erosion and Sediment Control Plan.
- J. Drainage Report Completed? Yes No
 Title of Report: _____
 Prepared By: _____
- K. Water System Design Report Completed? Yes No
 Title of Report: _____
 Prepared By: _____
- L. Sewer System Design Report Completed? Yes No
 Title of Report: _____
 Prepared By: _____
- M. Traffic Impact Analysis Report Completed? Yes No
 Title of Report: _____
 Prepared By: _____
- N. Geotechnical Report Completed Yes No
 Title of Report: _____
 Prepared By: _____

I certify that the above described facility has been submitted in accordance with local and state rules and regulations. I have authorized the following engineering and testing firm to act upon my behalf during the design and construction phases of the project. They are authorized on my behalf to receive and release correspondence regarding this project to the City of Sheridan.

Name of Owner of the Project _____
 Mailing Address _____
 City _____ State _____ Zip _____
 Business Phone _____ Home Phone _____

 Print Owner Name

 Signature of Owner Date

Name of Engineering Firm _____
Mailing Address _____
City _____ State _____ Zip _____
Business Phone _____
Name of Professional Engineer _____ Engineer's P.E. Number _____

Name of Qualify Control and Testing Firm _____
Mailing Address _____
City _____ State _____ Zip _____
Business Phone _____

*If the Engineering Firm is responsible for quality control and testing on the project, write "same" on this line.

Utility Operator of the Project _____
Mailing Address _____
City _____ State _____ Zip _____
Business Phone _____ Home Phone _____

*If the Engineering Firm is responsible for quality control and testing on the project, write "same" on this line.

Utility Operator Name

Signature of Operator Date

CITY OF SHERIDAN - FORM 101-2 FINAL SUBMITTAL CHECK LIST – WATER/WASTEWATER PROJECTS

(Name of Subdivision or Project)

_____ Final Construction Plans _____

_____ Record Drawings

		<u>For City Use Only</u>			
			No Exceptions Taken	Revised and Resubmit	Construction Corrected
Comp	N/A				
COVER SHEET					
_____	_____	Vicinity map with scale	_____	_____	_____
_____	_____	Subdivision name	_____	_____	_____
_____	_____	Complete index of sheets	_____	_____	_____
_____	_____	Identify vertical/horizontal control datum	_____	_____	_____
PLAT					
_____	_____	Bearings	_____	_____	_____
_____	_____	North Arrow	_____	_____	_____
_____	_____	Scale	_____	_____	_____
_____	_____	Block and lot dimensions and lot numbers	_____	_____	_____
_____	_____	Street names	_____	_____	_____
_____	_____	Easements of utility and drainage	_____	_____	_____
_____	_____	Complete legend	_____	_____	_____
OVERALL UTILIYT MAP					
<u>WATER</u>					
_____	_____	Existing and proposed fire hydrant locations and spacing per requirements of the latest Edition IFC	_____	_____	_____
_____	_____	Length and size of pipe to be used	_____	_____	_____
_____	_____	Valve locations	_____	_____	_____
_____	_____	Locate all water service connections on overall maps	_____	_____	_____
_____	_____	Identify location of high hazard services requiring pressure principle backflow preventers	_____	_____	_____
<u>WASTE WATER</u>					
_____	_____	Existing and proposed manhole locations and spacing	_____	_____	_____
_____	_____	Length and size of sanitary sewer lines	_____	_____	_____
_____	_____	Grade of proposed line	_____	_____	_____
_____	_____	Locate all sanitary sewer service connections	_____	_____	_____
<u>ELECTRICAL, CABLE TV, TELEPHONE, GAS</u>					
_____	_____	Existing and proposed locations	_____	_____	_____

		<u>For City Use Only</u>		
Comp	N/A	No Exceptions Taken	Revised and Resubmit	Construction Corrected
STREET AND ALLEYS, (IF APPLICABLE) PLANS AND PROFILES				
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
WATER AND SANITARY SEWER PLANS AND PROFILES FOR EACH STREET AND MAIN				
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
OVERLOT GRADING, DRAINAGE AND STORM SEWER PLANS AND PROFILES				
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
DETAILS:				
<u>STREET DETAILS</u>				
_____	_____			
_____	_____			
_____	_____			

Comp	N/A		For City Use Only		
			No Exceptions Taken	Revised and Resubmit	Construction Corrected
_____	_____	Curb and walk details	_____	_____	_____
_____	_____	Catch basin design locations	_____	_____	_____
_____	_____	Catch basin design locations	_____	_____	_____
_____	_____	Thickness of sub-surface and surface courses	_____	_____	_____
_____	_____	Base/Core information from soil investigation	_____	_____	_____
<u>WATER MAIN DETAILS</u>					
_____	_____	Valve Box detail	_____	_____	_____
_____	_____	Fire Hydrant detail	_____	_____	_____
_____	_____	Pipe bedding for trench over-width and adverse conditions	_____	_____	_____
_____	_____	Trench detail	_____	_____	_____
_____	_____	Thrust block detail	_____	_____	_____
_____	_____	Air relief and pressure relief valve details	_____	_____	_____
_____	_____	Service line detail	_____	_____	_____
_____	_____	Cathodic Protection	_____	_____	_____
<u>WASTE WATER</u>					
_____	_____	Manhole and cover details	_____	_____	_____
_____	_____	Pipe bedding for trench over-width and adverse conditions	_____	_____	_____
_____	_____	Trench detail	_____	_____	_____
_____	_____	Service line detail	_____	_____	_____
_____	_____	End of line marker detail	_____	_____	_____
<u>TRAFFIC CONTROL PLANS</u>					
_____	_____	Street name sign	_____	_____	_____
_____	_____	Stop signs and other regulatory signs	_____	_____	_____
_____	_____	Detail on size and shape of signs	_____	_____	_____
_____	_____	Legend showing what each sign is	_____	_____	_____
_____	_____	Street striping	_____	_____	_____
<u>GENERAL NOTES</u>					
_____	_____	Each sheet must have in bold print the title of the streets shown thereon	_____	_____	_____
_____	_____	Pages titled in the lower right corner	_____	_____	_____
_____	_____	Page number in the lower right corner	_____	_____	_____
_____	_____	Page number in the lower right corner	_____	_____	_____
_____	_____	Specifications for all materials and construction techniques	_____	_____	_____
<u>DESIGN REPORTS</u>					
_____	_____	Subsurface and Geotechnical Assessments	_____	_____	_____
_____	_____	Overlot Grading	_____	_____	_____
_____	_____	Water and Sewer Report	_____	_____	_____
_____	_____	Soil Boring Report	_____	_____	_____

Section 102

General Construction Requirement & Procedures

102.00 General

Construction requirements are defined within:

Appendix B of *Sheridan City Code* for “Subdivision Development Projects”,

The following “GENERAL CONSTRUCTION REQUIREMENTS AND PROCEDURES” are intended to clarify, augment, and/or further define the water and wastewater inspection, documentation and field testing procedures and requirements identified within the aforementioned Sheridan City Code references. Where in conflict, requirements within Appendix B of Sheridan City Code shall prevail over this section.

102.10 Inspections

- A. ENGINEER. The Engineer or his project representative shall follow the guidelines set forth in Article 9, ENGINEER’S STATUS DURING CONSTRUCTION, of the General Conditions of the Standard Construction Specification of the City of Sheridan. The Engineer or his project representative shall be present at the site for a sufficient time during construction activities to assess compliance with the plans and specifications for each element of the construction. When construction activities warrant the Engineer or his project representative to be on site it shall be no less than twice a day.

The Engineer or his project representative shall request in writing that the Public Utilities Director, or his designee, inspect the water and waste water improvements after they have been completely installed and before any street preparation is begun. All required pressure tests and disinfectant tests should have been performed and passed specifications prior to the City inspecting the improvements. At the time the request for the inspection is made, the Engineer shall submit interim “Record Drawings” plans on the water and waste water improvements. Attached to the interim plans will be the Interim “Record Drawings” [Approval Check List](#). All items on the checklist shall be completed prior to approval by the Public Utilities Director.

Two, size B (11” X 17”), black line copies of the interim “Record Drawings” plans shall be submitted. Included on those drawings shall be all manhole inverts, the slope of all waste water lines, the stationing of all waste water services, inverts on all waste water service stub-outs, and the stationing of all water services, valves, hydrants and appurtenances. X,Y,Z coordinate information shall be provided for all corporation cocks (water taps), curb stops, sewer clean-outs, sewer wye’s (sewer taps), manholes, vaults, fire hydrants, flushing hydrants, water valves, fittings and test stations. Coordinate information should be submitted in a digital tabular format, with appropriate stationing and center-line offset referenced. Coordinate information shall be submitted using the following horizontal and vertical datum:

Horizontal: NAD 1983 (1993) State Plane Wyoming East Central Feet (U.S. Survey Feet)

Vertical: NAVD 88, Feet (U.S. Survey Feet)

The approval of the water and waste water improvements and the interim "Record Drawings" plans shall be done only to start the process of issuing building permits. The approval does not mean that the water and waste water improvements are being accepted for maintenance.

- B. CITY. In addition to the above inspections, the Public Utilities Director's Office shall make periodic inspections during construction of the project.

102.20 Weekly Reports

The Engineer or his project representative shall be responsible for submitting weekly progress reports to the Public Utilities Director. The weekly progress report shall include the results of all tests taken during that week. The reports shall be submitted by Tuesday of the following week for the previous week's work.

102.30 Testing During Construction

Testing during the construction phase shall be done in accordance with the appropriate sections set forth in the City of Sheridan Construction Specifications.

102.40 Safety

The Contractor shall comply with and shall require all subcontractors to comply with all applicable health and safety laws, rules and regulations, including without limitations, the Occupational Safety and Health Act of 1970 and the rules and regulations issued pursuant thereto. **Neither the City of Sheridan nor the Engineer shall be responsible for safety on the project.**

INTERIM RECORD DRAWINGS - APPROVAL CHECK LIST

- Inspection of sewer and water improvements by the Public Utilities Department, Water and Wastewater Division.

- Sewer and Water Improvement Interim Record Drawings
 - Water services stationed on drawing; X,Y,Z coordinate information provided for all corporation stops and curb stops.
 - Sewer services stationed on drawing with stub invert elevations; X,Y,Z coordinate information provided for all sanitary sewer wye's and sanitary sewer clean-outs on service lines.
 - Water valves, fire hydrants, flushing hydrants, water main fittings (bends, tees and crosses) and cathodic protection test stations located and stationed on the drawings; X,Y,Z coordinate information provided for all valves, hydrants and test stations.
 - Water and sewer system manhole and vault locations and inverts; X,Y,Z coordinate information provided for the center of all manholes and vaults.

- Slope of all sanitary sewer lines.

- Test Results

- Water Pressure Test
 - Water Disinfection
 - Sewer Alignment Test
 - Sewer Leakage Test
 - Sewer Deflection Test
 - Trench Compaction Test

- Site
 - Overlot grading per plan submitted?
 - Erosion control per plan submitted?

Comments _____

(Project Engineer)

(City of Sheridan Utilities Department)

(Date)

Section 103

General Requirements and Procedures for Obtaining City of Sheridan Approval of Project

103.00 General

Engineers and developers seeking City approval of the completed public improvements on Private Development Contracted Projects and on certain City Contracted Projects shall follow the requirements and procedures outlined in this section. Construction requirements are further defined within:

Appendix B of *Sheridan City Code* for “Subdivision Development Projects”,

The following “GENERAL REQUIREMENTS AND PROCEDURES FOR OBTAINING FINAL CITY APPROVAL FOR A PROJECT” are intended to clarify, augment, and/or further define the water and wastewater documentation, procedures and requirements identified within the aforementioned Sheridan City Code references. Where in conflict, requirements within Appendix B of Sheridan City Code shall prevail over this section.

103.10 Requirements

103.11 Final Inspections

At completion of the project, the Engineer shall request from the Public Utilities Director, in writing, a Final Inspection of the public improvements.

103.12 Record Drawings

At the time the Engineer requests the Final Inspection, he shall submit “Record Drawings” of the project.

- A. One original set of size B (11X17) black line paper prints, one digital (*.pdf) file, one digital (*.dgn or *.dwg) file, one (*.cad) and a GIS shape file shall be submitted to the Public Utilities Director for review. Coordinate information described within Section 102 shall also be submitted in a digital format (*.xls).
- B. The “Record Drawings” shall be certified and submitted with the following statement included on the plans:

“I certify that the construction inspection and “Record Drawings” preparation were performed by me or under my direct control and supervision. The construction details as shown on these “Record Drawings” are accurate and complete to the best of my knowledge and belief.”

The Final Submittal Checklist, available at the Public Utilities Director’s Office shall be filled out, signed by the responsible Engineer, and submitted with the “Record Drawings”. The record drawings should contain the minimum coordinate information as described within Section 102.

(An example copy of the checklist is presented at the end of the Section 102).

103.13 Record Drawing Format

1. The *.pdf, and paper size for Record Drawings shall be size B (11X17).
2. The minimum scale ration shall be 1" = 60'

103.14 Final Submittal Checklist

103.15 Final Report

A Final Report shall be submitted to the Public Utilities Director upon completion of the project. The Engineer shall compile the Final Report

The report shall include a brief summary of the testing on the project and a statement as to whether the observations and tests indicate that the various materials in place comply with the plans and specifications.

Included also in the report shall be the following information:

1. A summary of all Field Density Tests and Compaction Tests on trench backfill, on street subgrade and base material and on any fill material;
2. A summary of all water pressure, leakage and disinfection tests and sewer alignment, leakage (vacuum) and deflection tests;
3. A copy of the application for Permit to Construct with any applicable revisions;
4. Any other information that may add to the integrity of the report.

103.16 Certificate of Compliance

The certifying engineer of record shall prepare a Certificate of Compliance and submit it to the Public Utilities Director upon completion of the project.

103.20 Procedure

103.21 Final Inspection

The City and the Engineer shall make the final inspection of all public improvements in the project. If there are any items that are not in conformance with the City Specifications, the Private Developer and Engineer will be notified. The Private Developer shall be required to bring the items into conformance. On City contracted projects, the Contractor shall be notified and required to bring the items into conformance.

103.22 Record Drawings

The Public Utilities Department shall review the “Record Drawings”. If the plans need to be revised or if additional information is required, a set of prints will be returned to the Engineer. The Engineer shall then revise and resubmit the “Record Drawings”.

103.23 One-Year Warranty Statement

Private Development Projects shall provide a one-year warranty statement covering all the public improvements in the project.

103.24 Recommendation of Acceptance

When the public improvements have passed the final inspection, the “Record Drawings” have been stamped and approved, and the Warranty Statement has been provided, the Public Utilities Director shall make a written recommendation to the Sheridan City Council to accept the public improvements for ownership and maintenance.

103.30 Warranty Period on Public Improvements

The warranty period begins on the day that the City Council approves and accepts the public improvements.

During the warranty period, the Private Developer is responsible for repair work on any of the public improvements. The Public Utilities Department will periodically inspect the public improvements and will notify the Private Developer if repair work is required. The Private Developer is responsible for having the repair work done prior to the end of the warranty period.

Section 301

Design of Water Distribution Systems

301.00 The City of Sheridan adopts the most current version of Chapter XII of the Wyoming Department of Environmental Quality, Water Quality Rules and Regulations, as the design standards for water distribution systems, well pumps, water storage structures and pumping facilities, to include the following which amend, supplement, or revise the above referenced standards as noted.

DEQ Engineering Design Report – Chapter 12 Section 6 (Modifications)

Add the following language at the end of Subsection 6-b-ii:

The per capita usage rates (gpcd) shall be incorporated into the design:

***TABLE 301-1 DESIGN CRITERIA**
Per Capita Usage Rates (gpcd) for City of Sheridan, DNISD and SAWS-JPB

	Average Day (year-round)	Peak Day	Average Day (During irrigation season)
City and DNISD	210	555	375
SAWS-JPB	180	475	290
Other Design Criteria:			
Irrigation Season – domestic (in-house) usage only:			120 gpcd
Average Day to Peak Day conversion factor:			2.65
Average Day to Peak Hour:			4.20
Persons per Account:			2.50

*Reference: Section 4.9 of the “Final Report for the City of Buffalo – Sheridan Area Water System – Lake DeSmet,” Level I Study, June 2008, prepared for the Wyoming Water Development Commission, prepared by: HKM Engineering, Sheridan, Wyoming.

The system shall provide static pressure ranging from forty (40) psi to one hundred ten (110) psi during average day conditions. The system shall maintain a twenty (20) psi minimum residual pressure at the finish floor elevation of the highest unit proposed during peak day plus fire flow demand or peak hour demand, whichever demand is greater, and a thirty-five (35) psi minimum residual pressure during the peak hour demand. The maximum pressure fluctuation at any location in the distribution system between peak hour demand and minimum hour demand should not exceed thirty (30) psi.

Add the following language at the end of Subsection 6-b-iii:

Subject to the following minimums, fire flow will be calculated according to the latest adopted edition of the “International Fire Code,” published by the International Code Council, as amended by Sheridan City Code, and will be added to the maximum day hourly flow to adequately size the system for fire flow conditions. Unless in conflict with the “International Fire Code” as determined by the City Fire Code Official, fire flows shall meet the following minimum requirements:

<u>Zoning Type</u>	<u>Fire Flow</u>	<u>Duration</u>
Single Family Residential (for units less than 3,500 sf)	1000 gpm	2 hr
All Other Residential	1500 gpm	2 hr
Commercial	2500 gpm	2 hr
Industrial	3500 gpm	3 hr

DEQ Distribution Systems – Chapter 12 Section 14 (Modifications)

Add the following language at the end of Subsection 14-b-iii:

The design must be in substantial conformance with the latest Master Water Plan(s) for the City of Sheridan, Downer Neighborhood Improvement and Service District, and the Sheridan Area Water Supply Joint Powers Board. Twelve inch mains shall be grid spaced at approximately one mile intervals. Eight inch mains shall be grid spaced at approximately ¼ mile intervals, subject to the approval of the Public Utilities Director. Pipes will be designed so the maximum velocity obtained will be less than five (5) ft./sec, excluding fire flow.

Fire sprinkler lines shall be installed at right angles to the distribution main or lateral and be extended directly to the property line. No horizontal bends or offsets are to be installed in these lines. The size of the fire sprinkler lines shall be determined by the needed fire flow required for the building sprinkler system. A post-indicator valve, if required, must be installed in the City right-of-way or easement.

Add the following language at the end of Subsection 14-b-v:

Fire hydrants shall be spaced per Appendix C in the latest edition of the International Fire Code, subject to the approval of the City Fire Code Official.

Delete subsection 14-b-vi in its entirety and insert the following:

All waterlines shall be looped. Permanent dead-end lines are prohibited with the exception of lines extending into cul-de-sacs serving no more than twenty (20) single-family residential units or equivalent demand. For those dead-end lines that are allowed as describe above shall be terminated with a fire hydrant or other flushing device. Dead-end lines may be allowed within the SAWSJPB distribution system provided it is justified by hydraulic analysis, meets demand requirements, to include fire flows when required and terminates with a flushing hydrant or device.

Add a new subsection immediately after Subsection 14-b-vii:

(viii) Services. The International Plumbing Code, latest adopted edition shall be generally used as the basis of design for water service lines. There shall be only one tap and water service line from the main to the property line for each lot. Multiple services on one lot may be divided at the property line with each individual service having a meter and a curb stop. Where multiple structures are on one lot which could be subdivided in the future, one tap and water service line from the main to the property line for each main structure will be allowed only upon approval by the Public Utilities Director. Services larger than 2" must be approved by the Public Utilities Director and will require a "Permit to Construct." That portion of the service line between the main and the property line shall be one continuous length of Type K copper pipe or HDPE pipe, installed perpendicular from the main to a meter pit or curb stop and box at the property line.

Service lines shall be installed at least ten (10) feet laterally, from any foreign non-potable conduit and a minimum of five (5) feet from the side property line of the lot being served. In accordance with the International Plumbing Code, water and sewer services can be installed within the same trench provided the sewer service piping system is constructed using Sch. 40 PVC.

When serving lots at the end of a cul-de-sac, the length of the service line between the main and the property line shall not exceed seventy (70) feet.

Under no circumstances shall any tap be made on a fire hydrant lateral line.

Service lines shall be adequate to supply the requirements of the property being served. The minimum size allowed for a water service line is 1 inch with a 3/4-inch meter. The corporation stop, the meter, and that portion of the service pipe between the meter and the corporation stop on the main, shall all be of the same size for services larger than one (1) inch in the City of Sheridan. For individual service lines, larger than one (1) inch, used for (a) domestic flows and (b) fire suppression system supply, the meter(s) used to record domestic and irrigation flows (non-fire suppression supply) may be of a different size than the shared service pipe as long as the meter is sized appropriately for the anticipated flows. The size for a service line from the City water main to any unit being served shall be selected such that the following design criteria are not exceeded during total peak demand flow:

- A. Eighty (80) percent of the manufacturer's maximum meter capacity

- B. Service line pipe flow velocity does not exceed fifteen (15) feet per second (fps).
- C. The pressure drop from the City water main to any unit being served shall not be greater than thirty (30) psi and the minimum residual pressure at the finish floor elevation to any unit shall not be less than twenty (20) psi.

The water requirements of the property being served shall be defined as “total peak demand flow.” Peak domestic water requirements shall be calculated in accordance with the latest edition of the International Plumbing Code and the American Water Works Association M22 Standard. The irrigation demand flow and continuous load demands (when applicable) shall be added to the peak designed flow to get the total peak demand flow.

Meter pits are required on all water service connections in areas served by the SAWS-JPB and DNISD. For areas served by the City of Sheridan, meters will be installed accordingly:

1. All meters shall be installed within a full-depth basement, or in a location within 3 feet of the access if in a crawl space.
2. The service line between the curb-stop and the meter shall be a single, continuous (un-spliced) section and will be buried to prevent future connections prior to the meter.
3. If the aforementioned requirements of 1. and 2. cannot be met, a meter pit to be located immediately after the curb stop will be allowed, provided the meter pit conforms to other requirements within adopted City Standard Specifications.
4. Depending on the hazard classification of the building, an appropriate backflow prevention device may be installed in the meter pit; however, for high-hazard installations, the required backflow prevention device might need to be installed within the mechanical room of the new building provided appropriate floor drains exist to dispense water discharged from the device during a back-pressure situation.

Add a new subsection 14-b-ix:

(ix) Easements and Right-of-Ways

The minimum width right-of-way or easements for City use in which a water main will be installed is twenty (20) feet. If the final depth as measured from finished grade to the top of the water main exceeds 6.0 feet, the following table shall be used to determine the minimum width of right-of-way or easement required:

Depth of water main measured from finished grade to top of pipe (feet).	Minimum distance (feet) from center of proposed water main to edge of building or established R-O-W.
--	---

6.0 and less	10.0 (20.0 feet total width)
6.0 to 10.0	15.0 (30.0 feet total width)
Greater than 10.0 feet	At least 20.0 feet (40.0 ft total), and function of soil type.

Add a new subsection 14-b-x:

(x) Fittings. Water main shall be designed to minimize the number of fittings. All fittings shall be in conformance with the City Standard Specifications.

Delete Subsection 14-c in its entirety and insert the following:

(c) Valves. Valves shall be provided on water mains so inconvenience and sanitary hazards will be minimized during repairs. Valves shall be located at not more than five hundred (500) foot intervals on distribution and lateral mains and one thousand (1000) foot intervals on transmission mains. Valves will be placed at all pipe junctions so that the total number of valves at the junction is one less than the number of branches, except as otherwise approved by the Public Utilities Director. Line valves shall also be placed:

- Such that no more than one (1) fire hydrant is isolated at any one time.
- At each end of a line running through an easement on private property.
- On each side of a creek, channel crossing, or Arterial Street/Highway crossing.
- On fire hydrant laterals.

Delete Subsections 14-f-i and 14-f-ii in their entirety and insert the following in their place:

- (i) Excavation. Shall be in conformance with the City Standard Specifications and O.S.H.A. Regulations.
- (ii) Bedding. Shall be in conformance with the City Standard Specifications.

Add the following language at the end of Subsection 14-f-v:

Water mains shall have a minimum cover of six (6) feet and a maximum cover of seven (7) feet to top of pipe, except as otherwise approved by the Public Utilities Director.

Delete Subsections 14-i in its entirety and insert the following:

i. Cross Connection Control. All water services connected to the public water system shall comply with the City's "Cross Connection Control Program" as described within City of Sheridan Ordinance No. 1946. (A full copy of Ordinance No. 1946 has been provided at the end of Section 301.)

301.10 Transmission Lines 16-Inch and Larger

1. No person shall in any manner tap or make any connections for the purpose of providing water to serve areas outside current service boundaries.
2. No person shall tap or connect to any 16-inch and larger water transmission pipeline unless the applicant has been granted written permission by the Public Utilities Director for doing such.
3. No installation of a utility transmission line, conduit, or underground structure should be nearer than twenty (20) feet clear separation from the outside surface of all 16-inch and larger transmission pipelines when it is required to run parallel to said pipeline(s). No installation of a utility transmission line, conduit, or underground structure should be nearer than two (2) feet clear separation above or below the outside surface of all 16-inch and larger transmission pipelines when it should be required to cross said pipeline(s).

301.20 DEQ Requirements for Service Connections

Any potable water supply service connection from any public water supply to the building shall require a "Permit to Construct" from the City of Sheridan if any of the following conditions exist:

1. A tee must be installed in order to make the connection, or
2. Fire hydrants will be installed, or
3. The service pipe is larger than two (2) inches, or
4. Any appurtenance will be connected to the service pipe that will have an adverse impact on the quality or quantity of the supply.
5. The service connection is tied to the City of Sheridan's water system and is outside the City Limits.

The information to be submitted as an application for "Permit to Construct" shall include plan sketches, valve arrangements, material information, hazard classification for cross-connection control (back-flow) prevention, mechanical room schematics, and hydraulic calculations.

301.30 Pump Stations

Pump stations shall be designed to the current standards of the Wyoming Department of Environmental Quality, Water Quality Division. Pump stations shall include necessary control and telemetry equipment, compatible with the City's existing system, for remote operations of the facility.

Section 401

Design of Waste Water Systems

401.00 The City of Sheridan adopts the most current version of Chapter XI of the rules of the Wyoming Department of Environmental Quality, Water Quality Division, as the design standards for sanitary sewers, except the following, which amend, supplement, or revise the above referenced standards.

401.01 Definitions

Lateral Sewer: A lateral sewer possesses no tributary flow except from sewer services.

Submain Sewer: A submain sewer collects flow from one or more laterals as well as sewer services.

Collector Sewer: A collector sewer collects flow from several submains as well as Laterals.

Interceptor (or Trunk) Sewer: An interceptor (trunk) sewer carries the collected waste from the lateral, submain, and collector sewers to a point of treatment.

Section 6 ENGINEERING DESIGN REPORT

Add the following language and tables at the end of Subsection 6-b-ii:

The design flow will be calculated for the entire area tributary to the outfall point as based on best-projected land use. The average daily per capita flow of sewage (not considering inflow or infiltration for new sewer systems) will be one hundred (100) gal. per day¹. The estimated average equivalent densities for new development in Sheridan are as follows:

RESIDENTIAL LAND USE	UNIT DENSITY*	EQUIVALENT POPULATION*
Single Family	3.0 dwellings/acre	6.6 persons/acre
Mobile Home	7 dwellings/acre	15.5 persons/acre
Multi-family	12 dwellings/acre	26.5 person/acre
COMMERCIAL LAND USE		
		18 persons/acre
INDUSTRIAL LAND USE		
Heavy		15 persons/acre
Light		10 persons/acre

¹ "Final Report for the City of Sheridan Wastewater Collection System Assessment," October 2008, Table 9, Page 29. DOWL HKM, Sheridan Wyoming.

*From information provided by the City of Sheridan Planning Department, December 2008 - based on 2.21 persons per dwelling unit.

The following peaking factors¹ will be used in the calculation of design flows for new sewers:

Average Day to Peak Day	2.43
Average Day to Peak Hour	2.74

The design flow will be calculated by multiplying the anticipated equivalent population for the area served, by the average per capita flow, and then by the appropriate peaking factor.

Section 9 DESIGN OF SEWERS

Add the following language to Subsection 9-a:

The design of waste water mains must be in substantial conformance with the latest City of Sheridan Sewer Master Plan and/or Comprehensive Plan.

Delete the following Subsections for 9-b-vi:
C, D, E, and J.

Add the following language to Subsection 9-c-i-A:

Waste water mains shall have a minimum of eight (8) feet of cover so that adjacent lots with basements may have service for floor drains. Waste water mains with less than eight (8) feet of cover will be considered on an individual basis and will be allowed only upon approval by the Public Utilities Director.

Delete Subsection 9-c-i-B in its entirety and insert the following in its place:

(B) Waste water lines subject to having service connections thereon and hereafter referred to as laterals and submains shall be sized to flow at a maximum of seventy five (75) percent full at peak hour flow rates with the minimum size no less than eight (8) inches in diameter. City designated collector, trunk, and outfall lines, lines which require specific City approval for service connections, shall be sized to flow at a maximum of ninety (90) percent full at peak hour flow rates. All waste water lines shall be installed in a straight alignment and on a uniform slope between manholes. Curvilinear alignment between manholes will not be allowed.

Delete the following Subsections of 9-c-i-F:

I, II and III in their entirety and insert the following in their place:

- (I) Excavation. Excavation shall conform to the City Standard Specifications and O.S.H.A. Regulations

- (II) Bedding. Bedding shall conform to the City Standard Specifications.
- (III) Backfill. Backfill shall conform to the City Standard Specifications.

Delete the first paragraph in section 9-C-iii and insert the following in its place:

(iii) Service connections. Service connections shall be designed and installed in accordance with the International Plumbing Codes latest adopted edition. Piping system materials shall be Schedule 40 PVC. A minimum of one sewer service line, from the tap to the property line, shall be required for each lot, zoned lot or building to be served.

Add the following language to Subsection 9-c-iii-A:

Four (4) inch services will be provided for normal residential lots. Commercial and industrial lots sewer services shall be sized according to the latest adopted addition of the International Plumbing Code, . Sewer services larger than 6-inches will require a "Permit to Construct." All services eight (8) inch and larger shall enter the public sewer at a manhole. Manholes will be installed at all changes in pipe size, vertical or horizontal alignment, pipe intersections, and the end of lines in accordance with 9-d-i.

Delete Subsection 9-C-iii-D in its entirety and insert the following in its place:

(D Connections: All service connections to waste water collection lines shall be made with wye for new construction, except as identified above, and a tapping saddle or wye for connection to existing collection lines. On vitrified clay mains, tapping saddles shall only be installed by a certified master plumber in accordance with Sheridan City Code.

The City discourages the connection of Four-inch or Six inch sewer services directly into manholes; however, these connections will be considered on an individual basis and will be allowed only upon written approval by the Public Utilities Director.

In general, sewer services will be extended to a point on each lot, which is ten (10) feet from the lowest (elevation) property corner.

Delete Subsection 9-d-i in its entirety and insert the following in its place:

Manholes shall be installed at the end of each main and at changes in direction, size, or slope of the main. The maximum spacing of manholes shall be four hundred (400) feet. Dead-end lateral lines shall terminate in a manhole. Plugged inlets set in the direction of future line expansion shall be provided in the terminating manhole. Upstream terminating manholes shall be located within ten (10) feet of the most distant property line of the lot or building site being served or perimeter line of a new development. In general, sewers that are in the street should be designed so that manholes are located

seven (7) feet from the centerline of the streets. Manholes outside the street area must be accessible to City maintenance vehicles. A minimum horizontal spacing of ten (10) feet (clear separation) or a minimum vertical spacing of eighteen (18) inches (clear separation) must be maintained from water mains. Where vertical or horizontal clearances cannot be maintained, the waste water line shall be placed in a separate conduit pipe.

Add the following language to Subsection 9-d-ii:

Manholes of forty eight (48) inches minimum inside diameter shall be used on eight (8) inch through twenty four (24) inch mains. Larger mains and crowded intersecting mains will have oversized manholes.

Add the following language to Subsection 9-d-iv:

Flow through inverts in manholes shall provide a minimum of one tenth (0.1) foot drop in a "straight-through" manhole or a manhole angled at ninety (90) degrees to two hundred and seventy (270) degrees; and two tenths (0.2) foot drop in manholes angled less than ninety (90) degrees or greater than two hundred and seventy (270) degrees.

In manholes where the downstream sewer line is larger in diameter than the upstream line, the pipe crown elevations of the two pipes shall match.

Delete Subsection 9-d-vi in its entirety and insert the following:

(vi) Permanent access to manholes (like steps cast into barrel sections) shall not be provided. Access to manholes shall be in accordance with O.H.S.H.A. confined space entry procedures using portable equipment, under the supervision of a competent person.

Add a new section subsection 9-g

9-g EASEMENTS

The minimum width of an easement or right-of-way for City use in which a sewer will be installed is twenty (20) feet. If the final depth as measured from finished grade to the top of the sewer main exceeds 6.0 feet, the following table shall be used to determine the minimum width of right-of-way or easement required:

Depth of sewer main measured from finished grade to top of pipe (feet).	Minimum distance (feet) from center of proposed sewer main to edge of building or established R-O-W.
6.0 and less	10.0 (20.0 feet total width)
6.0 to 10.0	15.0 (30.0 feet total width)
Greater than 10.0 feet	At least 20.0 feet (40.0 ft total), and function of soil type.

401.02 Lift Stations

Lift stations shall be designed to meet the minimum requirements of the Wyoming Department of Environmental Quality, Water Quality Division. All lift stations, which are to be operated and maintained by the City, shall include control and telemetry equipment compatible with the City's existing system. The telemetry equipment shall be housed in permanent, above grade structures designed for that purpose.

Section 501

Street Access and Parking Lot Criteria

501.1 Traffic Studies

501.1.1 Responsibilities for Traffic Impact Report if applicable

501.1.1.1 Traffic impact reports may be required by the City in order to adequately assess the impact of a proposal on the existing and/or planned street system. The primary responsibility for assessing the traffic impacts associated with a proposed development will rest with the developer with the City serving in a review capacity.

501.1.1.2 Unless waived by the City Engineer, a written report meeting the City guidelines will be required for a nonresidential development proposal when trip generation during the peak hour is expected to exceed 100 vehicles, or any multifamily residential development with 10 or more dwelling units. All major subdivisions, all commercial subdivisions and industrial sites shall be held to the same standards.

501.1.1.3 Preparation of the report shall be the responsibility of the developer and must be prepared by a licensed design professional with experience in transportation planning. Upon submission of a draft traffic impact report, the City will review the study data sources, methods, and findings. Comments will be provided in a written form. The developer and his engineer will then have an opportunity to incorporate necessary revisions prior to submitting a final report. All reports must be reviewed by the City before acceptance.

501.1.1.4 All previous traffic impact reports relating to the development that are more than two years old may be required to be updated, unless it is determined that conditions have not changed enough to warrant an update. This will be assessed on a case-by-case basis.

501.1.1.5 Traffic impact reports will be required if the trip generation/dwelling unit criteria as noted in Section 5.1.1.2 are exceeded for the following submittals:

- A. For a rezoning application or Conditional Use Permit.
- B. For a preliminary or final plat or final development plan if the property has already been rezoned for the proposed use and no traffic impact report was required for the rezoning.
- C. Prior to issuance of a building permit, if the property has already been zoned/platted and no previous traffic impact report less than two years old exists.
- D. Additional access from an arterial street to an existing use is being requested.
- E. The developer will be required to submit a new traffic impact report if, after submitting the original traffic impact report, the land use intensity and traffic generation area increased by more than 15 percent.

501.1.1.6 Where access points are not defined or a site plan is not available at the time the traffic report is prepared, additional traffic analysis may be required when a site plan becomes available or the access points are defined.

501.1.1.7 The developer will be notified at the conceptual planning stage if a traffic impact report will be required, provided sufficient information is available for the City to determine whether the trip generation/dwelling unit criteria have been met. If insufficient information is available but the property appears to involve a sufficiently intense land use, the applicant will be informed that a traffic impact report is required.

501.1.2 Traffic Report Format

Traffic consultants are encouraged to discuss projects with the City prior to starting the report. Topics for possible discussion at such meetings might include directional distribution of traffic, definition of the study area, intersections requiring critical lane analysis, and methods for projecting build-out volume. This should provide a firm base of cooperation and communication between the City, the owner or developer, and his consultant in creating traffic characteristics that are in the best interest of the total community. Specific requirements will vary depending on the site location. However, all traffic reports shall contain, as a minimum, the following information:

501.1.2.1 Introduction

501.1.2.1.1 Land Use, Site, and Study Area Boundaries. A brief description of the size of the land parcel, general terrain features, the location within the jurisdiction and the region should be included in this section. In addition, the roadways that afford access to the site, and are included in the study area, should be identified.

The exact limits of the study area should be based on engineering judgment, and an understanding of existing traffic conditions at the site. In all instances, however, the study area limits shall be discussed with the developer, his design professional, and determined by the City Engineer. These limits will usually result from initial discussion with staff. A vicinity map that shows the site, in relation to the surrounding transportation system, should be included.

501.1.2.1.2 Existing and Proposed Site Uses. The existing and proposed uses of the site should be identified in terms of the various zoning categories of the City. In addition, the specific use for which the request is made should be identified if known, since a number of uses may be permitted under the existing ordinances.

501.1.2.1.3 Existing and Proposed Uses in Vicinity of the Site. A complete description of the existing land uses in the vicinity of the site, as well as their current zoning and use, should be included.

501.1.2.1.4 Existing and Proposed Roadways and Intersections. Within the study area, the developer must describe existing roadways and intersections (geometrics and traffic signal control) as well as improvements contemplated by government agencies. This would include the nature of the improvement project, its extent, implementation schedule, and the agency or funding source responsible.

501.1.2.2 Trip Generation and Design Hour Volumes.

501.1.2.2.1 A summary table listing each type of land use, the size involved, the average trip generation rates used (total daily traffic and a.m./p.m. peaks), and the resultant total trips generated shall be provided.

501.1.2.2.2 Trip generation will be calculated from the latest data contained within the *Institute of Transportation Engineers' Trip Generation Guide* (latest edition) or NCHRP Report No. 365, or other local data. In the event that data is not available for the proposed land use, the City must approve estimated rates prior to acceptance.

501.1.2.2.3 Site design hour volumes approximating the peak hour volume used to determine public improvements will be estimated by one of the following methods:

- A. Traffic volume counts for existing uses.
- B. Peak hour trip generation rates as published in the *ITE Trip Generation Guide* (latest edition).
- C. NCHRP Report No. 365 where justified.
- D. WYDOT

501.1.2.3 Trip Distribution. The direction of approach for site-generated traffic will be presented in this section. The technical analysis steps, basic methods, and assumptions used in this work must be clearly stated.

501.1.2.4 Trip Assignment. This section will describe the utilization of study area roadways by site-generated traffic. The anticipated site traffic volumes must be combined with existing and projected area traffic volumes in Section 501.1.2.2.3 to describe mainline and turning movement volumes for future conditions with the site developed as proposed. Internal trips in excess of 10 percent will require analytical support to demonstrate how the higher figures were derived. Nongenerated passerby traffic reductions in generation volumes may be considered if applicable. All estimates of trip distribution, assignment, and modal split are subject to review and approval by the City.

501.1.2.5 Existing and Projected Traffic Volumes.

501.1.2.5.1 Graphics shall show:

- A. a.m. peak hour site traffic (in and out) including turning movements.
- B. p.m. peak hour site traffic (in and out) including turning movements.

- C. a.m. peak hour total including site (in and out) and through traffic including turning movements for current conditions and 20-year projections or build-out, whichever is greater.
- D. p.m. peak hour total including site (in and out) and through traffic including turning movements for current conditions and 20-year projections or build-out, whichever is greater.

501.1.2.5.2 All raw traffic count data (including hourly ADT and peak hour turning movements) and analysis worksheets shall be provided in the appendices. Computer techniques and the associated printouts can be used as part of the report.

501.1.2.5.3 Build-out projections shall include major vacant properties around the proposed development as defined by the City. Volume projections for background traffic growth will be provided by the City, or a method for determining their volume will be recommended by the City.

501.1.2.5.4 All traffic will be assigned to existing and planned facilities in a manner consistent with existing traffic patterns and approved by the City.

501.1.2.6 Level of Service Analysis. A capacity analysis will be conducted for the street intersections at access points for the proposed development. Within the limits of the previously defined study area, capacity analyses will also be conducted for major street intersections. The highest peak period will be tested to determine which will be analyzed. Pedestrian movements shall also be considered in the evaluation.

501.1.2.7 Traffic Signals.

501.1.2.7.1 The need for new traffic signals shall be checked using the warrants in the *Manual on Uniform Traffic Control Devices*, latest edition. Traffic progression is of paramount importance. Generally a spacing of one-half mile for all signal-controlled intersections should be maintained. This spacing is usually desirable to achieve good speed, capacity, and optimum signal progression.

501.1.2.8 Level of Service. Level of Service C during the peak hour will be the design objective. The design year will be approximately 20 years following construction. Levels of service are defined in *The Highway Capacity Manual*.

501.1.2.9 Traffic Accidents. Traffic accident data for affected street corridors may be required for the study for the last 5 years. Traffic accident data may be obtained from WYDOT. Where this is necessary, estimates of increased or decreased accident potential shall be evaluated for the development.

501.1.2.10 Recommendations. In the event that analysis indicates unsatisfactory levels of service on study area roadways, a description of proposed improvements to remedy deficiencies shall be included. These proposals would not include committed projects by the City or WYDOT. In general, the recommendation section should include:

501.1.2.10.1 Proposed Recommended Improvements. This section shall describe the location, nature, and extent of proposed improvements to assure sufficient roadway capacity.

501.1.2.10.2 Volume/Capacity Analysis at Critical Points. Another iteration of the volume/capacity analysis will be described, which demonstrates the anticipated results of making these improvements.

501.1.2.10.3 Levels of Service at Critical Points. As a result of the revised volume/capacity analysis presented in the previous section, levels of service for the highway system with improvements will be presented.

501.1.2.11 Conclusion. The last chapter of the report must be a clear, concise description of the study findings. It is anticipated that this concluding chapter will serve as an executive summary.

501.1.2.12 Revisions to Traffic Report. Revisions to the traffic report must be provided as required by the City. The need to require revisions will be based on the completeness of the traffic report, the thoroughness of the impact evaluation, and the compatibility of the study with the proposed access and development plan.

501.2 Access Control

501.2.1 General Access

Access in newly developing areas will follow these provisions. In areas being redeveloped, access will be determined as to the best fit based on traffic safety, existing conditions, future street improvements, and property development along with other considerations as appropriate.

Access to streets or highways within the city limits under the jurisdiction of the Wyoming Department of Transportation (WYDOT) are also governed by requirements of WYDOT. In addition to obtaining permission from the City Engineer, a permit from the District Traffic Engineer of WYDOT must be obtained. Access shall be limited as dictated by this City of Sheridan Design Standards. For any discrepancy between WYDOT and the City of Sheridan regarding precedence of access design standards, WYDOT standards shall prevail.

Fire department access to all buildings shall be provided and maintained during construction and upon completion of all improvements. Fire department access shall meet all requirements outlined in the International Fire Code Section 501.

501.2.2 Definition of Terms for Access Control

Several terms are used herein which have a somewhat distinct meaning. For the purpose of clarity, the definitions of some of these terms are listed below.

501.2.2.1 Width of Curb Opening (W)—The width of curb opening measured at the throat of the driveway from the edge of pavement to the edge of pavement.

501.2.2.2 Property Line (P)—The distance measured along the property line from the nearest edge of the driveway to the property line.

501.2.2.3 Corner Clearance (C)—At an intersecting street the distance measured along the curb line from the end of the corner radius to the nearest edge of the curb opening.

501.2.2.4 Distance Between Double Drives (D)—The distance measured along the curb line between the radii.

501.2.2.5 Frontage—The distance along the street right-of-way line of a single property or development within the property lines. Corner property at an intersection would have a separate frontage along each street.

501.2.2.6 Residential—Property used primarily for residential purposes such as single-family, two-family, and multifamily units.

501.2.2.6.1 Single-Family (SF) Residential—Single, detached family dwelling units or double bungalows or duplexes.

501.2.2.6.2 Multifamily (MF) Residential—Three or more attached dwelling units including townhouses, condominiums, and apartments.

501.2.3 Basic Principles for Curb Openings and Driveways

501.2.3.1 Arterial Street Access

501.2.3.1.1 Private residential access directly to arterial streets and any access to a principal arterial street shall be permitted only when the property in question has no other reasonable access to the general street system, or when denial of direct access to the arterial and alternative access to another roadway would cause traffic operation and safety problems as shown in a Traffic Report. Any access to arterials must adhere to City street standards.

501.2.3.2 General Access

501.2.3.2.1 High Volume Access. In general, when trip generation served by the driveway exceeds 100 vehicles per hour during the peak hour or the driveway accesses an arterial street, returns using a standard street return radius as set forth in Table 1 and Figure 1 will be required.

501.2.3.2.2 Access Points. Access will not be approved for parking or loading areas that require backing maneuvers onto or from a public street right-of-way except for uses on local and minor collector streets or approved by City Engineer.

Table 1 : Driveway Dimensions
(All Dimensions in Feet)

	Dimension Reference (See Fig. 1)	Local			Collector			Arterial		
		Residential	Commercial	Industrial	Residential	Commercial	Industrial	Residential	Commercial	Industrial
Width ¹	W									
Minimum		12	20	20	12	20	20	15	15	20
Maximum		32 ²	40	40	30	40	40	36	40	40
Right-turn Radius	R									
Minimum		0	5	10	0	15	25	0	25	30
Maximum ³		0	10	20	0	50	50	0	50	50
Minimum Spacing ⁴										
From Property Line	P	0	R	R	0	R	R	R	R	R
From Street Corner	C	20	40	40	50	50	50	NA	NA	NA
Between Driveways	D	10 ⁵	25	25	35	50	50	NA	NA	NA
Angle ⁶	A	45°	70°	70°	45°	70°	70°			

¹ The minimum width of commercial driveways is intended to apply to one-way operation. In high pedestrian activity areas, such as in a central business district or in the same block with an auditorium, school, or library, the maximum basic width should be 30 feet. The width shown applies to rural routes and most City streets including neighborhood business, residential, and industrial streets. The width is intended to be measured along the right-of-way line, in most instances, at the inner limit of a curbed radius or between the line of the radius and the near edge of a curbed island at least 50 square feet in area.

² Maximum width on bulb of cul-de-sac shall be 24 feet.

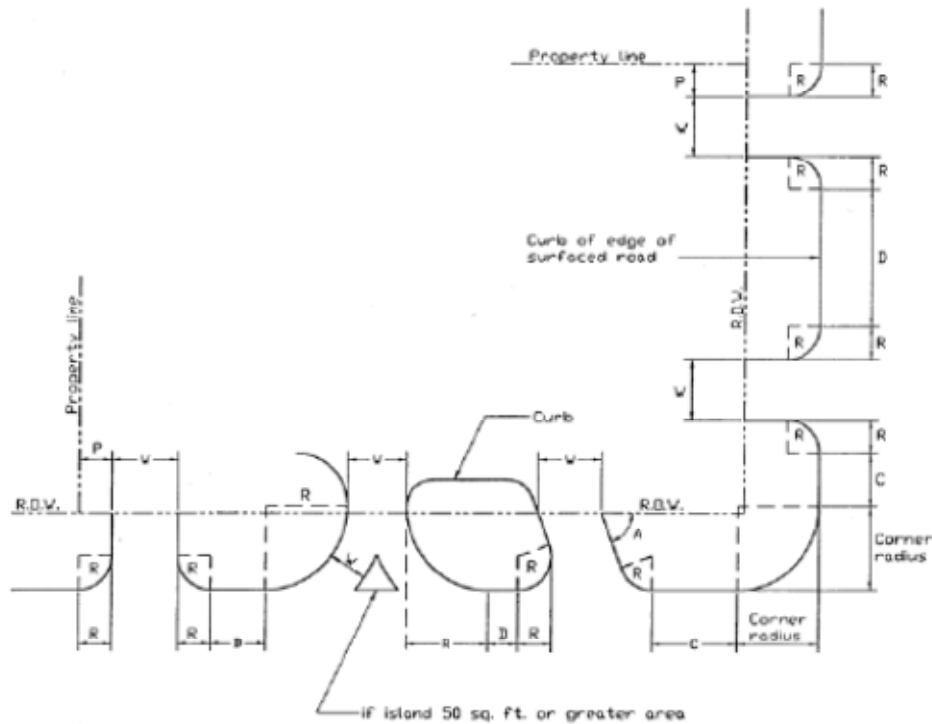
³ On the side of a driveway exposed to entry or exit by right-turning vehicles. In high pedestrian activity areas, the radii should be half the values shown. The maximum radii for major generator driveways shall be designed in accordance with *A Policy on Geometric Design of Highways and Streets*, published by AASHTO latest edition.

⁴ Measured along the curb or edge of pavement from the roadway end of the curb radius. In high pedestrian activity areas, the minimum spacing between driveways should be 5 feet.

⁵ Minimum space between driveways may be reduced to 5 feet on one side on local streets only at the discretion of the City Engineer.

⁶ Minimum acute angle measured from edge of pavement, and generally based on one-way operation. For two-way driveways, and in high pedestrian activity areas, the minimum angle should be 80 degrees.

Figure 1 : Driveway Dimensions



501.2.3.2.3 Standards. Every property that accesses the street shall have a driveway. Driveways shall be constructed in accordance with the City of Sheridan Standard Specifications.

501.2.3.2.4 Existing and Future Demands. The opening or driveway width shall be adequate to properly handle the anticipated traffic volume and character of traffic, as well as being within the limits specified for the type of property development. The controls established for curb openings and driveways shall apply to existing streets as well as new streets that may be developed in the future.

501.2.3.2.5 Utility Conflicts. Any adjustments which must be made to utility poles, street light standards, fire hydrants, catch basins or inlets, traffic signs and signals, or other public improvements or installations which are necessary as the result of the curb openings or driveways, shall be accomplished without any cost to the City.

501.2.3.2.6 Access Signs. Driveway approaches, whereby the driveway is to serve as an entrance only or as an exit only, shall be appropriately signed by, and at the expense of, the property owner subject to approval of City Planning and Building Services. Sign location, height, and legend must be in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)*.

501.2.3.2.7 Abandoned Driveways. Any curb opening or driveway which has been abandoned shall be removed and the street restored by the property owner according to the current City of Sheridan Standard Specifications.

501.2.4 General Requirements

501.2.4.1 Number of Openings.

501.2.4.1.1 Single-Family Residential—In general, each single-family residential property shall be limited to one access point. However, where houses are located on corner lots or have extra wide frontage, more than one access point may be permitted. Applicable zoning setback requirements must be followed.

501.2.4.1.2 Multi-Family Residential—In general, access shall be determined by information provided by the owner/developer in a Traffic Impact Report and/or by comments generated during the City's review and acceptance of that report.

501.2.4.1.3 Commercial/Industrial—In general, access to commercial and industrial property shall be limited to the requirements as set forth in the Engineering Design Standards and shall be based on the street classification described by the then-current Master Transportation Plan that is kept in the Office of the City Engineer. If no plan is current, the City Engineer will make the final determination. For commercial/industrial property located on a corner of an arterial street, access may be restricted to a side street only. Access may also be restricted if use of such access would be precluded by existing left turn lanes or other traffic control devices.

501.2.4.2 Access Roadways with No Curb and Gutter. Private drives and alley accesses to local, collector, or arterial streets that are proposed as the emergency access and/or primary access shall be constructed to meet the following requirements:

501.2.4.2.1 The private drive or alley shall extend from right-of-way line to the edge of the existing driving surface and shall be constructed to comply with Fire Code and in accordance with Table 1 of Chapter 7.

501.2.4.2.2 Access shall be governed by the driveway criteria.

501.2.4.2.3 A culvert properly sized for the ditch flow shall be installed at the established roadside ditch flow line beneath the private drive access. Minimum size for the culvert shall be 15 inches. Culverts shall have a precast concrete-sloped end section or cast-in-place concrete headwall. If a cast-in-place headwall is built, it shall have a maximum slope of 4:1 on any exposed face. No vertical headwalls will be allowed.

All Culverts shall be made up of pipe that is consistent with the then-current City of Sheridan Standard Specifications.

501.2.4.2.4 A sketch plan of the installation must be submitted. No building permit will be issued until the access and its construction plan, or sketch, are approved by the Office of the City Engineer.

501.2.4.3 Amount of Curb Opening Permitted. Driveway width shall comply with Table 1.

501.2.4.4 Mutual Access. On commercial, industrial, and multifamily developments, mutual use of access to streets is encouraged and may be necessary to meet driveway spacing requirements. When used, mutual access will be shown on the plans prior to construction. The City Engineer will approve the minimum access width based on the proposed mutual use.

501.3 Access Design

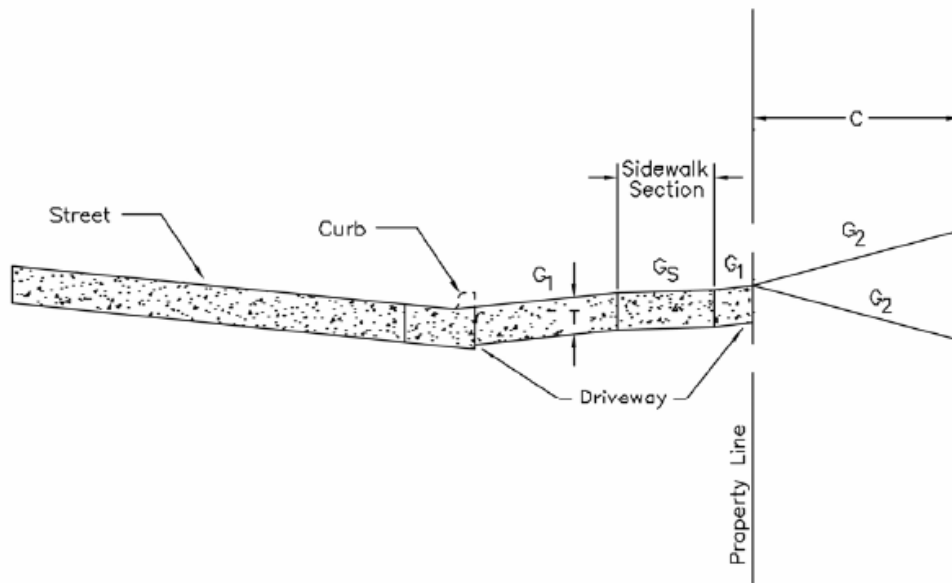
501.3.1 Driveway Spacing

Where lots are large enough, the center of driveways not in alignment will normally be offset a minimum of 150 feet for all commercial/multifamily properties on collectors and arterials. Greater distances may be required if left-turn storage lanes require such on arterial streets. Minimum sight distance shall be provided at all access points in accordance with ASSHTO Site Distance Standards.

501.3.2 Driveway Design

Driveway sectional details are shown in Figure 3 with design suggestions listed in Table 2.

**Figure 3
Driveway Grades**



*All sidewalk cross slopes (G_S) shall be 1.5%

Table 2

Type of Driveway	T Minimum Thickness	Grade (G ₁)		Grade (G ₂)		Min. Control Distance (C)
		Min.	Max.	Min.	Max.	
Low Volume Residential	6"	±0.5%	+8.0%	±0.5%	±15%	20'
Low Volume Commercial/Industrial	6"	±0.5%	±6%	±0.5%	±8%	40'
High Volume	6"	±0.5%	±3%	±0.5%	±5%	40'

501.4 Off-Street Parking Area

- 501.4.1 General.** In accordance with City Code, Appendix A, Section 2 Definitions, the following guidelines regarding the design of off-street parking areas shall be followed.
- 501.4.2 Minimum Stall Width.** The minimum stall width shall be 10 feet.
- 501.4.3 Minimum Stall Depth.** The minimum stall depth shall be 22 feet.
- 501.4.4 Backing Into Street Not Allowed.** The spaces shall be so arranged so that no vehicle will be required to be backed into the street in order to exit the lot except for single-family or duplex dwelling units.
- 501.4.5 Backing Over Sidewalk Not Allowed as Designated Parking Area.** The spaces shall be so arranged so that no designated parking area will infringe upon the public sidewalk.
- 501.4.6 Drive Aisle Width.** The drive aisle shall be a designed for turning movements in and out of the spaces and shall comply will the current fire code access requirements.

Section 502

Street Lighting

502.1 General

- 502.1.1** This chapter sets forth the design and technical criteria to be used in the preparation of all street lighting plans. Where design information is not provided herein, the following standards (most current edition) shall be used:
1. National Electrical Safety Code (NESC)
 2. National Electrical Code (NEC)
 3. City of Sheridan Design Standards, Supplemental Specifications, and Standard Details and Night Sky Ordinance.
 4. Requirements and Standards of the State of Wyoming
 5. City of Sheridan Electrical Code
- 502.1.2** Where a conflict occurs between the above standards, the most restrictive requirement shall apply.
- 502.1.3** Street lights shall be placed on lot/property lines that are perpendicular to street centerline where applicable.
- 502.1.4** Street lighting on cul-de-sacs must terminate with a street light on the lot line nearest where the turnaround begins.
- 502.1.5** Street lights, junction boxes, meter pedestals, and conduit shall be free and clear of any permanent obstructions, which would impair the ability of future maintenance operations by Sheridan MDU. Layout of street lighting must also consider vertical and horizontal alignment with respect to other utilities that might conflict with the installation of the street lighting system.
- 502.1.6** Design of street lighting systems will typically consist of installation of street lights in areas that have concrete curb and gutter installed. If concrete curb and gutter has not been installed, a street lighting system will not necessarily be required. Sheridan MDU will evaluate each project before final design is complete.
- 502.1.7** If necessary, removal of street lights shall be coordinated with Sheridan MDU. All materials removed will become the property of Sheridan MDU unless otherwise noted.

502.2 Street Light Locations and Spacing

- 502.2.1** Street lights shall not be located closer than five (5) feet horizontally to fire hydrants.
- 502.2.2** Residential lighting shall be spaced 175–250 feet apart with a non-staggered pattern and located at intersections.
- 502.2.3** Local, Collector, or Arterial (minor) lighting shall be spaced 200-275 feet apart with a non-staggered pattern and located at intersections.
- 502.2.4** Commercial lighting, or Arterial (major), shall be spaced 175–250 feet apart located at intersections and with a staggered pattern if possible.
- 502.2.5** Historical District lighting in residential locations within the boundaries of the City of Sheridan city limits shall be installed with a minimum of four lights per block located at intersections and with a staggered pattern if possible. Maps of Historical District boundaries are available by contacting Sheridan Public Works GIS Department.
- 502.2.6** Special Lighting - Entry Way Corridor - coordinate lighting during DRB.
- 502.2.7** Please contact the Sheridan Planning Department to identify special Historical District lighting pedestrian walking or entrance areas. These special locations shall be installed with four to five lights per block located at intersections and with a staggered pattern.
- 502.2.8** Generally, street lights will be located within the public right-of-way 2 feet from the back of curb unless otherwise noted. Street lights shall be located on a lot line whenever possible. Streets that have sidewalks installed behind the curb and gutter will require street lights to be installed behind the sidewalk but still within the public right-of-way. If street lights cannot be installed within the public right-of-way, a utility easement will be required.
- 502.2.9** When street light locations are being considered, overhead obstructions must be evaluated prior to placement location. In general, street lights shall maintain a minimum clear distance of 8 feet from any overhead electrical power lines. Other overhead obstructions such as trees, cable television lines, communications lines, etc., shall be evaluated on a case-by-case basis.

502.3 Junction Boxes

- 502.3.1** Need to coordinate and develop plan with Sheridan MDU.

502.4 Conduits

502.4.1 Need to coordinate and develop plan with Sheridan MDU.

502.5 Concrete Street Light Footings

502.5.1 Need to coordinate and develop plan with Sheridan MDU.

502.6 Direct Bury Street Lights

502.6.1 Need to coordinate and develop plan with Sheridan MDU.

502.7 Meters and Meter Pedestals

502.7.1 Electrical meters will be furnished and installed by Sheridan MDU when they provide the power supply.

502.7.2 When necessary, installation locations are determined by Sheridan MDU. Sheridan MDU will be required to install an approved meter socket.

502.8 Power Supply

502.8.1 All street lighting plans shall indicate a designated power supply feed point. The power supply shall be installed from the designated supply point to a meter pedestal, if required. For most cases, a meter pedestal will be required if the power supply is obtained from companies other than Sheridan MDU.

502.9 Material Specifications

502.9.1 Material specifications are included in the Supplemental Standard Specifications for Public Works Improvement Projects.

502.9.2 Materials supplied by the Developer or City Capital Improvements Project should be coordinated with local utility company.

502.9.3 Home owner associations with public streets may apply for a different lighting specification if the association will maintain.

502.10 Manufactured Home Parks and Private Streets

502.10.1 Private streets require private street lighting that will not be operated, maintained, or administered by the City of Sheridan.

502.11 Easements

502.11.1 Easements shall be obtained for all lighting and power lines located on private and public property. Easements shall have a minimum width of 10 feet. In addition, temporary easements may be required for construction. Easements shall be accessible for maintenance workers to maintain the lighting and power system. The most current version of the lighting and power easement forms shall be used and obtained from the City Engineer's Office.

Section 503

Street Design and Pavement Thickness

503.1 General

503.1.1 This chapter sets forth the design and technical criteria to be used in the preparation of all roadway plans. Where design information is not provided herein, “*A Policy on Geometric Design of Highways and Streets*” (AASHTO Standards) as published by AASHTO’s most current edition (English units) shall be used.

503.1.1.1 Corridor Access Management

The Office of the Public Works Director or City Engineer may initiate an access management plan or corridor study that would supersede the design standards for access along an arterial or major collector street. Preparation of the study shall be the responsibility of the City of Sheridan, Wyoming Department of Transportation, and/or private individuals, or jointly prepared. However, the study must be prepared by a licensed design professional engineer with experience in transportation planning. The access plan or corridor study shall be approved by the Office of the Public Works Director or City Engineer and/or Wyoming Department of Transportation.

Access planning that has not been identified in any type of study in existing development areas will be considered on a case by case basis. Retrofit techniques will adhere to best access management practices as identified in the Transportation Research Board National Access Management Manual.

503.1.2 Functional Street Classification

503.1.2.1 Regional Arterial. A regional arterial street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limits typically of greater than or equal to 45 miles per hour.
- B. Anticipated traffic volumes in excess of 25,000 vehicles per day within the corridor.
- C. Direct intersections with local streets and access from adjacent properties shall not be allowed except for existing lots with no other method of access.
- D. The indirect access intersections will be with arterials or major collectors and will normally be spaced at 1-mile intervals and may be at one-half mile intervals for commercial areas.
- E. Traffic control devices may be provided to enhance through traffic movements.

- F. No on-street parking will be allowed.
- G. Detached bicycle and/or pedestrian facilities shall normally be constructed.

503.1.2.2 Major Arterial. A major arterial street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limits typically of greater than or equal to 40 miles per hour.
- B. Designed to accommodate through traffic, intersecting with Minor Arterial and Collector Streets only. Intersections with local streets and access from adjacent properties shall not be allowed except for existing lots with no other method of access. The number of intersections will normally not be spaced less than one-quarter mile. ("T" intersections will be considered an intersection for half-mile spacing purposes.)
- C. Continuous for several miles through the urban area.
- D. Provides continuity for rural arterials which intercept the urban boundary.
- E. Traffic control devices provided to enhance through traffic primarily by signal control and/or limited access.
- F. No on-street parking will be allowed.

503.1.2.3 Minor Arterial. A minor arterial street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limit typically of greater than or equal to 30 miles per hour.
- B. Designed to accommodate through traffic and serve adjacent major developments. Intersections with local streets will not be allowed.

Development access will use shared driveways and be encouraged to utilize collector streets. The number of intersections will normally not be spaced less than one-quarter mile. ("T" intersections will be considered an intersection for spacing purposes.) Right-in and right-out access may be allowed.

- C. Continuous for several miles.
- D. Provides continuity for rural arterials which intercept the urban boundary.
- E. Traffic control devices provided to enhance through traffic primarily by signal control or other warranted control.
- F. No on-street parking will be allowed.

503.1.2.4 Major Collector. A major collector street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limit typically of greater than or equal to 30 miles per hour.
- B. Continuous for two or more miles.
- C. Designed to handle traffic volumes loading from and onto local, other collector, and arterial roadways.
- D. Traffic control is provided generally by signs.
- E. No on-street parking will be allowed.
- F. Access locations will not be allowed within 300 feet from the intersection with an arterial street.
- G. Individual residential lots should not front on or have direct access to a major residential collector.

503.1.2.5 Minor Collector. A minor collector street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limits typically of greater than or equal to 25 miles per hour.
- B. Continuous for less than two miles.
- C. Designed to handle traffic volumes loading from and onto local, other collector, and arterial roadways.
- D. Traffic control is provided generally by signs.
- E. Provide frontage and direct access for individual residences.

503.1.2.6 Local Street. A local street is a general term denoting a roadway designed or operating with the following characteristics:

- A. Posted speed limit typically not in excess of 30 miles per hour.
- B. No criteria for traffic volumes.
- C. Limited continuity.
- D. Designed for ease of access to adjacent developments.
- E. Traffic control is by signage or rules for uncontrolled intersections.
- F. On-street parking permitted.
- G. Does not intersect with an arterial street.

503.2 Roadway Design and Technical Criteria

This Street Plan designates streets as local, minor, and major collector, minor and major arterial. See Table 1 for design standards for each of these street classifications.

503.2.1 Traffic Lane Widths

The minimum traffic lane width shall be 12 feet unless approved by the Director of Public Works or City Engineer.

In the design of local streets, the number of lanes for moving traffic will be a secondary consideration.

Table 1: Minimum Street Design Criteria

Design Elements	Local		Commercial, Industrial, Multi-Family	Collector		Arterial	
	Cul-de-sac	Single family		Minor	Major	Minor	Regional or Primary
24-hour Volumes (vpd)	500 or less	2000 or less	2500 or less	<5000	>5000	>7000	>25000
Design Speed (mph)	---	---	---	30	35	35	50
Driving Lanes	---	---	2	2	2-4	2-4	4 or more
Right-of-Way (ft)	60	60	66	80	80	100	100 or more
Roadway Width (ft) (1)	50	36	39	39	41-49	41-53	65 or more
Lane Width (ft)	12	12	12	12	12	12	12
Sidewalk	5'	5'	5' (2)	5' detached		5' detached	
Curb & Gutter	Type "A" or "B"	Type "A" or "B"	6" vertical Type "B"	Type "B"		Type "B"	
Min.-Max. Grade (%)	0.5-8.0	0.5-8.0	0.5-8.0	0.5-7.0		0.5-7.0	
Curb Return Radii (ft)							
-intersect local	15	15	15	25			
-intersect collector	25	25	25	25		30	
-intersect arterial				30		35	
Horizontal Curve Radius (ft)	150	150	300	---		AASHTO Standards	AASHTO Standards
Vertical Alignment Control	----- --	----- --	--- AASHTO --- Standards	-----	----- -	-----	----- -
Grade at Intersection (%)							
-intersect local	3	3	3	---		---	
-intersect collector	2	2	2	2		---	
-intersect arterial				2		2	

(1) All dimensions are measured to back of curb.

(2) Where sidewalk is attached to curb, sidewalk shall be one foot wider.

(3) Street Grades greater than 8% shall meet the Street Grade Criteria.

503.2.2 Separate Turning Lanes

Separate turning lanes may be constructed on arterial and collector streets but will, as a rule, not be found on local streets.

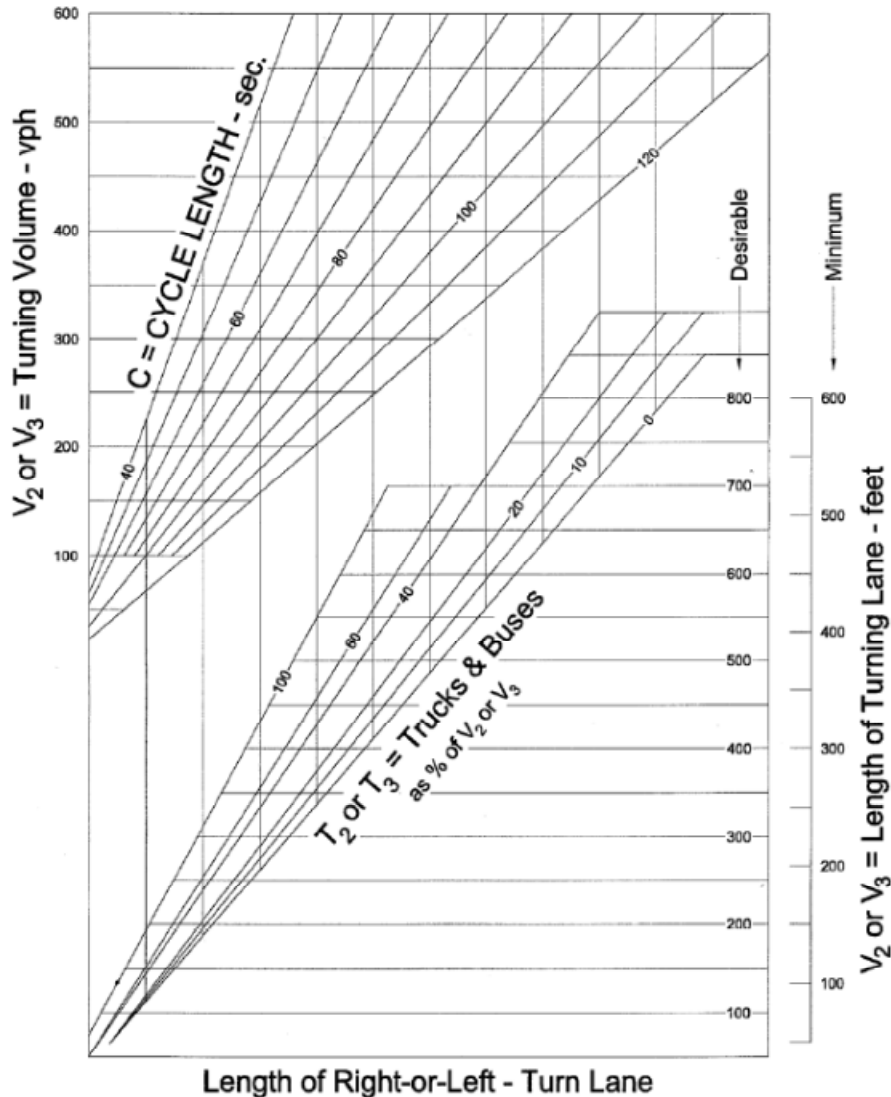
Where separate turning lanes are constructed on the basis of a capacity analysis at the intersection, a width of 12 feet will be used for arterial streets where truck traffic is involved and 11 feet in width for other streets.

503.2.3 Left-turn Lane Storage Lengths for New Facilities

Left-turn lane storage design at both signalized and unsignalized intersections for proposed street design plans may be determined from Figure 1. New streets will use the desirable lengths.

Minimum design lengths will only be permitted under constraints imposed by geometrics of existing streets. Lengths of dual left-turn lanes shall be independently designed.

Figure 1: Design of Left-Turn Storage Length Volume-Based Nomograph for At-Grade Signalized Intersections



503.2.4 Parking

Parking lanes will not be provided on arterial or major collector streets.

Where on-street parking is provided on collector streets, the parallel lane width shall be a minimum of eight (8) feet, which would include the gutter pan.

503.2.5 Medians

Generally, medians will be built only on arterial streets. The width may vary anywhere from a minimum of 16 feet to a maximum of 50 feet. At intersections, medians may be used to provide for separate left-turn storage lanes.

Medians are not desired on local streets. However, when permitted, the median shall conform to the same design standards as set forth for arterial streets. No bushes or shrubbery may be placed in any median unless approved by the City Engineer.

503.2.6 Design Speed. The highway design speed shall be used to establish features such as superelevation rate, critical length of grade, vertical and horizontal curves, intersections, etc. See Table 1 for design speeds.

503.2.7 Traffic Calming. Traffic calming is the process by which vehicular speeds and volumes on local streets are reduced to acceptable levels. This is achieved through the installation of approved devices such as traffic circles, flares, and center islands. Traffic calming serves the purpose of reducing cut-through traffic, truck traffic, excessive speeding, noise, vibration, air pollution, and accidents in an attempt to provide a safer environment for motorists and pedestrians.

Traffic calming devices may be installed if the traffic volume exceeds, or is projected to exceed, 1,000 vehicles per day; and if the 85th percentile speed of traffic exceeds, or is reasonably expected to exceed, 25 mph.

Traffic calming devices shall be designed to accommodate emergency vehicles that may use the local street. All final construction plans are to be approved by the Public Works Director or City Engineer.

Landscaping agreements for the continued care of vegetation within traffic circles and center islands shall be considered with adjacent property owners and determined on a case by case basis.

503.2.8 Flares. A flare is a roadway narrowing used to achieve speed reductions. Flares are usually coupled with sidewalks and serve to make streets more pedestrian friendly by reducing the amount of roadway the pedestrian is exposed to. They also draw motorists' attention to pedestrians via the raised peninsulas.

1. **Street Characteristics:** Flares may be installed on streets that have on-street parking. Flares can be located at street intersections or mid-block.
2. **Pedestrian Generators:** Flares should be considered on streets adjacent to pedestrian generators such as schools, parks, and bike paths.
3. **Width of Flares:** Flares shall be constructed so that driving lanes are no less than 11 feet wide.

503.2.9 Center Islands. Center Islands are raised islands located at the centerline of a street that narrows the travel lanes at that location. When used in conjunction with sidewalks, center islands can provide a refuge area for pedestrians to wait while traffic passes. Center islands can be located near intersections or mid-block.

1. **Street Characteristics:** Center islands may be used downstream of intersections to reduce the speed of turning vehicles. Center islands may also be used on curves to reduce vehicle speeds and prevent motorists from driving into the path of oncoming vehicles.
2. **Length of Center Islands:** Center islands should be constructed in short interruptions rather than as a long median that channelizes and separates opposing flows. Island lengths shall be between 25 feet and 75 feet.
3. **Pedestrian Characteristics:** Center Islands may be required to accommodate pedestrians.

503.3 Sidewalks

503.3.1 Location. Sidewalks shall be constructed on both sides of all roadways unless specifically waived by the Public Works Director or City Engineer. Generally, the sidewalks shall be located one (1) foot from the property line within the street right-of-way.

503.3.2 Sidewalk Curb Ramps. Curb ramps shall be constructed in accordance with the City of Sheridan Standard Specifications. Curb ramps may be shown at all curb returns or called out by a general note on the development plans, but must be shown (located) at all "T" intersections. Whenever referencing a curb

ramp, specify the City of Sheridan Standard Specifications and reference ADA requirements to be used to construct that ramp.

503.4 Pathways

Refer to City of Sheridan Pathways Master Plan.

503.5 Drainage

Drainage systems shall be designed in accordance with City Code, City Standard Specifications, and City Storm Drain Design Criteria. Development plans, including the drainage report, shall be considered as part of the street design and will be required for concurrent review with the street construction plans. Safe conveyance of traffic is the major function of streets; the storm drainage function of the street must therefore be designed to the limits set forth in City Code, City Standard Specifications, and City Storm Drain Design Criteria.

503.5.1 Valley Gutters. Valley gutters shall be constructed in accordance with the City of Sheridan Standard Specifications. Valley gutters are not permitted across collector or arterial streets, nor are they preferred on streets with storm sewer systems.

503.5.2 Inlets. Inlets shall be located to intercept the curb flow at the point curb flow capacity is exceeded by the storm runoff as determined by City of Sheridan Storm Drainage Criteria. Inlets shall also be installed to intercept crosspavement flows at points of transition in superelevation. Due to the presence of curb ramps, inlets are not allowed in the curb return, but will be located at the tangent points of the curb returns. In general, inlets shall be placed on the upstream side of the intersection so as to intercept the water before it reaches the pedestrian crosswalk. Sump inlets may be designed on the downstream side.

503.5.3 Cross-slope. Except at intersections or where superelevation is required, streets, in general, shall be level from top of curb to top of curb (or flowline to flowline) and shall have a typical two (2) percent crown as measured from centerline to lip of gutter, or lip of median gutter to lip of outside curb on roadways with medians. Where the crownpoint is not centered in the street, the crownpoint can be no further out than the quarter point of the street.

503.5.4 Temporary Erosion Control. Temporary erosion control is required at the ends of all roadways that are not completed due to project phasing, subdivision boundaries, etc., in accordance with the City of Sheridan Design Standards.

503.5.5 Sidewalk. Storm water from concentrated points of discharge shall not be allowed to flow over sidewalks, but shall drain to the roadway by use of storm sewers. Sidewalk chases will not be allowed unless specifically approved by

the Public Works Director or City Engineer. If permitted, sidewalk chase sections shall not be located within the driveway.

503.6 Horizontal Alignment

503.6.1 Horizontal Curves. Any angular break in horizontal alignment of more than two (2) degrees shall require a horizontal curve (Table 1).

503.6.2 Curb Return Radius. Minimum curb return radius shall be as shown in Table 1. Where truck traffic is significant, curb return radii shall be provided in accordance with AASHTO standards.

503.6.3 Construction Signs and Barricades. Design and construction shall comply with the requirements of the *Manual on Uniform Traffic Control Devices*, latest edition. Details shall be shown on the construction drawings, and installation shall be provided by the contractor and/or owner.

503.6.4 Superelevation. The use of superelevation is discouraged for all streets. However, where superelevation is required for curves, arterial streets and collector streets, horizontal curve radius and superelevation shall be in accordance with the recommendations of the AASHTO standards. Superelevation shall not be used on local roadways. All roadway designs utilizing superelevation are subject to review and acceptance by the Public Works Director or City Engineer.

503.6.5 Spiral Curves. Spiral curves shall not be used on streets within the City (State highways excluded) except upon written acceptance of the Public Works Director or City Engineer.

503.6.6 Cul-de-sacs. The following criteria shall be used for the horizontal geometry of cul-de-sac turnarounds.

- | | | |
|-----|--|------------|
| (1) | Minimum property line radius | 60 feet |
| (2) | Minimum back of curb radius | 50 feet |
| (3) | Maximum length of cul-de-sac measured along centerline, between the radius point of the turnaround and the R.O.W. line of the abutting street. | 500.0 feet |

503.6.7 Spacing of Direct and Indirect Access, Angle of Intersection, and Offsets.

503.6.7.1 Spacing. For collectors and local streets, four-legged intersections will normally be spaced at least 300 feet apart.

The minimum spacing requirements for Principal Arterials may be 500 feet for all property having an approved preliminary subdivision plan after August 1, 2009. For property having an approved preliminary subdivision plan prior to August 1, 2009, the access spacing may be 300 feet. The minimum spacing requirements for Minor Arterials may be 300 feet. These standards may be modified based on the findings of a traffic impact study or other analyses as approved by the Office of the Public Works Director or City Engineer.

503.6.7.2 Angle of Intersection. Proposed streets and driveways must intersect one another at 90° angles or as close to 90° as topography permits (no less than 80°).

503.6.7.3 Offsets. When “T” intersections are used, the center lines of the streets not in alignment must normally be offset a minimum of 150 feet on local streets, and 300 feet on nonresidential local, and collector streets.

503.6.8 Transition Length. If lanes are added, deleted, or adjusted, it will be necessary to construct a transition section for the safe conveyance of traffic. The following formula shall be applied to the taper or lane change necessary for this transition:

$$L=WS^2/60$$

where:

L = Length of transition in feet

W = Width of offset in feet

S = Speed limit or 85th percentile speed

503.7 Vertical Alignment

503.7.1 Changing Grades. The use of grade breaks, in lieu of vertical curves, is not encouraged. However, if a grade break is necessary and the algebraic difference in grade is less than one percent, the grade break will be permitted.

503.7.2 Vertical Curves. Design controls for vertical alignment must be in accordance with AASHTO standards. When the algebraic difference in grade (A) is at or exceeds one percent, a vertical curve is to be used. All vertical curves shall be labeled, in the profile, with length of curve (L) and K (defined as L/A).

503.7.3 Intersections. The following criteria shall apply at intersections.

- 503.7.3.1** The grade of the “through” street shall take precedence at intersections. At intersections of roadways with the same classification, the more important roadway, as determined by the Public Works Director or City Engineer, shall have this precedence.
- 503.7.3.2** The elevation at the end of curb return on the through street is always set by the grade of the through street in conjunction with normal pavement cross-slope.
- 503.7.3.3** Carrying the crown of the side street into the through street is not permitted.
- 503.7.3.4** Dipping the flowline to the extent that the lip of gutter is dipped is not permitted, except as specified by Standard Specifications concerning curb opening inlets. Tipping an inlet for the benefit of drainage is also not permitted.
- 503.7.3.5** A more detailed review shall be performed for arterial-arterial intersection to maximize drivability.
- 503.7.3.6** Flowline profiles and pavement cross-slopes shall be shown through an intersection until a normal cross-section is obtained. Elevations on a 15-foot grid shall be shown on a plan view drawing. This information shall be submitted using a maximum scale of 1" = 20' horizontally and 1" = 2' vertically.
- 503.7.4 Curb Returns.** Minimum fall around curb returns shall be one-half of one (1) percent.

503.7.5 Connection with Existing Roadways

- 503.7.5.1** Existing grade(s) shall be shown for a sufficient distance to assure that horizontal and vertical curve requirements are being or can be met with field verified as-builts showing stations and elevations at twenty-five (25) foot intervals. In the case of connection with an existing intersection, these as-builts are to be shown within a one hundred (100) foot radius of the intersection. This information shall be included in the plan and profile that shows that proposed roadway. Limits and characteristics of the existing improvement are the primary concern in the plan view. Such characteristics include horizontal alignment, offset intersections, limits of the improvements, etc.
- 503.7.5.2** Previously approved designs for the existing improvement are not an acceptable means of establishing existing grades; however, they are to be referenced on the construction plan where they occur.

503.7.5.3 The basis of the as-built elevations shall be the same as the design elevations (both flowline or both top of curb, etc.) when possible.

503.8 Off-Site Design

The design grade, and existing ground at that design grade, of all roadways that dead end due to project phasing, subdivision boundaries, etc., shall be continued, in the same plan and profile as the proposed design, for at least three hundred (300) feet or to its intersection with another roadway. This limit shall be extended to six hundred (600) feet when arterial roadways are being designed.

503.9 Construction Traffic Control (typically administrated and developed by the contractor)

503.9.1 Pedestrian Traffic

503.9.1.1 Every precaution shall be taken to ensure that construction work does not interfere with the movement of pedestrian traffic, which shall be maintained on the sidewalk at all times and flagmen provided for guidance as necessary.

503.9.1.2 Where an excavation interrupts the continuity of the sidewalk, the Contractor shall provide suitable bridge or deck facilities, to be supplemented by the use of such proper devices and measures as prescribed in the *Manual on Uniform Traffic Control Devices*, latest edition, for the safe and uninterrupted movement of pedestrian traffic complying with ADA standards. The edges or ends of the pedestrian bridge or decking shall be beveled or chamfered to a thin edge to prevent tripping.

503.9.1.3 Temporary diversion walkways shall be hard surfaced and electric lighting shall be provided and kept continuously illuminated during hours of darkness, when required by the Public Works Director or City Engineer.

503.9.1.4 Unless otherwise authorized by the Public Works Director or City Engineer, pedestrians shall not be channeled to walk on the traveled portion of a roadway.

503.9.1.5 Under certain conditions, it may be necessary to divert pedestrians to the sidewalk on the opposite side of the street. Such crossings shall only be made at intersections or marked pedestrian crossovers.

503.9.1.6 Facilities satisfactory to the Public Works Director or City Engineer shall be provided for pedestrians crossing at corners, pedestrian crossovers, and public transportation stops.

503.9.2 Vehicular Traffic.

503.9.2.1 Construction work zone traffic shall be controlled by signs, barricades, detours, etc., which are designed and installed in accordance with the *Manual on Uniform Traffic Control Devices*, latest edition. A traffic control plan shall be submitted to and approved by the City Project Manager, or designated agent, prior to start of any construction.

503.9.2.2 For construction of new facilities, traffic control should strive to keep the motorist from entering the facility. The primary means to accomplish this are by use of temporary barricades, located in advance of the construction area and with appropriate signing. New construction shall not be opened to traffic, and the construction traffic control removed, without the approval of the City Project Manager.

503.9.2.3 The details of the traffic control plan must be shown on a map. For minor projects or local roadways, a neat sketch of the roadways and the proposed control devices will suffice. For major projects or major roadways, the traffic control plan shall be superimposed on as-builts, construction plan drawings, or other detailed map.

503.9.2.4 The *Manual on Uniform Traffic Control Devices*, latest edition, shall be the basis upon which the traffic control plan is designed, in concert with proper, prudent, and safe engineering practice. All necessary signing, striping, coning, barricading, flagging, etc., shall be shown on the plan.

503.9.2.5 Any plan for traffic control during construction that indicates a complete closure of an arterial or collector street must show detour routes and must be approved by the Public Works Director and Fire Marshal. Requirements as to rerouting of traffic, signing, time of closure, and length of closure will be determined on a case-by-case basis. When a local street is to be closed to traffic, the City Engineer must be notified, preferably 24 hours in advance.

503.9.2.6 Directional access on roadways may be restricted (minimum travel lane width in construction area is ten [10] feet), but proper controls including flagging must be indicated. Removal of on-street parking shall be considered, and noted where applicable.

503.10 Speed Change Lanes

The design of the arterial street system depends upon the proper control of access to developments. The location and design of access points must minimize traffic hazards and interference to through-traffic movements. In order to ensure proper access control, the following standards for deceleration lanes have been established.

503.10.1 Where Required. Speed change lanes may be required along segments of arterial or collector streets if the proposed development constitutes a potential for creating a traffic hazard or unnecessarily impedes through-traffic movements as determined by the Traffic Impact Report or the Public Works Director or City Engineer. A high volume access must be provided with a turning or speed change lane to allow the driver to maneuver out of the main travel lanes before slowing down. Speed change lanes and left-turn lanes must be provided in the center or median of the road for left-turning traffic at a high volume access; if such lanes cannot be provided, left turns will be restricted.

503.10.1.1 Speed change lane for right-turning movements will be required according to Table 2:

Table 2: Volume Warrants For Speed Change Lanes for Right-Turning

	POSTED SPEED OF STREET IN MPH				For
	Less than 25	26 to 40	41 to 50	51 or greater	
If the design hour volume of the high-way lanes will exceed	500 1400	400 1200	200 800	150 600	2-lane streets 4 or more lanes
and the designated volume of the access approach will exceed	50 70	40 60	20 40	15 25	2-lane streets 4 or more lanes

For streets with four or more through travel lanes, design hour volumes shall be measured only in the direction of the access approach.

503.10.1.2 For left-turning movements, speed change lanes will be required according to Table 3:

Table 3: Volume Warrants For Speed Change Lanes for Left-Turning Movements

	POSTED SPEED OF STREET IN MPH				For
	Less than 25	26 to 40	41 to 50	51 or greater	
When design hour volume of the high- way will exceed	500 1000	400 900	200 600	150 400	2-lane streets 4 or more lanes
and the left-turning design hour volume into the access approach will exceed	50 70	40 60	20 40	15 25	2-lane streets 4 or more lanes

For streets with four or more through travel lanes, design hour volumes shall be measured only in the direction of the median speed change lane.

503.10.1.3 For both tables, where the existing street design hour volume is below the values in the tables, a 20-year prediction shall be made and compared to the table. If 20-year prediction requires a turn lane, additional Right-of-Way for future turn lane shall be dedicated.

503.10.1.4 Where public safety so requires, due to specific site conditions, such as sight distance, a turn lane may be required even though the warrants in Tables 2 and 3 are not met. Where the design hour volume of the street is twice the street design hour volume in Tables 2 and 3, the City may require a minimum speed change lane for any access approach.

503.10.2 Speed Change Lane Design

503.10.2.1 On highway arterial and collector streets in the City, the design of acceleration/deceleration lanes shall meet the minimum requirements as shown in Tables 4 and 5, providing sufficient off-site right-of-way is available. These absolute minimum requirements were developed recognizing the severe limitations that currently exist on right-of-way availability for most of the urban street network. Where grades are significant, modifications to these lengths will be required by the City. If off-site right-of-way is insufficient, lanes will be designed to maximize the use of available right-of-way at the time that construction plans receive final approval.

Table 4: Acceleration Lane and Taper Lengths

(1) SPEED (MPH)	LANE LENGTH		TAPER LENGTH
	Stop Condition	From 15 mph(2)	
30	150'	125'	120'
35	175'	150'	150'
40	250'	200'	180'
45	300'	250'	180'

(1) 85th percentile speed.

(2) Assumes vehicles start at 15 miles per hour.

Table 5: Deceleration Lane and Taper Lengths

SPEED (MPH)	LANE LENGTH		TAPER LENGTH
	15 mph Turn*	Stop Condition	
30	100'	125'	120'
35	125'	150'	150'
40	175'	225'	180'
45	200'	250'	180'

* Assumes vehicle turns at speed of 15 mph at the end of the deceleration lane.

503.10.3 Exemptions. Requests for exemption from the requirements for a deceleration lane shall be based upon a traffic engineering study that presents trip generation data for the proposed development in terms of impacts upon through-traffic flows.

Such requests shall be reviewed by the Public Works Director or City Engineer and may be approved, except that such an approval cannot be granted if through traffic would be impeded more than three (3) percent of the total time or more than five (5) percent of the time during peak traffic flow periods or if other unique circumstances warrant special design considerations.

503.11 Pavement Thickness

Design of pavement thickness for collector and arterial streets and local streets in industrial and commercial zoned areas shall be based on *AASHTO Guide for Design of Pavement Structures*, latest edition. Pavement design shall be based on an inherent reliability of 75 percent. For traffic conditions where the equivalent 18 kip/single axle loading is less than 1,000,000, the low-volume road design method may be used. Recommendations and subgrade properties developed by the Geotechnical Exploration Report shall be used in the design of the pavement structure.

- 503.11.1** Industrial and Arterial Streets must be designed for pavement thickness on an individual street-by-street basis. However, in no event may the pavement thickness be less than that specified in Table 6. Local Residential Streets need not be designed on an individual basis, but must meet the minimum pavement thickness as set forth in Table 6.
- 503.11.2** Minimum compressive strength for Portland Cement concrete paving shall be 4800 psi at 28 days.
- 503.11.3** Traffic Data. Where traffic data is available, actual counts shall be used along with projections of traffic growth in determining the pavement design. If traffic data is not available, Table 6 may be used to provide data for the pavement design. Traffic data for all arterial streets will be determined by the City Engineer.

Table 6 - Minimum Pavement Thickness Requirements

	Local Residential Streets	Commercial, Industrial & Collector Streets	Arterial Streets
Portland Cement Concrete (Requires Aggregate Base)	<u>6" PCCP</u> 4" Aggregate	<u>8" PCCP</u> 4" Aggregate	<u>8" PCCP</u> 4" Aggregate
Asphaltic Concrete with Aggregate Base	<u>4" AC</u> 6" Aggregate	<u>6" AC</u> 6" Aggregate	<u>6" AC</u> 6" Aggregate

Note: Soils report required to substantiate all proposed roadway sections.

Section 601

Utility Locations and City Utility Easements

601.1 Purpose of Standard Locations

- 601.1.1 Conflicts.** It is necessary to provide adequate space for utilities in a manner that will minimize conflicts between using the public right-of-way for transportation purposes and utility purposes. When street grades, alignments, or widths are changed, utilities are usually required to relocate. Oftentimes, standard locations are inapplicable and unobtainable in street areas where existing utilities are seriously crowded and where it would not be feasible to expect major or dramatic reorientation of the underground. The location criteria must be practical and applicable in new developments, in urban relocation work, and in cases where overhead facilities are being converted into underground structures and plans.
- 601.1.2 Relocations.** Utilities are not expected to revise existing facilities as to location or depth solely or primarily for the purpose of creating uniformity. However, when new or relocation work is undertaken, uniformity should be sought. It is acknowledged that the present may be locked in because of the past, but there should be consideration for uniform utility locations for the future.

601.2 Plans Required

- 601.2.1 Construction Approval.** Any utility or other facility constructed in City right-of-way shall have construction plans submitted and approved in accordance with requirements in the Design Standards of the Sheridan City Code, and the latest addition of the City of Sheridan Standard Specifications and Details for Street and Utility Construction. No construction permit shall be issued for construction of new utilities or extension of existing facilities (except service taps or laterals to individual properties) without prior construction plan approval by the City.
- 601.2.2 Conformance.** The applicant's completed facility shall be in conformance with the drawings or sketches referred to above, unless a special variance has been requested and approved by the City.

601.3 Location Requirements

All utilities located within the public right-of-way shall be approved by the City of Sheridan or presiding right-of-way owner.

- 601.3.1** Utilities already existing in non-standard locations may be replaced in the same location when approved by the City of Sheridan City Engineer.

- 601.3.2** Gravity lines shall take preference as to horizontal and vertical alignment over non-gravity systems and pressure systems.
- 601.3.3** Consideration will be given to the use of utility easements adjacent to the public right-of-way and to the use of alleys and medians.
- 601.3.4** In the event of a conflict, or if a particular utility requires more than one system be installed in the right-of-way, the alternate location may be used when approved by the City Engineer.
- 601.3.5** Utilities shown are primarily for local distribution and collection. Large diameter lines may make it necessary to modify utility locations.
- 601.3.6** Street trees placed between the curb and street side of sidewalk must not interfere with underground or overhead utilities.
- 601.3.7** Normally street lights will be placed on the same side of the street as the electric utility.
- 601.3.8** Street lights shall not be located closer than five (5) feet horizontally to fire hydrants.
- 601.3.9** Fire Hydrants generally shall be located at the Northeast corner of street intersection. Water main valves shall be located and spaced per DEQ regulations.

601.4 Street Closures

All utility permits where work will be done in the street pavement or in the right-of-way and would require a lane closure, must be approved by the City Engineer and comply with the street closure procedure. All proposed permits shall be submitted a minimum of 3 days prior to construction and be accompanied by a traffic control plan. The street category list shall be maintained and revised as needed by the City Engineering Department.

601.5 City Utility Easements

Easements for sanitary sewers, storm sewers, drainage, and water mains shall be obtained when the utilities are to be constructed outside of the typical street right-of-way (ROW) on private property. Sanitary sewer, storm sewer, drainage, and water main easements shall have a minimum width of 20 feet. Additional width may be required by the City Engineer to ensure proper access for City maintenance equipment. Once easement has been recorded and utilities accepted no grading shall take place within easement without approval from Utilities Director or City Engineer. When City utilities are to be located adjacent to one another, the minimum separation distance between the utilities shall be 10 feet. All DEQ regulations must be followed. City Utilities Director to approve any variance in separation prior to DEQ approval.

Easements shall be labeled specifically for the utility in which it is describing; for example:

Sanitary Sewer Easement, Storm Sewer Easement, Drainage Easement, Water Main Easement.

- 601.5.1 Easement for Sanitary Sewer, Storm Sewer, Drainage, and/or Water Main.** The easement form shall be used where the City utility is to be constructed on private property. The most current version of the easement form shall be used and obtained from the City of Sheridan Utilities Department.
- 601.5.2 Construction Easement for Sanitary Sewer, Storm Sewer, Drainage, and/or Water Main.** The easement form shall be used with the appropriate description inserted when a temporary easement is required during construction.

Section 701

Geotechnical Exploration and Report

701.1 General

The geotechnical evaluation shall indicate whether a project will be subject to any geotechnical hazards, make recommendations for site preparation, grading, foundations, retaining walls, earth-supported slabs, utility trench work, pavement design and drainage as necessary to the project.

The purpose of geotechnical evaluation is to attempt to determine whether the project will be subject to a geotechnical hazard. Geotechnical hazards include landslide conditions, expansive soils, flooding, high groundwater conditions, and any other conditions that could pose a risk to a planned construction project.

701.2 When Required

For site development, the determination as to when a geotechnical evaluation report will be required will be determined by code or on an individual, case-by-case basis by the City Engineer.

Public projects and subdivisions will be required to provide a geotechnical evaluation report.

701.3 Soil Exploration

701.3.1 General. When geotechnical explorations are required, all sampling and testing of the soil shall be performed in accordance with the appropriate AASHTO (American Association of State Highway and Transportation Officials) and ASTM (American Society for Testing and Materials) designations.

701.3.2 Sampling. Representative soil samples shall be obtained by subsurface exploration along the route of the existing or proposed public right-of-way.

701.3.2.1 Explorations shall extend to a minimum depth of 5.0 feet below the proposed foundation subgrades, or 2.0 feet below the flow line elevation of any pipe or conduit. Every fourth exploration, or a minimum of one exploration per four completed, shall be of sufficient depth for monitoring of the ground water elevation.

701.3.2.2 Explorations will be performed at close enough intervals to determine the boundaries of each significant soil type present.

If the boundaries are not accurately identified (i.e. subdivision report) a more detailed site developed geotechnical report will be required.

- 701.3.2.3** Sampling locations should be selected by the project geotechnical engineer as the result of a geotechnical reconnaissance.
- 701.3.2.4** Spacing of the explorations will vary with the uniformity of the soil profile and the topography. The maximum interval between soil explorations may not exceed 2500 feet.
- 701.3.2.5** Where the original ground surface is to be covered with fill material, explorations a minimum of 5 feet deep are necessary to determine the character of the subgrades.
- 701.3.2.6** Where drainage areas are crossed or boggy areas are encountered, the spacing of the explorations shall be at closer intervals in order to determine the boundaries of the “soft” area. At these “weak” areas, the depth of the explorations may also have to be increased in order to determine if and to what depth improved subgrade material will be required to provide uniform support for the construction.
- 701.3.2.7** Representative samples from the explorations shall be collected for submittal to a soils testing laboratory for evaluation.
- 701.3.2.8** An exploration log shall be maintained for each soil exploration performed. The exploration log shall contain a complete record of the soil material observed.

701.3.3 Testing

- 701.3.3.1** The tests required are those for identification and classification purposes. These tests include standard sieve analysis (ASTM D422 of AASHTO T-88) and Atterburg Limits (ASTM D4318 or AASHTO T-89 and 90). The test results are used to give a soil a descriptive name and letter symbol (in accordance with the Unified Soils Classification System) indicating its principal characteristics. Based on the test results, similar soil types can be placed into several major groups.
- 701.3.3.2** These major groups shall be plotted on a profile sheet to determine their limits. The profile sheet is used with the laboratory data in selecting which soil types should be tested further. Additional testing includes the moisture-density relationship (ASTM D698 or AASHTO T-99 or T-180) and California Bearing Ratio (MIL STD 621 Method 101 or ASTM D1883). The moisture-density relationship determines the maximum dry density and optimum moisture content for that particular soil. The CBR test is performed at 95 percent of the maximum dry density and at the optimum moisture content. The

results of the CBR test determine the relative bearing value of the subgrade and is used in the pavement thickness design. A minimum of a three-point curve will be utilized for the CBR testing with a five-point curve preferred. If the various soil type areas are not large enough to justify separate pavement designs, a single design shall be made on the worst soil type.

701.4 Report

701.4.1 General. The geotechnical report and any recommendations based on soil investigations must be prepared by a licensed engineer with experience in geotechnical engineering. The report shall identify any geotechnical hazards and recommendations to mitigate the special conditions along with grading, foundations, and subgrade and pavement requirements. The recommendations may be divided into three parts: geotechnical special conditions, grading and foundation, and subgrade and pavement.

701.4.2 Special Geotechnical Conditions. The special conditions portion of the report shall consider ground water, frost susceptibility, erosion potential, soils creep, landsliding, expansive soils, soil corrositivity, consolidation and any other special geotechnical conditions the Geotechnical Engineer becomes aware of.

Geotechnical hazards include landslide conditions, expansive soils, flooding, high groundwater conditions, and any other conditions that could pose a risk to a planned construction project.

701.4.3 Grading and Foundation. The grading and foundation portion shall include data regarding the distribution and engineering characteristics of the various soil materials, data about groundwater levels, recommendations about the need for mitigation measures for special geotechnical conditions, grading criteria, foundation design criteria, and any other information the Geotechnical Engineer considers pertinent.

701.4.4 Subgrade and Pavement. The subgrade and pavement portion shall include data regarding the distribution of various subgrade materials and design tests (such as CBR, R-value, and/or plate bearing) to be made. Where soils are susceptible to erosion, recommendations shall be made for preventing the undermining of pavements. The pavement design may be included in this report or prepared and submitted separately by the licensed Engineer responsible for preparation of the construction plans and contract documents.

Section 801

Grading

801.1 General

- 801.1.1 All proposed developments shall be graded such that storm water runoff is managed on site or is conducted away from proposed building sites to swales constructed in drainage easements along lot lines, to public rights-of-way, or to another approved drainage course and complies with the City of Sheridan Storm Drainage Criteria.
- 801.1.2 No filling will be allowed in areas of land within a proposed subdivision or other type of development within the flood plain of a river, stream, creek, or lake unless under the terms of a permit granted by the U.S. Corps of Engineers, FEMA, and approved by the City of Sheridan where applicable.

801.2 Grading Requirements for Subdivisions

- 801.2.1 Reserved.
- 801.2.2 The longitudinal slope along a rear yard drainage easement shall be not less than 1.0 percent but not so great as to cause erosion.
- 801.2.3 All grade point elevations shall be shown for each lot at the property corners and at the low and high points along the property lines.
- 801.2.4 The general direction of overland drainage in the rear yard shall be indicated on each lot by an arrow.
- 801.2.5 High and low street grade points, slope direction (by arrow), and the location of all inlets and drainage ditches shall be shown on the grading plan.
- 801.2.6 A maximum slope of 3 feet horizontal to 1 foot vertical shall not be exceeded for all terracing. The toe of the slope shall be located outside of drainage easements and natural drainage ways unless adequate drainage is provided.
- 801.2.7 Grading plans shall be drawn to a scale of 1 inch = 100 feet (1" = 100') or larger.
- 801.2.8 Grading plans shall include details of typical lot grading and drainage patterns intended to be used.

- 801.2.9** The grading plans shall show the contours with intervals of 1 foot for land with a slope of 1 percent or less, intervals of 2 feet for a slope between 1 and 1.1 and 9 and 9.9 percent and contours of 5 feet for land with a slope exceeding 10 percent.
- 801.2.10** All elevations shall be on the NAVD 1988 vertical control datum. All coordinates shall be based on the State Plane Coordinate System or at a minimum, contain ties to State Plane Coordinate System.
- 801.2.11** Drainage patterns other than those shown in standard details may be used and will be acceptable for review. Details of the typical lot drainage pattern shall be shown on the grading plan with all grade control points identified.
- 801.2.12** In general, for streets with ditches and no curbs, elevation of the front lot line shall be at least 6 inches above the centerline of the road.
- 801.2.13** All nonconforming lots with drainage patterns other than those in standard details shall be noted on the grading plan.
- 801.2.14** Storm sewers and inlets shall be placed in rear yard swales at low (sump) points where front to rear grading is used.
- 801.2.15** Reserved.
- 801.2.16** Drainage swales shall be constructed entirely within the easements.
- 801.2.17** The grading plan shall show the minimum ground elevation adjacent to buildings for each lot. This may be accomplished with a typical section showing minimum slope away from building.