

## Exhibit 2

# Clear Creek County Roadway Design and Construction Manual

## Chapter 4

## 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 Clear Creek County. The reason for requiring driveway permits is to mitigate hazards to public health, safety and welfare; to ensure the design of the connections meets the specifications in these regulations allowing for emergency vehicle access; and for proper drainage. Driveway permits are also intended to ensure adequate reconstruction and/or repair of any damage caused to the County right-of-way or roadway during construction of the connection. Driveway permits shall be obtained before building permits may be issued. This standard supersedes Resolution 00-24.

### 4.2 Permits and Performance Guarantees

Individuals 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 , a Performance Guarantee may be required.

### 4.3 Procedures/Requirements for Issuance of Driveway Permits

Procedures for obtaining Driveway Permits are detailed in Section X102.4 of Appendix Chapter X of the Clear Creek County International Code Series.

1. 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.
2. The property owner/owners are responsible for obtaining all necessary easements and/or CDOT Access permits prior to the application of the Driveway Permit. A copy of the easement and/or CDOT Access permit must be attached to the permit application.
3. The permit holder assumes the responsibility to have buried gas lines, telephone cable and other utilities located by contacting the Utility Notification Center of Colorado.
4. 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.
5. Permit holder or authorized agent shall furnish all labor and materials, perform all work, and pay all costs in connection with the construction requested.
6. The permit holder 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 permit holder shall engage consultants, if required, to provide professional inspections on a timely basis. In the event of changed conditions, the permit holder shall be responsible for providing revised plans for approval.
7. Permit holder 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. 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.
8. 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.

9. 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.

#### **4.3.1 Submittal Requirements for Driveway Permits:**

Submittal requirements for Driveway Permits are detailed in Section X102.4.1 of Appendix Chapter X of the Clear Creek County International Code Series.

#### **4.3.2 Action on Driveway Permits:**

Applications for driveway permits shall be submitted to the Site Development 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 Site Development Department to ensure protection of health, safety and welfare and compliance with these regulations. Applications for driveway permits must be submitted at least 15 calendar days prior to planned commencement of construction, and construction cannot commence without permit approval.

#### **4.3.3 Construction Specification for Driveway Work:**

All work undertaken to connect driveways to existing County roadways shall conform to the standards contained in this Manual as well as Appendix Chapter X of the Clear Creek County International Code Series. In the event of a discrepancy between the regulations, the more stringent requirements shall apply.

#### **4.3.4 Construction Schedule for Driveway Work:**

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

#### **4.4 Supervision of Driveway Work**

All driveway work shall be completed under the supervision of the permit holder. The permit holder 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. In-progress inspections of all elements of work will eliminate the need of extensive post testing. At least one inspection at the conclusion of construction is required. In making this inspection, the Site Development Department shall check for compliance with these regulations, specific permit conditions 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 Site Development Department.

Any work or material determined not to conform to these regulations as well as any pavement failures or broken asphalt, damaged signs or fencing, and remaining debris either in the roadway or adjacent property, or improper drainage reported to and observed by the Site Development Department shall be brought to the attention of the permit holder 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 Site Development 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 holder is acceptable, the Site Development Department may consult with the Road and Bridge Department. If a determination is made that testing by a third party is required, the number and location of the tests shall be determined by the Site Development Department and the cost of such testing shall be paid by the permit holder. If the Site Development 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 holder 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 and Bridge Department. Failure to do so could be cause for denial of future permits.

#### **4.7 Driveway 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 Site Development 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 Site Development Department prior to commencing construction.

##### **4.7.3 Standards for Driveway Design:**

A driveway is defined as an accessory 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 businesses; 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 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 Clear Creek 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.

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

Driveways shall be placed so the following minimum distances are maintained to any street intersection.

Where the driveway connects to a local access or low volume road, a minimum distance of 50 feet from curve return to edge of right-of-way at the intersection shall be maintained. If the required driveway separation distance cannot be met for a T-intersection of two roads, the driveway shall be aligned as close to opposing road as possible.

Where a driveway connects to a collector or larger road, a minimum distance consisting of the left turn stacking distance plus 20 feet as measured from outside of flares, shall be maintained (see Figure 16). The left turn stacking distance shall be determined by the Road and Bridge Department based on an acceptable traffic study. If a traffic study is not available, or date provided is incomplete, the Road and Bridge Department shall estimate the length of the left turn stacking distance.

**B. Spacing of Driveways:**

Driveway openings shall be separated by at least 30 feet, as measured from outside of flares, or else shall be combined. More spacing may be required for traffic safety and proper traffic operation.

**C. Shared Driveways:**

Developers or property owners proposing the use of shared driveways shall record an easement defining the location of the driveway in a form acceptable to the County.

**D. Horizontal Alignment and Horizontal Curves:**

1. The dimensions of driveway widths, openings, centerline curve radii and turnout spacing shall be as shown in Table 12. Turn Out dimensions are given in Figure 23.
2. All driveways exiting onto collector roads, roadways with average daily counts greater than 700 vehicles per day, or driveways in excess of 100 feet shall be designed with a vehicle turnaround within 50 feet of the dwelling unit to avoid vehicles having to back onto the roadway when exiting (See Figure 24). Driveways serving multi family, industrial, or commercial developments shall provide a turnaround as specified in Figure 7 if the driveways dead ends.
3. Driveways serving single-family residences must be either graveled 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 a minimum of 95% of the maximum dry density at +/- two percent (2%) of optimum moisture content as determined by AASHTO Method T-180. Where driveway serving a

single-family residence or duplex is to be paved, the surface shall be constructed of four inches of compacted road base and two inches of pavement that can be placed in one lift.

4. Driveways serving multifamily residences, commercial or non-residential uses must be designed in accordance with Section 2.4.3.C., 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 250 feet can be provided. Otherwise, looped driveways are not allowed. Where a lot has two different roads to provide driveway access, access shall always be onto the road with the lowest functional classification.

**E. Driveway Cross Section:**

1. Driveways constructed on natural slopes greater than 20% shall be super-elevated toward the cut slope as shown in Figure 13.
2. Driveways constructed on natural lateral slopes less than 20% may be crowned as shown in Figure 14.

**F. Vertical Alignment and Vertical Curves:**

1. Driveways shall have a maximum grade of 8% for the first 25-feet from the connection to the road.
2. Grades less than 1% are not allowed.
3. The maximum allowable grade on straight sections of driveway is 12%.
4. The maximum allowable grade on sections of driveway with a radius of less than 50 feet is 8%, as measured along the center line.

**G. Cut Slopes:**

1. Cut slopes may be constructed as steep as 1½:1, but only where lot line proximity or building site natural grade imposes restrictions (30% slope and greater).
2. Cut slopes steeper than 1½:1 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, slope shall not be cut steeper than 1:1. Slopes steeper than 1:1 require a stability report prepared by a Geotechnical (Soils) Engineer confirming competent slope material prior to approval from the county. Exposed rock faces shall be free of all loose material.
4. All slopes shall be made sufficiently stable to prevent failures. Steep driveway cut slopes not in solid rock, require retaining wall 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 4 feet shall be of an engineer approved design.

**H. Fill Slopes:**

1. Fill slopes may be constructed as steep as 1½:1, but only where lot line proximity or building site grade imposes restrictions (30% slope and greater).
2. Fill slopes constructed at a 1½:1 slope shall be constructed so that the toe of the slope is keyed into the natural slope and/or supported by a retaining wall.
3. Retaining walls with heights greater than 4 feet shall be designed and certified by an engineer.
4. Organic materials shall not be placed in fills. Rock material with a maximum dimension greater than 12 inches shall not be buried or placed in fills.

5. Rock disposal areas are to be delineated prior to issuance of driveway and excavation permits
6. Fills shall be compacted to a minimum of 90% of the maximum dry density at +/- two percent (2%) of optimum moisture content as determined by AASHTO Method T-180.

**I. 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 18" diameter, but will carry the flow of a 10-year storm event, and be positioned offset to 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 800 feet or where an identifiable drainage course is defined.
3. Culverts under driveways at intersections shall be of sufficient length to properly fit the radius of flare required and shall be no more than 30 feet in length unless otherwise approved by the Road & Bridge Department.
4. Culvert inlets and outlets shall be designed to cause minimal erosion, and erodible soils shall be adequately protected by riprap, flares, or energy dissipaters.
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 a minimum of 6 inches of cover unless otherwise approved by the Site Development Department.

**J. 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. Geotechnical reports analyzing soil and geotechnical conditions on site and recommending how ground is to be prepared to receive fills, how fill slopes are to be designed and compacted and the design of buttress fills and cut slopes to be allowed with respect to these conditions shall be prepared by a qualified geotechnical engineer or professional geologist.
3. Grading plans and specifications shall be prepared and signed by a Professional Engineer licensed in the State of Colorado having knowledge and experience in civil engineering. It is the responsibility of the civil engineer or other qualified professional to incorporate all recommendations from the geotechnical report into the grading, drainage, erosion, and water quality control plans and specifications.

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

1. Emergency access must be maintained at all times.

**L. Embankments and Stabilization:**

1. Fill shall be developed generally in horizontal layers of similar materials for their length and width, and compacted to a minimum of 90% of the maximum dry density at +/- two percent (2%) of optimum moisture content as determined by AASHTO Method T-180.

**M. Intersections:**

1. Intersections shall meet at right angles of each other. With supporting justification, a relaxation of up to 15° 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 be sloped down and away from the road at a minimum of 2% for the length of the Right-of-Way but no less than 10 feet.
4. Driveways shall maintain a grade equal to or less than the crown slope of the road from the point where the driveway meets the road to where the driveway crosses the ditch line (Figure 15).
5. No horizontal curves shall carry onto the existing County Right-Of-Way in the design of the driveway or private road.
6. Driveways shall be designed and located to provide a minimum sight distance clear of all obstructions, natural or man-made, for at least 200 feet in either direction on local access roads and 400 feet on collector roads.

**N. 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 Colorado 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 a driveway with a roadway for all driveways serving six (6) or more residential units, commercial shopping areas, or when required by the Road and Bridge Supervisor for protection of public safety.

**O. Utilities:**

1. Overhead utilities shall at least meet minimum vertical clearances specified by the utility company or Colorado Public Utilities Commission requirements above the driveway and in no case shall the vertical distance be less than 16 feet 6 inches.

**P. Bridges:**

1. See Section 2.61 and 2.62.

**Q. Maintenance:**

1. The property owner/owners assumes 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 and Bridge 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 (C.R.S. 43-5-303). The property owner/owners assumes responsibility for the replacement, maintenance, and cleaning of the culvert installed in the driveway approach (See Section 3.3.6.D.2).
3. Road & Bridge 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).

**R. Deviations from the Standards:**

1. All new driveway construction commencing after adoption of these standards shall adhere to these driveway standards unless a deviation from the standards is granted in

accordance with Appendix Chapter X of the Clear Creek County International Code Series.

2. Request for deviation from the driveway standards contained herein must be submitted to the Site Development Department in writing with appropriate justification for consideration for approval.
3. When driveways are granted a deviation to a lesser standard, building construction must meet the criteria set forth by the Wildfire Hazard Mitigation Plan.

#### 4.7.4 Standards for Parking Areas:

##### **A. Parking Index:**

The Parking Index standards are specified in the Clear Creek County Zoning Regulations Section 10, Part 1006.1.5.

##### **B. Parking Area Grades:**

Parking areas shall have a maximum grade of 4%, and a minimum grade of 1% to facilitate drainage.

##### **C. Surfacing of Parking Areas:**

Paving is not required for parking areas and driveways serving single-family units, or for duplexes and Recreational Use Facilities with less than 20 vehicle parking spaces where the road providing access is not paved. Where roads are paved, parking areas for duplexes and recreational areas must be paved.

Unless specifically exempted above, parking areas and drives must be paved with a minimum of six inches of road base compacted to a minimum of 95% of the maximum dry density at +/- two percent (2%) of optimum moisture content as determined by AASHTO Method T-180 and three inches of pavement; or 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 made 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 suitable material as specified by a registered geotechnical engineer. The fill shall be compacted to a minimum of 95% of the maximum dry density at +/- two percent (2%) of optimum moisture content as determined by AASHTO Method T-180 with slopes at no more than 1½:1 (H:V) and protected by rip-rap to prevent erosion from snow storage.

##### **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 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 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 (C.R.S. 43-5-301).

**H. Parking Dimensions:**

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

**4.8 Landscaping and Erosion Control**

Whenever roadway or bridge construction results in earth disturbance, revegetation and reforestation is required per the Clear Creek County Best Management Practices Manual. The site plan shall be approved by the Site Development Department 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 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 & Bridge Department or the normal flow and operations of traffic. Specific requirements are as follows:

**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 storm water.
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.
13. All topsoil shall be salvaged and redistributed.
14. Road crossings across water courses designated as "Waters of the United States" must meet the requirements set forth by the Army Corps of Engineers for permitting before a County permit will be issued.

Table 4 – Stopping and Passing Sight Distance

Design Speed	Stopping	Passing
	Sight Distance	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 12 – Driveway Widths

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
<b>Residential</b>				
Single Family:				
<200' in length	12 feet	18 feet	24 feet	40 feet
>200' in length	14 feet	18 feet	24 feet	40 feet
Serving two to five units:				
<200' in length	14 feet	20 feet	24 feet	40 feet
>200' in length	16 feet	20 feet	24 feet	40 feet
Multi-Family	22 feet	24 feet	30 feet	65 feet
	<b>Turnout Spacing for Driveways</b>			
	<b>Length</b>	<b>Turnouts</b>		
	< 400 feet	None		
	400 – 800 feet	One turnout at midway point of driveway		
	> 800 feet	Every 400 feet		

\*To be determined at time of site plan review.

Figure 7 – Hammerhead and Cul-De-Sac Designs

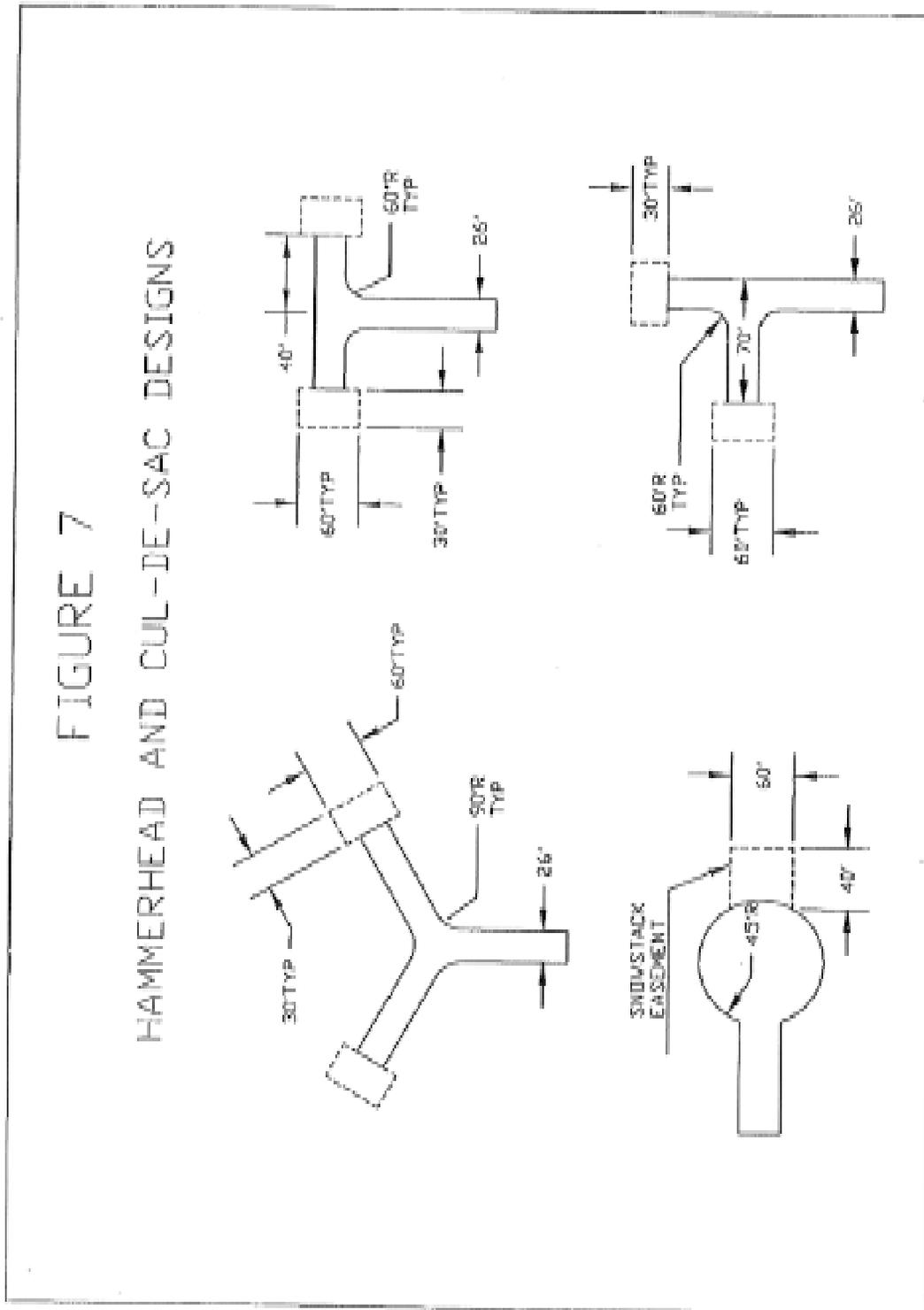


Figure 13 – Typical Cross Section Super Elevated

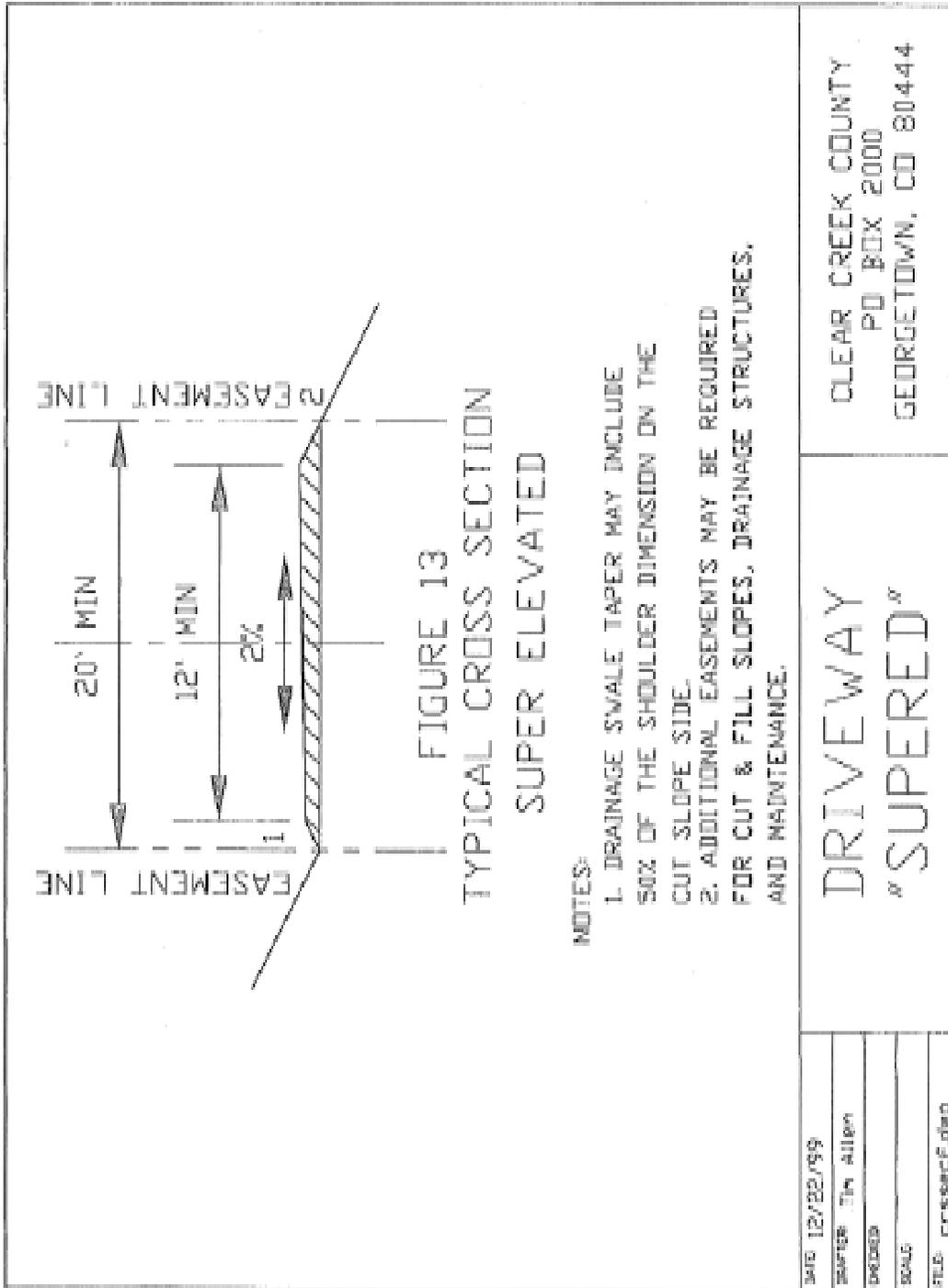


Figure 14 – Typical Cross Section of a Crowned Driveway

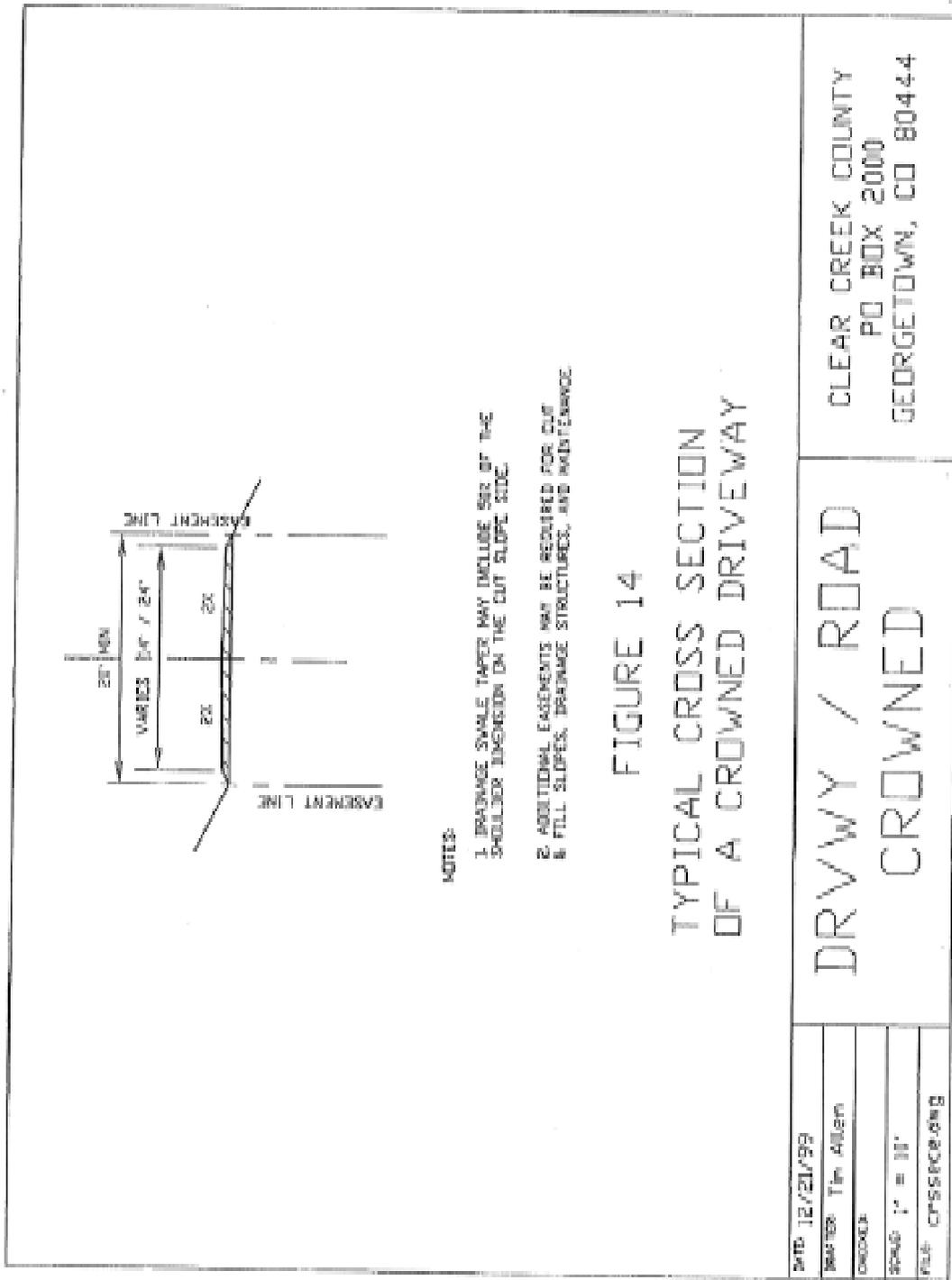


Figure 15 – Typical Cross Section of a Driveway Approach

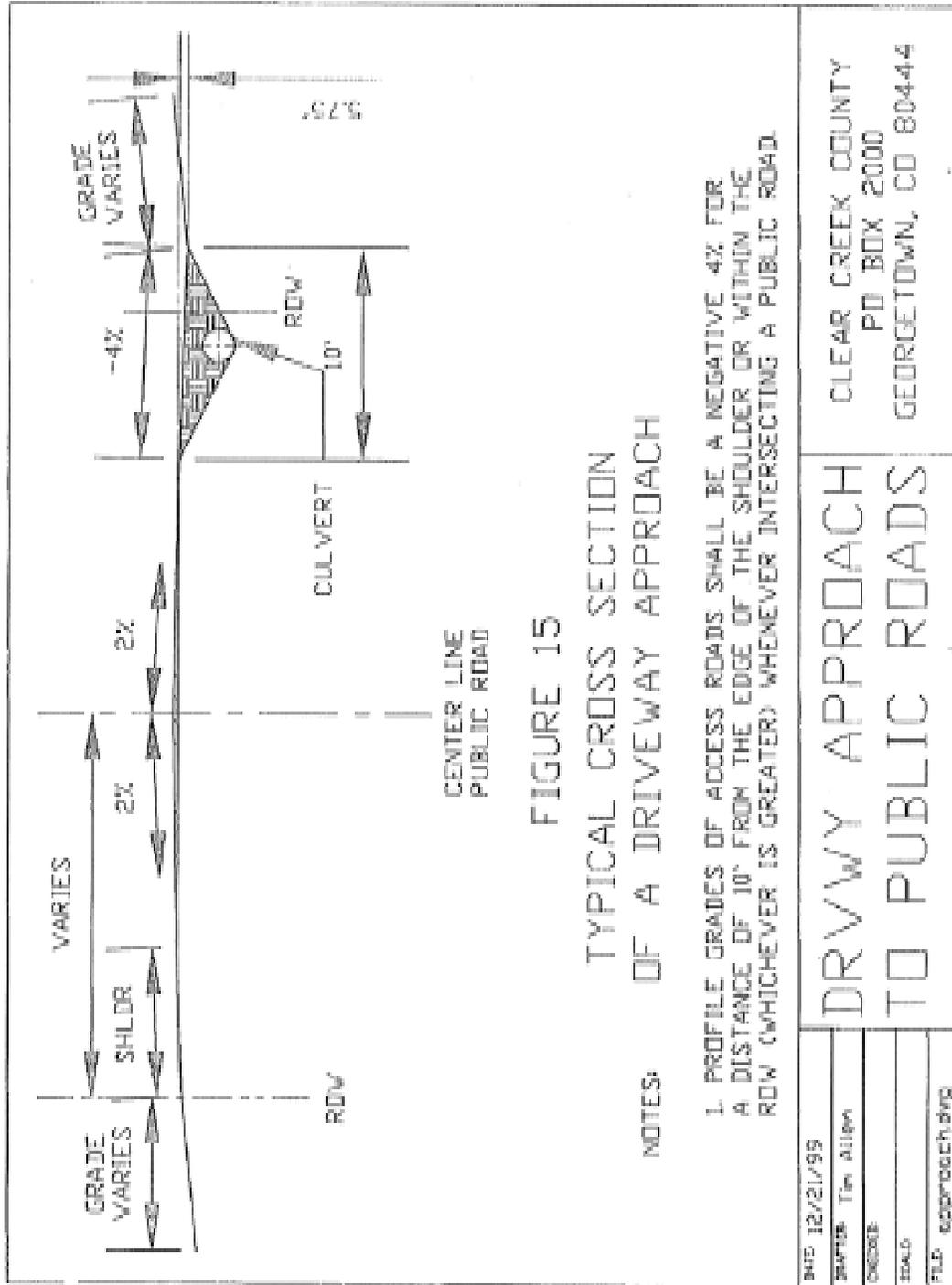


Figure 16 – Driveway/Intersection Spacing

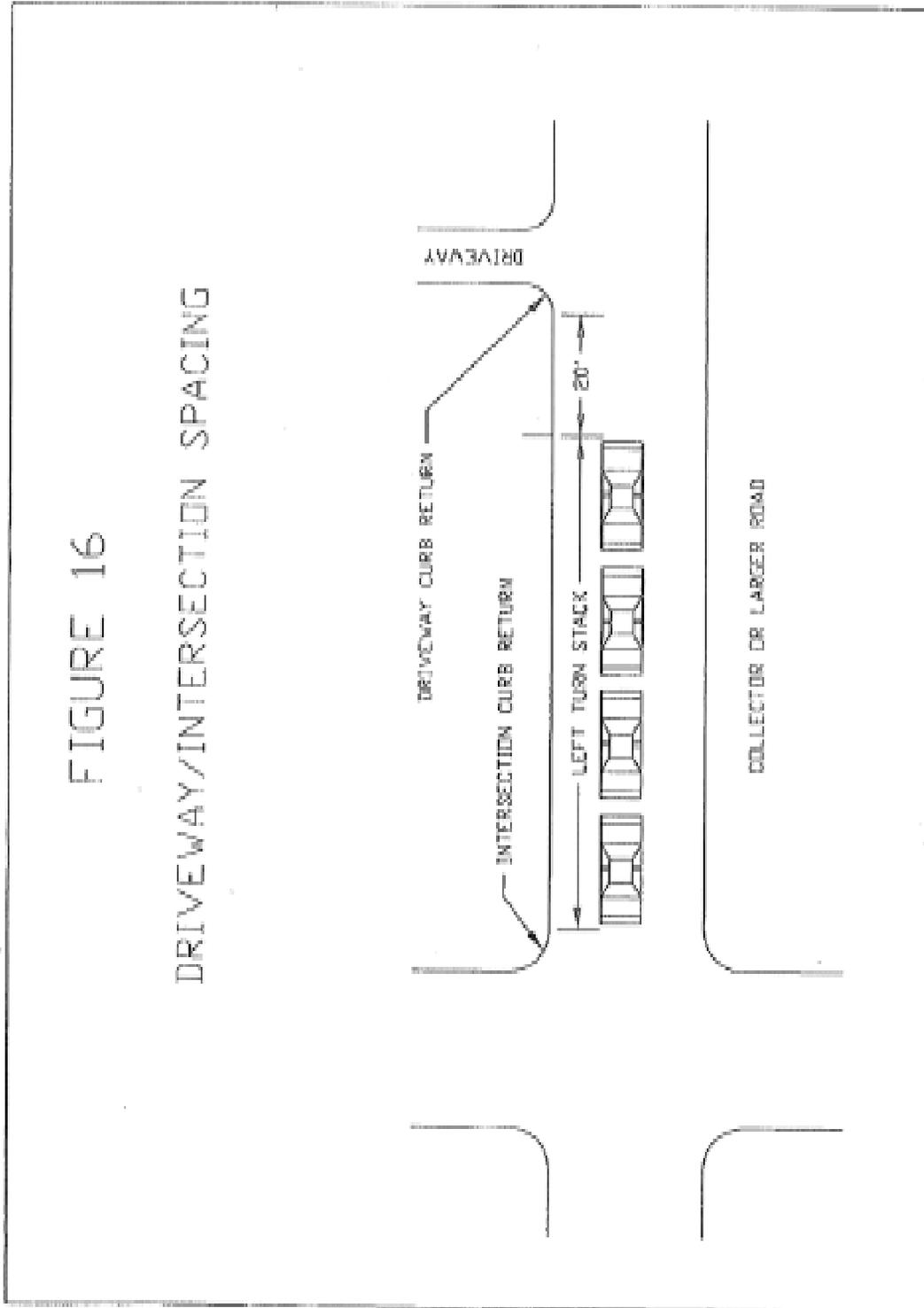


Figure 17 – Parking Layout Dimensions

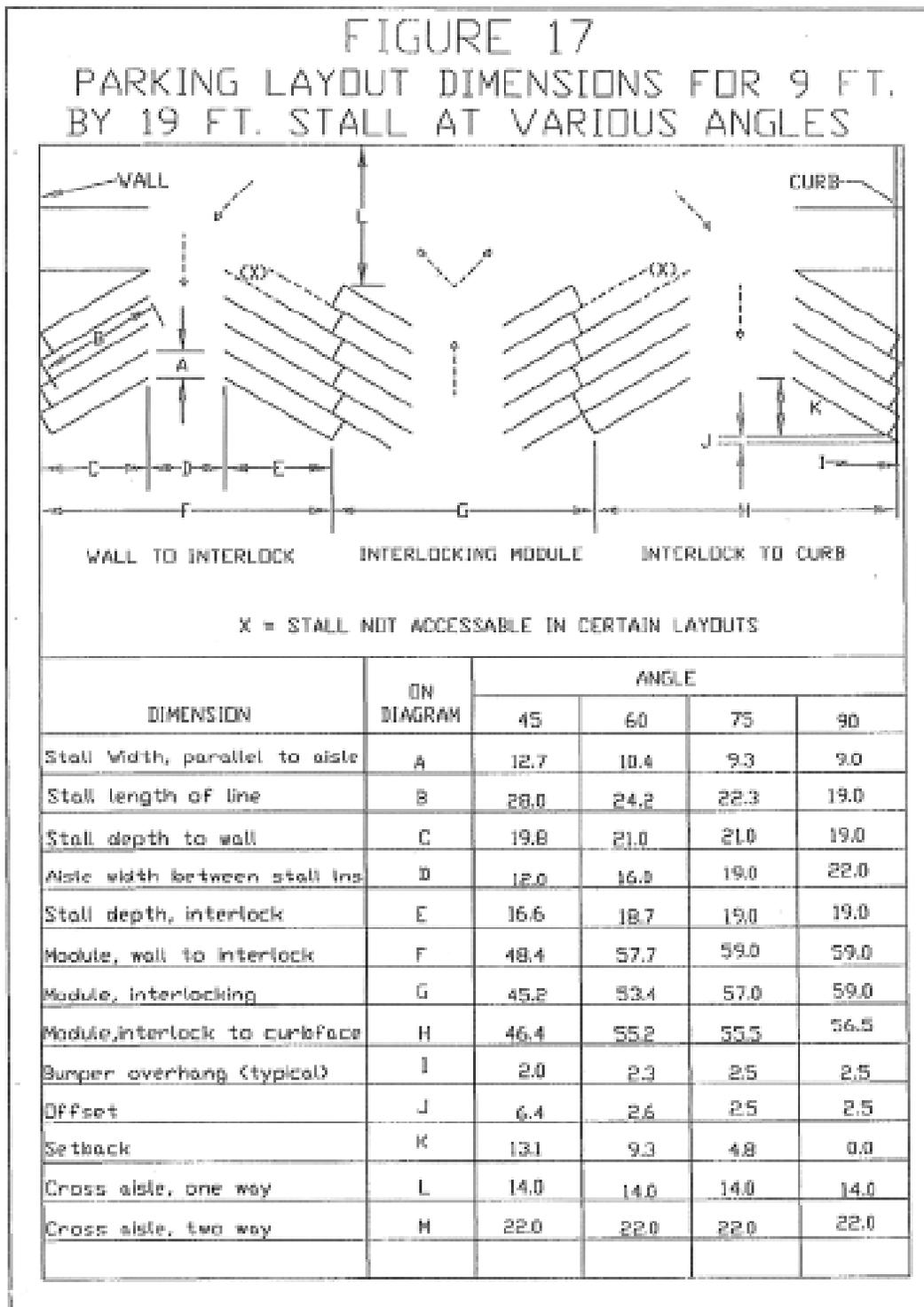


Figure 23 – Driveway Pull Out

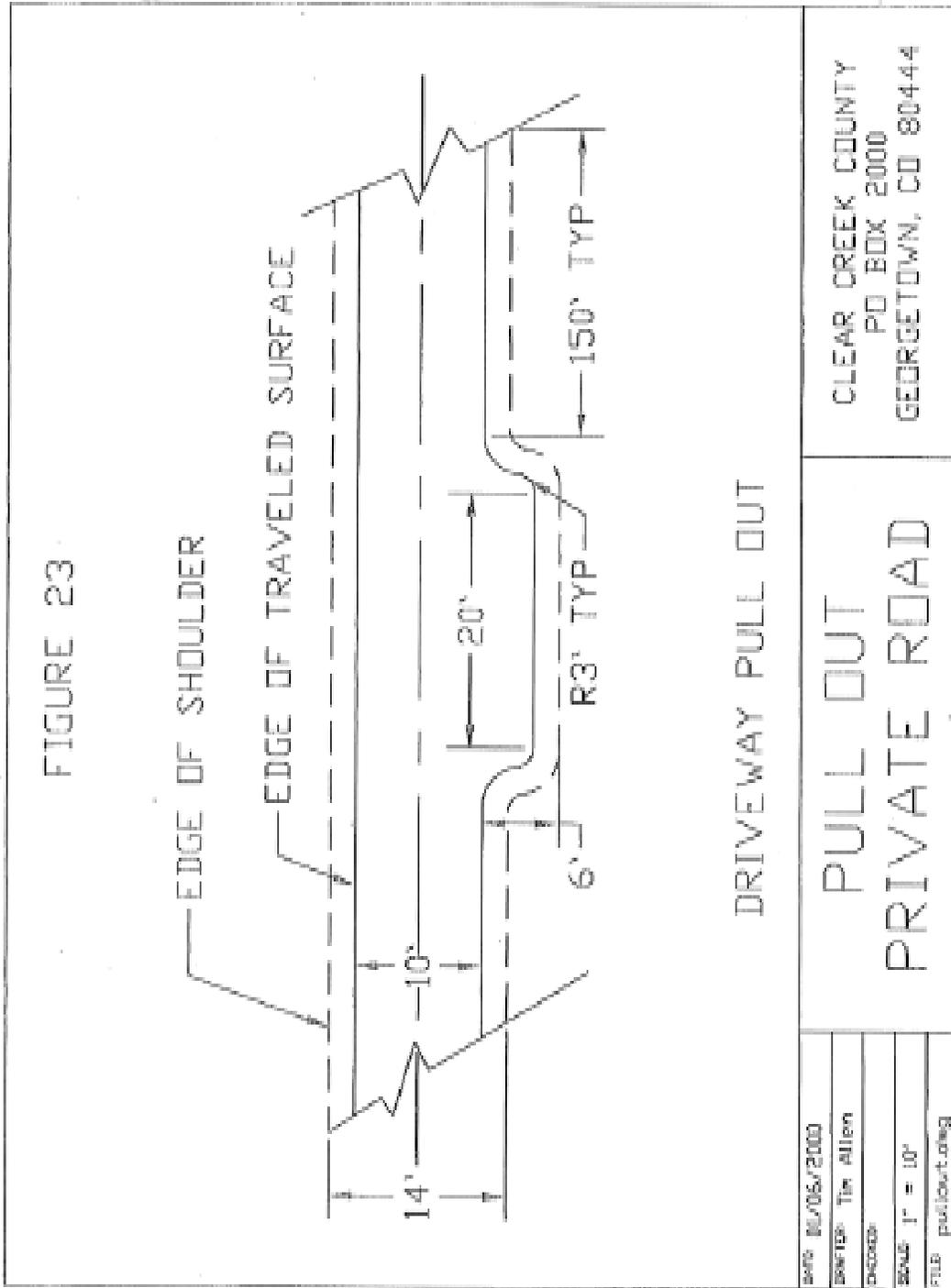


Figure 24 – Driveway Turnaround

