Sanpete County

ROADWAY DESIGN AND CONSTRUCTION MANUAL

The Road Design and Construction Standards
adopted by the
Sanpete County Board of Commissioners on

April 18, 2023

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Chapter 1 – Introduction and General Provisions

1.1 Short Title

These regulations together with all future amendments shall be known as the **Sanpete County Roadway Design and Construction Manual** (hereafter called MANUAL). This manual shall be the same document as referred to in the Sanpete County Transportation Master Plan, Land Use Ordinance and the Sanpete County Subdivision Ordinance as "The County Road and Driveway Design Standards."

1.2 Purpose and Intent

This manual is a comprehensive document containing design standards for: bridges, public roads, private roads and driveways. This document establishes a uniform policy for roadway development throughout Sanpete County and provides a clear statement of the procedures for construction within the right-of-way. The purpose and intent of these policies and procedures are to provide safe attractive travel corridors, efficient traffic flow and efficient maintenance.

1.2.1 Duty of the Sanpete County Commissioners

It shall be the duty of the Board of County Commissioners to determine all roads existing in the County, and to prepare and keep current plats, specific descriptions, and enforce regulatory parameters of the same and of such other highways as the Board may from time to time locate upon public lands, which shall be kept on file in the Office of the County Clerk, Surveyor, or Recorder. The Board of County Commissioners are authorized to contribute real or personal property to the State Road Commission for state highway purposes.

1.2.2 Public Use Constitutes Dedication

A highway is dedicated and abandoned to the use of the public when it has been continuously used as a public thoroughfare for a period of ten (10) years (Utah Code 72-5-104(2)). A road cannot be vacated back to a private entity unless action to do so is taken by the Board of County Commissioners (Utah Code 72-5-105). Dedication or abandonment of a road shall not relieve a developer, landowner, or homeowners association (HOA) of their contractual obligations to maintain said road, and shall not negate any development agreement(s). Dedication does not necessarily mean a road(s) are to be maintained by the County.

1.2.3 Means of Acquisition

The Board of County Commissioners is authorized to acquire any real property or interests therein, deemed necessary for temporary, present, or reasonable future County highway purposes by gift, agreement, exchange, purchase, condemnation, or otherwise. Whenever the Board of County Commissioners determines that any real property or interest therein, heretofore or hereafter acquired for County highway purposes, is no longer necessary for such purpose, the Board of County Commissioners may lease, sell, exchange, or otherwise dispose of such real property or interest therein. Any such property may be sold at private or public sale and the proceeds thereof shall be turned over to

the County Auditor and credited to the County Highway Fund. In the disposition of land at any such private sale, first consideration shall be given to the original grantor or his successor in interest.

1.3 Enactment Authority

The State of Utah, by statute at 72-3-103(4) states that "The County's governing body exercises sole jurisdiction and control of Class B roads within the County" and at 72-3-105(4) states that "The County's governing body exercises sole jurisdiction and control of Class D roads within the County". The Board of County Commissioners administers the County road system including, but not limited to, maintenance, layout, alterations, deletions, additions, property acquisition and traffic regulation. The County's Road Department enforces road construction standards, reviews plans, conducts inspections, maintains and improves roads accepted by Sanpete County, and administers work within the public right-of-way. The Sanpete County Road Department enforces road construction standards, reviews plans, conducts inspections, and administers work outside the public right-of-way. Driveway standards are included and enacted by this ordinance which adopts these standards into the County's Uniform Building Code.

1.4 Types of Roads

The roads contained in the county-wide circulation system can be classified based on the ownership of the road right-of-way and who has responsibility for maintenance.

1.4.1 County Owned and County Maintained Roads: *Mostly Class B*

Under this category, the County holds either a deed, easement or dedication of the road right-of-way and has assumed responsibility for the road maintenance. These roads are listed in the annual inventory filed with the State of Utah and the County receives an annual allotment of highway users' fees to defray maintenance costs, based on the mileage and types of roads listed. The County receives Class B road funds from UDOT for road maintenance.

1.4.2 County Owned Roads, but Maintained by Others

In certain cases, private property owners using County owned roads for access desire a higher level of service than the County can provide. In such cases, the County and the property owners have reached an agreement assigning maintenance responsibilities to the property owners. If the road qualifies for Class B road funds then the private maintenance must be done to Class B road standards.

1.4.3 County Owned Roads, Not Maintained by the County: *Mostly Class D*

Under this category, there is a public right-of-way but the County does not maintain the road, or only occasionally does any maintenance. These Class D roads are generally not maintained by the County.

1.4.4 County Maintained Roads, but Owned by Others

There are a few cases where the Board of County Commissioners has allowed for maintenance to be performed by the County on Town streets and privately owned roads for specific reasons upon agreement between the County, municipalities, and private parties.

1.4.5 Privately Owned and Maintained Roads

This category includes all roads where the adjacent property owners retain ownership of the road right-of-way either through a deed, easements, or covenants, and they hold responsibility for its maintenance.

1.5 Road Naming and Numbering

All public and private roads, having three (3) or more residences, within the County have been assigned a name or County road number. The names or numbers are used for identification purposes to help speed emergency access by fire and ambulance and to assist in locating utilities by utility companies. Names or County numbers do not necessarily mean the roads are maintained by the County.

New streets shall have the names of existing streets which are in alignment. There shall be no duplication of street names within the areas. All street names and lot addresses must be coordinated with the Emergency 911 Addressing Supervisor and approved before signing of the Final Plat. Opportunity shall be given to the County Recorder for review and recommendations prior to the approval of street names by the Planning Commission.

1.6 Application of Standards

All new road and bridge construction, whether the road or bridge is owned or maintained publicly or privately, and any upgrading of existing roads or bridges, whether public or private, commencing after adoption of these standards shall adhere to these Roadway Design and Construction Standards unless a deviation from standards is granted by the Board of County Commissioners.

1.7 Upgrading of Existing County Roads

Many of the public roadways in Sanpete County originated as RS 2477 roads, stock trails, farm roads, wood roads, and other access roads. These roads are protected by the Sanpete Board of County Commissioners to remain in use as public highways. Because these roads have no documented right-of-way or grants of easement, improvements are generally restricted to the existing traveled surface. A grading permit is required for any repairs made to these roads.

1.7.1 Definition of Development

For the purposes of this manual, with exception to Chapter 4, development shall be defined as: “Any construction or activity that changes the basic character or use of the land on which the construction or

activity occurs and that is required, by County Regulation, to apply as a subdivision, official development plan or development review".

1.7.2 Upgrading Needed to Accommodate New Development

Where new development is proposed along existing County roads, the developer's proposal shall include an analysis of the projected traffic volumes, along with information on existing roads: right-of-way, widths, curves, intersections, and surface drainage. This information shall be used to determine what improvements are necessary, on existing County roads, to accommodate the additional traffic to be generated by the new development. These standards establish maximum traffic volumes for certain classifications of roadways as stated in Table 1. If a proposed development causes these maximum limits to be exceeded on the adjacent roads providing access between the development and the State highway system, the developer shall be responsible for the cost of improving the affected roads to a classification where the maximum is not exceeded. In calculating whether the maximum limits will be exceeded, the cumulative traffic volumes based on surrounding land uses and approved zoning and not just counts of existing traffic levels shall be used.

1.7.3 Upgrading Requested by Property Owners

In many instances, roads in older subdivisions and the rural areas of Sanpete County are substandard because they were built before the County had an adequate system for enforcing road design and construction standards. Most of these roads are too steep or too narrow for the County to maintain adequately if at all. Upgrading existing roads to correct these problems shall be at the expense of the property owners served by such roads. Upon request of the property owners, the County may by approval of the Board of County Commissioners and at the recommendation of the County Roads Department assist by designating an Assessment Area (Utah Code, Title 11, Chapter 42, Assessment Area Act). This would allow for funding through bonding which over time would be assessed to and be paid back by the benefited property owners. Completion of the improvements does not in itself constitute acceptance for maintenance.

1.8 Construction of New Roads

These standards will be used for any new construction in Sanpete County.

1.8.1 New Roads to be Built by Developers

Where new roads are proposed to be built by a developer which serves more than five (5) residences the developer's proposal shall include an analysis of the projected traffic volumes, information on topography, surface drainage, and extent of cuts and fills, along with construction plans and specifications. The road design and construction specifications shall be reviewed and approved by the Sanpete County Road Supervisor in conjunction with the final plat, or if no plat is required, prior to commencement of construction. If it is deemed necessary or appropriate by the Road Supervisor and/or the Board of County Commissioners to refer the review of the road design and construction specifications to an outside consultant, the cost for the review shall be borne by the developer. The total cost of roads required to serve new development shall also be borne by the developer.

1.8.2 New Roads to be Built by County

Plans and specifications for roads to be built by the County shall adhere to the road design and construction standards contained in these regulations and shall be reviewed and approved by the Sanpete County Road Supervisor prior to commencement of construction.

1.8.3 New Roads to be Built as Private Roadway for Five (5) or Fewer Homes

For road construction or rehabilitation for the use as private access to five (5) or fewer single-family residences the developer's proposal shall include information on: dimensions, grades, surface drainage and cut and fill slope gradients. The road design and construction specifications for roads in this category shall be reviewed and approved by the Sanpete County Roads Department in accordance with Chapter 4 of this manual. The Roads Department will administer permitting, specifying pertinent standards, and plan review for private roads.

1.9 Permits for Road and Bridge Construction

Prior to the commencement of construction of any new road or bridge, the project proponent must obtain approval for a grading/construction permit from the Road Department in accordance with Chapter 3 of these regulations. Prior to construction of any improvements to an existing road or bridge, the project proponent must obtain approval for a Grading Permit, or a Right-of-Way permit in accordance with Section 3.3.1, 4.7.2 and/or 5.3 of these regulations. Conformance to other County regulations may also apply, such as: Best Management Practices, Floodplain Regulations, Building Permit requirements for structures, Retaining Wall requirements. Prior to performing any work within the County road right-of-way, applicants must obtain a Right-of-Way Permit from the Road Department. The procedure for obtaining Right-of-Way Permits is contained in Section 5.3.

An exception to this permit requirement may be granted to a rancher, farmer, or landowner to construct a private road or bridge across private farmland or recreational property. However, if a residence or business establishment is constructed within those areas and a building permit is required, it may be required as part of this title to require a road or bridge permit on the road that serves these buildings for reasons of health and safety purposes, prior to the commencement of construction of any new road or bridge.

1.10 Road Vacations

Any party wishing to initiate a road or access easement vacation must apply to the County Planning and Zoning Department. The application must include a complete and accurate legal description, signatures of any adjacent landowners affected by the vacation, and sign offs from utilities. Notice to all interested parties shall be mailed, and the Board of County Commissioners shall consider the request at an announced time and place. Per Utah State Code 72-3-108, 72-5-105, and 17-27a-609.5

1.11 County Road Declarations

Any party wishing to initiate the process of County road designation of a historic road must apply to the Sanpete County Road Department. The petition letter must include maps, plats and all discovered pertinent documentation.

1.12 Gates and Cattle Guards

A. It is unlawful for any landowner to close or restrict any County roads, rights of way and easements to the general public. The landowner may install and shall maintain gates and/or cattle guards across the County roads, rights of way and easements on the terms and conditions set forth in this section.

B. Gates: The installation of a gate across the County roads, rights of way and easements shall be by permit only, and subject to the following terms and conditions:

C. Applications for permits shall be made to the Board of County Commissioners.

D. Gates shall meet certain specifications as set forth by the Board of County Commissioners.

E. The gates shall remain unlocked at all times.

F. A gate shall be allowed only if the nature of road traffic on that particular roadway is such that the existence of a gate across the roadway is not a major inconvenience to the travelers on the public rights of way. Such determination shall be reasonable and shall be made by the Board of County Commissioners, based upon level of traffic and proper compliance with regulations.

G. Upon the installation of a gate, if the nature of the traffic on the roadway changes to the extent that the gate is becoming a hindrance to the traffic on said roadway, then said gate shall be removed.

H. An approved Public Access Road sign shall be posted on the gate.

I. No trespassing signs shall not be allowed to be posted on the gate or posts within twenty five (25) feet of an approved public access road sign.

J. Cattle Guards: On those roadways where the traffic is of such nature that gates are a major inconvenience, the County shall allow the installation of cattle guards on the following conditions:

K. The installation of the cattle guard shall be by permit only and obtained from the Road Department.

L. The cattle guard proposal shall meet the approval of the Board of County Commissioners.

M. The property owner shall provide the cattle guard at the landowner's expense, together with a four thousand dollar ($4,000.00) fee to cover future maintenance and repair. Said fee may be waived; provided, that the landowner enters into an agreement with the County to provide maintenance and repair of the cattle guard for the period of time that the cattle guard is required.

N. If the landowner enters into the agreement to provide maintenance and repair, and the fee is waived, the landowner shall be responsible for the repair and maintenance of the cattle guard as needed and/or at the direction of the County Road Department Supervisor for ten (10) years from the date of installation, at which time the landowner shall, at his own expense, refurbish the cattle guard. Upon approval from the Board of County Commissioners, the County shall assume the responsibility for maintenance. Upon the expiration of twenty (20) years from the date of installation, the County shall reevaluate the need for the cattle guard.

O. If the cattle guard is not properly maintained or replaced when it becomes damaged, or it is determined that the cattle guard is no longer necessary, the County shall have the right to remove said cattle guard from the roadway.

Chapter 2 – Road and Bridge Design Criteria

2.1 Purpose and Intent

This section sets forth specific standards for roadway and bridge design in Sanpete County and is intended for use by design engineers.

2.2 Adopted Policy and Design Reference Manuals

Sanpete County has recognized and adopted the following publications as policy guides and design criteria references: (These will be updated to latest published standards)

A. A Policy on Geometric Design of Highways and Streets, 7th ed., Washington D.C., American Association of State Highway and Transportation Officials (AASHTO) 2018

B. Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT 400), 2nd ed., Washington D.C., American Association of State Highway and Transportation Officials (AASHTO), 2019

C. Manual of Uniform Traffic Control Devices, (MUTCD), 2009 Edition, Washington D.C., U.S. Department of Transportation Federal Highways Administration, 2009

D. Urban Storm Drainage Criteria Manual, Colorado, Urban Drainage and Flood Control District, January 2016

E. Traffic Engineering Handbook, 7th ed., Washington D.C., Institute of Transportation Engineers, 2015

F. Transportation Planning Handbook, 4th ed., Washington D.C., Institute of Transportation Engineers, 2016

G.

H. Traffic Control Devices Handbook, 2nd.ed., Washington D.C., Institute of Transportation Engineers, 2009

I. Guide for Development of Bicycle Facilities, 4th ed., Washington D.C., American Association of State Highway and Transportation Officials (AASHTO), 2012

J. UDOT Design and Construction Specifications and Procedures

K. Fifield, Jerald S. Ph.D., Designing and Reviewing Effective Sediment and Erosion Control Plans, 3rd ed., Forester Media, 2012

L. Gravel Roads Construction and Maintenance Guide, Federal Highway Administration and the South Dakota Local Technical Assistance Program

2.3 Road Classifications

County roads are classified according to function. Functional classifications shall be recommended by the Sanpete County Road Supervisor and adopted by the Board of County Commissioners who has the authority to determine which classification applies to any given road. Criteria used to design roadways are based on their functional classification for planning purposes. Sanpete County uses the following functional categories in classifying its roads:

2.3.1 State and US Highway System

The primary regional roadway through Sanpete County is US Highway 89 and establishes the majority of the north-south movement through Sanpete County. Highways 28, 31, 116, 117, 132, and 137 serve as secondary regional roadways through Sanpete County and help with most of the west-east movement. These highway systems are maintained by the Utah Department of Transportation (UDOT).

2.3.2 Principal Arterials

Principal Arterial highways and streets are designed to serve the highest traffic volumes over the longest distances. As such, Principal Arterials have design features which promote the highest vehicle speeds. Access points, particularly private driveways, are often controlled or minimized on higher speed roads, or are provided only with the addition of turn lanes. Principal Arterial streets generally serve trip lengths exceeding eight (8) miles and are often valuable to connect cities within the County. All existing and planned Principal Arterial streets in Sanpete County are presently State Highways (UDOT owned and maintained). Design capacity for principal arterials shall be those figures outlined in Table 1.

2.3.3 Minor Arterials

Like Principal Arterials, Minor Arterials are designed to serve the highest traffic volumes over the longest distances. As such, Principal Arterials have design features which promote sufficient vehicle speeds to allow for inter-County travel. Access points, particularly private driveways, are often controlled or minimized on higher speed roads, or are provided only with the addition of turn lanes. Minor Arterial streets generally serve trip lengths exceeding five (5) miles and are often valuable to connect cities within the County. Due to the generally sparse network of major streets in Sanpete County, UDOT defined differences between Principal and Minor Arterial are likely semantic and related to UDOT's reporting requirements to FHWA. However, from a functional standpoint, Sanpete County must continue to work with UDOT to promote street design standards on both Principal and Minor Arterials and to adjust classifications as per Sanpete County plans. All existing and planned Minor Arterial streets in Sanpete County are presently State Highways (UDOT owned and maintained). Sanpete County must work with UDOT to address Functional Classification changes on US-89 and SR-132 to upgrade it from a Minor Arterial street to a Principal Arterial street. Design capacity for arterial roadways shall be those figures outlined in Table 1

2.3.4 Major Collectors

Major collectors provide a link between local roads and arterials and allow for the movement of through traffic in neighborhoods. Collectors should be designed so they do not disrupt the activities and land uses they serve. In addition, access to collectors should be designed so it minimizes interruption of traffic flows. Major collectors in the County are presently State Highways (UDOT owned and maintained). Design capacity for collector roadways shall be those figures outlined in Table 1.

2.3.5 Minor Collectors

Minor Collector streets are similar to local streets but must support some levels of access control and design to allow thru traffic. A dense pattern of Minor collector streets allows for arterial streets to be unimpeded with access points, thereby improving safety and traffic capacity on higher functioning roads. Minor Collector streets typically include both residential and commercial frontage but are also relatively low speed and low volume. Minor Collector streets may have volumes exceeding the design capacity for collector roadways outlined in Table 1 but would generally be controlled by stop signs as opposed to traffic signals. Like Principal versus Minor Arterial, differences between Major Collector and Minor Collector are generally related to semantics and overall roadway use and are not perceptible in clear differences in design features. This classification is consistent with the County's sub-classification of "CLASS B Primary Maintained County Roads'', which is described as follows:

Roads and connections carrying heavy traffic flow into and out of subdivisions and residential or commercial centers (including municipalities) in various sectors of the County. Primary roads can have either an asphalt surface and/or a gravel surface and are graded and drained. Roads in this category may carry school bus traffic and mail routes and receive first day snow removal service by the Road Department. This type of road is the minimum standard used to provide access to subdivided property.

2.3.6 Recreational Roads

Recreational streets generally consist of major routes through Forest Service or other lands used for recreational purposes. These streets may be paved or unpaved but serve a major access element to these recreational lands. Design conditions on these streets may vary significantly depending on the types of users. From a general perspective, access is typically not controlled on these facilities, design speeds are typically in the 20-35 mph range, and various amenities such as shared use or parallel trails or parking pullouts are often important considerations. Sanpete County will work to maintain public passage on all recreational streets and should consider improvements and the need for year-round versus seasonal access on a case by case basis. This classification is consistent with the County's sub-classifications of "Class B Secondary Maintained County Roads" and "Class D Non-Maintained County Roads".

2.3.7 Local Street

Local streets provide direct access to and connections between individual residences, businesses, community facilities and other land uses within neighborhoods. They also link individual properties to the collector and arterial roadway network. This type of road is for the use by property owners, the general public and service vehicles such as trash trucks, delivery trucks and snowplows. Local streets are typically controlled with stop and yield signs due to their low volume nature. In order to develop an efficient transportation system, dead-end or cul-de-sac local streets are less desirable than a network of streets with multiple points of entry and exit. Roads serving neighborhoods that have been or have been approved to be subdivided into lots shall meet the more stringent standards of this classification. Roads serving neighborhoods with projected traffic volumes for these roads which exceed three hundred (300) ADT per day shall also meet local access standards. This classification is consistent with the County's sub-classification of "CLASS B Secondary Maintained County Roads'' and is described as follows:

Roads with this classification which are maintained on a year round basis may expect snow removal on the second or third day and may not receive snow removal with each snowfall; existing conditions may

curtail secondary service in order to focus operation on Primary Roads. Some roads in this classification may have a seasonal maintenance classification with no winter maintenance. This type of road should be considered for upgrading to the minimum standard before being used to provide access to subdivided property. Roads without winter maintenance shall not be used to provide access to subdivided property other than seasonal (summer) use recreational property.

2.3.8 Low Volume Local Street

Low volume local streets provide direct access to individual properties within the remote areas of the County. Low volume roads provide connections from these remote areas to local access and collector roads and may not meet vertical or horizontal alignment standards and may not allow for the safe passage of two (2) vehicles. Roads that exceed three hundred (300) ADT per day in these areas serving neighborhoods that have been or are proposed to be subdivided into lots shall meet the requirements of this classification. (See Figure 5. Typical cross section of a low volume street.) When an area in the County is proposed to be subdivided into lots, the Sanpete County Road Supervisor shall consider potential future uses of the property and of adjacent properties in projecting traffic volumes and may require a higher standard for road design if necessary to accommodate future traffic volumes and to implement a coordinated, functional road system. Design capacity for low volume roadways shall be those figures outlined in Table 1. This classification is consistent with the County's sub-classifications of "CLASS B Secondary Maintained County Roads" and "CLASS D Non-Maintained County Roads". Class D Non-Maintained County Roads are described as follows:

Roads that have a wide variety of road surfaces and provide ingress/egress for the traveling public. This classification includes roads which are on the County Highway System but not maintained. Most of these roads are traversable by four wheel drive vehicles only. While these roads receive no snow removal, they may be periodically maintained or repaired by the Road Department. This type of road shall not be used to provide access to subdivided property.

2.3.9 Primitive Road

A primitive road is a single or two-lane road providing direct access to grazing lands, undeveloped areas, recreational and scenic areas. This type of road shall not be used to provide access to subdivided property. Design capacity for primitive roadways shall be those figures outlined in Table 1. This classification is consistent with the County's sub-classification of "CLASS D Non-Maintained County Roads".

2.3.10 Roundabouts

See 6.2.21 of the Sanpete County Transportation Master Plan.

2.4 Road Design

A development may be required to provide multiple access points (two (2) or more) if it is deemed necessary for health, safety, and welfare reasons.

No development shall be approved by the County which is accessed on inadequate roadways, public or private. Roads along the identified access to proposed development shall be required to meet the minimum roadway standards as outlined herein. Development that is serviced by multiple substandard roads shall be reviewed based on the ability of the entire road network providing service to said development. Substandard roadways that are not directly adjacent to a proposed development, but that still provide service to the development, shall be required to meet the minimum standards in order for the development to be approved.

County roads adjacent to a declared annexation area or located within the incorporated boundaries of a municipality shall meet the minimum standards of Sanpete County, and may, through discussions and agreement with the affected municipality, also be required to meet the road standards of said municipality.

All road design plans, and specifications shall be prepared by a licensed Utah Professional Engineer.

2.4.1 Future Planning

Prior to the design of a new or an upgrade for an existing road, projections of future development and densities, estimates of future traffic volumes, appropriate classifications and design speeds must be determined. The road classification determines the geometric cross section and maximum sustained grades while the design speed determines minimum or maximum standards for elements of alignment such as stopping and passing sight distances, radii of curvature, tangent lengths, and superelevation transition lengths. Standard structural sections or designed structural sections may be used.

A. **Design Period:** Roadway Design will be based on the projected needs twenty (20) years after construction which are outlined in Chapter 4 of the County's Transportation Master Plan.

B. **Projected Development:** Projections of development over the design period will be based on the County General Plan in effect and on zoning, existing land use, proximity to developed areas, historic growth and other factors which can be expected to influence development.

C. **Projected Traffic Volumes:** Table 2 presents traffic generated for various types of development. For example, residential property generates an average daily traffic (ADT) count of ten trips per living unit. These per unit ADT counts are applied to the projected development to generate estimates of the design year traffic volumes. When per unit ADT counts are not listed for a type of development or an ADT has not been established for a particular category or location by the Road Department, the design engineer shall use the ITE Transportation Planning Handbook to obtain the appropriate ADT count.

D. Access: Access management requirements are found in Section 6 of the Sanpete County Transportation Master Plan. In addition to those requirements, a developer may be required by the Planning Commission or Board of County Commissioners to provide at least two (2) separate access roadways for ingress and egress from the subdivision when

deemed essential for public health and safety. Any variance to this requirement must be recommended for approval by the Planning Commission and approved by the Board of County Commissioners during the concept phase. A variance shall only be granted when other acceptable means are put in place by the developer to protect the health and safety of the neighborhood.

2.4.2 General Design Elements

A. **Design Capacities:** Table 1 presents the range of ADT's anticipated for each type of road. If traffic volumes on a particular road exceed the range specified for its functional category, the road shall be reclassified to the appropriate category. However, roads may carry lower volumes than stated for their functional category without being reclassified. In such cases, the function of the road rather than traffic volumes will determine design requirements.

B. **Design Speed:** The selection of design speed is influenced principally by the character of terrain, traffic volumes and appropriate range of design speeds for each road classification. Design speed shall be a minimum of five (5) mph over the posted or proposed speed limit.

C. **Surfacing Requirement:** All roads serving areas with projected densities of two (2) units per acre or greater, or expected to carry a traffic volume of 300 ADT or greater must be paved. Other roads may have a gravel or paved surface.

D. **Right-of-Way:** The minimum right-of-way widths required for each road classification are specified in Table 3. Additional right-of-way shall be provided for drainage improvements, cuts or fills, intersections, curb returns, snow storage and other road appurtenances.

E. **Right-of-Way Surveys**: Sanpete County has very limited data on the centerline location of County road rights-of-way. For any proposed development along a County road or an upgrade to an existing County road without an established legal centerline description and road plat on file in the Office of Sanpete County Recorder, the Board of County Commissioners shall direct a County Approved Surveyor to complete a survey paid for by the developer to establish the proposed centerlines. Upon approval of the center line survey by the Board of County Commissioners a County Approved Surveyor shall monument the center line with County right-of-way markers and file a County road plat with centerline descriptions tied to established existing public survey corner monuments. The centerline survey shall show the location of existing fences from the centerline. The road centerlines shall be used to determine the limits of the County road width required and what acquisition of rights-of-way are needed to conform to the policy and design criteria of this Manual. The Board of County Commissioners may require developers to pay the costs of the required survey to the County.

F. **One-Way Roads:** One-way roads will not be allowed for the following reasons:

1. Property owners at the far end of a one-way loop road tend to take short cuts and drive the wrong way to reach their properties, thus increasing the chances for accidents.

2. Emergency vehicles must in certain cases take a more circuitous route to reach their destination.

3. One-way roads can cause confusion for people not familiar with the area.

4. In winter, snow plowing often reduces the driving surface of roads because snow accumulates along the edges. On one-way roads, this reduction may pose a serious safety problem because it hampers access for emergency vehicles and limits the area available for their operation.

G. **Striping:** All paved roads may be striped with appropriate centerline and shoulder stripes per the MUTCD or UDOT Standard. This shall apply to collector and higher functional classification roads or as determined necessary by the Road Supervisor.

2.4.3 Specific Design Elements

A. Roadway Standards: All roadways shall be designed to conform to the engineering standards and technical design requirements adopted by this manual or UDOT if under their jurisdiction. These standards can be supplemented by the Transportation Master Plan and include AASHTO, a policy on geometric design of highways and streets, and the Manual on Uniform Traffic Control Devices (MUTCD). In cases of conflict, a determination shall be made by the County and/or UDOT, whose determination shall be final. Sanpete County has adopted these design standards for roadways to ensure that the facilities provide the necessary safety and capacity elements. The requirements for the roadway cross section configurations are shown in the Transportation Master Plan Table 4-1. These requirements are based on traffic capacity, design speed, projected traffic, system continuity and overall safety. All new developments shall use roadway cross sections with sixty six feet (66') or more of right of way. Appendix E in the Sanpete County Transportation Master Plan includes the standard typical sections by functional classification for roadways in the County. The arterial roadways are under UDOT jurisdiction.

B. Transportation Guidelines and Policies: Sanpete County/UDOT may require a traffic impact study (TIS) for any new development when the following guidelines indicate that a TIS is needed. The following sections are to be used to establish uniform guidelines for when a TIS is required and how the study is to be conducted, based on suggested guidelines established by the Institute of Transportation Engineers (ITE). A TIS is a specialized study of the impacts that a certain type and size of development will have on the surrounding transportation system. It is specifically concerned with the generation,

distribution, and assignment of traffic to and from the new development. The term new development also includes properties that are being redeveloped. (These TIS requirements, when applicable, are found in the Sanpete County Transportation Master Plan Sections 4 - 4.3.)

C. **Alignment:**

The major considerations in alignment design are safety, grade, profile, road width, design speed, sight distance, topography, drainage and the maneuverability, braking and performance of heavy duty vehicles. Alignment should provide for safe and continuous operation at a uniform design speed. In mountainous areas, consideration should be given to locating the road so that a southern exposure will be obtained wherever possible. Road layout should bear a logical relationship to existing or platted roads in adjacent properties and to the principles of good engineering practice. All roads shall be designed such that the roads are centered in the right-of-way.

1. **Horizontal Alignment:**

a. **Stopping Sight Distance:** Horizontal alignment must provide at least the minimum stopping sight distance for the design speed at all points. This includes visibility at intersections as well as around curves and roadside encroachments. The minimum stopping sight distance is the distance required by the driver of a vehicle traveling at the design speed to bring the vehicle to a stop after an object on the road becomes visible, using the AASHTO recommended deceleration rate of 11.2 ft/sec^2. Stopping sight distance is calculated in accordance with the following formula, or Table 4, whichever is greater:

Stopping Sight Distance

$$1.47ut + \frac{u^2}{30(fG)} = SSD$$

Where:
u = speed in MPH
t = reaction time (2.5seconds)
G = grade, in percent
f = coefficient of sliding friction
With f equaling the following factors based on design speed of roadway:

Design Speed (MPH)	f (Design Criteria: Snow-Packed)
20-40	.24
40-50	.22
50-60	.21
60-70	.20

Where an object off the pavement restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance, but in no case will it be less than as specified in Table 5.

Offset clearance to achieve stopping sight distance on horizontal curves can be obtained from Table 4. The centerline of the inside lane is used, with the offset distance measured from the centerline of the inside lane to the obstruction.

b. **Passing Sight Distance:** Passing sight distance is the minimum sight distance that must be available to enable the driver of one vehicle to pass another safely and comfortably without interfering with oncoming traffic traveling at the design speed. Two-lane roads should provide adequate passing zones. Required passing sight distances for given design speeds are stated in Table 4

c. **Curvature:** Table 5 specifies the minimum centerline radius of curvature for specific design speeds. This table is based on speed alone and does not take into consideration sight distance factors. Every effort should be made to exceed the minimum values.

Consistency in design speed and curve radii should be used to avoid surprising the driver. Where changes in the design speed are necessary, the design speed between approach tangents and curves will not change by more than ten (10) mph. Under no condition will a low speed curve be introduced at the end of a long tangent where high approach speeds are anticipated. Compound curves should be avoided. Reversing curves without an intervening tangent will not be permitted where design speeds exceed twenty-five (25) mph. The minimum lengths of such tangents are specified in Table 5. Broken-back curves are not allowed.

d. **Curb Returns:** Curb returns or pavement rounding radii at intersection corners are as follows:

Road Class	Curb Return Radius
Local	30 feet
Collector	30 feet
Arterial	35 feet

Additional right-of-way will be required to provide a minimum clear distance for fifteen (15) feet between the curb or edge of pavement and the right-of-way limit.

e. **Intersections:** The minimum distance between intersections for various road classifications is as follows:

Road Class	Distance
Local	200 feet
Collector	500 feet
Arterial	1,000 feet

Distance is measured from the inside edge of each right of way.

2. **Vertical Alignment:**

a. **Minimum and Maximum Grades:** Minimum and maximum sustained grades shall be one percent (1.0%) and eight percent (8.0%), respectively, except as provided in b. below. Grades on stop sign controlled roads at an intersection will flatten to four percent (4%) or less for at least fifty (50) feet approaching intersections on local access roads. Grades on stop sign-controlled roads at an intersection will flatten to three percent (3%) or less for at least one hundred (100) feet approaching intersections on collector roads. Grades approaching the turnarounds in cul-de-sacs will be four percent (4%) or less for at least fifty (50) feet.

These distances will be measured from the intersection of the right-of-way lines.

The maximum design grade should be used infrequently rather than as a value to be used in most cases.

b. **Exceptions to Maximum Grade:** A local access or low volume road may have sections with a grade of ten percent (10.0%) provided that the dip of the natural terrain bears between South 60° East and South 45° West.

c. **Vertical Curves:** Vertical curves must be designed to provide adequate stopping and passing sight distance, headlight distance, driver comfort and good drainage.

Minimum lengths of crest vertical curves are controlled by stopping sight distance requirements. The minimum length for sag and crest vertical curves will be determined by Table 4.

Vertical curves that are long and flat may develop poor drainage and should therefore be avoided. Vertical curves are not required where the algebraic difference in grade is less than 0.2%.

d. **Sight Distance:** The grade line must meet sight distance requirements for the design speed. Table 4 provides the minimum passing sight distance for the crest of vertical curves.

3. **Switchbacks:** A switchback is defined as a curve with a delta greater than one hundred twenty (120) degrees and a radius less than one hundred (100) feet.

a. **Use of Switchbacks:** Switchbacks will not be allowed on collector or arterial roadways. On local access, low volume, or primitive roadways when other alternatives may cause significant adverse impacts, the use of switchbacks may be allowed on a case by case basis, with approval from the County Road Supervisor and/or the Board of County Commissioners.

b. **Minimum Standards:** Switchbacks shall be designed with a minimum centerline radius of sixty (60) feet. Maximum centerline grades within twenty five (25) feet of a switchback curve and throughout the curve shall not exceed four percent (4%). Curve widening shall be in accordance with Section 2.4.3.B.7. Adequate snow storage must be provided.

4. **Alignment Coordination:** When vertical and horizontal curves are superimposed, the super-elevation may cause distortion in the outer pavement edges. Where

this may be the case, edge of pavement profiles shall be plotted and smooth curves introduced to remove any irregularities. Sharp horizontal curves should not be introduced at or near a pronounced crest or sag.

D. **Geometric Cross Sections:**

1. **Typical Sections:** A typical section for each road classification is shown in Figures 1 through 6.

2. **Travel Lane Width:** The minimum travel lane width shall be those outlined in Table 3.

3. **Crown Slope:** On undivided roads in tangent alignment, the high point of the crown will be centered on the pavement and the pavement sloped toward the edges on a uniform grade. In mountainous terrain, roads will be sloped toward the cut side of the road on a three percent (3%) slope to alleviate surface erosions. On divided multilane roads on tangent alignment, each travel way will have a uniform cross-slope with the high point at the edge nearest the median. The crown slope shall not exceed the percentages shown in Table 6.

4. **Super-elevation:** To account for snow and ice conditions, which occur frequently in Sanpete County, the maximum super-elevation will be limited to 0.08 feet per foot, (see Table 7). The axis of rotation of undivided roadways is usually the centerline. For curves following long, level tangents, the axis of rotation shall be taken at the inside edge of the pavement. The divided roads with wide medians, the axis of rotation shall be the inside edge of pavement. For divided roadways with narrow medians, each roadway shall be rotated about the edge adjoining the median strip.

5. **Superelevation Transition:** Superelevation transition is the progression of the roadway from the normal crown section to a fully superelevated section. To meet the requirements of safety and comfort, the length required to affect the transition should be adequate for the likely travel speeds. Suggested minimum lengths are given in Table 7. It is recommended that sixty (60) to eighty (80) percent of the superelevation runoff be on the tangent.

6. **Spiral Curves:** Where the alignment includes spiral curves, super-elevation is applied entirely on the easement curve.

7. **Curve Widening:** Curves will be widened on the inside radius to allow for vehicular off-tracking in accordance with the following formula:

$$\frac{W}{R} = 1.5\,u^2$$

Where:

W= additional radial width of pavement
u= speed in MPH
R= Curve radius (Refer to Table 5)

8. **Cul-De-Sac Streets; Turnarounds:** Using cul-de-sac streets shall be avoided. Where cul-de-sac streets are the only alternative, turnarounds shall be provided. Bulb type turnarounds shall have a minimum road surface eighty (80) feet in diameter and a minimum right-of-way one hundred (100) feet in diameter. An alternative to the bulb type turnaround is the use of a hammerhead turnaround. Figure 7 illustrates three acceptable hammerhead configurations.

   Roads ending in turnarounds greater than six hundred (600) feet in length shall provide wildfire mitigation such as: fire cistern storage, fuel breaks, and tree thinning as determined by the Sanpete County Fire Authority or the Fire Protection District. Snow storage shall be provided as shown in Figure 7 to keep turnarounds cleared. Dead end roads that do not have turnarounds are not allowed.

E. **Structural Sections:**

1. **Design Structural Sections:** Structural sections shall be designed for all new roads, driveways, or roads being upgraded due to increased traffic. The road structure will be in accordance with the following equation:

$$T = 0.0384(TI)(100 - R)$$

or

$$1.811(TI)(2.12 - \log CBR)$$

Where:
T = Thickness in inches
TI = Traffic index
R = Resistance (stabilimeter test)
CBR = California Bearing Ratio

a. **Traffic Index:** The effect of traffic and weather on a roadway over its design life is expressed by the traffic index (TI). Table 8 shows the minimum traffic index values for different road classifications. These minimums may be proposed to be increased by the County Road Supervisor and approved by the Board of County Commissioners if existing or future traffic warrants.

b. **Minimum Structural Requirements:** The minimum structural sections outlined in Table 9 shall be adhered to on all roads in Sanpete County. These minimum structural sections are based upon a minimum sub-grade "R" value of sixty (60) or a CBR of seventeen (17). For "R" values less than sixty (60) or CBR less than seventeen (17), an engineered section must be designed. The proponent shall submit "R" value tests performed by an approved geotechnical engineer prior to approval of the final road design. All asphalt shall be placed in multiple lifts with each lift being one and one half inches (1.5") minimum or three inches (3") maximum.

c. **Concrete Paving:** Areas where a considerable amount of stopping or starting occurs, such as bus stops or signalized intersections, shall be paved with a designed concrete section to minimize the effects of dynamic loading on the pavement.

F. **Drainage:**

1. **General:** The primary objective of drainage design is protection of County roads and property while minimizing the possible flood damage to surrounding properties and structures. It should be emphasized that good drainage is one of the most important factors in road design. It preserves the appearance as well as the level of service of the road while minimizing maintenance costs.

Water flowing in a roadside ditch shall be diverted away from the road as quickly as possible. In no case shall water travel in a roadside ditch for a distance greater than eight hundred (800) feet or have a flow greater than five (5) cubic feet per second with the occurrence of a twenty five (25) year frequency storm.

Culverts under all roads shall be designed to accommodate a twenty five (25) year frequency storm run-off utilizing the maximum available head. The maximum available head shall be determined by the uppermost ponding elevation chosen to prevent flood damage to upstream properties.

Inlets and other facilities draining the road surface shall accommodate the twenty five (25) year frequency storm runoff. All roads shall remain free of ponding.

All drainage installations shall be designed to permit the free, unobstructed passage of debris and silt or provide for their deflection and/or collection at a point upstream that will not create an expensive maintenance problem. Settlement basins shall be provided when a silting problem may exist downstream.

Modification of natural channels or transferring runoff from one basin to another is not permitted except where no reasonable alternative exists and where the proposal has been reviewed and approved by the County Road Supervisor and/or the Board of County Commissioners.

A recurring problem on Sanpete County roads is ice buildup in winters of little snow. Drainage design shall anticipate areas of potential ice buildup.

French drains that accommodate any off right-of-way drainage problem shall be designed to provide a minimum of fifty (50) feet of overland sheet flow before reaching any roadside ditch.

2. **Storm Runoff Estimates:** The following methods may be used for estimating peak flows:

   a. Runoff from streamflow records.

   b. Tabular Method as per Technical Release M55 from the Engineering Division of the USDA.

   c. HEC-2 Computer Program from the Corps of Engineers.

   d. Technical Manual Model for Estimating Flood Characteristics from the Water Conservation Board.

   e. The Rational Method, as follows:

      $Q=CiA$

      Where:
      Q = runoff in cubic feet/second
      C = Coefficient of runoff (See Table 10)
      i = average intensity of rainfall in inch/hour for a duration of the time of concentration.
      A = drainage area in acres.

      The Rational method should only be used on areas of less than one hundred and sixty (160) acres.

3. **Culverts:** Culverts shall be located at each natural draw or water course as conditions warrant to prevent excessive accumulation of flow in roadside ditches or along the toe of slopes. Draws and water courses shall be cleared of debris for a distance of one hundred (100) feet upstream from all culvert inlets.

   Inverts at the inlet shall be slightly elevated above the normal flow line in steep or natural draws to avoid plugging by debris. Inlets shall not be elevated in those instances where ponding or accumulation of backwater curves would be objectionable (stagnation, irrigation ditches, etc.).

The culvert shall slope downward in the direction of natural flow and be designed to be self-cleaning whenever possible. The outlet shall be designed not to discharge on unprotected fills or unstable material or at adverse angles to streams or open channels. Headwall, rip-rap or other means of protection are required at inlets or outlets where erosion might occur.

Velocities of flow in culverts shall be calculated using acceptable design charts and formulas. Where the Manning-Equation is used, the following "n" values will apply:

Material	**Manning Equation "n" Values**
Corrugated Steel Pipe	.027
Reinforced Concrete Pipe	.013
Concrete	.013 to .020
Asphalt	.016
Corrugated Polymer	.024

Corrugated metal pipe, reinforced concrete pipe, high density polyethylene pipe or an approved equal as specified by the Road Supervisor shall be used. Steel pipe shall be asphalt coated where soils are corrosive or other conditions exist that may attack steel. Aluminum or other pipe materials are not permissible for road culverts. Minimum diameter for round pipe shall be eighteen (18) inches. The minimum rise of arch pipes shall be twelve (12) inches.

Clean out access shall be provided at least every two hundred (200) feet for pipes twenty four (24) inches in diameter or less and at least every four hundred (400) feet for large pipes. Clean out access shall also be provided at each angle point and at each change in grade.

4. **Open Channels and Ditches:** Channels and ditches shall be designed to avoid roadside safety hazards. The minimum flow line slope shall be one percent (1.0%). Maximum slopes shall be controlled by the maximum permissible velocities given in Table 11.

Manning's equation shall be used to estimate velocities.

v =

1.486R2/3S

1/2 n

Where:
v = Velocity of flow in channel in feet per second
n = roughness coefficient (Table 11)
R = Hydraulic radius in feet
S = slope in feet per foot

Where the materials channel is a combination of the materials given in Table 10, the maximum permissible velocity selected should prevent undue scouring of the finer materials silting downstream.

5. **Subsurface Drainage:** Sub-grades subject to poor drainage, underground seepage or a high water table shall be adequately drained for roadbed stabilization. Drains shall be installed to prevent high ground water level from coming within four feet of the roadway pavement. Perforated pipe shall be used to carry away collected water. French drains which contain no pipe and are not wrapped with geotextile fabric are unacceptable.

6. **Inlet Structures:** Curb openings with protection bars are preferred. Other designs will be permitted on approval by the County Road Supervisor. Grates are not permitted where pedestrians, bicycles or debris-laden flows are anticipated.

E. **Side Slopes:** Any slope designed steeper than 1-1/2:1 (H:V) shall be certified for stability by a Utah Licensed Engineer qualified in soils analysis. Where heavy snowfall is expected, flatter slopes in cuts on the southern side of the roadway should be used to provide maximum exposure to the sun. Flatter slopes should be used wherever possible to reduce erosion, to decrease maintenance costs, to facilitate plant growth and to provide for safer operation. Transition slopes shall be provided between adjoining cuts and fills and shall be designed for pleasing appearance. Where cut or fill slopes intersect the original ground surface, the cross section shall be rounded to blend the slope into the natural ground surface.

Where the slopes of the original ground approach 1.5:1, the embankment shall be contained with a suitable retaining wall to avoid long fill slopes. Side slopes in rock will be based on the stability of the formation. Retaining walls on the uphill side shall be a minimum of five (5) feet from the centerline of the adjacent drainage ditch. Benching of side slopes should be used sparingly and only where they are justified by sound engineering reasons, including the following:

1. To stabilize material where benching is more economical than flattening.
2. To intercept drainage in long and deep cuts.
3. To intercept and store loose material.

Side Slopes that are steeper than 1.5:1 (H:V) shall be contained with a suitable retaining wall designed by a licensed Utah Professional Engineer. Side Slopes in rock may be as steep as 0.5:1 (H:V) in competent formations when determined stable by a licensed Utah Professional Engineer qualified in soil analysis.

F. **Sidewalks:** Sidewalks shall be required where, in the opinion of the County Road Supervisor and/or the Board of County Commissioners, the number of pedestrians is sufficient to interfere with traffic or significant pedestrian usage is anticipated. Where sidewalks are installed, the individual property owners shall be responsible for clearing snow and ice from the sidewalks in front of their property.

G. **Curb and Gutter**: Curb and gutter shall be required for roads serving areas with projected densities of two (2) units per acre or greater if, in the opinion of the County Road Supervisor and/or the Board of County Commissioners, curb and gutter is required to properly control drainage from the road surface or along the road.

H.

2.4.4 Payment of Costs for New Road Construction

A. **Developer Responsibility:** Any and all costs of new road construction in new developments are the responsibility of the developer. The developer is also responsible for constructing the new roads, whether public or private, according to the Manual.

B. **Payback Agreements:** During the approval process for a proposed development, the developer may be required to construct a new road or to make improvements to an existing road which also benefits future developments. The Board of County Commissioners may establish a plan of compensation to the original developer whereby subsequent beneficiaries pay a fair share for the use of those improvements. Such a plan would be administered by the County and made a condition of approval for future benefiting developments. The Board of County Commissioners shall determine the equitable distribution of benefits and costs.

2.5 Upgrading Existing Roads

2.5.1 Design Standards

Any and all County roads, whether public or private, requiring upgrading or improvement shall be built in accordance with the Sanpete County Road Design and Construction Manual.

A. **Serving New Developments:**

1. **Requirement for upgrading:** Existing County roads serving a new development, or an area proposed for either platting or re-platting must be upgraded according to the manual when one or more of the following conditions occur:

    a. Existing roads do not meet the Road Standards for the classification.

    b. Existing roads meet local access standards, but the projected ADT will exceed the cut off limit for paving.

    c. Existing roads meet local access standards, but the projected ADT exceeds the maximum for local access, thus requiring improvement to collector or arterial status.

2. **Payment of Costs:** The developer shall be responsible for all costs incurred to upgrade existing County roads serving the new development area.

3. **Payback of Costs:** Benefiting property owners along existing roads which must be upgraded by a developer shall pay back a fair share of the road improvement cost if, in the judgment of the Board of County Commissioners, a pay back to the developer is appropriate.

2.6 Bridge Design

2.6.1 Design Standards for Bridges

Bridges shall conform to the Utah Department of Transportation requirements and specifications. Plans shall be prepared by a qualified structural engineer and shall be submitted to the County Road Supervisor, a County Approved Engineer paid by developer, or as needed the Army Corp. of Engineers for review and approval prior to construction. Clear deck width must accommodate the full width of the travel lanes and shoulders of approach roads.

The waterway area shall accommodate a one hundred (100) year flood event. Where flood studies from the U.S. Army Corp of Engineers or the Federal Emergency Management Agency are available, bridges shall be designed to accommodate the "Standard Project Flood". A minimum of one foot freeboard is required. Additional freeboard shall be required when debris laden flows are anticipated. Refer to the Sanpete County Floodplain Regulations.

2.6.2 Payment of Bridge Construction Costs

If the design of the roadway serving a new development requires construction of new bridges or upgrading existing bridges, the developer shall be required to pay the cost of such construction. Where construction of a bridge benefits future developments the Board of County Commissioners may establish a plan of compensation to the original developer whereby other beneficiaries pay a fair share for use of the bridge.

2.7 Traffic Safety

2.7.1 Guardrails:

Guardrails are installed to prevent accidents by delineating the roadbed, to reduce accident severity by deflecting vehicles into safer paths and to reduce the rate of acceleration in case of impending collisions with fixed objects.

A. **Design and Placement on Roadways:**

Only state approved guardrail shall be used. The length of guardrail should be planned in multiples of twelve and one half feet (12.5') feet. No abrupt or projecting ends shall face toward approaching traffic and delineators shall be installed according to the Manual of Uniform Traffic Control Devices (MUTCD) or UDOT's Procedures and Standards. Ordinarily, guardrails are placed only on the outside of curves.

1. When guardrail is used in conjunction with roadside curbs, the face of the guardrail shall be flush with the face of the curb regardless of shoulder width. This is to prevent the takeoff ramp effect which may overturn a vehicle. When no curb is present, the face of the guardrail shall be flush with the edge of the shoulder.

2. On curves requiring a reduction in approach speeds, any one of the following conditions suggests installation of guardrail on the outside of the curves needed:

   a. height of embankment is more than ten feet;
   b. side slopes are steeper than 4:1;
   c. shoulder or pavement widths are substandard;
   d. roadside hazards are present.

3. Whether on curves or tangents, consideration should be given to the installation of guardrails if there is a history of roadway accidents or if unusually high embankments or steep terrain give motorists a feeling of insecurity.

4. In areas subject to dense fog or snow and ice conditions, or where traffic speed and volumes are high, guardrail may be needed where its installation would otherwise be questionable under less adverse conditions.

5. Other conditions requiring guardrails. Guardrails may be required under the following circumstances:

   a. an obstruction or sudden constriction in roadway
   b. an isolated sharp curve on a roadway otherwise built to height standards.
   c. approaches to bridge piers, abutments, trees, or other obstructions.

B. **Guardrail at Bridge Approaches:**

Guardrail should be placed at the ends of all bridges on the right of approaching traffic. Where pedestrians are expected to use the shoulder, a walkway should be provided around the end of the guardrail outside the normal shoulder lines.

C. **Provisions for Snow Storage:**

When guardrails are considered for installation, especially for extended lengths, provisions shall be made for adequate snow storage and removal.

2.7.2 Traffic Control Devices

All signs, striping, markers, delineators, signals, and other traffic control devices must conform to the requirements of the Manual on Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation Federal Highway Administration. In new developments, all required: street name signs, speed limit signs, stop signs and other traffic control devices shall be installed and paid for by the developer. Nonstandard and/or unnecessary signs or other traffic control devices are subject to rigid State control, and approval by the County Road Supervisor and/or the Board of County Commissioners shall be obtained for their use. Requests for nonstandard signs or other devices shall be submitted to the County Road Department along with all data required to support the request.

2.7.3 Sight Distance Triangle

A. **Determining Dimensions and Location of Sight Distance Triangles:**

For safety and visibility purposes, a sight distance triangle shall be maintained at street intersections and where driveways intersect streets. The distances along the legs of the sight distance triangle shall be measured from the corner or intersection point along the right-of-way lines or along the edge of the driving surface for driveways as shown in Figure 8. Where a road right-of-way is wider than normal or varies in width because it has been expanded to include cut and fill slopes or drainage improvements, the line along which the legs of the sight distance triangle are measured shall be parallel to the roadway at normal right-of-way width for the type of road under consideration (see Figure 9). For each intersection, the length of the legs of the triangle shall be determined by the classification of the roadways which form the intersection as follows:

Driveways	10’
Low Volume	30’
Local Access	30’
Collector	50’
Arterial	70’

Examples of several typical combinations are provided in Figure 10. The area enclosed by the three sides of the triangle shall form an imaginary plane. The angle of the edge of this plane which lies along a right-of-way line shall be equal to the height of the corresponding point along the curb, or if there is no curb, to the elevation of the corresponding point along the centerline of the road. No landscape materials, earth berm, sign, structures, or other visual obstructions shall be allowed between three and one half (3.5) feet and seven (7) vertical feet above the surface of this plane. This regulation is not intended to prohibit the planting of trees or retention of existing trees in the sight distance triangle if they are pruned so branches are higher than seven (7) feet. Installation of traffic control signs or signals and streetlights are exempt from this regulation.

B. **Incorporation requirements for Sight Distance Triangles into Subdivision Design:**

Developers shall incorporate the requirement for maintenance of a sight distance triangle at street intersections and intersections of driveways with streets in the design of subdivisions submitted for County review after the effective date of this regulation. Particular attention shall be given to the size and shape of corner lots.

C. **Enforcing Requirements When Building Permits are Issued:**

1. No building permit shall be issued for a structure that interferes with maintenance of a sight distance triangle unless application of the requirement would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, the individual proposing development of the property. The County Road Supervisor and/or the Board of County Commissioners shall have authority to waive the requirement for maintenance of a sight distance triangle for such property.

2. Where a building permit application is filed for property that was platted or re-platted after the effective date of this regulation, no building permit shall be issued for any structure which would interfere with the maintenance of a sight distance triangle required by this regulation.

D. **Continuing Enforcement of Requirements:**

Property owners shall be responsible for maintaining sight triangles free of visual obstructions for that portion of a triangle which falls within the boundaries of their property. When the County Road Department receives a complaint concerning visual obstructions at a particular intersection, the Road Department shall be responsible for the inspection of the intersection and for taking the following measures:

1. Determining whether the visual obstruction is within the sight triangle for an intersection, and if it is on public or private property.

2. If the visual obstruction is on public property, requesting the appropriate jurisdiction removes the obstruction; if the jurisdiction is the County, remove the obstruction.

3. If the visual obstruction is on private property, notifying the property owner of the requirement that visual obstructions must be removed within thirty (30) days except as follows:

    a. If the obstruction is a permanent structure which was built prior to the effective date of this regulation or was granted a variance as provided in the Sanpete County Zoning Regulations, the property owner shall not be required to remove the structure.

b. Where the obstruction is caused by the natural or historic topography of the property, and not by earthwork undertaken by the current property owner or his or her immediate predecessors, the property owner shall not be required to regrade the property in order to remove the obstruction.

If the property owner does not comply within thirty (30) days, further enforcement action shall be taken as provided in Chapter 8 of these regulations.

2.7.4 Above Ground Utility Location

All above ground utilities including but not limited to; power poles, telephone junction boxes, transformers, etc., shall be located as close to the outside edge of the right-of-way as possible but in no case shall there be less than a ten (10) foot separation from the edge of road shoulder and the utility. However, fire hydrants shall be installed no less than ten (10) feet nor more than fifteen (15) feet from the edge of the road shoulder. This will eliminate any interference with normal road maintenance operations and increase the safety of the traveling public.

2.7.5 Rural Free Delivery Multi Box Modules

In subdivisions where provisions were not specifically made for rural free delivery multi box modules, the homeowners association, or if one does not exist, a designated group from the subdivision shall be responsible for submitting a proposal to the Road Department. The submitted proposal shall first consider locations in front of or adjacent to the property owners requesting the installation of a multi box module. The Road Department shall evaluate all sites in front of or adjacent to property owners requesting rural mail delivery before evaluating any other sites. In evaluating the proposal, staff shall determine if the proposed site meets all the following criteria:

1. The Postal Service will provide delivery service to the area proposed.

2. The module shall be a minimum of ten (10) feet from the edge of the shoulder of the road.

3. Adequate space for an eight (8) foot wide by forty (40) foot long pull off shall be provided.

4. The pull off shall be constructed per the Sanpete County Road Design and Construction Manual.

5. A minimum sight distance of two hundred fifty (250) feet in all directions shall be provided.

6. The pull off shall not have a grade in excess of three percent (3%).

7. Adequate space for snow storage and removal within the right-of-way or appropriate snow-stack easement shall be provided.

8. The site shall not adversely impact the normal flow of traffic or the surrounding properties.

In addition, the following information shall be provided:

1. If the proposed location is adjacent to private property, the affected property owner(s) shall provide a letter stating they have no objection to the module location.

2. A letter signed by the homeowners association president or other approved individual indemnifying Sanpete County from any damage that may occur due to normal and routine road maintenance operations (see Figure 11).

Once a site, meeting these criteria, has been located the proponents shall stake the proposed location of the module and the edge of the right-of-way. The right-of-way shall be staked for a distance of fifty (50) feet on either side of the proposed location of the module. Upon completion of the staking, the Road Department and the Postmaster shall inspect the proposed site to ensure all the site requirements are met before giving preliminary approval. After preliminary approval, staff shall notify all property owners at the developer's expense within a minimum of three hundred (300) feet of the proposed site and inform them of the request and allow them fourteen (14) days to appeal the staff decision. If no appeals are received in the allotted time, staff will inform the proponents by written notice that they can begin construction once they obtain a right-of-way permit (Chapter 5, Section 5.3). In the event of an appeal, staff will schedule a hearing with the Board of County Commissioners within thirty (30) days of receiving the appeal request. Property owners originally noticed for the proposed site will be renoticed for the appeal. Proponents and opponents will have the opportunity to state their arguments supporting their respective positions. The Board of County Commissioners decision will be final.

After construction has been completed, a final inspection paid for by the developer shall be done to ensure the module was properly installed and the pull off was constructed to County standards. All deficiencies shall be corrected before final approval can be given to start mail service.

The homeowners association or other designated group from the subdivision shall be responsible for all costs associated with the construction of the module and pull off and all future maintenance including snow removal of the pull off area.

Individual mailboxes on individual properties will not be allowed in new areas requesting rural mail delivery.

2.7.6 Individual Mailbox Installation Requirements

Individual mailbox installations, on public roadways in Sanpete County, shall be made in a cantilever style to prevent blockage or obstructing maintenance operations of the drainage channels. Boxes must be installed between forty two (42) and forty eight (48) inches above the road surface and positioned so the opening or front of the box is at the outer edge of the shoulder (edge closest to the ditch).

Posts must not be set in the ditch or on the roadway side of the ditch to allow for maintenance operations.

It is the responsibility of the property owner to maintain mailboxes and to clear snow from around mail boxes to allow for mail delivery. (See Figure 12)

2.8 Grading Permits and Parking Areas

2.8.1 Requirement for Grading Permit

When road grading of an existing public access road is proposed the individual responsible for the construction must obtain approval for a grading permit from the Road Department prior to commencing construction.

2.8.2 Standards for Parking Areas

A. **Parking Index:** The parking Index standards are specified in the Sanpete County Land Use Ordinance, Section 14.76.080.

B. **Parking Area Grades:** Parking areas shall have a maximum grade of four percent (4%), and a minimum grade of one percent (1.0%) to facilitate drainage.

C. **Surfacing of Parking Area:**
Paving is not required for parking areas and drives serving single family units, or for duplexes where the road providing access is not paved. Where roads are paved, parking areas for duplexes must be paved. Parking areas and drives for all other types of development must be paved with a minimum of six inches of road base compacted to ninety six percent (96%) modified Proctor and three inches (3") of compacted asphalt. Paved parking areas for all other development shall be designed in accordance with Section 2.4.3.C, with TI equaling 6.0.

D. **Provision for Drainage in Parking Areas:**
Parking area design shall make adequate provision for drainage and prevention of erosion.
Drainage from parking areas shall flow to roadside ditches or other approved drainage ways. Drainage from parking areas shall not flow onto roadways. Collection points for runoff across parking areas shall be provided to minimize sheet flow.

E. **Placement of Parking Areas on Fill:**

If a parking area is to be placed on fill, the fill used shall be a suitable material as specified by a registered geotechnical engineer. The fill shall be compacted to ninety percent (90%) modified Proctor with slopes at no more than 1.5:1 (H:V) and protected by rip-rap to prevent erosion from snow storage. Parking areas on fill may be designed using retaining walls as an alternative with approval of the County Road Supervisor.

F. **Snow-Stack Storage:**

Snow storage for parking areas shall be provided on the associated private property. Use of the right-of-way for snow storage by private individuals or companies is prohibited.

G. **Parking Dimensions:**

Parking space dimensions and parking lot layout are per Figure 17.

2.9 Landscaping and Erosion Control

Whenever roadway or bridge construction results in earth disturbance, revegetation and reforestation is required. The site plan shall be approved by the County and shall be completed during the first planting season after construction. Native or similar horticultural material shall be used. All areas disturbed by construction operations and not otherwise covered by structures or pavement must be seeded, fertilized, mulched, planted and otherwise treated to provide an established stand of vegetation. Cut and fill slopes must be treated to prevent erosion. Areas not disturbed by construction shall be left in their present vegetative state, except that thinning of trees may be required. In no case shall landscaping in the right-of-way or on private property impede the normal maintenance operations of the Road Department or the normal flow and operations of traffic. Specific requirements are as follows:

Erosion Control and Environmental Mitigation Efforts for Road Construction

1. The faces of cut and fill slopes shall be prepared and maintained to control against erosion.

2. This control shall consist of effective planting as a permanent control measure.

3. Permanent soil stabilization measures shall be installed within thirty (30) days after final grade is reached. Planting shall occur within the next window of opportunity should construction be completed during winter months.

4. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

5. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

6. Preserve existing trees, shrubs and grasses where possible to prevent erosion.

7. No work may interfere with the flow of stormwater.

8. Excavations shall be constructed so they are stable.

9. Storm water runoff shall be discharged from the site in quantities and at velocities not to exceed historic levels.

10. All erosion control devices shall be maintained so that they function as designed.

11. Dust emissions (wind erosion) shall be controlled.

12. Temporary erosion protection shall be installed prior to excavation activities.

13. All topsoil shall be salvaged and redistributed.

14. Any applicant creating an earth disturbance greater than two thousand five hundred (2,500) cubic yards and/or twenty thousand square feet (20,000 $ft^{2)}$ shall be required to apply for a "Best Management Practices" permit.

15. A specific, scaled, site plan designed by a licensed Utah professional engineer, indicating; aspects, scale, site boundary, and adjacent streets or roadways is to be submitted with the application for the "Best Management Practices" permit.

16. The site plan is to show existing drainage, rivers, streams, lakes, and wetlands. The gradient and direction of slopes before and after construction, and the disturbed area of the lot, are also to be shown.

17. The site plan must indicate the types, and placement, of temporary and permanent erosion control measures. The plan shall be specific to the schedule for reseeding and replanting. For sites completed during the winter months, or when a final inspection is expected before actual re-vegetative growth occurs, a performance bond may be required.

18. A site plan should indicate a green belt that will remain around the property's perimeter.

19. Road crossings across water courses designated as "Waters of the State" by the Army Corps of Engineers must meet the requirements set forth by the Army Corps of Engineers for permitting before a County permit will be issued.

Chapter 3 - Road and Bridge Construction Specifications

3.1 Purpose and Intent; Outside Engineering Firm or Consultant Review

This section sets forth specific standards for roadway and bridge construction in Sanpete County and is intended for use by the developers, property owners, contractors and others engaging in the construction of new roads or upgrading of existing roads, the building of bridges and the installation and repair of utility facilities. Specific permit requirements for right-of-way work are detailed in Chapter 5.

When deemed necessary by the County Road Department, an outside engineering firm or consultant may be required to review all road and bridge engineering plans submitted by the developer. These outside review services will be paid by the developer at no cost to the County. This review may be required prior to the Planning Commission making a recommendation on the preliminary plat to the Board of County Commissioners.

3.2 Closing of Streets and Roads

3.2.1 Notice and Operation of Street Closure

Contractors may only close streets after obtaining approval for an alternate route from the County Road Department. A traffic control plan will be submitted in accordance with the Manual of Uniform Traffic Control Devices (MUTCD). Contractors shall furnish, erect, and maintain, at their own expense, necessary barricades, suitable and sufficient flashers, detour signs and construction signs. Contractors shall also provide a sufficient number of flagmen and take necessary precautions for the protection of the work and safety of the public around their construction operations. If construction operating conditions require closure of a street or road, the contractor shall provide notice as follows:

1. Submit a traffic control plan for review and approval by the County Road Department a minimum of six (6) working days prior to closing the road. See Chapter 5 Section 5.4.3 for emergency situations.

2. Notify affected Property Owners a minimum of six (6) working days prior to closing the road to mitigate impact of the road closure.

3. Notify the Sanpete County Communications Center of the exact location of the street and the date traffic will be impeded twenty-four (24) hours prior to closing the streets.

4. Notify the appropriate local papers and/or radio station to announce the upcoming road closure.

3.3 Construction of Roads

3.3.1 Permits Required for Road Construction/Grading

All construction, maintenance (excluding snowplowing), parking, and other activity temporarily or permanently excavating or altering a public road surface and/or right-of- way shall require a permit before commencement of the construction, maintenance, parking, or other activity.

Whenever road grading of an existing or historic access road is proposed the individual responsible for the construction must obtain approval for a grading permit from the Road Department prior to commencing construction.

Grading is defined as any alteration of the existing topography. In general, grading permits are required for minor changes of an existing public road's horizontal or vertical alignment, or for reshaping an existing public road to maintain driving surface and drainage infrastructure.

A. The submittal requirements and procedure for obtaining road construction permits are as follows (Refer to Table 18 for utility line installation depths):

1. No permit will be issued without the submission of two (2) completed application forms (no photocopies accepted) along with two (2) copies of the appropriate engineer drawings and specifications.

2. No permit will be issued before the fees set forth on the Road Department Fee Schedule have been paid in full and Performance Guarantee (see 3.31.C) has been deposited with the County.

3. No permit will be issued before a Best Management Practices Permit, if required, has been issued for the work by the County's Road Department Supervisor).

4. A copy of the approved application and engineer plan are to be kept available on-site. Alterations to the plans are to be noted, and the plans are to be turned into the Road Department as "as-built" diagrams upon final inspection. The Road Department will inspect field work at appropriate stages of construction.

5. At completion of the project, a final inspection is held to confirm compliance with the permit requirements. Approval at this inspection begins the "Warranty Period". Rejection will require remedial action.

6. The contractor is responsible for adequate traffic control and traffic safety in accordance with the MUTCD.

7. The Road Supervisor or his designee will require testing by a soils engineer, at no cost to the County, if he/she believes that hazardous geological factors exist. If a soils engineer finds that hazardous factors do exist, the applicant will be required to conform to the engineer's plan.

8. Owners of property or businesses abutting the road construction project shall be advised, by the applicant, of the permit application that may affect their convenience and economic well being.

B. The submittal requirements and procedure for obtaining grading permits are stated as follows:

1. Two (2) copies of the site plan must accompany two (2) original copies of the signed application showing with reasonable accuracy the nature and extent of the proposed work. The site plans need to show the following detail:

   a. The general vicinity of the proposed site.

   b. The location of any buildings or structure within fifteen feet (15 ft.) of the proposed grading.

   c. Culverts, easements, alignment, and location of existing driveways.

   d. Temporary and permanent erosion control devices and revegetation plans.

2. The Road Supervisor or his designee will require testing by a soils engineer if he/she believes that hazardous geological factors may exist. If a soils engineer finds that hazardous factors do exist, you will be required to conform to the engineer's plan.

3. No permit will be issued before the fees set forth on the Road Department Permit Fee Schedule, have been paid in full, and the Performance Guarantee has been deposited with the County.

4. No permit will be issued before a Best Management Practices Permit, if required, has been approved by the County's Road Supervisor and issued by the County.

C. A Performance Guarantee is required for Road Construction and Grading Permits in amounts as set forth in the Permit Fee Schedule. These amounts shall be based on contract prices for performing such work, as specified, and approved by the Road Supervisor and amended in the fee schedule as necessary. The Performance

Guarantee is to ensure completion of the work in accordance with approved plans and without damage to the road or right-of-way.

1. All Performance Guarantees will be (i) in cash, together with an executed Security Agreement, or (ii) by Letter of Credit issued by a bank physically doing business in the State of Utah, drawable in the state, and in a form acceptable to the County Attorney.

2. The Performance Guarantee will be released upon completion of a "warranty period" of one (1) year after completion of the work on gravel roads and two (2) years after the work on asphalt roads if, at that time, the work has not failed. If the work has failed, and the permittee fails to promptly correct the work, the work will be repaired by the County at the permittee's expense. If the Performance Guarantee does not cover the cost of repair, the permittee must pay the balance upon billing, and no further permits will be issued to the permittee while a balance is outstanding unpaid.

3. The work will be deemed complete for purposes of starting the warranty period upon final inspection approval by the Road Department and delivery of an acceptable as-built drawing to the Department.

4. A letter of credit Performance Guarantee will be drawn on if the conditions for its release are not satisfied within ten business days before its expiration, unless prior to that time a replacement letter of credit or extension is delivered to the Road Department.

5. A partial release will be considered by the Board of County Commissioners upon receipt of a written request by the developer. (See Chapter 8, Section 8.1.2)

6. The permit applicant is responsible for adequate traffic control and traffic safety in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).

7. Any work that has begun, involving any of these permits, prior to permit issuance shall be penalized the amount of the permit fee.

8. Applications for permits shall be made on standard forms provided by the Road Department and permits will be issued on official forms.

9. Owners of property or businesses abutting utility projects shall be advised of permit applications that may affect their convenience and economic well-being (See Section 3.2.1.B).

10. All proposed road closures must be approved by the Road Department and will be limited in the number of hours possible per day.

3.3.2 Construction Testing

Quality control supervision of construction shall be done by a qualified geotechnical consultant at no expense to the County. The County Inspector shall be permitted access to the construction site at all times to make spot checks of quality control. Any additional testing or corrective work deemed necessary shall be done within the time determined by the County Road Supervisor at no expense to Sanpete County. The contractor or developer must contact the County Road Supervisor forty-eight (48) hours in advance of the required final inspection.

A. **Sampling of Materials:**

Samples for preliminary approval or production control may be submitted by the producer to the geotechnical consultant. The geotechnical consultant must use the Utah Division of Transportation (UDOT) Procedure to determine the acceptability or rejection of the sample.

B. **Field Density Determination:**

To determine the compacted in-place density of soil and soil aggregate, the geotechnical consultant may use UDOT requirements.

C. **Periodic Inspection During Construction:**

The Road Department shall conduct periodic inspections during construction to assure compliance with approved grading and construction plans. The Department may establish specific checkpoints when inspection must be conducted, and approvals granted before construction is continued as part of issuing a road construction permit.

D. **Final Inspection:**

Upon completion of construction and prior to County approval of the completed work, copies of the as-built plans, concrete cylinder test reports, compaction test reports and other test data shall be delivered to the Road Department. In addition, a certification shall be given by the developer's engineer that construction has been completed in conformance with the approved lines, grades, specifications, and standards (see Section 1.8.1). The Road Department shall conduct an inspection to determine if the construction meets County standards and specifications. If the inspection discloses any work, in whole or in part, as unsatisfactory, the County Road Supervisor shall give the developer's engineer the necessary instructions for correction, and the developer

shall comply with and execute such instructions. At the discretion of the County Road Supervisor, the County may withhold: The Performance Guarantee, the granting of further building permits or any occupancy permits for the project until such time corrective work is completed.

3.3.3 Site Preparation

A. **Utilities Protection:**

The developer and contractor shall at all times take proper precautions to assure the protection of utilities, service lines, or other public or private installations and shall be responsible for the repair of any damage. The developer or contractor shall notify the utilities (Blue Stakes) forty-eight (48) hours before excavation begins, so the utilities can locate the services.

B. **Grubbing:**

All large rocks, brush debris, structures and all other unsuitable material shall be cleared to a depth of at least twelve (12) inches below subgrade or as directed by the County Road Supervisor and be replaced with suitable material. Locating suitable disposal sites shall be the responsibility of the contractor or developer subject to County approval. Trees, except those designated to be saved, and all stumps shall be removed to a depth of at least eighteen (18) inches below the finished subgrade elevation. All trees designated to be saved shall be protected during clearing and subsequent construction operations. Suitable material removed from the excavation may be used insofar as practical, in the formation of embankments, backfilling and for such other purposes.

3.3.4 Structural Embankment Construction

Embankment construction consists of constructing roadway embankments, including preparation of the areas upon which they are to be placed; constructing dikes within or outside the right-of-way; placing and compacting of approved material within roadway areas where unsuitable material has been removed; and placing and compacting of embankment material in holes, pits, and other depressions within the roadway area. Only approved materials shall be used in the construction of embankments and backfills.

A. **Benching:**

When an embankment is to be placed and compacted on slopes steeper than 4:1 (twenty five percent (25%)), the roadway shall be continuously benched over those areas. A bench is required at vertical intervals of ten feet maximum or as required by the County Road Supervisor. Benching shall be well keyed and where practical, a

minimum of eight feet wide. Each horizontal cut shall begin at the intersection of the original ground, and the vertical sides of the previous cuts. Material thus cut out shall be recompacted along with the new embankment material at the contractor's expense.

B. **Compaction:**

Minimum compaction shall be ninety percent (90%) modified proctor with a moisture range of not more or less than three percent (3%) from optimum as per AASHTO Method T-180.

C. **Rip-rap:**

Where embankments encroach on stream channels or lakes, calculation of the flows or wave action shall be made and submitted to the County. Based on these calculations, the County Road Supervisor shall determine the appropriate size riprap and this rip-rap shall be placed along the toe of the slope to protect embankments against erosion from water action.

D. **Prohibited Materials:**

Organic and wet or frozen material shall not be used for any structural embankment construction.

3.3.5 Trench Excavation

Trenches shall be excavated so that pipes can be laid straight at uniform grade, without dips or humps, between the terminal elevations shown on the drawings. Wherever a trench passes through a fill or embankment, the fill or embankment material shall be placed and compacted to an elevation twelve inches above the top of the pipe before the trench is excavated.

A. **Trench Widths:**

Trenches shall be excavated to a width which will provide adequate working space and side clearances for proper pipe installation, jointing and embedding. Minimum trench widths at or below and elevation six inches above the top of installed pipe shall not be less than OD plus twenty-four (24) inches.

B. **Excavation Below Pipe Subgrade:**

Except where otherwise required, pipe trenches shall be excavated below the underside of the pipe, as shown on Figure 18 and 19, to provide for the installation of granular embedding pipe foundation material.

C. **Bedding Material:**

Bedding sand shall be used for all corrugated metal pipe (except where arch encasement is required) and utility pipelines, as shown on Figure 19.

D. **Placement and Compaction:**

Granular bedding material shall be spread, and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It is permissible to slightly disturb the finished subgrade surface by withdrawal of pipe slings or other lifting tackle.

After each pipe has been graded, aligned, and placed in final position on the bedding material and shoved home, sufficient pipe embedding material shall be deposited and compacted under and around each side of the pipe and back of the bell or end to hold the pipe in proper position and alignment during subsequent pipe jointing and embedding operations. Bedding material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.

Bedding material shall be compacted to the top of the pipe in all areas where compacted backfill is specified.

Whenever crushed rock is used as bedding or thirty-six inch and larger pipe, the portion above the bottom of the pipe shall be vibrated with a mechanical vibratory compactor during placement to ensure that all spaces beneath the pipe are filled.

The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe. Job excavated material shall be compacted to ninety percent (90%) except for the final two feet which will be compacted to ninety five percent (95%) of the maximum dry density at optimum moisture content as determined by the AASHTO Method T-180.

E. **Backfill Over Concrete:**

All backfill over concrete shall conform to the following requirements:

1. **Initial Backfill:** To aid curing, no more than eight inches of loose backfill shall be placed over concrete after the concrete has reached its initial set.

2. **Final Backfill:** Additional backfill shall not be placed over arch encasement or blocking until the concrete has been in place at least three days.

F. **Compacted Backfill:**

Compacted backfill shall consist of suitable job excavated material, finely divided and free from debris, organic material, cinders or other corrosive material and stones larger than three inches in greatest dimension. Masses of moist, stiff clay shall not be used. Job excavated materials shall be placed in uniform layers not exceeding eight inches in uncompacted thickness. The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe. Job excavated material shall be compacted to ninety percent (90%) except for the final two feet which will be compacted to ninety five percent (95%) of the maximum dry density at optimum moisture content as determined by AASHTO Method T-180. Compacted backfill is required for the full depth of the trench above bedding in the following location:

1. beneath driveways, parking areas, road or other construction or structures; or,
2. in driveway and parking area shoulders; or,
3. beneath fills or embankments.

3.3.6 <u>Culverts</u>

This section covers corrugated metal pipe used for minimum eighteen-inch storm drains beneath roads. Culvert sizing shall be in accordance with Section 2.43.D of this manual. Corrugated metal pipe or approved equal shall be furnished and installed with all jointing materials, accessories and appurtenances as indicated on the drawings and as specified.

A. **Materials:**

Materials used for storm drains shall conform to the applicable AASHTO provisions of the "Standard Specifications for Highway Materials."

1. **Circular Pipe:** Corrugated metal pipe shall be AASHTO M36-78 and galvanized with 2-2/3" x .5" corrugations. The corrugations may be annular or spiral with annular ends.

2. **Coupling Bands:** All field joints in corrugated metal pipe will be made with coupling bands, fabricated from the same material as the pipe. Coupling bands for field joints in corrugated metal pipe for all culverts shall be the pipe manufacturer's standard coupling band type.

3. **End Sections:** Flared metal end sections shall be provided on all culverts unless otherwise specified by the County Road Supervisor. The end sections shall be fabricated from sixteen (16) gauge galvanized sheet metal for twenty four (24)

inch diameter and smaller pipe and twelve (12) gauge galvanized sheet metal for thirty six (36) inch diameter and larger pipe. The end sections shall be provided with a rolled reinforced edge and a galvanized top finish plate.

B. **Handling:**

Pipe, couplings, and accessories will be handled in a manner that will ensure installation in sound, undamaged condition. Equipment, tools and methods used in unloading, reloading, hauling and laying pipe will be such that the pipe is not damaged.

C. **Cleaning:**

The interior of the pipe and any couplings shall be thoroughly cleaned of all foreign matter before being installed. Before jointing, all joint contact surfaces shall be wire-brushed, if necessary, wiped clean and kept clean until jointing is completed.

D. **Installation:**

1. **Installation Requirements:** Corrugated metal pipe shall be laid true to the grade required by the drawings, and shall be installed in accordance with the following requirements:

   a. **Pipe:** The pipe shall be installed in accordance with the details indicated on Figure 20 and 21 and the applicable portions of the evacuation section. The pipe shall be protected from lateral displacement by means of a pipe embedding material as specified for trench backfill. The minimum cover for corrugated metal pipe is twelve (12) inches.

   b. **Couplings:** Sections of the corrugated metal pipe shall be joined together using metal coupling bands, centered on the joint and with the pipe sections as close together as possible. Each coupling bank shall be bolted in place and tightened sufficiently to ensure a tight joint and to form a continuous conduit capable of resisting all stresses. Pipe shall not be laid in water or under unsuitable weather or trench conditions.

   c. **End Sections:** The end sections shall be attached to the culvert by threaded rod and connecting lug.

   d. **Rip-rap:** Culverts shall have a rip-rap bed of ten (10) feet in length by ten (10) feet in width or the width of the ditch which is less at the inlet

for erosion control. The riprap shall consist of hard, dense, sound, rough fractured rock as nearly cubic as practical. Pit run or dredge rock can be substituted. Each rock shall have a minimum volume of 0.25 cubic feet (approximately 30 pounds) per stone. Slab type and flaking rocks shall not be used.

2. **Use of Culverts at Access Point of Roads:** Driveways or road connections to a County road shall not be constructed in such a way as to impede the normal flow of drainage in roadside ditches, culverts, underdrains, bridges or other drainage works, or to cause such drainage to flow onto or across the driving surface of a County road. In the event that such an impediment results in damage to a County road, the Road Supervisor will remove the impediment and bill the property owner for the costs of repairs to the road, including labor, equipment and material.

   In certain instances, a culvert may not be required by virtue of the topography. In that event, a written waiver must be obtained from the Road Department. Such a waiver does not constitute a waiver of the permit fee, inspection of the access or any requirement of the access.

3.3.7 Subgrade

The bottom of the excavation or top of the fill is considered the subgrade, and shall conform to the lines, grades and cross sections shown on the plans.

A. **Subgrade Specifications:**

Soft, spongy, or frozen subgrade shall be removed as directed and replaced with suitable granular material placed and compacted as specified in Section 3.3.4.

B. **Compaction:**

Before subbase construction begins, soils in the subgrade shall be compacted to at least ninety percent (90%) of the maximum dry density as determined by AASHTO Method T-180 and the moisture content must be no more than three percent (3%) of the “Standard Optimum”.

3.3.8 Gravel Roads

Gravel roads shall consist of a compacted subbase to fifty percent (50%) of the design thickness and the remainder compacted base course.

A. **Gravel Specifications:**

Gravel used in road construction shall be crushed to a required size and a filler of sand or other finely divided mineral matter must be used. The portion of material retained on a No. 4 sieve is considered filler. At least fifty percent (50%) by weight of the coarse aggregate particles shall be particles having at least one fractured face. The gravel shall be screened, if necessary, to meet this requirement or to eliminate an excess of filler. The composite base course material and subbase course shall be free from organic matter and meet the grading requirements in Table 13.

B. **Compaction of Subcase or Base Course (Gravel Roads):**

The subbase or base course shall be placed and spread in a uniform layer and without segregation of size to a depth not exceeding eight (8) inches or uncompacted material. The material will be compacted to at least ninety five percent (95%) of the maximum dry density as determined by AASHTO Method T-180.

C. **Manholes:**

On gravel roads where manholes or water valve boxes are located in the roadway, they must have a minimum of five inches of cover at finished grade.

D. **Dust Abatement:**

An appropriate dust abatement material may be applied to all gravel roads in residential areas or as deemed necessary by the County Road Supervisor. All gravel roads with traffic volumes greater than two hundred (200) average daily traffic may be treated based on the County Road Supervisor's recommendation and budget availability.

3.3.9 Asphalt Roads

A. **Subbase Specifications:**

Placement of subbase material shall conform to the lines, grades, cross-sections, and thickness shown on the approved plans and shall be finished and maintained in as acceptable condition prior to base construction. Subbase material shall be well mixed, free of organic and frozen matter and lumps or balls of clay and shall consist of sound aggregate particles. Subbase material must conform to the limits established in Table 13.

B. **Base Course:**

1. **Base Course Specifications:** Placement of base material shall conform to the lines, grades, cross-sections, the thickness shown on the approved plans. Base material shall consist of hard, durable particles of fragments of stone or gravel crushed to the required size and a filler of sand or other finely divided mineral matter, base material shall be free from organic and frozen matter, lumps, or balls of clay. When placed and compacted, it shall result in a firm, dense, unyielding foundation. Base material shall meet the specifications shown in Table 14. In general, the lower portions of the base course shall be constructed of Class 5 material, except that a minimum of the top three inches of all base course shall be constructed of Class 6 material. The Base course materials when tested in accordance with AASHTO Standard Test Designation T-96, shall have no more than fifty percent (50%) wear.

2. **Compaction of Base Course (Asphalt Roads):** Base material shall be deposited and spread without particle segregation in loose layers not to exceed six (6) inches in depth or when compacted, the layer shall have a thickness not to exceed four (4) inches. The material shall be compacted to at least ninety five percent (95%) of the maximum dry density as determined by AASHTO Method T-180. Base course shall not be placed upon a soft, spongy, frozen subgrade or subbase.

C. **Asphalt Concrete Pavement:**

1. **Materials to be Used:** The asphalt concrete pavement shall consist of a mineral aggregate, uniformly mixed with asphalt cement, laid upon the prepared base to the finished thickness shown in the typical cross-sections on the plans. The mineral aggregate shall be one hundred percent (100%) crushed gravel. All materials, methods of preparation and construction shall conform to the following requirements.

   a. **Crushed Gravel:** The gravel to be used shall consist of clean, hard, durable particles which have been crushed to the gradations specified on Table 15. Of the particles retained on the No. 4 sieve, at least sixty percent (60%) by weight shall have one or more fractured faces. The crushed gravel when tested in accordance with AASHTO Standard Test Designation T-96, shall have no more than fifty percent (50%) wear and shall show no detrimental amount of stripping when tested. Determination of the effect of water on the cohesion (stripping resistance) of asphaltic concrete composed of the proposed mineral aggregates shall be made in conformance with AASHTO Standard Test Designation T-165-77 with a minimum dry strength of two hundred (200) psi with a minimum retained strength of seventy five percent (75%) of the dry strength.

b. **Asphalt Cement:** Asphalt used in road construction shall be uniform in character, free from water and shall not foam when heated to three hundred forty seven (347) degrees F.

All asphalt shall contain an anti-stripping additive, and shall comply with the following test designations:

I. If graded by penetration, it shall be in accordance with AASHTO Test Designation T-49-78.

II. If graded by viscosity, it shall be in accordance with AASHTO Materials Designation M-226-78.

2. **Establishing Job Mix Formula:** The job mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size, a single percentage of bituminous material to be added to the aggregate and a single temperature for the mixture at the discharge point of the plant. After the job mix formula is established, all mixtures furnished for the project shall conform to the following ranges of tolerances:

Passing No. 8 and larger sieve more or less eight percent (8%)*
Passing sieves smaller than No. 8 to larger than No. 200 more or less six percent (6%)
Passing No. 200 more or less three percent (3%)
Bitumen more or less one half of one percent (0.5%)
Temperature of mixture when emptied from mixer more or less twenty (20) degrees F
*Exclusive of the maximum size designated.

3. **Sampling and Testing:** All sampling and testing of materials shall be done in accordance with the latest methods of the AASHTO. The County Road Supervisor shall be supplied with a Certificate of Compliance with the Utah Department of Transportation Specifications before any asphalt is placed.

D. **Construction of Asphalt Roads:**

1. **General Conditions:** Bituminous plant mix shall be placed only on properly constructed and accepted layers that are free from water, snow, and ice. The bituminous mixture shall be placed within the air temperature limitations as shown in Table 16 and only when weather conditions otherwise permit the pavement to be properly placed and finished.

2. **Pavement Thickness:** When asphaltic concrete pavement thicknesses in excess of three (3) inches are called for, they shall be laid in separate courses of not less than one and one half (1-½) inches nor more than three (3) inches. The thicknesses called are finished thicknesses after compaction.

3. **Joints:** Longitudinal and transverse joints shall be well bonded and sealed. Joints shall be painted with cutback asphaltic cement where necessary to obtain this result. In making the joint along any adjoining edges such as curb, gutter or an adjoining pavement and after the hot mixture has been placed by the finishing machine, just enough of the hot material shall be carried back to fill any space left open. The joint shall be properly set up with the back of a rake as proper height and level to receive the maximum compression under rolling.

   Joints between old and new pavements or between successive days work shall result in a through and continuous bond between the old and new surfaces. The edge of the previously laid course shall be cut back to its full depth to expose a fresh surface, after which the hot mixture shall be placed against it and raked to a proper depth and grade. Hot smothers or tampers shall be used to heat the previously laid pavement (without burning it) to ensure a proper bond. Before placing mixture against them, contact surfaces of curbs, gutters, headers, manholes, etc., shall be painted with a thin, uniform coating of cutback asphalt cement.

4. **Irregularities:** Immediately after the course is screened and before roller compaction is started, the surface shall be checked, any inequalities adjusted, all fat sandy accumulation from the screen removed by a rake or hoe and all fat spots removed and replaced with satisfactory material. Irregularities in alignment and grade along the outside edge shall also be corrected by the addition or removal of mixture before the edge is rolled. Special attention shall be given to the straightening of each course immediately following the initial rolling.

5. **Final Compaction:** Final compaction shall result in a course which is smooth and true to the established crown and grade. It shall have the average thickness specified and shall at no point vary more than one quarter (¼) inch from the thickness specified. Any mixture that becomes loose and broken, mixed with dirt or in any way defective, shall be removed and replaced with fresh hot mixture, which shall be compacted to conform with the surrounding area. The surface of the finished pavement shall be free from depression exceeding one half (½) inch in ten (10) feet as measured by a ten (10) foot straight edge measured in any direction or an automobile mounted recording profilometer.

6. **Testing after Final Compaction:** The asphalt concrete pavement shall at no point have a density less than ninety three (93%) of the maximum density possible to obtain a void less pavement composed of the same material in like proportions. Field density determinations will be made in accordance with the Utah Department of Transportation Procedure or at the discretion of the materials testing engineer.

E. **Drainage Pans:**

Drainage pans may be used where approved by the County Road Supervisor. Pans should be used exclusively for the use of drainage and not for speed control dips. The drainage pan design shall conform to the design as shown in Figure 22.

3.4 Landscaping Installation

Earth cuts, embankment slopes and all other areas where the ground cover has been disturbed during the course of road construction shall be re-vegetated and reforested equal to or better than conditions existing prior to construction. Landscaping material shall be installed in accordance with plans approved as part of any road construction permit, and shall be fertilized, mulched, watered, and otherwise treated to provide an established stand of vegetation by the end of the first full growing season after completion of construction. The individual responsible for road construction shall post a performance bond, guaranteeing fifty percent (50%) success at re-vegetation and reforestation, for at least two full growing seasons following installation. (See Chapter 2, Section 2.9)

Chapter 4 – Driveway Permit Requirements

4.1 Purpose and Intent

Driveway permits must be obtained whenever an individual proposes to construct and connect a driveway to an existing public or private roadway in unincorporated Sanpete County. The reason for requiring driveway permits is to ensure the design of the connections meets the specifications in these regulations to allow for emergency vehicle access and for proper drainage. Driveway permits are also intended to assure adequate reconstruction and/or repair of any damage caused to the County road right-of-way or roadway during construction of the connection. Driveway permits shall be obtained before building permits may be issued.

4.2 Permits and Performance Guarantees

Any individual proposing to construct a driveway connection to an existing County roadway shall obtain an approved driveway permit as provided in Section 4.3. Before undertaking any excavation within a County road right-of-way, an individual may be required to post a Performance Guarantee. Performance Guarantees shall be posted, and permits obtained from the Road Department. (Chapter 5, Section 5.2)

4.3 Procedures/Requirements for Issuance of Driveway Permits

4.3.1 Submittal Requirements for Driveway Permits

The submittal requirements and procedure for obtaining driveway permits are stated as follows:

1. Driveway Permits are required for all roads, which are to be constructed on private property, and will be used to provide access from any public road or private road.

2. Fee scheduling will be set for various permits, inspections, and on- site approvals. Permit fees will be periodically reviewed by the County for adequacy, and when appropriate the fee schedule will be revised.

3. The property owner/owners are responsible for obtaining all necessary easements and/or UDOT Access permits prior to the application of the Driveway or Private Road Cut Permit. A copy of the easement and/or UDOT Access permit must be attached to the permit application.

4. The permit applicant assumes the responsibility to have buried gas lines, telephone cable and other utilities located by contacting the Utility Notification Center of Utah (Blue Stakes).

5. Applicant represents all parties in interest and affirms that the driveway approach is to be constructed for the purpose of securing access to the described property.

6. Applicant or authorized agent shall furnish all labor and materials, engineered plans, perform all work, and pay all costs in connection with the construction requested.

7. The Sanpete County Roads Department shall approve the type and schedule of construction. All materials and workmanship shall be of a satisfactory quality and subject to inspection and approval by the County.

8. No revisions or additions shall be made to the driveway or the permit without prior approval by the County.

9. The property must be marked with the lot number, and the proposed driveway and building footprint shall be staked out in advance of the initial inspection.

10. Applicants shall protect the traveling public during the installation of the driveway and building site excavation with approved traffic control, as outlined by Part VI of the Manual of Uniform Traffic Control Devices. If deemed necessary by the County Road Department a Traffic Control Plan will be submitted to the County before work affecting a County roadway may begin. This plan should illustrate the placement of devices, types of devices, stationing of flagging personnel, length of lane closure with reference to the zone dimensions, and the phone numbers of representatives to be contacted in case of an emergency.

11. The County shall be held harmless against any action for personal injury or property damage sustained by reason of the exercise and issuance of the permit.

12. Applicants shall notify the County when the excavation is ready for a final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their prospective devices, and all erosion control measures have been completed in accordance with the approved plan, and any required reports have been submitted.

13. Failure to comply with any portion of these Driveway Design Standards and Permit Procedures shall be sufficient grounds for denial, suspension, or revocation of any necessary permit. Financial penalties may also be imposed.

14. All driveway permit applicants must submit the proper Application, Zoning Disclosure Form, and an accurately scaled Site Plan Drawing indicating all necessary detail (length, grade, property boundaries, public road dimensions etc.) prior to initial inspection. If

not otherwise required, any new driveway less than two hundred (200) feet in length shall meet the engineered grading requirements outlined in Table 12.

15. The permit will be issued upon completion of the initial inspection and installation of erosion control measures as outlined in the Sanpete County Best Management Practices Manual.

16. The permit is valid for one hundred eighty (180) days, at which time an inspection must be arranged with the (Inspector Assigned) to determine further time needed for completion of the driveway/private road cut. The permit can be extended for another one hundred eighty (180) days, at no fee, at the discretion of the County. A renewal for a permit may be applied for prior to the permit's expiration. The cost of a renewal permit will be an amount equal to twenty-five percent (25%) of the original permit fee.

17. Driveway permits are valid for two (2) years maximum, with timely renewal, if a building permit is not applied for. A Driveway Permit will not expire as long as a current building permit is in place but must have an inspection every one hundred eight (180) days. Failure to have inspection completed within the required time will result in the cancellation of the permit.

18. The applicant shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this code, and the applicant shall engage consultants, if required, to provide professional inspections on a timely basis. The applicant shall act as a coordinator between the consultants, the contractor, and the County. In the event of changed conditions, the applicant shall be responsible for informing the County of such change and shall provide revised plans for approval.

4.3.2 Action on Driveway Permits

Applications for driveway permits shall be submitted to the Sanpete County Roads Department for review and action. Approval shall be granted only if the proposed driveway or roadway connection meets the specifications in these regulations and the required fee has been paid. Approval of a driveway permit may be accompanied by any condition deemed reasonable by the County to insure protection of health, safety and welfare and compliance with these regulations. Applications for driveway permits must be submitted at least three (3) working days prior to planned commencement of construction, and construction cannot commence without permit approval. Building permits shall not be issued for the project until rough-in inspection (grade meets the maximum specifications outlined in these regulations) approval for the needed driveway permit has been obtained.

4.3.3 Construction Specifications for Driveway Work

All work undertaken to connect driveways to existing County roadways shall conform to the Road and Bridge Design and Construction Standards contained in these regulations.

4.3.4 Construction Schedule for Driveway Work

As part of its approval of any driveway permit, the Sanpete County Road Department shall also approve a construction schedule. The approved schedule shall not be changed after the permit is issued without the written consent of approval by the Road Department.

4.4 Supervision of Driveway Work

The permit applicant shall at all times conduct work within County right-of-way so as to avoid obstruction and hazard to the traveling public. Materials necessary for construction of driveway access points to the County roadway shall not be stored on the County right-of-way at any time. The roadway and roadside area where driveway access work has been performed shall be thoroughly cleared of all debris and extraneous material and shall be restored to a condition equal to or better than the original when construction is concluded.

4.5 Inspection and Testing of Driveway Work

Adequate inspections ensure compliance with County requirements. It is the responsibility of the permit applicant to contact the Sanpete County Road Department two (2) working days in advance of a required inspection. In-progress inspections of all elements of work will eliminate the need for extensive post testing. At least one inspection at the conclusion of construction is required. In making this inspection, the Road Department shall check for compliance with these regulations and approved plans, and also for adequate cleanup of roadway surfaces and the right-of-way. Certificates of Occupancy shall not be issued by the Building Department until driveway work is determined to be satisfactory by the Road Department.

Any work or material which does not conform to these regulations, any pavement failures or broken asphalt, damaged signs or fencing, and remaining debris either in the roadway or adjacent property, or improper drainage shall be brought to the attention of the permit applicant both verbally and in writing. Any work in which untested or unaccepted materials are used shall be ordered removed and replaced at the permit applicant's expense. Any required corrective work shall be made at the permit applicant's expense and shall be done to the satisfaction of the Road Department. If immediate corrections are not made, further project construction shall be stopped.

In determining whether or not the driveway work done by the permit applicant is acceptable, the Road Department may determine that testing is required, the number and location of the tests shall be determined by the Road Department. If the Road Department determines testing by an independent lab is necessary, the cost of such testing shall be paid by the permit applicant.

4.6 Responsibility for Rework on Driveway Connections

The permit applicant shall be fully responsible for the maintenance and correction of any faulty construction, including unstable road cuts and potholes developed during the construction period and for a period specified in Chapter 5, Section 5.10. All deficiencies shall be resolved to the satisfaction of the Road Department. Failure to do so could be cause for denial of future permits.

4.7 Driveways and Parking Areas:

4.7.1 Requirement for Driveway Permit

Whenever a property owner, developer, contractor, or other individual proposes to connect a driveway or parking area to the public roadway, they must obtain approval for a driveway permit from the Road Department prior to commencing construction.

4.7.2 Requirement for Grading Permit

When road grading of an existing road on private property is proposed the individual responsible for the construction must obtain approval for a grading permit from the Sanpete County Road Department prior to commencing construction.

4.7.3 Standards for Driveway Design

A driveway is defined as an accessway for vehicles providing a connection from a public or private roadway to either individual single-family residences or to a parking area serving multi-family residences; commercial business; recreational, institutional, or industrial land uses. For purposes of this regulation only, single family residences shall be defined as individual detached houses or duplexes (two single family residences) either of which are on individual platted lots or on footprint lots with the surrounding property held in common ownership. If an accessway serves more than five (5) individual single-family residences, it shall be classified as a roadway rather than a driveway and must meet the County's standards and requirements for road construction. A driveway may provide access to a common parking area for multi-family residential development if the development meets all Sanpete County regulations for multi-family development. An accessway serving a working ranch or farm and any associated residence regardless of length shall be considered a driveway and shall meet only such standards as are necessary for public health and safety and as outlined in this section.

These standards do not impose requirements on driveways connecting to private roads or for the portions of driveways not within the County's right-of-way. All driveways shall meet the requirements of the most current and adopted International Fire Code (IFC).

A. **Driveway Locations Generally:**

Driveways for all uses except single family homes shall not be closer than 5 feet to an adjacent interior property line. Accesses for single family homes may be granted within 2 feet of the property line.

B. **Drainage:**

1. Driveways that access a County road shall be reviewed by the Sanpete County Road Department to determine the need, sizing and placement of culvert(s).
2. Driveways that access a County road that have concrete curb and gutter shall not use a bridge to span the gutter, but rather shall complete the access using a curb cut.

C. **Location of Driveways Relative to Intersections:**

Driveways shall be placed so the following minimum distances are maintained to any street intersection, including a T-intersection on the opposite side of the street from a property where a driveway is proposed.

Where the driveway connects to a local access or low volume road, a minimum distance of fifty (50) feet from the curve return to the edge of the right-of-way at the intersection shall be maintained.

Where a driveway connects to a collector or larger road, a minimum distance consisting of the left turn stacking distance plus twenty (20) feet as measured from curve return to curve return, shall be maintained (see Figure 16). The left turn stacking distance shall be determined by the Road Department based on acceptable traffic study. If a traffic study is not available, or data provided is incomplete, the Road Department shall estimate the length of the left turn stacking distance using the following formula:

$$\text{Peak Hour Traffic} = \frac{\text{ADT}}{10}$$

Peak hour left turns = 1/6 of peak hour traffic for 4-way intersections

Peak hour left turns = 1/4 of peak hour traffic for T-intersections

phlt = Peak Hour Left Turns

dis = driveway to intersection spacing

$$\text{dis} = \frac{(1.5)\text{phlt}(20)+20}{30}$$

The Road Department may make adjustments in the factors used in this formula for a typical situation. Examples of such situations include the intersection of low volume roads with very high-volume roads, or where adjacent land uses cause traffic patterns to be skewed. If an

applicant disagrees with the left turn stacking distance determined by the Road Department, they may propose a different distance if substantiated by a traffic study which is acceptable to the Board of County Commissioners.

D. **Spacing of Driveways:**

Driveway openings shall be separated by at least thirty (30) feet, as measured from curve return, or else shall be combined. More spacing may be required for traffic safety and proper traffic operation.

E. **Shared Driveways; Circular Driveways:**

Developers or property owners proposing the use of shared driveways shall record an easement defining the location of the driveway and either a covenant or deed restriction requiring construction of the driveway at that location.

Single family dwellings are permitted one (1) access unless it is a circular drive. There shall be a minimum of thirty five (35) feet between the entrances of the circular driveways. No more than fifty percent (50%) of the property frontage along the street are permitted for driveway purposes. Single family residential dwellings on corner lots are permitted one (1) access on each street it fronts. No radius or flare portion of a driveway shall intersect the adjacent property line except when/where shared driveways are utilized.

F. **Horizontal Alignment and Horizontal Curves:**

1. The dimensions of driveway widths, openings, and centerline curve radii shall be as shown in Table 12. (See Figure 13 and 14) Turn Out dimensions are given in Figure 23.

2. All driveways exiting onto collector roads or roadways with average daily counts greater than seven hundred (700) vehicles per day shall be designed with a vehicle turnaround to avoid vehicles having to back onto the roadway when exiting (See Figure 23). Single family residence driveways in excess of one hundred (100) feet in length shall provide an adequate turnaround for emergency equipment to within fifty (50) feet of the dwelling unit. Driveways serving multi family, industrial, or commercial development shall provide a turnaround as specified in Figure 7 if the driveways dead ends.

3. Driveways serving single family residences may be either gravel or paved. Where roads are paved, driveways serving duplexes must be paved. Where a driveway is to be graveled the surface shall be constructed of four inches of

road base compacted to ninety five percent (95%) standard proctor. Where a driveway is to be paved, the surface shall be constructed of four inches of compacted road base and two (2) inches of asphalt that can be placed in one lift.

4. Driveways serving multifamily residences or commercial uses must be designed in accordance with Section 2.4.3.E.1, with TI equaling 6.0. Single family and duplex residences may only have one access point onto the County road system unless a minimum separation of two hundred fifty (250) feet can be provided. Otherwise, looped driveways are not allowed. Where a lot has two (2) different roads to provide driveway access, access shall always be onto the road with the lowest functional classification.

G. **Driveway Cross Section:**

1. Driveways constructed on natural lateral slopes greater than twenty percent (20%) shall be super-elevated toward the cut slope as shown in Figure 13.

2. Driveways constructed on natural lateral slopes less than twenty percent (20%) may be crowned as shown in Figure 14.

H. **Vertical Alignment and Vertical Curves:**

1. Driveways shall be designed and constructed to reach the destination without adverse grades.

2. Grades less than one percent (1.0%) are not allowed.

3. Driveways shall be designed and located to provide a minimum sight distance clear of all obstructions, natural or man-made, for at least two hundred (200) feet in either direction on local access roads and four hundred (400) feet on collector roads or as outlined in Table 4 whichever is greater.

4. The maximum allowable grade on straight sections of driveway is ten percent (10%). An exception can be requested from the County where the dip of natural terrain bears between South 60º East, and South 45º West. Grades from ten to twelve percent (10% - 12%) shall not continue for lengths greater than one hundred fifty (150) feet.

5. A maximum grade of eight percent (8%) for curves with radius of fifty (50) feet or greater at centerline shall be maintained. Grades are measured in the centerline of the road.

6. Grades through a switchback with a radius of less than fifty (50) feet shall not exceed four percent (4%) from point of curvature to point of tangency. Switchbacks are defined as a curve with delta greater than one hundred twenty (120) degrees. Grades are measured in the centerline of the road.

I. **Cut Slopes:**

1. Cut slopes may be constructed as steep as 1-1/2 : 1, but only where lot line proximity or building site natural grade imposes restrictions (thirty percent (30%) slope and greater).

2. Cut slopes steeper than 1-1/2 : 1 require a stability report prepared by a Geotechnical (Soils) Engineer confirming competent slope material prior to approval from the County.

3. In areas of solid rock, slopes shall not be cut steeper than 1/2 : 1. Slopes steeper than 1/2:1 require a stability report prepared by a Geotechnical (Soils) Engineer confirming competent slope material prior to approval from the County.

4. All slopes shall be made sufficiently stable to prevent failures. Steep driveway cut slopes not in solid rock, require retaining walls built to prevent slope failure.

5. Retaining walls require plan submittal and approval by the County. All retaining walls with a vertical height greater than four (4) feet shall be of an engineer approved design.

J. **Fill Slopes:**

1. Fill slopes may be constructed as steep as 1-1/2 : 1, but only where lot line proximity or building site grade imposes restrictions (thirty percent (30%) slope and greater).

2. Fill slopes constructed at a 1-1/2 : 1 slope shall be constructed so that the toe of the slope is keyed into the natural slope and/or supported by mechanical stabilization.

3. Mechanical slope stabilization devices with design heights greater than four (4) feet shall be of an engineer approved design.

4. Organic materials shall not be placed in fills. Rock material with a maximum dimension greater than twenty four (24) inches shall not be buried or placed in fills.

5. Rock disposal areas are to be delineated prior to issuance of driveway and excavation permit.

6. Fills shall be compacted to a minimum of ninety percent (90%) of maximum density.

K. **Drainage:**

1. All driveway accesses from existing private or public roads, which interfere with a natural or constructed drainage course, shall provide a drainage culvert. The culvert shall be a minimum of eighteen inch (18”) diameter but will carry the flow of a ten (10) year storm event, and be positioned to offset the drainage ditch centerline, away from the traveled portion of the access road.

2. Cross road drainage will be provided at a minimum of every eight hundred (800) feet or where an identifiable drainage course is defined.

3. Culverts under roads at intersections shall be of sufficient length to properly fit the radius or flare required.

4. Culvert inlets and outlets shall be designed to cause minimal erosion, and erodible soils shall be adequately protected by riprap, flares, or energy dissipators.

5. All springs, seeps or bogs evidenced within the proposed driveway shall be treated with a subsurface drainage treatment approved by the County.

6. All driveway culverts shall have four to six (4 to 6) inches of cover unless otherwise approved by the County.

L. **Construction Plans and Specifications:**

1. All work shall be performed as specified in the latest edition of these standard specifications and any referenced manuals indicated herein.

2. Where approvals or authorization by the County is herein required, it shall mean the Board of County Commissioners or their designated agent.

M. **Fire Protection and Emergency Access:**

Emergency access must be maintained at all times during construction.

N. **Embankments and Stabilization:**

Fills shall be developed generally in horizontal layers of similar materials for their length and width and compacted to a minimum of ninety percent (90%) maximum density for each lift.

O. **Intersections:**

1. Intersections shall meet at right angles of each other. With supporting justification, a relaxation of up to fifteen degrees (15 º) can be requested from the County.

2. The portion of driveway through the right-of-way connecting the property with the physical roadway shall be the shortest perpendicular distance possible.

3. Driveways shall meet the County road at a positive four percent (4%) grade for the length of the Right-Of-Way but no less than ten (10) feet (Figure 15).

4. No horizontal or vertical curves shall carry onto the existing County Right-Of-Way in the design of the driveway or private road.

5. Radii of flares are specified in Table 12.

P. **Signs and Delineation:**

1. All signage, delineation, and mounting devices on driveway approaches, adjacent to the County roadway but within the Right-Of-Way, shall be in conformance with the Manual of Uniform Traffic Control Devices, the most recent Utah Supplement, and the County Sign Regulations.

2. All necessary delineation must be installed prior to County approval.

3. Stop signs shall be installed at the junction of an accessway with a roadway for all accessways serving six (6) or more residential units, commercial shopping areas, or when required by the Road Supervisor for protection of public safety.

Q. **Utilities:**

Overhead utilities shall at least meet the minimum vertical clearances specified by the utility company or PUC requirements above the driveway and in no case shall the vertical distance be less than sixteen (16) feet six (6) inches.

R. **Bridges:**

See Section 2.61 and 2.62.

S. **Maintenance:**

1. The property owner/owners assume responsibility for the maintenance of the driveway approach. All snow, ice, or sleet removal from the portion of the driveway approach, including that deposited on the driveway in the course of snow removal operations by the County Road Department, is to be done by the property owner.

2. Pushing snow from a driveway onto a County roadway is prohibited. Snow storage for driveways shall be provided on the owner's property. Use of the right-of-way for snow storage by private individuals or companies is prohibited. The property owner/owners assume responsibility for the replacement, maintenance, and cleaning of the culvert installed in the driveway approach. (See Section 3.3.6.D.2)

3. The Road Department may require owners to heat tape their culvert to ensure flow during the winter months to minimize the potential of ice forming on roadways (see Chapter 6 Section 6.8.2).

T. **Deviation from the Standards:**

1. Requests for deviation from the design standards contained herein may be submitted to the Sanpete Planning and Zoning Department in writing with appropriate justification for consideration for approval. Deviation requests shall be heard and decided by the Board of County Commissioners.

2. Where, by reason of exceptional topographic conditions or other extraordinary and exceptional situation or condition of such piece of property, the strict application of any design standard enacted herein would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, the owner of such property, to authorize, upon request to the County relating to said property, a deviation from such strict application so as to relieve such difficulties or hardship if such relief may be granted without substantial

detriment to the public good and without substantially impairing the intent and purpose of the design standards contained herein.

3. Deviation to a lesser grade standard will not exceed eighteen percent (18%) grade on straight sections of driveways up to one hundred fifty (150) feet in length and eight percent (8%) grade change through a switchback from point of curvature to point of tangency.

4. Roads accessing more than five (5) residences must refer to the Sanpete County Road Design Standards and comply with the standards set forth as they apply to the expected average daily traffic.

4.7.4 Standards for Parking Areas

A. **Parking Index:**

The Parking Index standards are specified in the Sanpete County Zoning Regulations.

B. **Parking Area Grades:**

Parking areas shall have a maximum grade of four percent (4%), and a minimum grade of one percent (1.0 %) to facilitate drainage.

C. **Surfacing of Parking Area:**

Paving is not required for parking areas and drives serving single family units, or for any future duplexes where the road providing access is not paved. Where roads are paved, parking areas for duplexes must be paved. Parking areas and drives for all other types of development must be paved with a minimum of six inches (6”) of road base compacted to ninety five percent (95%) modified Proctor and three inches (3”) of compacted asphalt. Paved parking areas for all other development shall be designed in accordance with Section 2.4.3.C, with TI equaling 6.0.

An applicant may request a deviation from the paving requirements listed herein from the Board of County Commissioners when the average daily traffic count of the proposed use is less than two hundred (200) and adequately sized engineered dewatering detention facilities are provided.

D. **Provision for Drainage in Parking Areas:**

Parking area design shall make adequate provision for drainage and prevention of erosion. Drainage from parking areas shall flow to roadside ditches or other approved drainageways. Drainage from parking areas shall not flow onto roadways. Collection points for runoff across parking areas shall be provided to minimize sheet flow.

E. **Placement of Parking Areas on Fill:**

If a parking area is to be placed on fill, the fill used shall be a suitable material as specified by a registered geotechnical engineer. The fill shall be compacted to ninety percent (90%) modified Proctor with slopes at no more than 1-1/2:1 (H:V) and protected by riprap to prevent erosion from snow storage. Parking areas on fill may be designed using retaining walls as an alternative with approval of the County.

F. **Use of Parking Area in Lieu of Meeting Driveway Grades:**

In instances where construction of a single family or duplex unit is proposed, and it is not possible to build a driveway to County standards for driveway grades because of the steepness of the lot, a parking area which does meet County standards may be built adjacent to the road which provides access to the lot in lieu of meeting driveway grades. The parking area must be outside the road right-of- way and within one hundred fifty (150) feet of the residential structure. The parking area shall be sized so, whenever possible, vehicles can be maneuvered within the parking area so they will not be backed onto the road when exiting. The minimum size for parking areas shall be four hundred (400) square feet for each unit served. Parking areas shall not be designed so vehicles are parked end-to-end or parallel to the road but must allow for cars to be parked side-by-side.

G. **Snow-Stack Storage:**

Snow storage for parking areas shall be provided on the associated private property. Use of the right-of-way for snow storage by private individuals or companies is prohibited.

H. **Parking Dimensions:**

Parking space dimensions and parking lot layout are per Figure 17.

I. **Bus Stop Parking Areas:**

When a subdivision is located outside the scheduled school bus route(s) which in turn require families to drive their school aged children to a drop off/pickup point, the Planning Commission or Board of County Commissioners may require an off-site parking lot facility to be constructed to accommodate both parking and turnaround ingress and egress for vehicles. This facility will be required, when applicable, to follow the same parking lot standards and easement/right of way requirements as to the class of road it abuts.

4.8 Landscaping and Erosion Control

Whenever roadway or bridge construction results in earth disturbance, revegetation and reforestation is required per the Sanpete County Best Management Practices Manual. The site plan shall be approved by the County and shall be completed during the first planting season after construction. Native or similar horticulture material shall be used. All areas disturbed by construction operations and not otherwise covered by structures or pavement must be seeded, fertilized, mulched, planted, and otherwise treated to provide an established stand of vegetation. Cut and fill slopes must be treated to prevent erosion. Areas not disturbed by construction shall be left in their present vegetative state, except that thinning of trees may be required. In no case shall landscaping in the right-of-way or on private property impede the normal maintenance operations of the Road Department or the normal flow and operations of traffic. Specific requirements are as follows:

4.8.1 Erosion Control and Environmental Mitigation Efforts for Driveway Construction

1. The faces of cut and fill slopes shall be prepared and maintained to control against erosion.

2. This control shall consist of effective planting as a permanent control measure.

3. Permanent soil stabilization measures shall be installed within thirty (30) days after final grade is reached. Planting shall occur within the next window of opportunity should construction be completed during winter months.

4. Where cut slopes are not subject to erosion due to the erosion- resistant character of the materials, such protection may be omitted.

5. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

6. Preserve existing trees, shrubs and grasses where possible to prevent erosion.

7. No work may interfere with the flow of stormwater.

8. Excavations shall be constructed so they are stable.

9. Storm water runoff shall be discharged from the site in quantities and at velocities not to exceed historic levels.

10. All erosion control devices shall be maintained so that they function as designed.

11. Dust emissions (wind erosion) shall be controlled.

12. Temporary erosion protection shall be installed prior to excavation activities.

13. All topsoil shall be salvaged and redistributed.

14. Any applicant creating an earth disturbance greater than two thousand five hundred (2,500) cubic yards and/or is twenty thousand square feet (20,000 ft^2) shall be required to apply for a "Best Management Practices" permit.

15. A specific, scaled, site plan designed by a licensed Utah professional engineer, indicating; aspects, scale, site boundary, and adjacent streets or roadways is to be submitted with the application for the "Best Management Practices" permit.

16. The site plan is to show existing drainage, rivers, streams, lakes, and wetlands. The gradient and direction of slopes before and after construction, and the disturbed area of the lot, are also to be shown.

17. The site plan must indicate the types, and placement, of temporary and permanent erosion control measures. The plan shall be specific to the schedule for reseeding and replanting. For sites completed during the winter months, or when a final inspection is expected before actual revegetative growth occurs, a performance bond may be required.

18. A site plan should indicate a green belt that will remain around the property's perimeter.

19. Road crossings across water courses designated as "Waters of the State" by the Army Corps of Engineers must meet the requirements set forth by the Army Corps of Engineers for permitting before a County permit will be issued.

Chapter 5 – Right–of-Way Permit Requirements

5.1 Purpose and Intent

Right-of-way permits shall be obtained whenever a developer, contractor, owner, utility company or other individual proposes to install utility lines, culverts or any other work within the County right of way. Utilities include water, sewer, natural gas, telephone, electrical, television and fiber optic lines. Right-of-way permits are required to assure the method of installation meets the specifications in these regulations, and adequate reconstruction and/or repair of any damage caused to County roads or road right of way.

5.2 Requirements for Financial Guarantees

A Performance Guarantee is required for Right-of-Way Permits. The Performance Guarantee is in part to ensure completion of that part of the construction project that will occur in or affect the Right-of-Way, in accordance with approved plans and, including completion of the County's inspection of the work. The Performance Guarantee also is to ensure that, upon completion, suspension or termination of the project, the road and right-of-way have been restored to their pre-existing conditions or better before the project, or as otherwise required by the permit, and remain in that condition, without damage, through the warranty period set forth in Section 5.2(b). Performance Guarantees will be based on the amounts set forth in the Permit Fee Schedule for that portion of the project that, in the opinion of the Road Supervisor, could affect the integrity of the County's road and right-of-way.

If appropriate in the exclusive judgment of the Sanpete County Roads Supervisor, the Performance Guarantee will be in the amount of the contract price(s) for constructing the project or its equivalent value if the project is self-constructed.

A. All Performance Guarantees will be (i) in cash, together with an executed Security Agreement, or (ii) by Letter of Credit issued by a bank physically doing business in the State of Utah, drawable in the State, and in a form acceptable to the County Attorney.

B. The Performance Guarantee will be released upon completion of a "warranty period" of twelve (12) months after completion of the work on gravel roads and asphalt roads if, at that time, the work has not failed and the permit has been signed off for a final inspection by the Road Supervisor or his designee. If the work has failed or is not completed in accordance with approved plans and without damage to the road or right of way, and the permit applicant fails to promptly correct the work, the work will be repaired by the County at the permit applicant's expense. If the Performance Guarantee does not cover the cost of the repair, the permit applicant must pay the balance upon billing, and no further permits will be issued to the permit applicant while a balance is outstanding unpaid.

C. The work will be deemed complete for purposes of starting the warranty period upon final inspection approval by the Road Department, and delivery of an acceptable as-built drawing to the Department.

D. A letter of credit Performance Guarantee will be drawn on if the conditions for its release are not satisfied within ten (10) business days before its expiration, unless prior to that time a replacement letter of credit or extension is delivered to the Road Department.

E. Utility companies which anticipate needing multiple Right-of-Way Permits in the course of a construction season and whose performance of permit obligations in the past has not required the County to draw on a Performance Guarantee, may elect to submit a Multiple-Permit Performance Guarantee, in a lump sum of a minimum five thousand dollars ($5,000), that will be applied to permit applications at the rate specified in the Sanpete County Road Department Permit Fee Schedule for the permitted work. The Road Department will notify the permit applicant when the unallocated amount of the lump sum guarantee falls to one thousand dollars ($1,000) and permits will not be issued when the lump sum amount has been reduced to less than the amount required for a requested permit activity until the Multiple-Permit Performance Guarantee has been increased (in five thousand dollar ($5,000) increments). The County will consider a blanket surety bond for a Multiple-Permit Performance Guarantee if the terms of the bond, the method of demanding performance on the bond and the bonding company are acceptable to the County Attorney.

5.3 Procedures/Requirements for Issuance of Right-of-Way Permits

The following procedures must be followed, and requirements met in the review of applications for right-of-way permits.

5.3.1 Submittal Requirements for Right-of-Way Permits

A. No permit will be issued before the fees set forth in the Road Department Permit Fee Schedule attached hereto and made a part hereof by this reference, have been paid in full, and the Performance Guarantee has been deposited with the County. (See Table 19 for fees).

B. No permit will be issued before a Best Management Practices Permit, if required, has been issued for the work by the County.

C. The permit applicant is responsible for adequate traffic control and traffic safety in accordance with the MUTCD. Permit applicants will submit a traffic control plan which must be approved by the Road Department.

D. The Road Supervisor will determine if a utility facility buried less than eighteen (18) inches is an appropriate and consistent use of the right-of-way geometric cross-section. If the Road Supervisor determines that it is appropriate for the installation of the proposed utility facilities to be installed less than eighteen (18) inches, then a

deviation from standards to the eighteen (18) inch minimum depth may be issued by the Board of County Commissioners. Any utility buried less than eighteen (18) inches in depth will be noted on "as-built" drawings and verbal notification will be made to the Road Department. Any damage to utility facilities buried less than the eighteen (18) inch minimum depth made during the course of normal maintenance grading operations by the Road Department will be repaired at the expense of the utility owner. Utility owners shall have a period of two (2) years after the adoption of these standards to upgrade the buried facilities to a depth greater than eighteen (18) inches at its expense.

E. "As-built" drawings are public information. If a permit applicant asserts the information is confidential under the Utah Public Records Act, and justifies the assertion in writing, the County will take reasonable steps to maintain the confidentiality of the information. In the event of a Public Records Act request for disclosure, the County will assert confidentiality based on the justification and inform the permit applicant of the request. The County will not institute or defend any court proceedings with respect to the claim of confidentiality; it is the duty of the permit applicant to assert or defend its claim of confidentiality. It is a condition of all Right-of-Way Permits that the permit applicant indemnify, defend, and hold harmless the County from any action, judgment, and monetary cost of any nature, arising out of its claim of confidentiality or the Public Records Act request.

F. Compaction requirements are specified in Chapter 3, Section 3.3.5.D. The permit applicant will provide copies of the engineer's compaction test results, indicating compliance to these standards, to the Road Department prior to requesting a final inspection.

G. Utilities shall be installed by jacking or boring and only by open trench when absolutely necessary or unless approved by the Sanpete County Road Supervisor. When an open trench is excavated the requirements of Section 3.3.5 shall apply.

H. Any work that has begun prior to permit issuance could be penalized the amount of the permit fee except in circumstances described in Section 5.3.4.

I. Applications for permits shall be made on forms provided by the Road Department and permits will be issued on official forms. The applicant shall submit two (2) completed original forms with two (2) copies of the appropriate engineering drawings and specifications. No photocopied applications will be accepted. The application must also indicate a ticket number issued by Blue Stakes verifying that utilities have been located.

Site plans must indicate the following:

1. location of all excavations using dashed lines;
2. location of road and road right of way;
3. location of any driveways;
4. existing structures, if any;
5. proposed structures including any garages;
6. construction schedule.

J. Owners of property or businesses abutting the utility projects shall be advised of permit applications, by the applicant, which may affect their convenience economic well-being (See Section 3.2).

5.3.2 Action on Right-of-Way Permits

Applications for road cut permits shall be submitted at least five (5) working days prior to planned commencement of construction for minor installations and repairs and five (5) working days prior for major installations and repairs (See Section 5.5.1). Construction cannot commence without permit approval. The Road Department is responsible for review of applications for right-of-way permits. Consideration shall be given to how the proposed installation affects County road maintenance and improvement programs. Right-of-way permits shall not be issued earlier than May 1st of each year and all right-of-way work shall be completed by October 31st of each year. Permits will be issued only for emergency utility repair between these dates and flowable fill will be required for backfill (Table 17).

Approval of a Right-of-way Permit may be accompanied by any conditions deemed reasonable by the Road Department to insure protection of health, safety, and welfare and compliance with these regulations.

The Right-of-way Permit must be signed by the Road Supervisor or his designee for it to be approved. Whenever a driveway permit is needed in conjunction with right-of-way work, the Right-of-way Permit shall not be issued until approval is granted for the needed driveway permit.

During the period of each October 31st through May 31st of succeeding year non-emergency permits for installation required to be done during that period to comply with PUC laws, rules and regulations, will be approved for boring or open trench work only if above ground temporary installation is not suitable and flowable fill shall be the only approved backfill.

5.3.3 Construction Specifications and Schedule for Right-of-Way Work

All work undertaken to install utilities or culverts within the County road right of way shall conform to the requirements contained in these regulations, and to approved plans and specifications. In issuing right-of-way permits, the Road Department shall also approve a construction schedule. The approved

construction plans, specifications and schedule cannot be changed without the written consent of the Road Supervisor, except in emergency situations as provided in Section 5.3.4.

5.3.4 Emergencies

Emergency utility repair is permitted without prior application, but after-the-fact applications shall be submitted immediately after the County Road Department has reopened, and permit procedures will be followed in the same manner used for non-emergency work. Notification shall be given to the Road Department and Sheriff Department at the time of the emergency work. Under no circumstances shall any backfill be placed without obtaining a written permit approval from the Road Department.

5.3.5 Expiration of Right-of-Way Permits

Right-of-Way Permits expire when the end of the approved construction schedule is reached and must be renewed in advance to prevent the County from drawing on the Performance Guarantee posted by the permit applicant.

5.4 Posting Right-of-Way Permits

Right-of-Way Permits must be posted on the job site, so they are easily visible from the roadway.

5.5 Procedures for Road Closures During Right-of-Way Work

Road closures to accommodate right-of-way work are not permitted unless justified on the basis of overall benefit to the general public. Refer to Section 3.2 for specific requirements to road closures. Requests for road closures shall be specified on the permit form submitted by the applicant, and no road closures shall be undertaken unless approved as part of the Right-of-Way Permit issued by the Road Department.

5.5.1 Submittal of Plans and Schedule for Closures

At least five (5) working days prior to actual closure, the permit applicant shall obtain approval from the Road Department for a detailed traffic plan. This plan must conform to the Manual of Uniform Traffic Control Devices and the current Utah Department of Transportation Standards. In addition, at least five working days prior to actual closure, the permit applicant shall verify the schedule and location of road closures.

5.5.2 Notification of Closures

At least five working days prior to actual closure, the permit applicant shall notify the appropriate fire district, school district, and the County Sheriff's office of the exact location, date and time traffic will be impeded.

5.5.3 Time of Closures; Detours

Road closures are only permitted between the hours of 9:00 AM and 3:30 PM unless authorized otherwise by the Road Department. Where closures of more than one (1) day are approved, a suitable detour must be provided, and must be marked and signed to accommodate night traffic.

5.6 Protection of Public Safety and Convenience

The permit applicant shall at all times conduct right-of-way work to ensure the least possible obstruction and hazard to the traveling public. The permit applicant shall provide for the safety and convenience of the residents along roads where work is being done, and for the protection of persons and property at all times. Adequate warning signs, barricades, lighting, flags and other devices as specified in the Manual on Uniform Traffic Control Devices Part VI and the Utah Department of Transportation Standards, and as approved by the Road Department shall be provided, maintained, and paid for by the permit applicant. Flagmen shall be posted to guide the traveling public where only one traffic lane remains open, or through otherwise unsafe operations. Prior to approval of the Right-of-Way Permit, a traffic control plan shall be submitted to the Road Department for approval.

5.7 Construction Procedures for Right-of-Way Work

The permit applicant shall plan right-of-way work so it does not create safety hazards or maintenance problems, render portions of right of way unusable for future road improvement, or obstruct major floodways.

5.7.1 Compliance with Safety Standards

The permit applicant's operations shall conform to the applicable requirements established by the Utah Industrial Commission of Utah and the Federal Occupational Safety and Health Act (OSHA).

5.7.2 Staging of Installations

Staging of utility installations may be required by the Road Department to produce the least disruption possible for the traveling public. A permit for any subsequent stages may not be issued until the prior stage has satisfactorily progressed or been completed.

5.7.3 Installation of Utilities

All utilities shall be installed in accordance with the plans and specifications approved by the utility owner and the Road Supervisor. Where applicable, the plans for installation must bear the name, seal, and signature of a licensed Utah Professional Engineer responsible for their preparation. The alignment of all utilities within County rights-of-way and major floodways is subject to approval by the County

Road Supervisor and/or the Board of County Commissioners. See Table 18 for utility installation depths.

A. **Underground Utilities:**

All accesses to underground utilities from the road surface (e.g., manholes, vaults) shall be of heavy-duty construction capable of safely supporting anticipated maintenance equipment and vehicular traffic. The level of these accesses shall conform to the finished grade of the road (See Sections 3.3.8.C and 3.3.9.D). Seep plugs shall be installed in trenches used for underground utilities at no less than 500-foot intervals if the possibility exists that the surrounding water will be lowered, and this will have an adverse effect on surrounding wells and vegetation dependent on the water table elevation.

B. **Aboveground Utilities:**

All aboveground utilities shall be located and installed so it does not cause unnecessary obstruction to pedestrian and vehicular traffic or damage to the utility itself that could be harmful to the general public. The minimum overhead clearance shall be eighteen (18) feet. No pole or structure above ground shall be placed within a pedestrian walkway nor set closer than ten (10) feet to the shoulder of any County road (see Section 2.7.4). In no case will a pole be permitted within ten feet of the travel lane shoulder of a County road except light and traffic control poles with breakaway bases.

C. **Utilities in Major Floodways:**

All utilities within or adjacent to major floodways shall comply with Federal Emergency Management Agency (FEMA) Regulations and shall be located and installed in a manner that will prevent objectionable damage such as land erosion, water pollution or flood diversions.

5.7.4 Trenching, Backfill and Reconstruction of Road Surfaces

The method used in trenching for underground utilities and for backfilling trenches shall comply with the requirements of these regulations (Section 3.3.5). Jetting of backfill is not permitted within County roadways. Upon completion of installation, the roadway shall be reconstructed using the specifications contained in these regulations for subbase preparation, base course materials, thickness and compactions, and final surfacing so as to restore the roadway to current construction standards for that type of road.

A. **Gravel Roads:**

Suitable material excavated from trenches may be used for backfilling subject to approval of the Road Department. At no time shall contaminated, wet, soggy, frozen or other unsuitable material be used as backfill. If proper backfill is not available at the site, suitable material shall be imported, and unsuitable material removed from the site. Backfill shall extend to the subgrade of the road or to natural ground (see Figure 18).

B. **Paved Roads:**

All cuts made in asphalt or concrete surfacing shall be made by mechanically cutting a horizontal and vertical line and shall be cut two (2) feet wider than the edges of the trench or the damaged area, the final pavement cut shall not be made until immediately prior to patching. All excavations made in paved streets shall be completely restored within thirty (30) days after acceptance of the backfill by the Road Department. In the event weather conditions preclude restoration by permanent hot bituminous pavement, temporary repairs may be tamping and rolling into place a cold mix asphalt. Such cold mix patches shall be removed and replaced by a permanent hot bituminous pavement within thirty (30) days or as weather and availability of materials permit. Permanent hot mix patches shall be no less than three (3) inches in thickness or not less than the thickness of the pavement adjacent to the excavation, whichever is thicker. Permanent patches shall be installed in accordance with the Road and Bridge Standards.

Damaged pavement shall be repaired by appropriate methods as approved by the Road Department. In general, cracks shall be filled with the proper asphalt hot bituminous pavement product and the surface seal coated. An overlay, the full width of the paved surface, shall be required in those instances where, in the opinion of the Road Supervisor, riding quality, safety or appearance of the finished roadway has been impaired. Subgrade failures caused by the permit applicant's operation of heavy equipment shall be rectified by reconstructing the subgrade layers and replacing the sub- base, base, and paving.

5.8 Inspection and Testing of Right-of-Way Work

Adequate inspections ensure compliance with County requirements and are the basis for release of maintenance responsibility and/or for release of the letter of credit. It is the responsibility of the permit applicant to contact the Road Department two (2) working days in advance of required inspections. In-progress inspections of all elements of work will eliminate the need for extensive post testing. At least one inspection at the conclusion of right-of-way work is required. In making this inspection, the Road Department shall check for compliance with these regulations and approved plans, and also for adequate cleanup of roadway surfaces and the right of way.

Any work or material which does not conform to these regulations, any pavement failures or broken asphalt, damaged signs or fencing, any remaining debris either in the roadway or adjacent property, or improper drainage, shall be brought to the attention of the permit applicant both verbally and in writing. Any work in which untested or unaccepted materials are used shall be ordered removed and replaced at the permit applicant's expense. If immediate corrections are not made, further project construction shall be stopped.

In determining whether or not right-of-way work done by the permit applicant complies with these regulations, the Road Department may consult with an engineer at the permit applicant's expense. If it is decided testing is required to ascertain compliance, the most recent standard methods of AASHTO or ASTM shall be used and conducted by an independent testing firm at the permit applicant's expense. If the permit applicant maintains his own testing equipment and qualified personnel, the requirement for an independent testing firm may be waived by the Road Supervisor. Copies of test data shall be furnished to the Road Department in a timely manner.

5.9 Responsibility for Corrective Work Upon Completion of Right-of-Way Work

The permit applicant shall be fully responsible for the maintenance and correction of any faulty construction, including unstable road cuts and potholes developed during the construction period. The roadway and roadside areas where utility work has been performed shall be thoroughly cleared of all debris and extraneous material and shall be resolved to the satisfaction of the Road Department. Failure to do so could be cause for denial of future right-of-way permits or a draw on the permit applicant's letter of credit.

5.10 Guarantee Period for Right-of-Way Work

The permit applicant shall be responsible for a period of one (1) year after completion of right-of-way work for any maintenance or repair necessary to keep the roadway in an acceptable condition. The County shall retain the permit applicant's Performance Guarantee for the entire warranty period to ensure any required corrective work is done. The permit applicant may apply in writing to the Road Supervisor for release of a portion of the Performance Guarantee.

5.11 Changes Affecting Utilities

Future changes to County roads may require the relocation or removal of utility installations. For minor changes the affected utility company shall complete the relocation or removal within sixty (60) days after notification by the Road Department. For major utility relocation projects involving extensive design, securing of contracts or material orders, the affected utility company shall complete the relocation or removal within ninety (90) days of approval from the Road Department for the final design. To avoid the necessity for such changes, utility companies are encouraged to locate their facilities consistent with future plans for County roadways. In all events, utility relocations will be performed at no cost to the County.

Chapter 6 – Road Acceptance and Maintenance

6.1 Purpose and Intent

As per this document Sanpete County has no obligation to accept the dedication of road or right of ways.

The purpose of this section is to outline the County's policy regarding road maintenance, including responsibilities of property owners. Maintenance of public roads is a major line item in the total Sanpete County operating budget.. The major components of the maintenance program are snowplowing and sanding, asphalt patching, overlays and replacement, grading of gravel roads, roadside weed mowing and maintenance of drainage ways.

In order for maintenance to be done on an efficient basis, roads must be constructed to certain standards of geometric alignment, materials quality and construction quality as described in these regulations.

At the discretion of the Board of County Commissioners and before the County will accept and/or maintain roads built by developers or owned and maintained by private property owners, they must petition the Board of County Commissioners to accept the roads for maintenance. A minimum of one (1) year will elapse between the time the petition is reviewed and if approved probationary maintenance can begin. This period of time is due to the budget process time needed to ensure funds are available to maintain the road. This section outlines the acceptance procedure and the conditions that must be met for approval.
The County, before accepting a dedication of a road they are petitioned to maintain, may require an agreement for an annual payment from property owners or a developer for up to twenty (20) years to supplement County revenue designated for maintenance responsibilities and expenses of the County to cover road maintenance on a newly dedicated road. The annual payment will be based upon the difference between the revenue (Class B road funds and property taxes designated for roads) and the County's actual cost to maintain the road. If payment is not received the County may assess and attach the payment of supplementary road maintenance costs, per the agreement, to property taxes of the lots associated with the development or petitioning body.
A non-response after one (1) year does not automatically grant an acceptance.

6.2 Maintenance Classifications

The County classifies roads into different categories to describe the type of maintenance they receive. These categories include:

6.2.1 Full

This category includes roads where the right-of-way has been dedicated to the County, the road meets County design and construction standards, the Board of County Commissioners has accepted the right-

of-way dedication, and the road has passed any required probationary periods (see Section 6.2.2). It also includes roads which may or may not meet current County design and construction standards, but which were dedicated to and accepted by the County for full maintenance before road standards were adopted or enforced. Full maintenance status assigns complete responsibility to the Road Department for snow plowing, grading, resurfacing, ditch maintenance, roadside weed mowing and repair as necessary. For snowplowing, priorities are assigned which reflect the use of the road and its relative importance to traffic flow.

6.2.2 Probationary

When roads are dedicated to the County as public roads, the Board of County Commissioners may consider probationary maintenance for a two-year probationary period provided the roads meet the requirements outlined in Section 6.3. During this period, any repairs are the responsibility of the property owners or developers seeking final acceptance from the County. The procedures for converting a road from probationary to final acceptance are stated in Section 6.5.

6.2.3 Provisional

This category includes roads which do not meet current County standards with respect to widths, curves, or grades, but which were dedicated to and accepted by the County prior to road standards being adopted or enforced. Such roads may receive limited summer maintenance, but no winter maintenance because snow removal equipment is unable to maneuver on them. This maintenance level is low priority and is dependent on the availability of funds, manpower and equipment.

6.2.4 No Maintenance

This category includes any and all public or private roads which are not maintained by the County under any circumstances.

6.3 Assumption of Road Maintenance

When Sanpete County is petitioned to assume maintenance of a road or roads (accept the dedication per Utah Code 17-27a-607(2) in the unincorporated portion of the County, Sanpete County (as outlined in Sections 6.5 through 6.7) shall take into consideration the following criteria when determining if the road or roads should receive County road maintenance:

1. The revenues received and the costs incurred to maintain the road.
2. An agreement between the County and the property owners/developer to pay the difference between revenues received and the costs incurred to maintain the road for a period of up to twenty (20) years. If prior to the twenty-year period, the revenues received and the costs incurred to maintain the road equalize then the agreement would terminate.

3. The current and projected build-out of the development.

4. The overall goals, objectives, and budgetary considerations of Sanpete County in providing safe and efficient maintenance to a majority of the citizens.

The County shall review each road individually within a development to determine if that road should receive County maintenance.

6.4 Provisions for Private Maintenance

Whenever a developer proposes private maintenance of roads within a development it shall either form an organization of property owners or annex the development into an existing organization which will assume financial responsibility for road maintenance. They shall also require through covenants or deed restrictions that all property owners within their development join this organization and assume their share of its financial obligations. Where a new organization must be formed because no existing organization is in close proximity, the developer shall form a special service district, homeowner's association or other appropriate organization approved by the County for this purpose.

6.5 Acceptance of Private Right-of-Way Roads for Maintenance

For existing subdivisions and developments with private rights-of-way, the following procedure shall be used for consideration by the County to accept these types of roads for maintenance.

6.5.1 Filing Request for County Acceptance

The property owners holding title to the roads must submit a letter to the County Planning and Zoning and Roads Departments requesting the County accept maintenance responsibility for the roads. The letter should describe the road or roads, the length to be considered and must be signed by all people having an ownership interest in the road, or by the board of the homeowners association if their covenants allow the board to act for the owners. The processing fee must accompany the petition request prior to evaluation.

6.5.2 Staff Evaluation and Recommendation

The County Road Department and a licensed Engineer by the state of Utah shall inspect the roads to determine whether or not they meet the County's criteria and design and construction standards in these regulations. It is the County's policy to accept only those roads which meet these requirements. If a road does not meet County standards, the property owners are responsible for improving the road to County standards prior to requesting acceptance. One method for accomplishing these improvements is the designation of an Assessment Area (see Section 6.7). Staff will provide a recommendation as to whether or not the road is acceptable for probationary maintenance. This recommendation will be forwarded to the Board of County Commissioners. If probationary status is granted, and after the two-year probationary period, staff shall make a final recommendation on

whether or not full maintenance should be granted. This recommendation shall be forwarded to the Board of County Commissioners as an Action Item during a regularly scheduled Board of County Commissioners meeting.

If site conditions are so limiting that they make it impractical or impossible to bring existing road conditions up to these standards the petitioners will present a written argument to the Board of County Commissioners as to why the road should be excepted from the recommended standard and how safety issues will be mitigated. The Road Supervisor and/or the (Inspector Assigned) will provide written comment to the Board of County Commissioners as to the reasonableness of the request, any potential impacts that the exception might create for the County and a recommendation.

6.5.3 Board Of County Commission Action on Request

After the Board of County Commissioners has received the recommendation from the Road Department concerning the acceptance of roads for probationary maintenance, they shall take action by resolution to either grant or deny probationary acceptance of the road.

6.5.4 Final Acceptance

After the two (2) year probationary period, staff shall make a final determination as to whether or not the road should receive full maintenance and forward the recommendation to the Board of County Commissioners as an Action Item during a regularly scheduled Board of County Commissioners meeting. A Board of County Commissioners Action of accepting the road for maintenance completes the acceptance of the dedication of the road according to Utah Code 17-27a-607(2).

6.6 Acceptance Procedure for Roads Constructed by Developers and Proposed for Acceptance by the County

The County Subdivision Regulations require developers to construct roads necessary to serve approved subdivisions. The following procedure shall be used to determine whether or not the County will accept roads built by developers for maintenance.

6.6.1 Design Review

The developer must obtain approval for the road design from the Road Supervisor prior to construction of any road regulated hereunder. The Road Supervisor shall determine the road classification, compliance with design criteria and construction standards in these regulations, and adequacy of right-of-way prior to granting approval of the road design.

6.6.2 Inspections

At appropriate intervals during construction of the road, the developer's engineer shall request inspection by the Road Department. In order for the road to be considered for probationary maintenance, inspections must occur at the completion of each of the following steps:

1. rough grading;
2. sub-grade preparation;
3. placement of road base;
4. paving (if applicable);
5. construction of drainage improvements (including culverts for driveways, (if applicable);
6. placement of signs (if applicable).

A final inspection shall be conducted after the completion of all improvements. The final inspection shall occur between May 1st and October 31st. Roads must comply with the design criteria and construction standards in these regulations, and with any approved plans. If the inspection discloses any work, in whole or in part, as unsatisfactory, the Road Supervisor shall follow the procedure stated in Section 3.3.2.

6.6.3 Filing Request for County Acceptance

Developers seeking County acceptance for maintenance of roads must submit a letter to the (Sanpete Department Assigned) requesting the Board of County Commissioners approval.

6.6.4 Staff Evaluation and Recommendation

The Roads Department shall determine if the road meets the requirements of these regulations. A recommendation on whether or not probationary maintenance should be provided shall be forwarded to the Board of County Commissioners as an Action Item at a regularly scheduled Board of County Commissioners meeting. It is the County's policy to accept roads for maintenance only if they meet the requirements of these regulations and have received design approval and inspection during construction.

6.6.5 Board of County Commissioners Action on Request for Acceptance

After the Board of County Commissioners has received the recommendation from the (Inspector Assigned) they shall take action by resolution to either grant or deny probationary maintenance of the road.

6.6.6 Guarantee Period After Probationary Acceptance

Under probationary acceptance, the developer is responsible for making repairs and correcting failures for a period of two years from the date probationary acceptance is granted. During this (2) two year period, the County will plow those sections of road necessary to serve units which have been built.

6.6.7 Final Acceptance

No earlier than twenty months after the Board of County Commissioners grants probationary acceptance, the developer may request re-inspecting, noting any defects or required repairs. The developer shall correct the defects or required repairs. After any defects have been cured and repairs made and twenty four (24) months have elapsed since probationary acceptance was granted, the developer may submit a letter to the County requesting final acceptance of the road. The staff shall make a final determination as to whether or not the road should receive full maintenance and forward the recommendation to the Board of County Commissioners as an Action Item at a regularly scheduled Board of County Commissioners meeting.

6.7 Acceptance Procedure for Roads Constructed Through Assessment Areas

One of the mechanisms available for upgrading existing private or public roads to County standards is the designation of an Assessment Area (Utah Code, Title 11, Chapter 42, Assessment Area Act). Under an Assessment Area, the County issues tax-exempt bonds to pay for the improvements. Such improvements may include adjusting road grades, widths and alignments, improving drainage, adding road base and/or paving. The cost is assessed against the lot owners who benefit from the improvements.

6.7.1 Design and Construction Standards for Assessment Areas

Roads constructed through an Assessment Area shall meet County standards unless a specific deviation from standards is approved by the Board of County Commissioners. Approved deviation from standards shall be documented by a resolution of the Board of County Commissioners adopted at the same time as the Assessment Area is formed.

6.7.2 Construction Supervision for Assessment Areas

During construction, the Road Department shall be responsible for inspecting work done by the contractor or shall hire a consultant for this purpose at developers cost, to make sure the design and construction specifications are met. At the end of construction, the County Road Supervisor shall conduct a walk-through of the project to make sure work has been completed as expected.

6.7.3 Staff Evaluation and Recommendation

The County Road Supervisor will make a recommendation based upon the criteria set forth in Section 6.3.

6.7.4 Board of County Commissioners Action on Request for Acceptance

After the Board of County Commissioners has received the recommendation from the Road Department, they shall take action to either grant or deny full maintenance of the road. The fact that the upgrading of the road was accomplished through an Assessment Area does not guarantee acceptance. In addition, acceptance shall only be considered if the property owners dedicate the necessary right-of-way to the County, the road meets the design and construction standards in these regulations except for approved deviation from standards, and maintenance is feasible. If acceptance for full maintenance is granted, any approved deviation from standards shall be documented in the resolution of approval. Full maintenance means the County assumes ongoing responsibility for maintenance and plowing.

6.8 Responsibilities for Road Maintenance

Private individuals, including property owners, developers, contractors, and others carry certain responsibilities in the maintenance of County roads.

6.8.1 Providing for Parking

Parking on County roads is regulated in Sanpete County by Ordinance 14.76.080 and the County's Zoning Regulations, and it is the responsibility of every property owner to provide adequate off right-of-way parking. On-street parking presents particular difficulties during snow plowing season and the Sheriff's Department may order illegally parked vehicles to be towed. In addition, the Road Supervisor may, at his discretion, decline to plow all or portions of a road if one or more cars are parked so as to impede plowing.

6.8.2 Providing for Drainage

Culverts are required where driveways connect to roadways unless specifically exempted by the: Road Department and these regulations. It is the responsibility of the property owner to maintain their culverts free and clear of silt, mud, debris, and ice during times that flow occurs in the ditch. Damage to a road caused by a blocked culvert or lack of a culvert is the responsibility of the property owner. If it becomes necessary for the County to undertake repairs, costs will be billed to the property owner by the Road Department as authorized by Utah Statues.

Water which flows out of driveways must be diverted to ditches. Damage to roadways caused by such water is similarly the responsibility of the owner and repair costs will be billed.

6.8.3 Keeping Right-of-Way Clear

Storage of material in any road right-of-way is prohibited. Any material which is stored in the road right-of-way which impedes snow plowing or road maintenance, or which constitutes a hazard to the general public, will be removed by the Road Department and the owner billed for the cost.

6.8.4 Repairing Damage

Whenever a property owner, developer, contractor, or any other individual undertakes an activity which damages a County road or road right-of-way, they are responsible for restoring the road to, at least, its original condition. This requirement applies especially to damage caused by construction activities adjacent to a County road. Ultimate responsibility for assuring adequate restoration is accomplished lies with the owner of the property where construction is occurring.

Chapter 7 – Deviations from Design and Construction Standards

7.1 Exceptions to Design and Construction Standards

Exceptions from the design criteria and construction specifications contained in these regulations may be granted by the Board of County Commissioners under the following circumstances:

A. Where, by reason of exceptional topographic or physical conditions or other extraordinary and exceptional situations or conditions, the strict application of these regulations would result in peculiar and exceptional practical difficulties to, or exceptional and undue hardship upon, an individual proposing to construct a road or bridge provided the conditions in Section 7.1.C are met.

B. Where an individual is proposing to construct a low volume or local access road and the strict application of these regulations would result, in the opinion of the Board of County Commissioners, in excessive cut and fill slopes, visual scarring, or other environmental damage, deviations from road design standards may be granted if granting the lesser standard will result in reduced environmental damage, and the conditions in section 7.1.C are met. In reviewing such requests, the Board of County Commissioners shall consider the following:

1. The effect of using a lesser standard on public health and safety including the ability of emergency vehicles to gain access, using roads built to a lesser standard.

2. The severity of the terrain crossed by the road alignment.

3. The availability of alternative alignments where the same or more stringent road standards could be met with the same or less environmental damage.

4. The length of road segments which will be built to a lesser standard.

5. The amount of snowfall anticipated and degree of exposure of the road surface to the sun.

C. Deviations from standards that are necessary due to difficulties or hardships described in Section 7.1.A and 7.1.B may be granted provided relief will not result in substantial detriment to public health, safety and welfare, substantial impairment of the road design and construction standards, or the granting of any special privilege or use. Prior to the Board of County Commissioners taking action, the Board of County Commissioners shall refer any deviation from standards requested to the appropriate fire district and other interested agencies for comment.

Chapter 8 – Enforcement of Design and Construction Standards

8.1 Enforcement When Subdividing Property

8.1.1 Requirement for Subdivision Improvements Agreement and Financial Guarantee

No final plat shall be approved until the applicant has submitted and Board of County Commissioners has reviewed and accepted one or a combination of the following:

A. Subdivision improvements agreement (SIA) to construct any required public improvements shown in the final plat documents together with collateral that is sufficient, in the judgment of the Board of County Commissioners, to make reasonable provision for the completion of said improvements in accordance with design and time specifications.

B. Other agreements or contracts including allowing the developer to complete the improvements prior to recording the plat setting forth the plan, method, and parties responsible for the construction of any required public improvements shown in the final plat documents which, in the judgment of the Board of County Commissioners, will make reasonable provisions for the completion of said improvements in accordance with design and time specifications. Any roads or bridges required to be constructed, improved, or upgraded shall meet the design and construction standards contained in these regulations, or as allowed by any deviation from standards approved by the Board of County Commissioners. The subdivider shall post a financial guarantee acceptable to the County Attorney to insure construction of these improvements prior to the issuance of the "Certificate of Compliance" and the start of construction.

8.1.2 Use of Collateral

As improvements are completed, the subdivider may apply to the Board of County Commissioners for a release of part or all of the collateral. If the Board of County Commissioners determines that any improvements are not constructed in substantial compliance with the specifications, it shall furnish the applicant a list of specific deficiencies and shall withhold collateral sufficient to ensure such compliance. If the Board of County Commissioners determines that the applicant has not constructed any or all of the improvements in accordance with all of the specifications, the Board may withdraw and employ from the deposit of collateral such funds as may be necessary to construct the improvement in accordance with the specifications.

8.1.3 Restrictions on Transfer of Property

The Board of County Commissioners or any purchaser of any lot, lots, tract, or tracts of land subject to a plat restriction which is the security portion of a subdivision improvements agreement shall have the authority to bring an action in any district court to compel the enforcement of any subdivision improvements agreement on the sale, conveyance, or transfer of any such lot, lots, tract, or tracts of land. Such authority shall include the right to compel rescission of any sale, conveyance, or transfer of title of any lot, lots, tract, or tracts of land contrary to the provisions of any such restriction set forth on the plat or in any separate, recorded instrument, but any such action to compel rescission shall be commenced prior to the issuance of a building permit where so required or otherwise prior to commencement of construction on any such lot, lots, tract, or tracts of land.

8.2 Use of Property for Road and Bridge Construction

It is unlawful to erect, construct, alter, maintain or use any building or structure or to use any land in violation of these regulations.

Any person, firm or corporation violating any portion of these regulations is guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not more than one hundred dollars. Each day during which such illegal erection, construction, reconstruction, alteration, maintenance or use continues shall be deemed a separate offense.

The issuance of a building permit or a certificate of occupancy may be withheld for property unless the plans for the proposed erection, construction, reconstruction, alteration or use fully conform to these regulations or for property on which a violation of the provisions of these regulation exist, until such violation has been corrected to the satisfaction of the Board of County Commissioners.

8.3 Issuance of Work Stoppage Injunction

These regulations may be enforced by work stoppage injunctions issued by the District Court pursuant to law or suit which may be filed by the County Attorney on behalf of the Board of County Commissioners for damages resulting to County rights-of-way due to noncompliance with these regulations.

8.4 Effective Date of Design and Construction Standards

Any roads or bridges proposed as part of a subdivision submitted for final plat review after final approval of these regulations shall conform to the requirements of these regulations. Any roads or bridges within an approved subdivision where either the preliminary plat or final plat expires or is proposed for reapproval or re-platting after final approval of these regulations, shall conform to these regulations.

Roads or bridges which have been approved as part of a subdivision or site plan prior to final approval of these regulations, and where construction is commenced prior to expiration of the final plat or site

plan may be built in accordance with the design and specifications approved in conjunction with the plat or site plan.

NOTE: The tables contained within this section are derived from the most recent AASHTO standards and are provided herein for convenience purposes. In the event of a conflict between data provided within these tables and the currently adopted version of AASHTO standards, the currently adopted version shall govern.

Road Design Manual Tables 1 - 19

Table 1 Design Capacity for Classes of Roadways

Classification	ADT
Principal Arterial	5,000 - 10,000
Arterial	3,500 - 5,000
Collector	2,000 - 3,500
Low Access	300 - 2,000
Low Volume	100 - 300
Primitive	Less Than 100

Table 2 Per Unit Average Daily Traffic

Type	Unit	Per Unit ADT
Residential Density	Per Dwelling Unit	10.0
Condominium	Per Dwelling Unit	7.0
Mobile Home Park	Per Mobile Home	7.0
Hotel	Per Room	10.5
Restaurant	Per 1,000 S.F. Gross	164.0
Commercial	Per 1,000 S.F. Gross	115.0
Office	Per 1,000 S.F. Gross	12.3
Campground	Per Space	6.6
RV Park	Per Space	6.6
Supermarket	Per 1,000 S.F. Gross	125.0

Table 3 Summary of Road Design Elements

Design Element	Arterial	Local			
		Collector	Access	Low Volume	Primitive
Right Of Way (Min)	100	82	66	66	40
Recommended Design Speed	40 - 60	35 - 45	25 - 35	20 - 35	20 - 30
Number Of Lanes	2 - 4	2	2	2	1 - 2
Lane Width(ft)	12	12	12	11	10 - 12 (1)
Shoulders (ft)	6	3	1	1	
Maximum Sustained Grade %	6%	6% (2)	6% (2)	8%	10%
Bridge Width	Same As Roadway	32	26	24	Same As Roadway
Design Capacity	5000	3500	2000	500	100

(1) For roads having one lane, lane must be 12`; for roads having two lanes, each lane must be 10`.
(2) See Section 2.43.A.2 for exceptions

Table 4 Stopping and Passing Design Elements

Design Speed	Stopping Sight Distance	Passing Sight Distance
15	100	500
20	150	700
25	200	900
30	250	1100
35	300	1300
40	400	1500
45	500	1650
50	600	1800

55	700	1950

Table 5 Minimum Radius Curvature

Design Speed	Minimum Curvature Radius	Minimum Tangent Lengths
15	75	50
20	125	75
25	175	100
30	250	150
35	375	200
40	550	250
45	700	250
50	850	250
55	1200	250

Table 6 Crown Slopes

Type Of Surface	Crown Slope %
Pavement	2.0
Gravel	3.0

Table 7 Design Chart for Superelevation and Superelevation Run-off

Degree of	20 MPH		30 MPH		40 MPH		50 MPH		60 MPH	
Curve	e	L	e	L	e	L	e	L	e	L
1	NC	0	NC	0	NC	0	RC	0	.029	175
2	NC	0	RC	0	.021	125	.038	150	.051	175
3	NC	0	.025	100	.038	125	.053	150	.068	180
4	RC	50	.031	100	.047	125	.063	150	.078	210
5	.021	50	.038	100	.055	125	.071	170		
6	.025	50	.043	100	.062	130	.077	180	Dmax=4 45`	
7	.028	50	.048	100	.067	140	.080	190		
8	.031	50	.053	100	.071	150				
9	.035	50	.056	100	.075	160	Dmax=7 30`			
10	.037	60	.060	110	.078	160				
12	.043	60	.065	120	.080	170				
14	.047	70	.070	130						
16	.051	70	.074	130	Dmax=12 15`					
18	.054	80	.077	140						
20	.057	90	.079	140						
22	.060	90	.080	140						
24	.062	100								
28	.067	100	Dmax=22 45`							
32	.070	110								
36	.074	110								
40	.076	120								
44	.078	120								
48	.079	120								
52	.080	120								

Dmax = 53 30`

D = Degree of Curve and D = 5730/R e = rate of superelevation L = minimum length of runoff

Source: A Policy on Geometric Design of Highways and Streets, 2001; pp 147 - 166

Table 8 Minimum Traffic Indexes

Road Class	Minimum TI
Primitive	3.5
Low Volume	4.5
Local Access	5.0
Collector:	
Residential	6.0
Commercial	7.0
Industrial	8.5
Arterial	10.0

Table 9 Minimum Structural Sections

Road Class	Gravel	Paved*
Primitive	6” Base Course 6” Subbase	
Low Volume		3” Asphalt 6” Base Course 6” Subbase
Local Access		4” Asphalt 6” Base Course 8” Subbase
Collector		4” Asphalt 6” Base Course 12” Subbase

* Full depth asphalt or concrete designs will be considered and may be used with the approval of the County Road Supervisor.

Table 10 Coefficient of Runoff

Type Of Surface		Value of C = Rainfall
Roofs		0.97
Pavements:		
Concrete or Asphalt Gravel, From Clean And Loose To Clayey And Compact		0.97
Earth Surfaces:		
Sand, From Uniform Grain Size, No Fines, To Well Graded, Some Silt	Bare	0.60
	Light Vegetation	0.45
	Dense Vegetation	0.35
Clay Or Clay, From Course Sandy Or Silty, To Pure Colloidal Clay	Bare	0.70
	Light Vegetation	0.50
	Dense Vegetation	0.40

Table 11 Maximum Permissible Velocities

Channel Material	"n"	Velocity (ft/sec)
Lined Or Well-Established Grass	0.05	5
Bunched Grasses With Exposed Soil	0.04	3
Fine Sand Or Silt	0.02	1
All Other Bare Soils	0.03	2

Table 12 Driveway Widths

Type of Service	Minimum Driveway Driving Surface Width	Opening Width (Including Flares)		Minimum Centerline Radius Of Curvature
		Minimum	Maximum	
Commercial	22 feet	24 feet	*	65 feet
Residential	20 feet	22 feet		10 feet

*To be determined at time of site plan review.

Table 13 Gradation for Gravel Roads

Standard Sieve Size	% Passing By Weight
Subbase Course:	
1.5”	100%
1”	95 - 100%
No. 4	30 - 70%
No. 200	5 - 12%
Base Course:	
¾”	100%
No. 4	30 - 60%
No. 8	25 - 55%
No. 200	5 -12%

Table 14 Gradations for Base Course Material

Standard Sieve Size	% Passing	% Passing
1.5”	100%	--
1”	95 - 100 %	--
¾”	--	100%
No. 4	30 - 70%	30 - 65%
No. 8	--	25 - 55%
No. 200	3 - 15%	3 - 12%

Table 15 Crushed Gravel Aggregate for Asphaltic Concrete

Gravel Sieve Size	% Passing By Weight
¾”	100%
No. 4	44%
No. 8	30%
No. 200	3 - 12%

Table 16 Placement Temperature Limitations for Asphalt Pavement

	Min. Placement Air Temp. Mix Temp. 260 Degrees ± 25
Compacted Thickness Top Layer Of Completed Pavement:	
1.5” to 2.5”	50 Degrees F.
More Than 25”	40 Degrees F.
Layers Below The Top Layer Of Compacted Pavement:	
1.5 to 2”	40 Degrees F.
2” to 3”	30 Degrees F.
3.25” to 4”	25 Degrees F.
More Than 4”	20 Degrees F.

Table 17 Flowable Fill

UDOT Mix	Onsite Mix
4% Cement 10% Fly Ash 86% Sand 25 OZ Water / LB Mix	6% Cement 94% Fine Onsite Material 28 OZ Water/ LB Mix

Table 18 Utility Facility Depth Requirements – New Installation

Cable TV	2 FT. Or 1 FT. Below Culvert
Telephone Cable	2 FT. Or 1 FT. Below Culvert
Communication Conduit Power Cable (W Or W/O Conduit)	4 FT. Or 2 FT. Below Culvert
Gas Distribution Line	5 FT. Or 3 FT. Below Culvert
Gas Main Lines	6 FT. Or 4 FT. Below Culvert
Water / Sewer Main	10 FT. Or 6 FT. Below Culvert
Water / Sewer Line	8 FT. Or 5 FT. Below Culvert

Table 19	**Permit & Evaluation Fee Schedule**
GENERAL FEES	
Best Management Practices Permit (Section 2.9)	
Driveway Permit (Section 4.3)	
Grading Permit (Section 4.72)	$340
Maintenance Permit	
Private Road Cut (Section 4.3.3)	
Right Of Way Permit (Section 5.1)	
Snow Parking Permit	$110
Street Closure Permit	
Utility Installation/Repair Permit *(Inspections During Business Hours Are Included In Permit Fee)*	$340
PERFORMANCE GUARANTEES	
Utility Installation/Repair Permit *(Estimated Area Is Equal To: 2 Times The Square Root Of The Depth Plus Trench Width, Times Length Of Cut, Divided By 9. [Conversion From ft^2 To yd^2])*	Gravel Road - $160 Plus $14/yd^2 Asphalt Road - $320 Plus $25/yd^2
Grading Permit	$750
Road Construction Permit	Project Cost Plus 10%
ROAD CONSTRUCTION PERMITS & PLAN REVIEW FEES	
50 Cubic Yards (38.2 m^3) Or Less	No Fee
51 To 100 Cubic Yards (40 m^3 to 76.5 m^3)	$30.55
101 To 1,000 Cubic Yards (77.2 m^3 to 764.6 m^3)	$48.10
1,001 To 10,000 Cubic Yards (765.3 m^3 to 7645.5 m^3)	$64.02
10,001 To 100,000 Cubic Yards (7646.3 m^3 to 76455 m^3)	$64.02 For The First 10,000 Cubic Yards (7,645.5 m^3) Plus $31.85 For Each Additional 10,000 Cubic Yards (7,645.5 m^3) Or Fraction Thereof
100,001 To 200,000 Cubic Yards (76,456 m^3 to 152,911 m^3)	$350.68 For The First 100,000 Cubic Yards (76,455 m^3) Plus $17.22 For Each Additional 10,000 Cubic Yards (7,645.5 m^3) Or Fraction Thereof.

200,001 Cubic Yards (152,912 m^3) Or More	$522.92 For The First 200,000 Cubic Yards (152,912 m^3) Plus $9.42 For Each Additional 10,000 Cubic Yards (7,645.5 m^3) Or Fraction Thereof.
OTHER FEES	
Additional Plan Review Required By Changes, Additions Or Revisions To Approved Plans	$65.65 Per Hour (Minimum Charge Is One -half Hour)
Request For Exceptions To The County's Road Standards - Required At The Time Of The "Exception" Request - Road Construction	$150
ROAD CONSTRUCTION PERMIT FEES	
50 Cubic Yards (38.2 m^3) Or Less	$30.55
51 To 100 Cubic Yards (40 m^3 to 76.5 m^3)	$48.10
101 To 1,000 Cubic Yards (77.2 m^3 to 764.6 m^3)	$48.10 For The First 100 Cubic Yards (76.5 m^3) Plus $22.75 For Each Additional 100 Cubic Yards (76.5 m^3) Or Fraction Thereof.
1,001 To 10,000 Cubic Yards (765.3 m^3 to 7,645.5 m^3)	$252.85 For The First 1,000 Cubic Yards (764.6 m^3) Plus $18.85 For Each Additional 1,000 Cubic Yards (764.6 m^3) Or Fraction Thereof.
10,001 To 100,000 Cubic Yards (7,646.3 m^3 to 76,455 m^3)	$422.50 For The First 10,000 Cubic Yards (7,645.5 m^3) Plus $85.80 For Each Additional 10,000 Cubic Yards (7,645.5 m^3) Or Fraction Thereof.
100,001 To 200,000 Cubic Yards (76,456 m3 to 152,911 m3)	$1,194.70 For The First 100,000 Cubic Yards (76,456 m^3), Plus $47.45 For Each Additional 100,000 Cubic Yards (76,456 m^3) Or Fraction Thereof.
OTHER INSPECTIONS AND FEES	
Inspections For Which No Fee Is Specifically Indicated	$65.65 Per Hour (Minimum Charge - 30 Minutes)
Inspections For Which No Fee Is Specifically Indicated	$65.65 Per Hour (Minimum Charge - 2 Hours)
Reinspection Fee	$65.65 Per Hour

The fee for a Road Construction Permit authorizing additional work to that under a valid permit shall be the difference between the fee paid for the original permit and the fee shown for the entire project.

Road Design Manual Figures 1 - 24

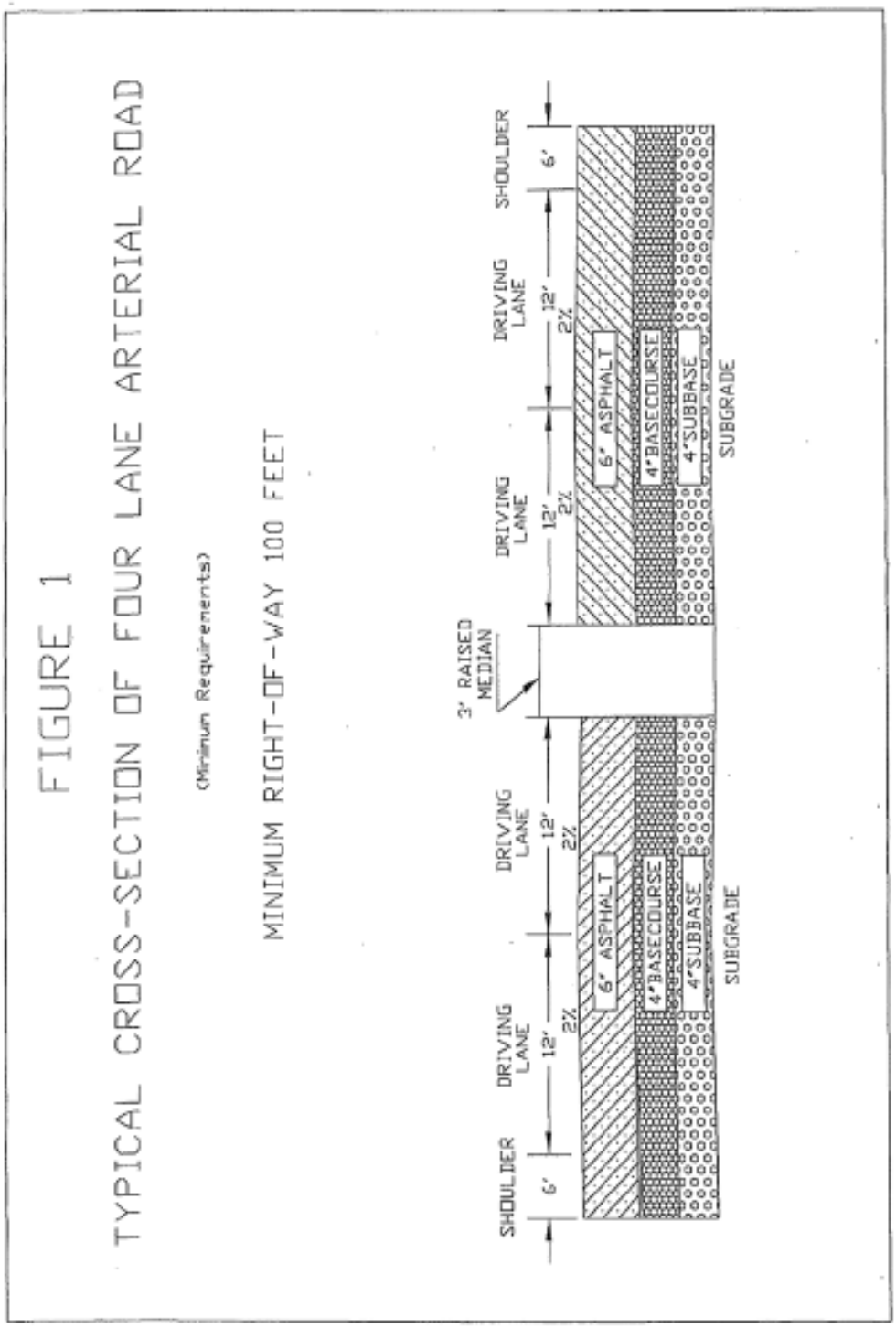


Figure 1 Typical Cross-Section of Four Lane a Arterial Road

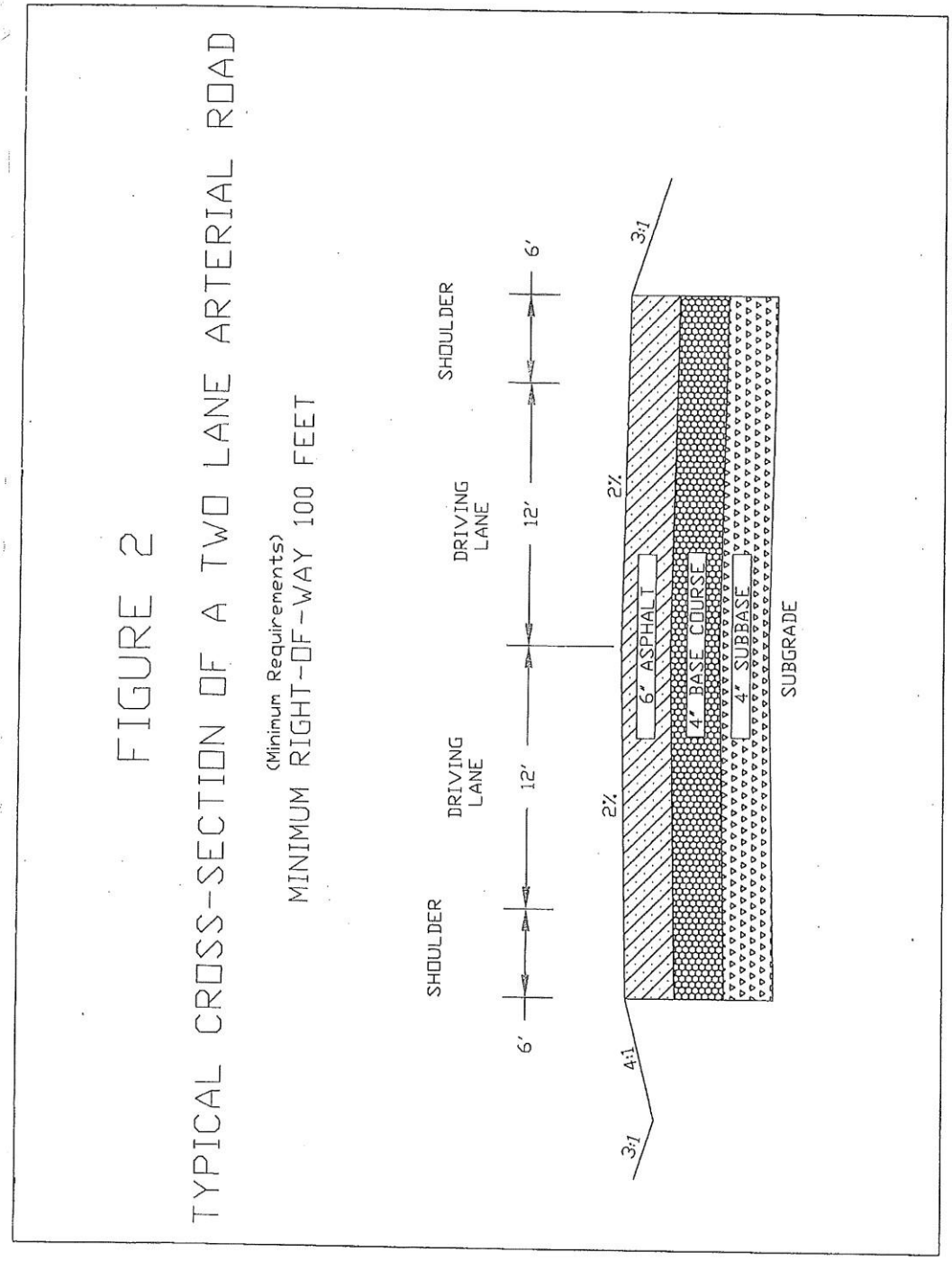


Figure 2 Typical Cross-Section of Two Lane a Arterial Road

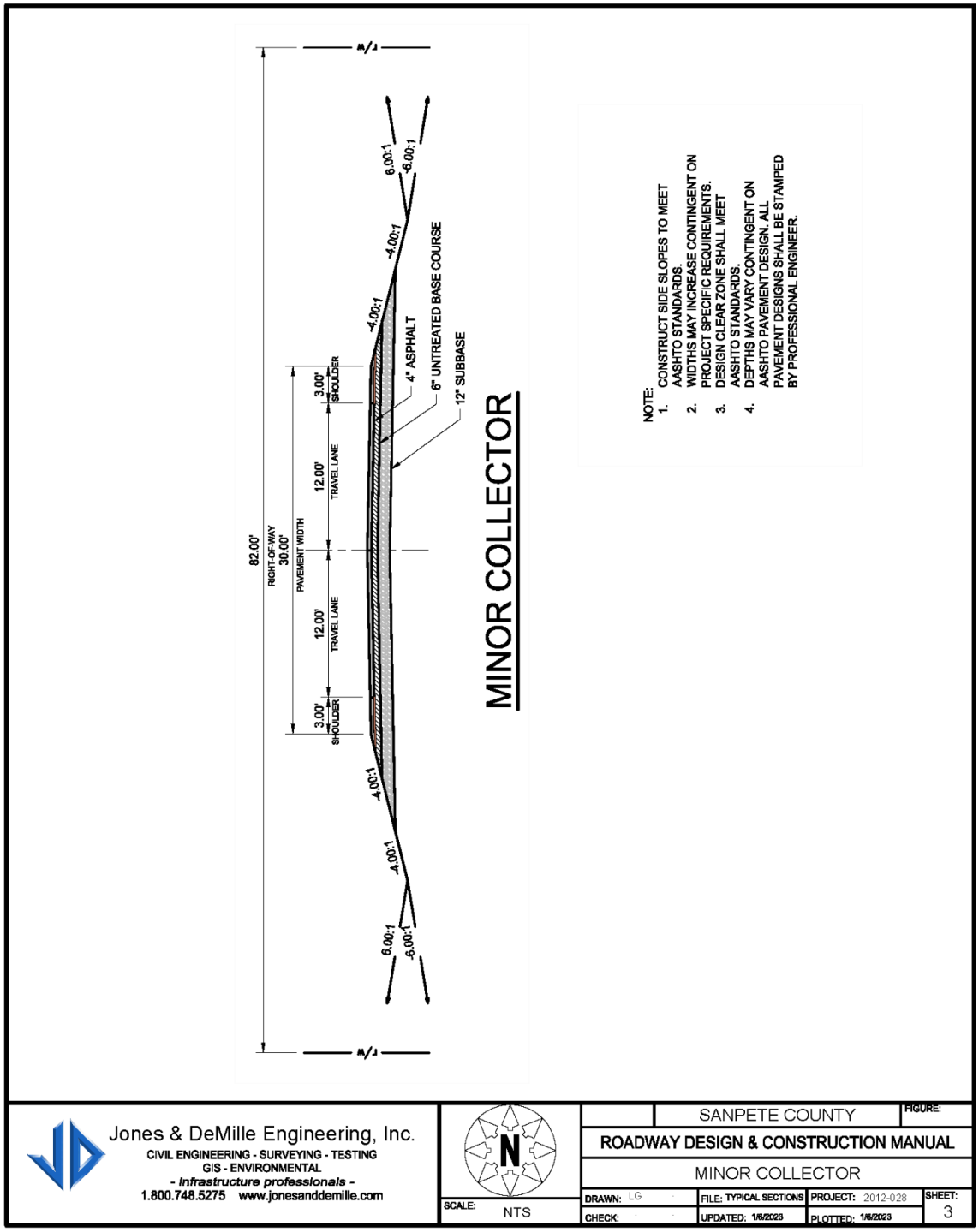


Figure 3 Typical Cross-Section of a Collector Road

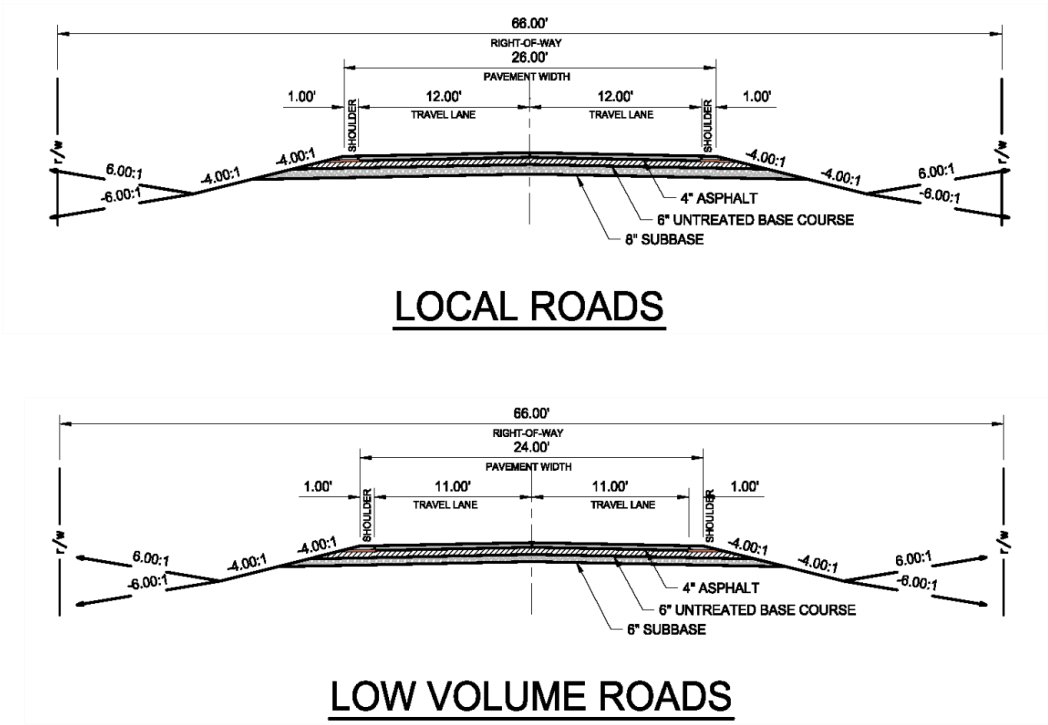
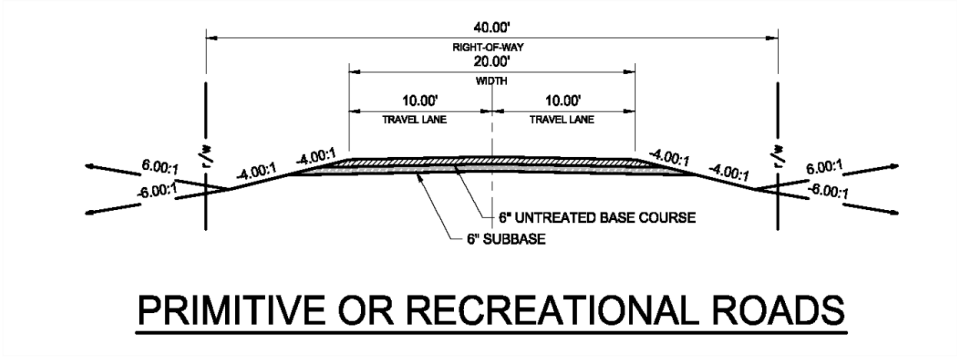


Figure 4 Typical Cross-Section of a Local Access Status Road



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SCALE: NTS

SANPETE COUNTY | FIGURE:
ROADWAY DESIGN & CONSTRUCTION MANUAL
PRIMITIVE ROADS

DRAWN: LG	FILE: TYPICAL SECTIONS	PROJECT: 2012-028	SHEET: 6
CHECK:	UPDATED: 1/6/2023	PLOTTED: 1/6/2023	

Figure 6 Typical Cross-Section for Primitive Status Road

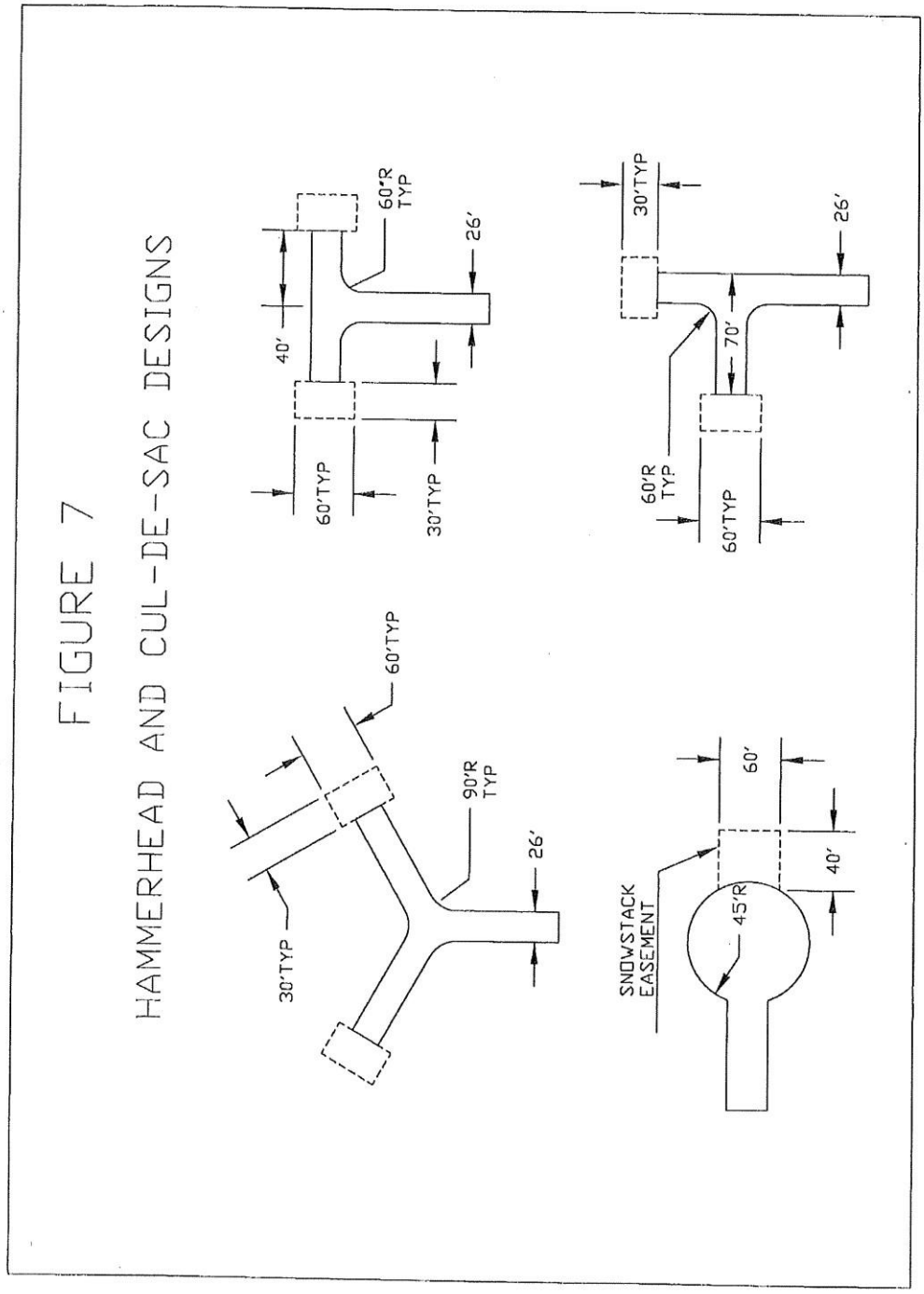


Figure 7 Hammerhead and Cul-de-sac Designs

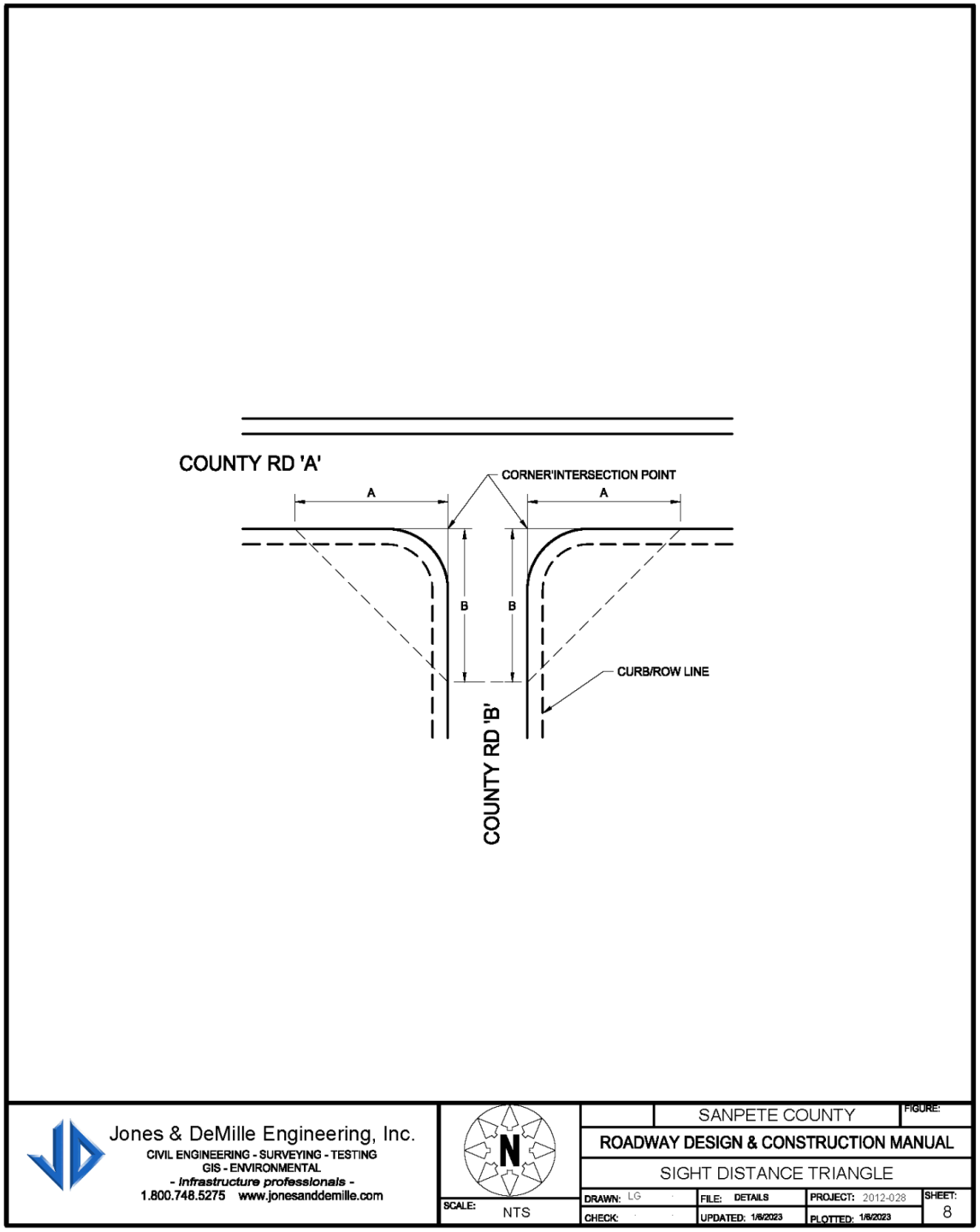


Figure 8 Sight Distance Triangle

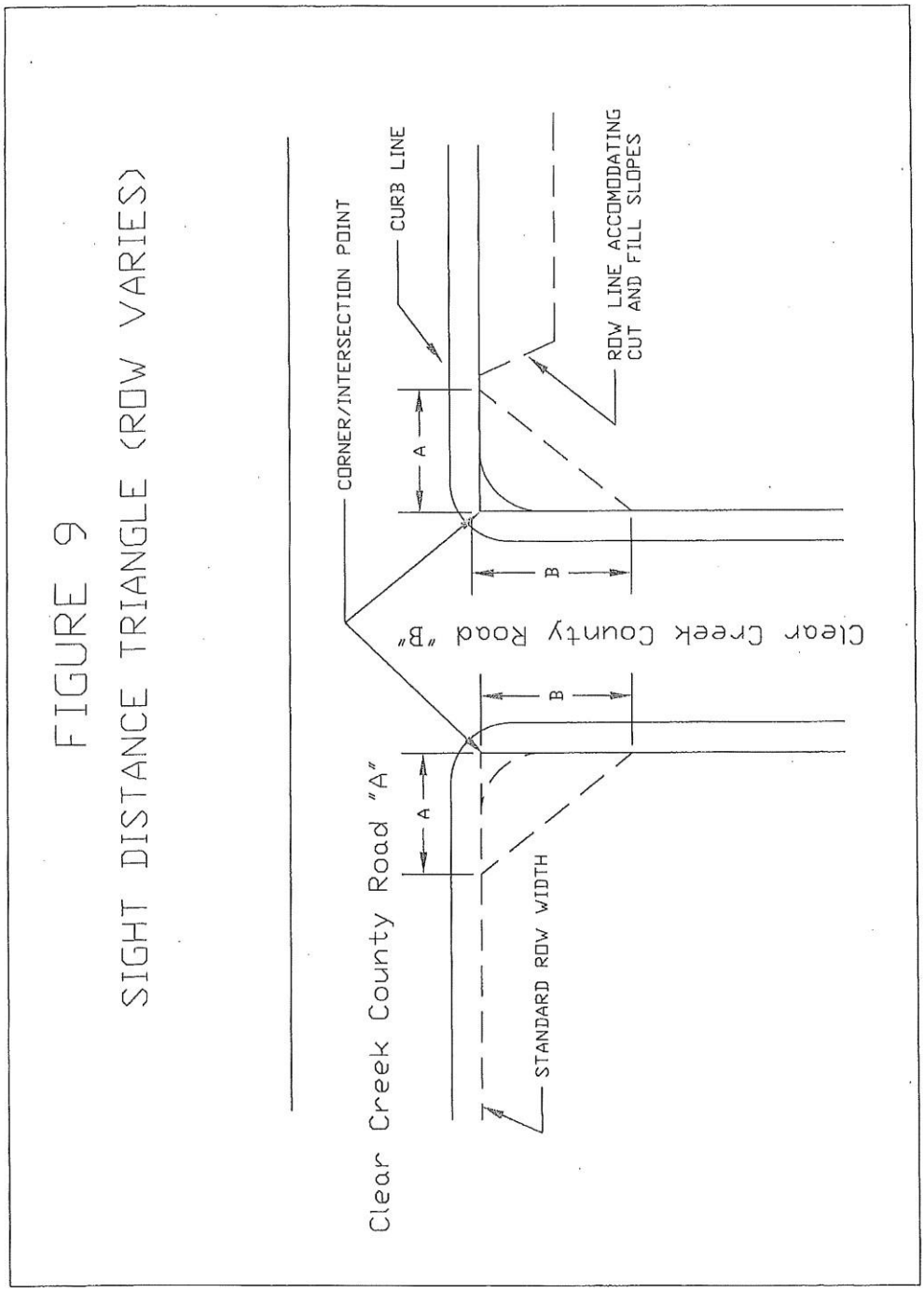


Figure 9 Sight Distance Triangle (ROW Varies)

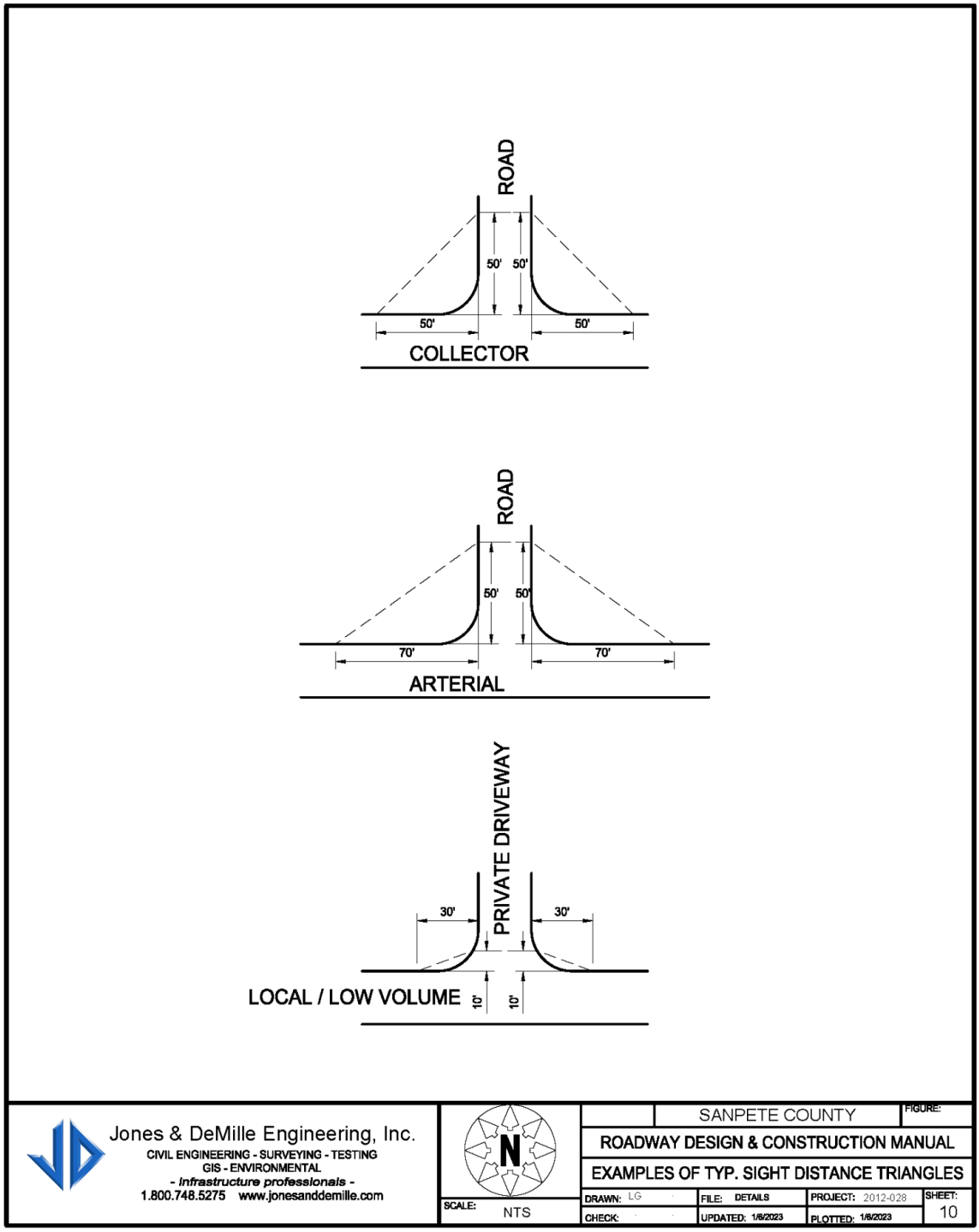


Figure 10 Examples of Typical Sight Distance Triangles

FIGURE 11

INDEMNIFICATION AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20_____, between Sanpete County, Utah, acting by and through its Board of County Commissioners, whose address is 160 North Main Street, Suite 01, Manti, UT 84642 (hereinafter referred to as "County") and as the duly appointed representative of the users of rural free delivery cluster box, on County Road _____, Sanpete County, Utah (hereinafter referred to as "Users).

WHEREAS, Users desire to place a rural free delivery cluster box for postal delivery in the right-of-way belonging to the County, and;

WHEREAS, the County is willing to allow such cluster box to be installed by Users providing they comply with the County's requirements for locating rural free delivery multi box modules and that Users indemnify and hold the County harmless from any damages caused to cluster box by the County or any other party.

NOW THEREFORE, in consideration for the promises made herein, the parties agree as follows:

1. Users agree to defend, indemnify and hold the County, its agents and employees harmless from all loss, cost, lawsuits, and damage incurred by Users and relating to the rural free delivery cluster box located on County Road _____, by Sanpete County and the public.

2. The terms of the Indemnification Agreement shall be binding upon and insure to the benefit of both parties hereto, their respective heirs, executors, administrators, successors and assigns.

3. The County reserves the right to require that Users remove and/or relocate the cluster box in the interest of the public health, safety and welfare.

IN WITNESS THEREOF, the parties have executed this Indemnification Agreement as of this day and year first written above.

USERS:	**COUNTY:**
_____	_____
[INSERT NAME]	[INSERT NAME], Commission Chair

State of Utah)

§

County of _____)

On this _____day of _____, in the year 20____, before me, _____ a notary date month year notary public name public, personally appeared _____, proved on the basis of satisfactory name of document signer evidence to be the person(s) whose name(s) (is/are) subscribed to this instrument, and acknowledged (he/she/they) executed the same. Witness my hand and official seal.

_____

[Notary Signature] [seal]

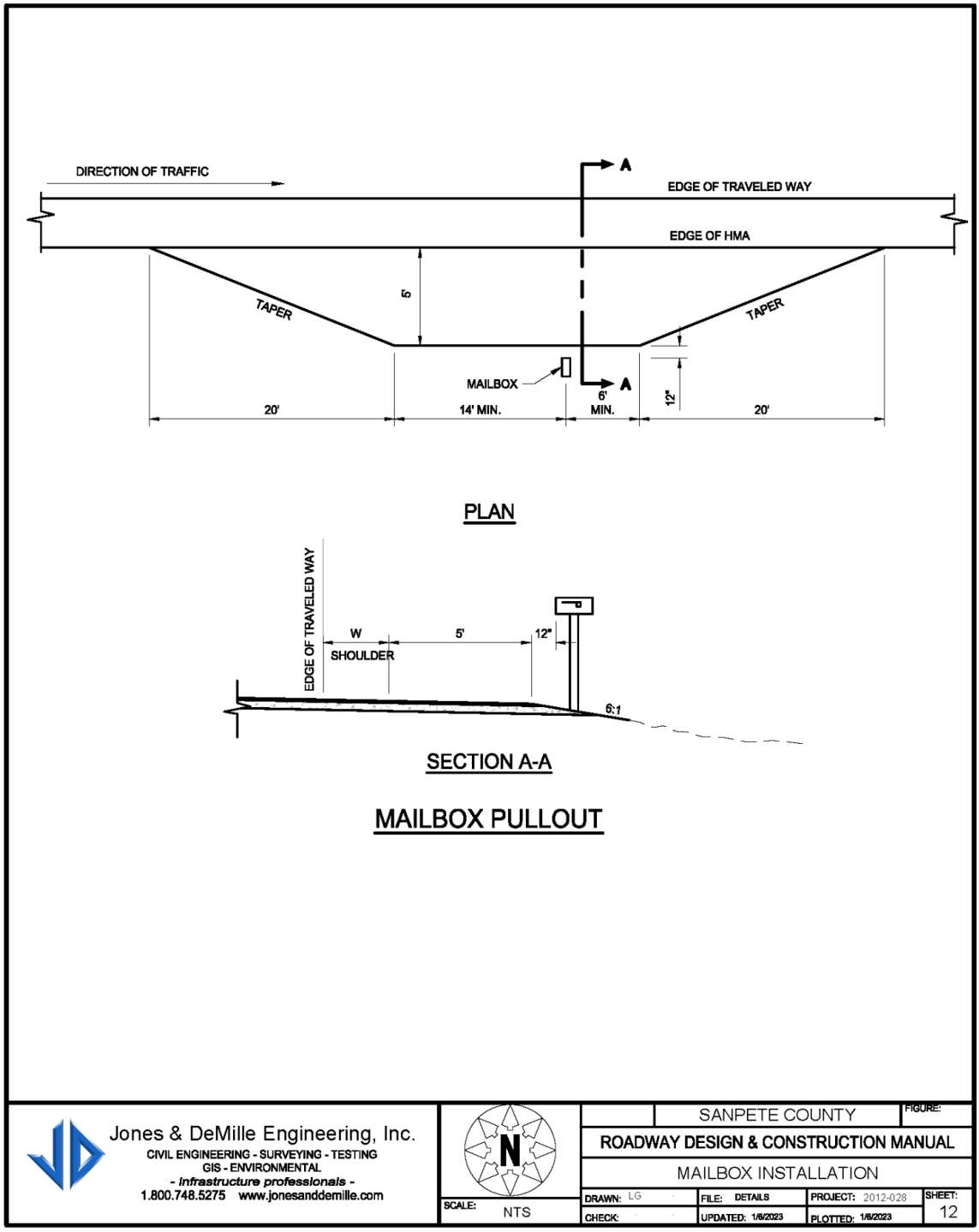


Figure 12 Required Mailbox Installation on Public Roads

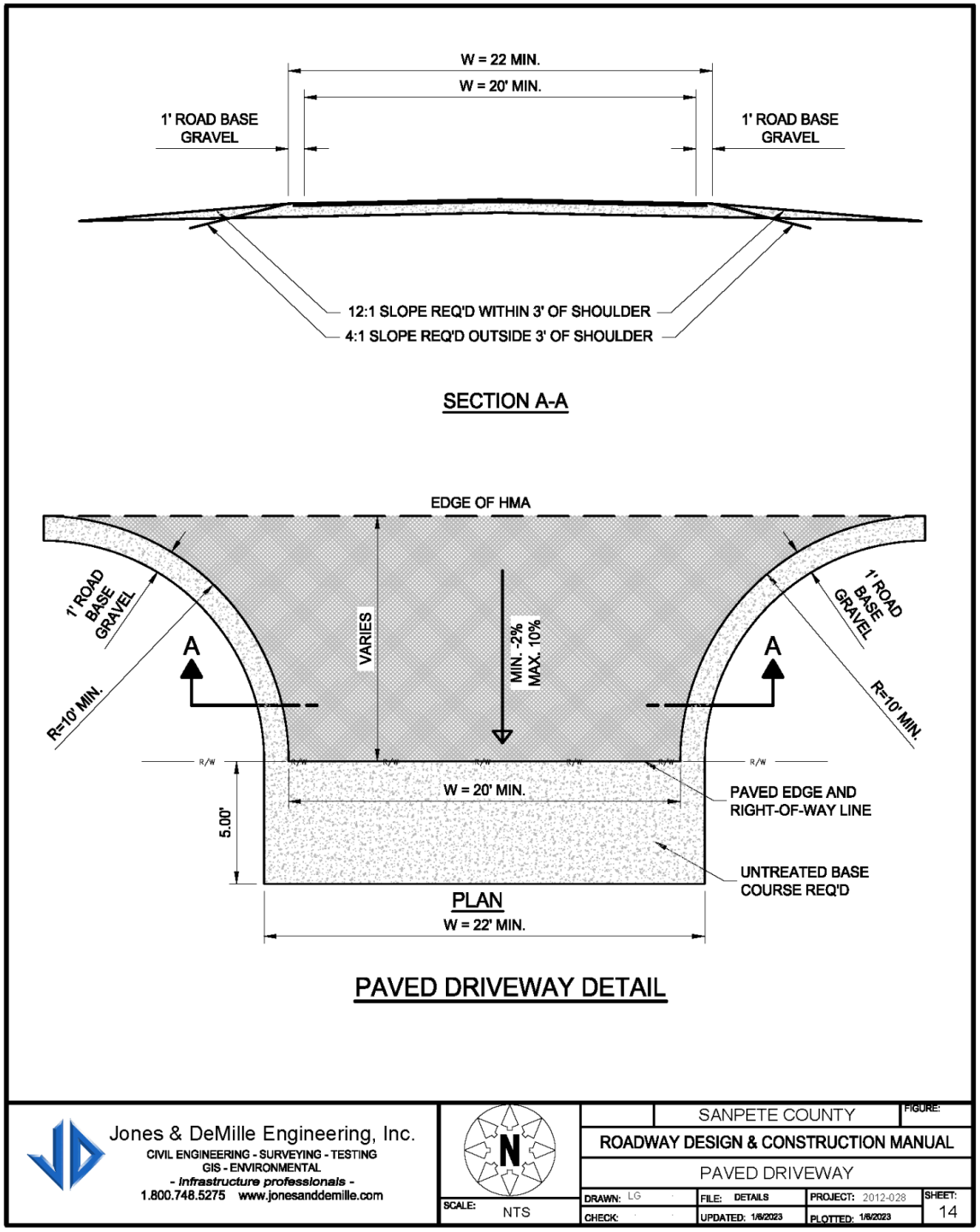


Figure 14 Typical Cross Section of a Crowned Driveway

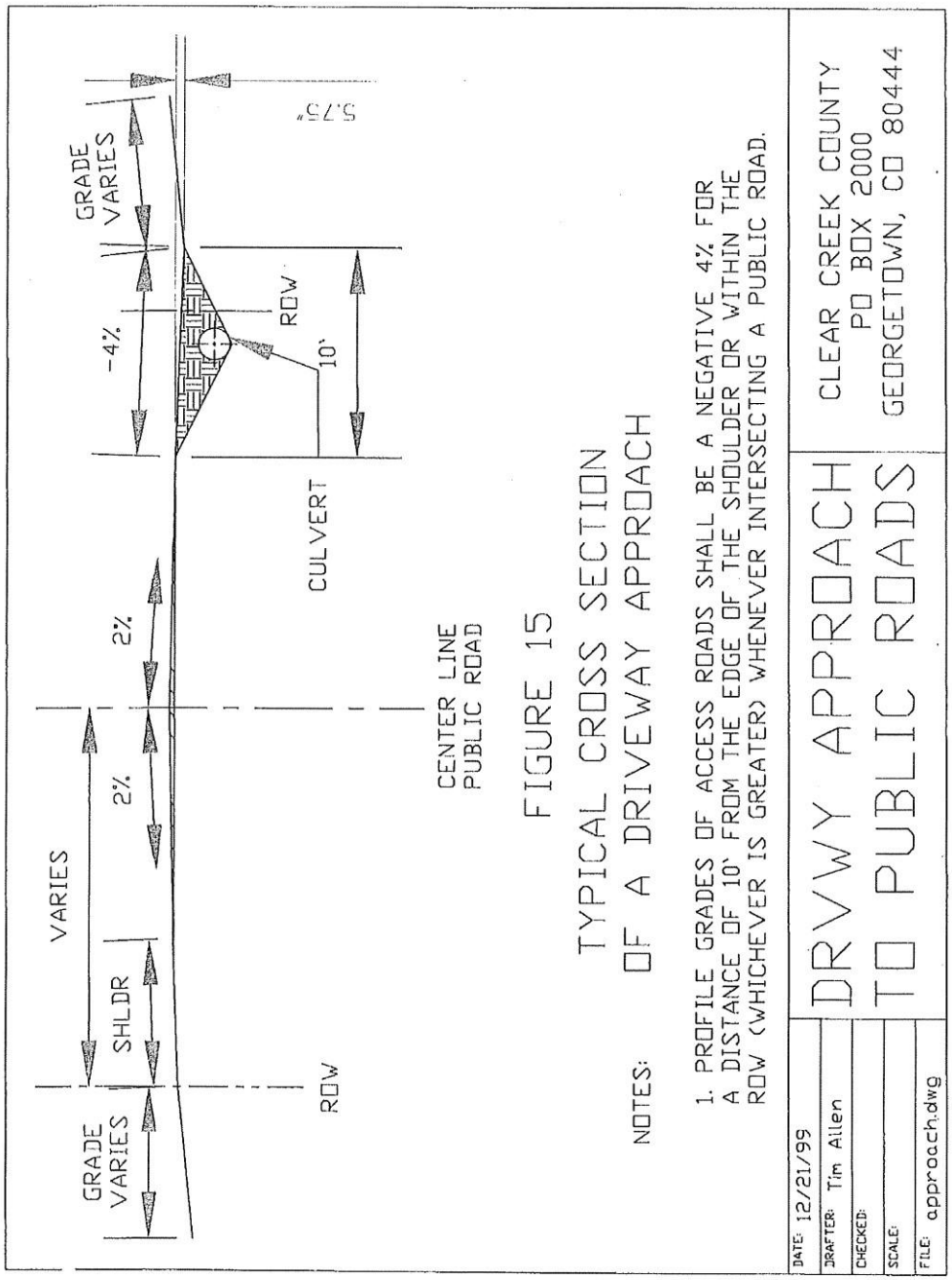


Figure 15 Typical Cross Sections of a Driveway Approach

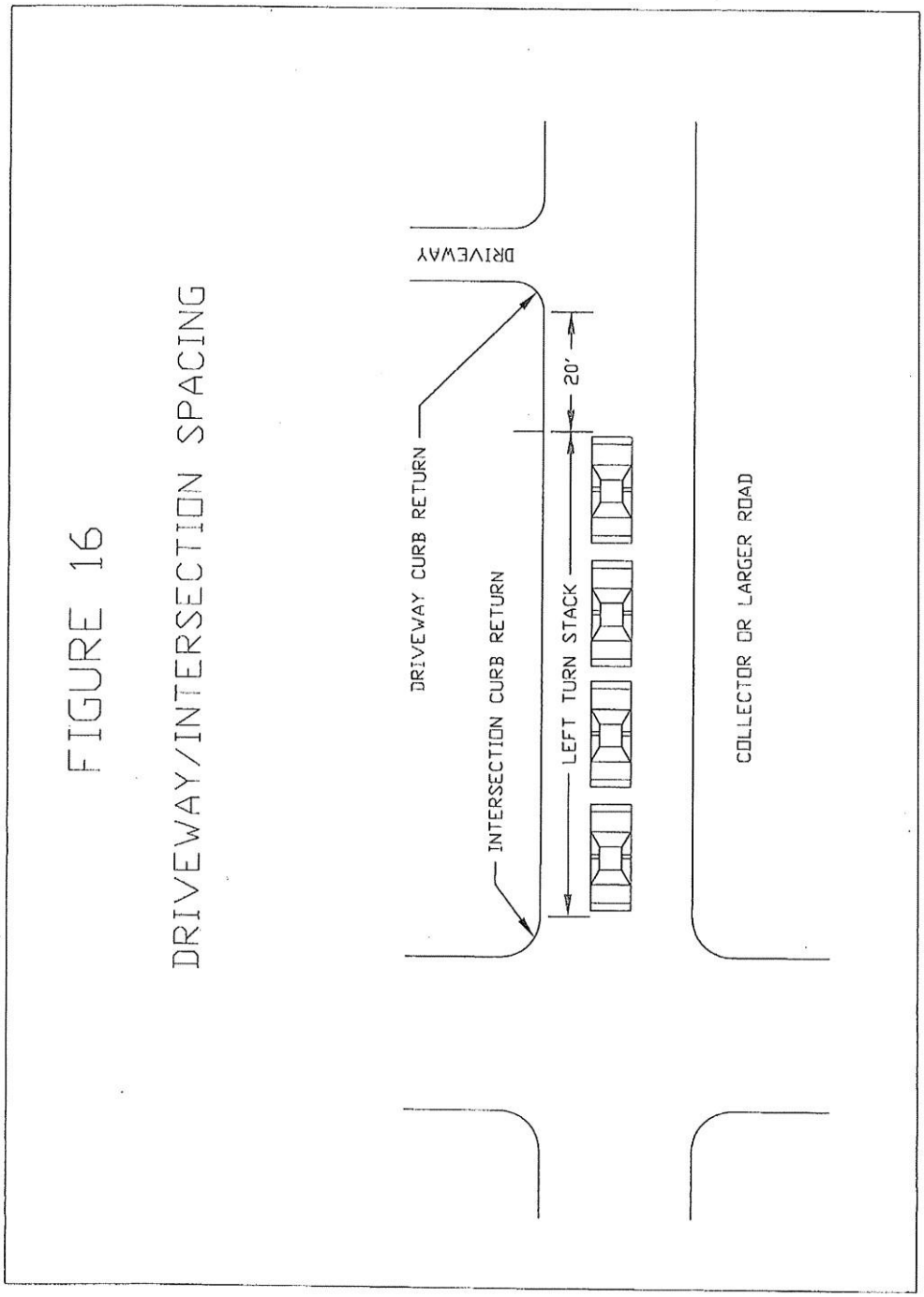
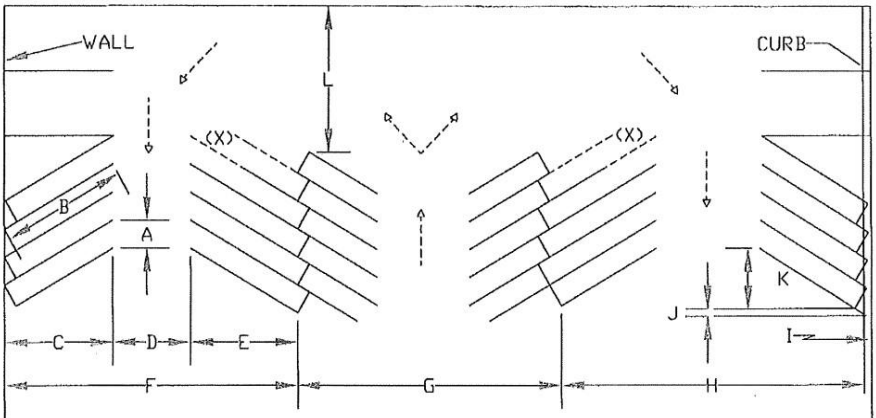


Figure 16 Driveway / Intersections Spacing

FIGURE 17

PARKING LAYOUT DIMENSIONS FOR 9 FT. BY 19 FT. STALL AT VARIOUS ANGLES



X = STALL NOT ACCESSABLE IN CERTAIN LAYOUTS

DIMENSION	ON DIAGRAM	ANGLE			
		45	60	75	90
Stall Width, parallel to aisle	A	12.7	10.4	9.3	9.0
Stall length of line	B	28.0	24.2	22.3	19.0
Stall depth to wall	C	19.8	21.0	21.0	19.0
Aisle width between stall lns	D	12.0	16.0	19.0	22.0
Stall depth, interlock	E	16.6	18.7	19.0	19.0
Module, wall to interlock	F	48.4	57.7	59.0	59.0
Module, interlocking	G	45.2	53.4	57.0	59.0
Module,interlock to curbface	H	46.4	55.2	55.5	56.5
Bumper overhang (typical)	I	2.0	2.3	2.5	2.5
Offset	J	6.4	2.6	2.5	2.5
Setback	K	13.1	9.3	4.8	0.0
Cross aisle, one way	L	14.0	14.0	14.0	14.0
Cross aisle, two way	M	22.0	22.0	22.0	22.0

Figure 17 Parking Lot Layout for 9 ft x 19 ft Stall at Various Angles

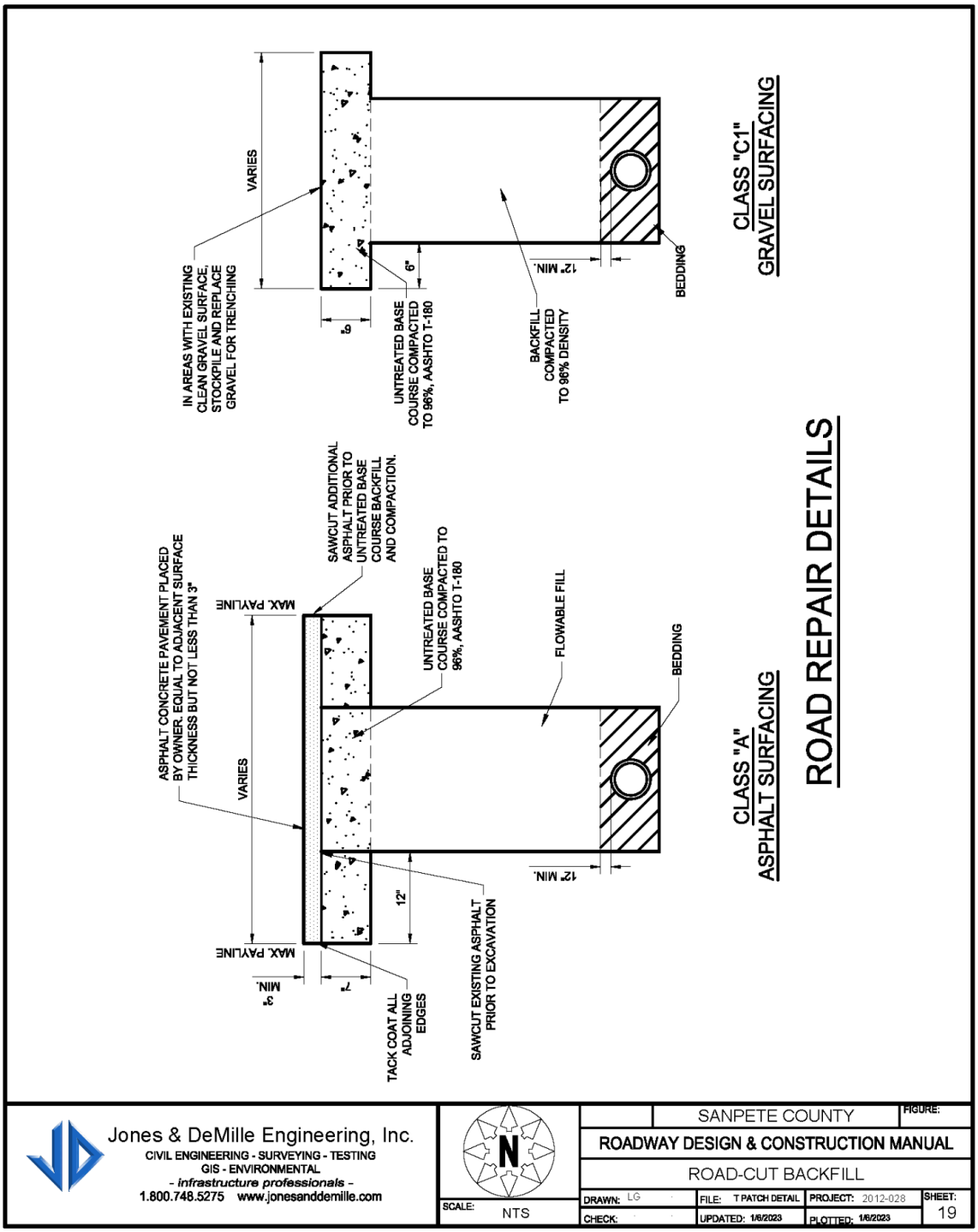


Figure 19 Minimum Requirements for Road-Cut Backfill for Asphalt Roads

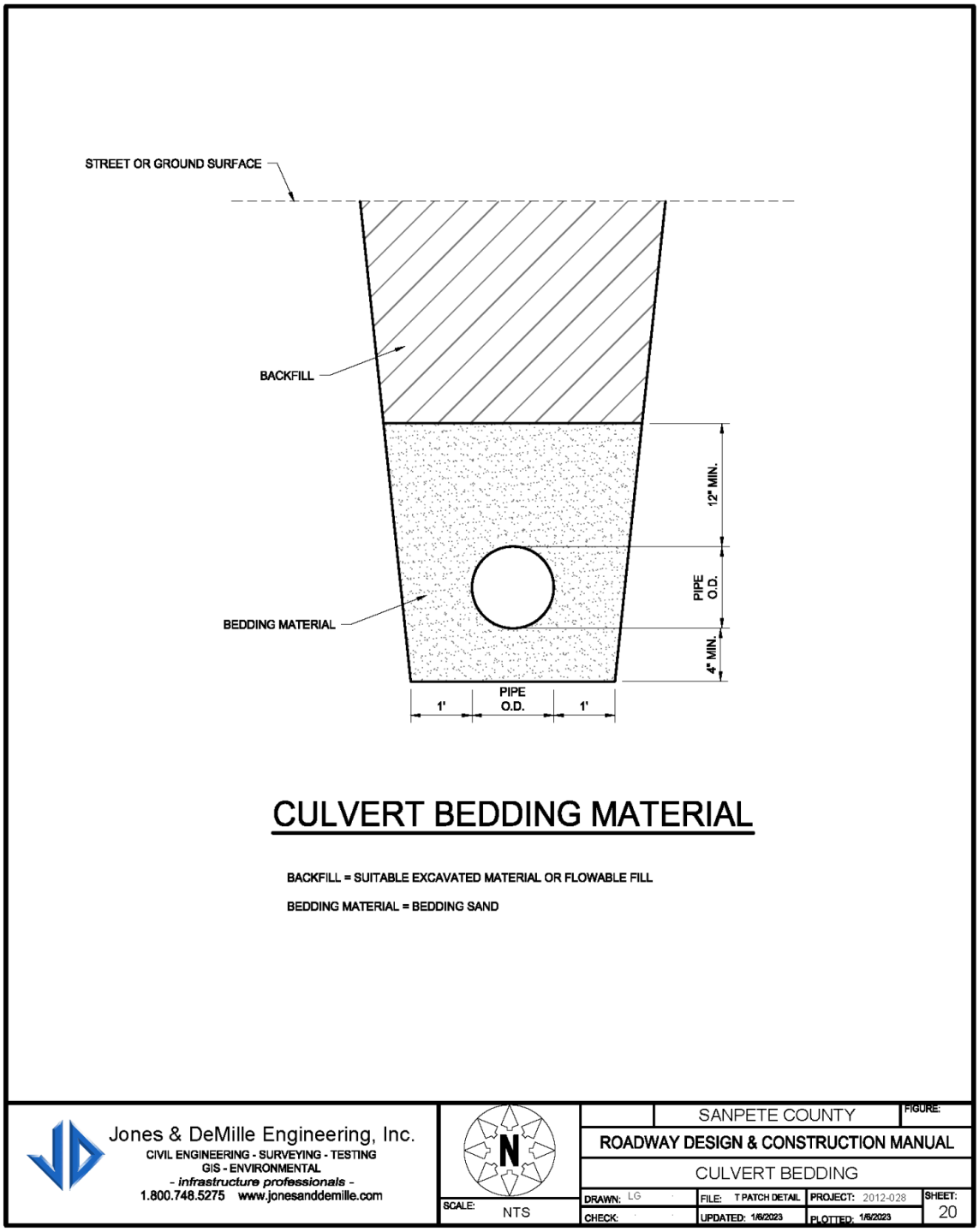


Figure 20 Acceptable Culvert Bedding Material

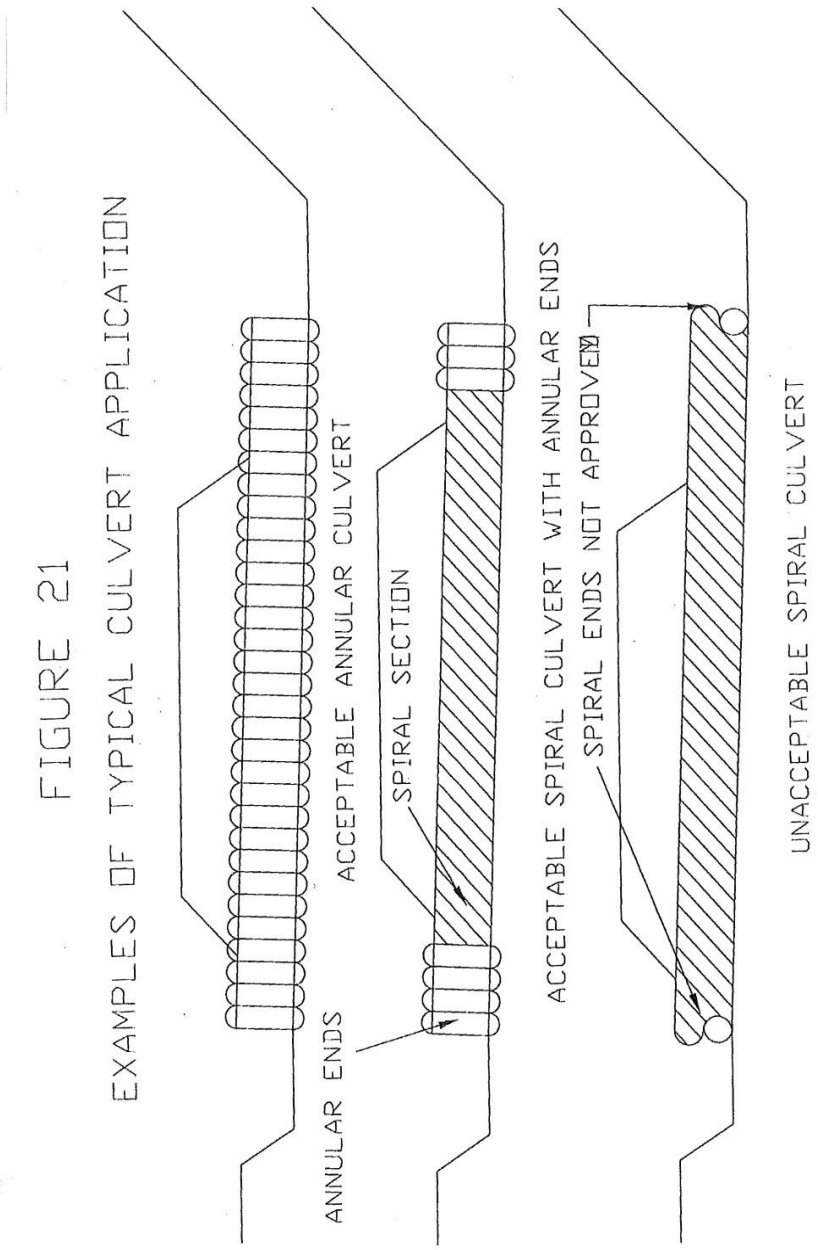


Figure 21 Examples of Typical Culvert Application

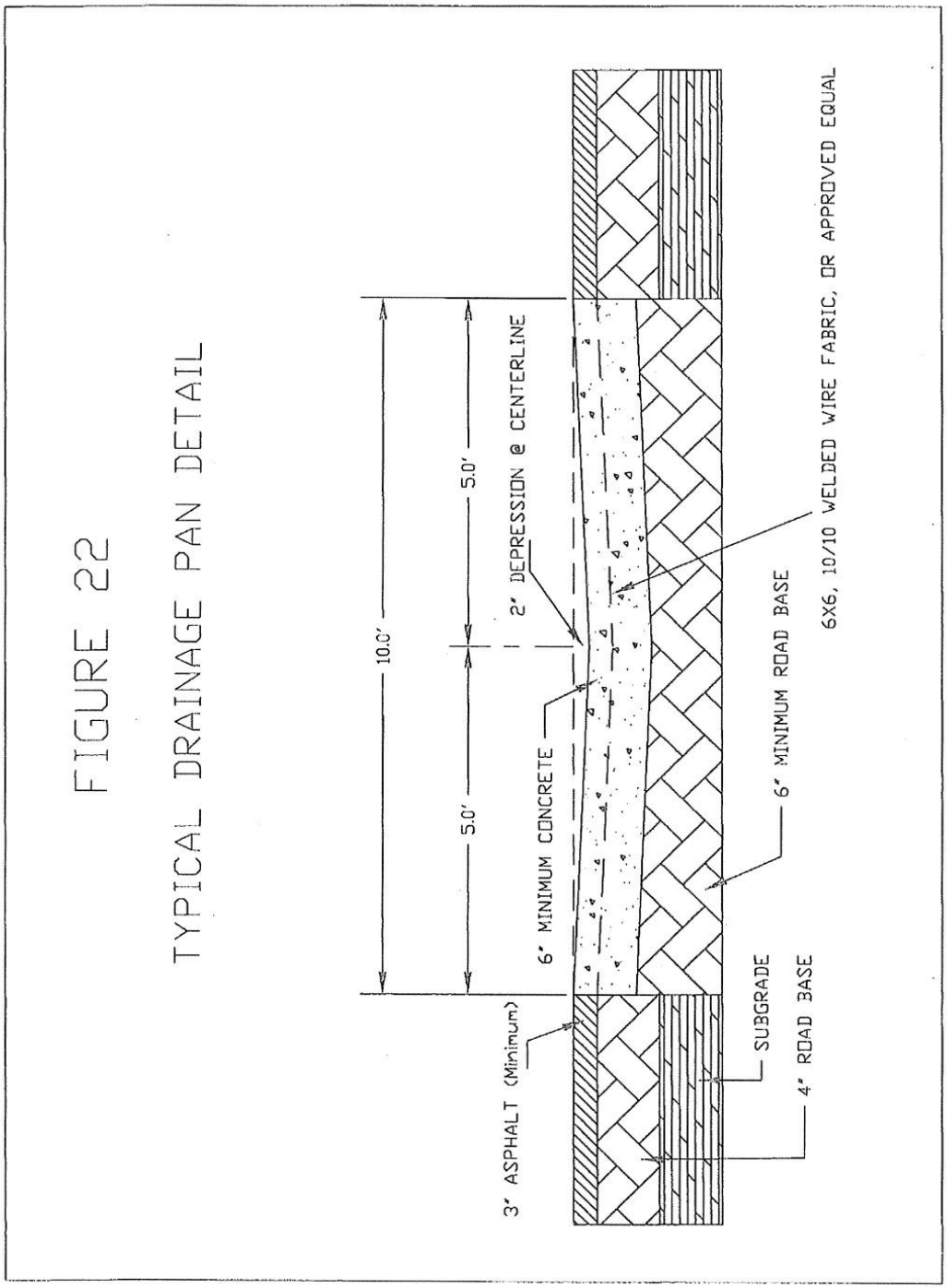


Figure 22 Typical Drainage Pan Detail

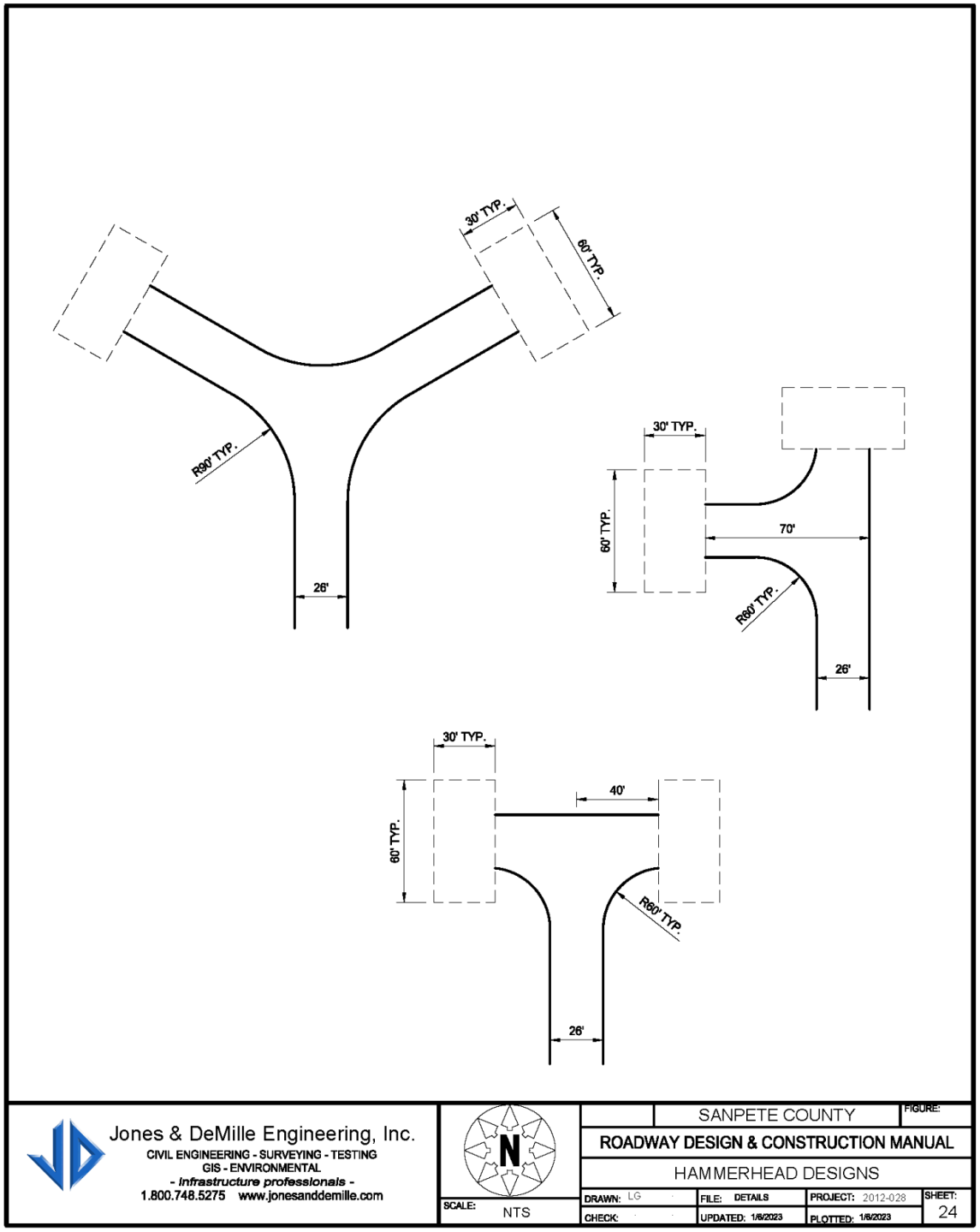


Figure 24 Hammerhead Driveway Turnaround