ORDINANCE 87-2

SUBDIVISION ORDINANCE

OF THE

VILLAGE OF BEE CAVE, TEXAS

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ORDINANCE NUMBER 87-2

SUBDIVISION ORDINANCE

OF THE

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AN ORDINANCE OF THE VILLAGE OF BEE CAVE, TEXAS, PRESCRIBING RULES AND REGULATIONS GOVERNING PLATS, PLANS AND SUBDIVISIONS OF LAND WITHIN THE VILLAGE OF BEE CAVE, TEXAS; STATING THE AUTHORITY AND PURPOSE OF SAID ORDINANCE; DEFINING TERMS; CONTAINING SPECIAL PROVISIONS PROHIBITING THE ISSUANCE OF BUILDING, REPAIR, PLUMBING OR ELECTRICAL PERMITS FOR STRUCTURES LOCATED ON ANY LOT OR LOTS IN A SUBDIVISION FOR WHICH A FINAL PLAT HAS NOT BEEN APPROVED AND FILED FOR RECORD, AND PROVIDING REMEDIES AND EXCEPTIONS; PROVIDING FOR VARIANCES; PROVIDING PROCEDURES AND SPECIFICATIONS FOR PLAT APPROVAL; PRESCRIBING CERTAIN FEES; PROVIDING FOR FISCAL GUARANTEES OF PERFORMANCE; PROVIDING FOR THE SUBMISSION OF CONCEPTUAL PLANS; PROVIDING A SEVERABILITY CLAUSE; PROVIDING FOR A FINE NOT EXCEEDING $200.00 FOR ANY VIOLATION THEREOF, AND PROVIDING THAT EACH DAY OF VIOLATION SHALL CONSTITUTE A SEPARATE OFFENSE; AND PROVIDING FOR AN EFFECTIVE DATE.

BE IT ORDAINED BY THE VILLAGE COMMISSION OF THE VILLAGE OF BEE CAVE, TEXAS:

Sec. 1. Authority.

This ordinance is adopted under the authority of the constitution and laws of the State of Texas, including Chapter 149, Acts of the 70th Legislature, Regular Session, 1987 (the Local Government Code).

Sec. 2. Purpose.

The purpose of this ordinance is to provide for the orderly, safe and healthful development within the Village and to promote the health, safety, morals and general welfare of the community.

Sec. 3. Definitions.

For the purposes of this ordinance, the following terms, phrases, words and their derivations shall have the meaning ascribed to them in this section:

A. **Building setback line:** The line within a property defining the minimum permissible horizontal distance between a building and an adjacent street right-of-way line, creek or property line.

B. **Commission:** The Board of Commissioners of the Village of Bee Cave, Texas.

C. **Cul-de-sac:** A street having but one outlet to another street, and terminated on the opposite end by a vehicular turnaround.

D. **Dead-end street:** A street, other than a cul-de-sac, with only one outlet.

E. **Engineer:** A person duly authorized under the provisions of the Texas Engineering Registration Act, as amended, to practice the profession of engineer.

F. **Governing body:** The Board of Commissioners of the **Village of Bee Cave.**

G. **Lot:** An undivided tract or parcel of land having access to a public street and which is, or in the future may be, offered for sale, conveyance, transfer or improvements; which is designated as a distinct and separate tract, and which is identified by a tract or lot number or symbol in a duly approved subdivision plat which has been properly filed of record.

H. **Major Waterway:** Any channel, creek, stream, branch or watercourse existing prior to the effective date of this ordinance for surface water drainage that drains 1,280 acres or more under predeveloped conditions.

I. **Minor Waterway:** Any channel, creek, stream, branch or watercourse existing prior to the effective date of this ordinance for surface water drainage that drains an area not exceeding 1,280 acres under predeveloped conditions.

J. **Street:** The entire width of a right-of-way between the boundary lines of every publicly maintained way when any part thereof is open to the use of the public for purposes of vehicular travel.

1. When used in this ordinance, the term "collector street" shall refer to a street which primarily provides circulation within neighborhoods, to carry traffic from local streets to the state-maintained highways in the Village, or to carry traffic through or adjacent to commercial or industrial areas.

2. When used in this ordinance, the term "local street" shall mean a street used primarily for access to and abutting residential property.

K. **Subdivider:** Any person or firm, association, syndicate, general or limited partnership, corporation, trust or other legal entity having sufficient proprietary interest in the land sought to be subdivided to commence and maintain proceedings to subdivide the same under this ordinance. In any event, the term "subdivider" shall be restricted to include only the owner(s) or authorized agent of such owner(s) of land sought to be subdivided.

L. **Subdivision:** A division of a lot, tract or parcel of land situated within the corporate limits, into two or more parts, lots or sites for the purpose, whether immediate or future, of sale, division of ownership or building development. "Subdivision" includes resubdivisions of land or lots which are part of a previously recorded subdivision.

M. **Surveyor:** A licensed stated land surveyor or a registered public surveyor, as authorized by the state statutes to practice the profession of surveying.

N. **Utility Easement:** An interest in land granted to the Village, to the public generally and/or to a private utility corporation, for installing or maintaining utilities across, over or under private land, together with the right to enter thereon with machinery and vehicles necessary for the maintenance of said utilities.

O. **Village: The Village of Bee Cave, Texas.**

P. **Yard:** The open area between building setback lines and lot lines.

Q. **Other Definitions:** Any terms not expressly defined herein are to be construed in accordance with other applicable ordinances of the Village; or, in the absence of such ordinances, then in accordance with customary usage in municipal planning and engineering practices.

Sec. 4. Enforcement policies and special provisions.

A. No building, repair, plumbing or electrical permit shall be issued by the Village for any structure on a lot in a subdivision for which a final plat has not been approved and filed for record, nor for any structure on a lot within a subdivision in which there has not been full compliance with the standards contained herein.

B. The Village shall not repair, maintain, install or provide any streets or public utility services in any subdivision for which a final plat has not been approved and filed for record, nor in which there has not been full compliance with the standards contained herein or referred to herein.

C. The Village shall not sell or supply any water or sewage service within a subdivision for which a final plat has not been approved or filed for record, nor in which there has been full compliance with the standards contained herein or referred to herein.

D. The governing body of the Village may authorize its attorney to institute appropriate action in a court of competent jurisdiction to enforce the provisions of this ordinance or that standards referred to herein or to enjoin such violations thereof which occur within the Village or within any area subject to all or part of the provisions of this ordinance.

E. If any subdivision exists for which a final plat has not been approved or in which the standards contained herein or referred to herein have not met with full compliance, the governing body of the Village may pass a resolution reciting the fact of such noncompliance or failure to secure final plat approval and declaring that the provisions of Paragraphs A, B and C of this section shall be enforced by the Village, and the governing body of the Village shall cause a certified copy of such resolution under the corporate seal of the Village to be filed in the deed records of the county in which such subdivision or part thereof lies. If full compliance and final plat approval is secured after filing such resolution, the Village shall forthwith file an instrument in the deed records of such county stating that the restrictions of Paragraphs A, B and C of this section no longer apply.

F. The provisions of this section shall not be construed to prohibit the issuance of building repair, plumbing or electrical permits with respect to any lots or building tract, nor prohibit the repair, maintenance, or installation of any street or public utility services for, to or abutting any lot in these instances: Where the last recorded conveyance of such lot or tract prior to passage of this ordinance; or wherein such division, whether by recorded plat or actual occupancy and use, was in existence prior to the passage of this ordinance.

Sec. 5. Variances.

The governing body may grant a variance from this ordinance when, in its opinion, undue hardship will result from requiring strict compliance. In considering a variance, the governing body shall prescribe such conditions it deems necessary or desirable in the public interest. In making the findings required below, the governing body shall take into account the nature of the proposed use of the land involved, existing uses of land in the vicinity, the number of persons who will reside or work in the proposed subdivision, and the probable effect of such variance upon traffic conditions and upon the public health, safety, convenience and welfare in the vicinity. No variance can be considered unless the governing body finds:

A. That there are special circumstances or conditions affecting the land involved such that the strict application of the provisions of this ordinance would deprive the applicant of the reasonable use of his land;

B. That the variance is necessary for the preservation and enjoyment of the legal property rights of its owner;

C. That the granting of the variance will not be detrimental to the public health, safety or welfare or injurious to the legal rights other property owners enjoy in the area; and

D. That the granting of the variance will not prevent the orderly subdivision of other land in the area in accordance with the provisions of this ordinance.

Such findings of the governing body, together with the specific facts upon which such findings are based shall be incorporated into the official minutes of the governing body meeting at which such variance is considered. Variances may be granted only when in harmony with the general purpose and intent of this ordinance so that the public health, safety and welfare may be secured and substantial justice done. Pecuniary hardship to the subdivider, standing alone, shall not be deemed to constitute undue hardship.

Sec. 6. Preliminary plat and accompanying data.

A. **General:** The subdivider shall cause to be prepared a preliminary plat by a surveyor or engineer in accordance with this ordinance and the Comprehensive General Plan if such has been adopted.

B. **Timing for filing and copies required:** The subdivider shall file five (5) blue or black line copies of the preliminary plat, together with the original mylar, with the Village Engineer. The preliminary plat application shall be submitted at least thirty (30) days prior to the date at which formal view by the governing body is sought.

C. **Filing fees:** Such plat application shall be accompanied by a filing fee of $150.00 per plat, plus $20.00 per lot. In addition, the subdivider shall pay a fee equivalent to that required for conducting and/or evaluting soil tests and issuing any required subdivision or construction authorization. No plat shall be deemed filed nor any action by the Commission thereon be valid until these fees have been paid. The fees shall not be refunded should the subdivider fail to perfect his formal application for preliminary plat approval or should the plat be disapproved.

D. **Form and content:** The plat shall be drawn to a scale of one inch (1") one equals hundred feet (100') unless the preliminary plat is over one hundred (100) acres in size, in which instance the scale may be reduced to one inch (1") equals two hundred feet (200'); the preliminary plat shall consist of a drawing, tracing or mylar twenty-four by thirty-six inches (24" x 36") in size. When more than one sheet is necessary to accommodate the complete area, an index sheet showing the entire subdivision at an appropriate scale shall be attached to the plat. The plat shall consist of the following:

1. Names and addresses of the subdivider(s), as well as the name, signature and seal of a registered professional engineer or a registered professional surveyor.

2. The proposed name of the subdivision, which shall not be the same or similar to the name of any other subdivision currently located within the Village.

3. A description, by metes and bounds, of the subdivision boundaries.

4. Primary control point locations shall be shown. Descriptions and ties to such control points from which all dimensions, angles, bearings, block

numbers and similar data are referred shall also be shown. Such control point designations shall meet all requirements of the appropriate state statutes.

5. Names of all contiguous subdivisions and the owners of contiguous parcels of subdivided and unsubdivided land and a designation as to whether such contiguous land is or is not platted.

6. Subdivision boundary lines shall be indicated by heavy lines, and the total acreage of the subdivision shown.

7. The exact locations, dimensions, descriptions of recorded streets, reservations, easements or other public right-of-way within the subdivision intersecting or contiguous with the boundaries of the subdivision or framing such boundaries and the exact locations, dimensions, descriptions and flow lines of existing water courses and drainage structures within the subdivision or on contiguous tracts shall be shown.

8. The 100-year flood plain.

9. The exact locations, dimensions, descriptions and names of all proposed streets, drainage structures, parks, public areas, reservations, easements or other rights-of-way, as well as all lots and blocks within the subdivision, shall be shown.

10. The date of preparation, scale of plat general location map and north arrow shall be shown.

11. Topographical information equivalent to two-foot (2') contour lines and based on the U.S.G.S. datum, which shall be specified on the plan. Such topographical information, locations and dimensions shall be of sufficient accuracy to permit the planning of streets, storm drainage facilities and other proposed improvements.

12. A number or letter to identify each lot or site in each block shall be shown.

13. Front and side street building setback lines of all lots and sites shall be shown.

14. A vicinity sketch or map, at some appropriate scale, which shall show existing subdivision streets, easements, rights-of-way and parks.

E. **Processing of preliminary plat.**

1. A designated Village official shall check the preliminary plat as to its conformity with the standards and specifications set forth herein or incorporated herein by reference.

2. One copy of the preliminary plat shall be filed with the Village Clerk and be made available for public inspection.

3. All proposed preliminary plats and subdivisions of land within the Village shall be submitted by the subdivider to Southwestern Bell Telephone Company and the appropriate electric utility company for their comment and report back directly to the designated Village official.

4. The designated Village official shall return the preliminary plat and accompanying data to the governing body with his recommendation as to its approval, modifications, additions or alterations of such plat data.

5. Within thirty (30) days after the preliminary plat is formally filed with the designated Village Clerk, the governing body shall: a) Approve or b) disapprove the preliminary plat or c) conditionally approve the preliminary plat with modifications. If the preliminary plat is conditionally approved with modifications, the governing body shall inform the subdivider of the conditions to approval and the basis upon which the governing body is requiring such conditions.

6. Approval of a preliminary plat by the governing body shall be deemed an expression of approval of the layout submitted on the preliminary plat as a guide to the installation of streets, water, on-site well, sewer, on-site waste disposal and all other required improvements and utilities and to the preparation of the final recordable plat.

7. Approval or conditional approval of a preliminary plat shall be effective for six (6) months. If no final plat has been filed within six (6) months of approval, the governing body may, prior to the expiration of such approval, and upon the

application of the subdivider, extend the approval for an additional six (6) months. At the end of this six (6) month extension period, the preliminary approval shall automatically expire and terminate.

8. Approval of a preliminary plat by the Commission shall be deemed an expression of approval of the layout submitted on the preliminary plat as a guide to the final design and installation of streets, water, sewer and other required improvements and utilties and to the preparation of the final or record plat. Approval of a preliminary plat shall not constitute automatic approval of the final plat or construction plans.

Sec. 7. Final plat.

A. Form and content:

1. The final plat and accompanying data shall conform to the preliminary plat as approved or conditionally approved by the governing body, incorporating any and all changes, modifications, alterations, corrections and conditions recommended by the governing body. At least one copy of the final plat and all accompanying data shall be filed with the Village Engineer at least thirty (30) days prior to any requested action on said final plat.

2. The final plat shall be drawn at a scale of one inch (1") equals one hundred feet (100') on mylar sheets 18" x 24" in size. If more than one sheet is necessary to accommodate the complete area, an index sheet showing the entire subdivision at an appropriate scale shall be attached to the plat.

3. The final plat shall be submitted in an original and five copies and shall be accompanied by the following site improvement data bearing the seal of a registered public surveyor or, where otherwise specifically required by this ordinance, the seal of a registered professional engineer:

   a. The date, subdivision title, scale and north point.

   b. The lines and names of all proposed streets or other ways or easements, dimensioned so as to determine the width of each, including a statement of the purpose for which such easements are dedicated and the lines and names of other open spaces to be dedicated for public use or granted for use of the inhabitants of the subdivision.

c. Sufficient data to determine readily and reproduce on the ground the location, bearing and length of every street line, lot line, boundary line, block line and building line, whether curved or straight, including the true north point. The curve data shall include the radius, central angle, arc length, tangent, chord length and chord bearing for the property lines of curved streets and curved property lines.

d. The location of all permanent monuments and control points.

e. Suitable primary control points to which all dimensions, bearings and similar data shall be referred. Dimensions shall be shown in feet to the nearest hundredth of a foot (0.01) and bearings shall be shown to the nearest one (1) second.

f. A complete copy of any restrictive covenants imposed on the land by the subdivider.

g. A statement signed and acknowledged by the owner dedicating all streets, public utility and drainage easements, and parks, if any, to the public use.

h. A certificate bearing the signature and seal of the engineer or surveyor who made the survey that there has been compliance with the requirements of this ordinance.

i. If the subdivision is not to be served immediately by a water utility, a note prohibiting occupancy of any lot until water satisfactory for human consumption is available from a source on the land, a community source, or a public utility source in adequate and sufficient supply for use and operation of an on-site waste disposal system. Said note shall provide that the plans and specifications for a private water supply system must be submitted by a registered professional engineer and approved by the State Health Department.

j. If the subdivision is not to be served immediately by a sewage-collecting system connected to a community treatment plant or

public sewer system, a note shall be provided on the plat prohibiting occupancy of any lot until inspection and approval by the designated Village inspection of an on-site waste disposal system installed in accordance with the rules and regulations of the Village Ordinance 87-1 governing septic tanks.

k. The limits of the 100-year flood plain and elevation data bearing the seal of a registered professional engineer.

4. The final plat shall also include the following:

a. **Owner's acknowledgement:**

"State of Texas

County of _____

I (we), the undersigned owner(s) of the land shown on this plat, and designated herein as the _____ Addition of the Village of Bee Cave, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, parks, watercourses, drains, easements, and public places thereon for the purpose or consideration therein expressed.

_____
Owner

"State of Texas

County of _____

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed the same for the purposes and considerations therein stated.

GIVEN under my hand and seal of office this the _____ day of _____, 19____.

Printed name of Notary Public
Notary Public in and for the
State of Texas"
My commission expires:_____"

b. **Certification by the Mayor of the Village Commission:**

"I, the undersigned, Mayor of the **Village of Bee Cave**, hereby certify that this subdivision plat conforms to all requirements of the Subdivision Regulations of this Village and is hereby authorized and approved by the Village for recording in the plat records of Travis County, Texas.

Mayor, **Village of Bee Cave**

c. **Certification of the surveyor responsible for surveying the subdivision area, attesting to its accuracy:**

"State of Texas

County of _____

I, the undersigned, a (registered professional engineer/public surveyor) in the State of Texas, hereby certify that this plat is true and correct and was prepared from an actual survey on the property made under my supervision on the ground, and I further certify that proper engineering consideration has been given to this plat.

(Engineer or Surveyor seal)

Registered Professional
Engineer or Registered Public
Surveyor"

d. **Filing certification:**

"State of Texas

County of _____

I, _____, Clerk of the County Court of Travis County, Texas, hereby certify that the foregoing instrument was filed in my office at _____.m. on this the _____ day of _____, 19____, and duly recorded at _____.m. on the _____ day of _____, 19____, in the Plat Records of Travis County, Texas, in Volume _____ at Page(s) _____.

WITNESS MY HAND AND SEAL OF THE COURT OF TRAVIS COUNTY, TEXAS, THIS _____ DAY OF _____, 19____.

CLERK OF THE COUNTY COURT
TRAVIS COUNTY, TEXAS

_____
DEPUTY FILING

B. **Filing Fees.** Such plat shall be accompanied by a filing fee of $200.00 per plat plus $20.00 per lot. The fee shall be $5.00 per acre for multiple dwelling areas, commercial or industrial districts, and other areas not subdivided into lots. No action by the Commission shall be valid until the filing fee has been paid. The fee shall not be refunded should the subdivider fail to make formal application for final plat approval or should the plat be disapproved.

Sec. 8. Approval standards.

No preliminary or final plat shall be approved by the governing body of the Village and no completed improvements shall be accepted by the Village for maintenance unless they conform to the following standards and specifications:

A. **Streets.**

1. Paved streets shall be provided by the subdivider, and the arrangement, character, extent, width, grade and location of each shall be considered in their relation to existing and planned streets; to topographic conditions; to public safety and convenience; and in their appropriate relationship to the proposed uses of land to be served by such streets. Street layouts shall be devised for the most advantageous development of the proposed

subdivision and the current or future development of the surrounding parcels of land.

2. Existing or proposed streets in areas adjoining the proposed subdivision shall be continued through the proposed subdivision where necessary to an efficient street system and shall be at least as wide as such existing or proposed streets and in alignment therewith.

3. Where adjoining areas are not yet subdivided, the arrangement of the streets in the proposed subdivision shall make provision for the proper extension of such streets into such unsubdivided areas.

4. Street jogs with center line offsets of less than one hundred fifty feet (150') shall not be allowed.

5. Street intersections shall be as nearly at right angles as practicable, giving due regard to terrain, topography, site distances and other public safety issues.

6. Dead-end streets shall be prohibited except as to short stubs to permit future extension of streets.

7. Residential cul-de-sacs shall be permitted, provided they shall not exceed six hundred feet (600') in length, except where unique drainage features or topography justify a variance for additional lengths, and shall have a right-of-way turn-around of not less than one hundred feet (100') in diameter with a pavement diameter of not less than eighty feet (80').

8. Streets shall be built to the following standards:

   a) **Collector streets.** Collector streets in the Village shall be classified as either residential collectors or commercial collectors.

      (1) Commercial collector streets shall be built in an eighty-foot (80') right-of-way with two pavement widths of twenty-four feet (24') with a standard curb and gutter as measured from face of curb to face of curb, separated by a twelve-foot (12') landscaped median. Median breaks shall be permitted not closer

than one hundred fifty feet (150') to any street intersection or other median break.

(2) Residential collector streets shall provide a minimum thirty-fix foot (36') roadway width with standard curb and gutter as measured from face of curb to face of curb in a minimum eighty-foot (80') right-of-way. At the option of the subdivider, a lay-down or ribbon curb with a minimum twelve-inch (12") width may be substituted for the standard curb and gutter. At the option of the subdivider, a residential collector may be built in an eighty-foot (80') right-of-way with two pavement widths of twenty-four feet (24') separated by a twelve-foot (12') landscaped median.

(b) Local residential streets shall have a minimum pavement width of thirty-six feet (36') with a standard curb and gutter as measured from face of curb to face of curb in a minimum sixty-foot (60') right-of-way. At the option of the subdivider, a lay-down or ribbon curb with a minimum width of twelve inches (12") may be substituted for the standard curb and gutter.

9. Street construction standards. The Village hereby adopts the street design and construction standards contained in Section 9 of the Standards for Construction of Streets and Drainage in Subdivisions contained in Minute Order 8596 of the Travis County Commissioners Court, as adopted on January 28, 1980. All street construction materials and workmanship shall conform to the standards contained in said Minute Order, a copy of which is attached to this ordinance and incorporated herein by reference as Appendix A.

10. New streets shall not duplicate the names of existing streets nor be so named as to cause confusion with the names of existing streets, unless such new streets are a continuation of or in alignment with existing streets.

11. Street signs which conform to Village standards shall be installed at the expense of the

subdivider before acceptance of said streets by the Village.

B. **Drainage.** Where a subdivision is traversed by a watercourse, drainageway, natural channel or stream, there shall be provided an easement or right-of-way confirming substantially to the limit of such watercourse. Drainage facilities shall be provided and constructed at the expense of the subdivider, pursuant to Section 7 of the Standards for Construction of Streets and Drainage in Subdivisions as adopted by the Travis County Commissioners Court in Minute Order No. 8596, dated January 28, 1980, incorporated herein by reference, a copy of which is attached as Appendix A. No lot shall be platted where the closest lot line, or any part of the lot, is within one hundred feet (100') of the centerline of any major waterway or minor waterway, as defined herein.

C. **Driveway access.** The Village hereby adopts and incorporates herein by reference the driveway design standards as adopted in Section 8.3 through 8.6 of the Standards for Construction of Streets and Drainage in Subdivisions as adopted by the Travis County Commissioners Court in Minute Order No. 8596, dated January 28, 1980, a copy is attached hereto as Appendix A.

D. **Street lights.** No street lights will be required in any residential subdivision in the Village.

E. **Blocks.** Blocks shall not exceed two thousand feet (2000'), nor shall they be less than five hundred feet (500') in length, except where unique drainage and topography justify a variance from this standard.

F. **Lot size.**

1. **Commercial lots.** All commercial lots shall have a minimum lot size of two (2) acres. Minimum commercial lot width shall be three hundred and fifty feet (350') and the minimum lot depth shall be two hundred feet (200'). All commercial buildings shall have a front street setback of seventy-five feet (75'), which shall be shown on the plat, as well as a side street setback of thirty feet (30'). Lot width shall be measured from side lot line to side lot line at the front building setback line.

2. **Residential lots.**

a. The minimum residential lot size in a subdivision which shall be served by central sewer collection and water supply systems shall be fifteen thousand (15,000) square feet. Minimum lot width shall be seventy-five feet (75'), with a minimum lot depth of one hundred thirty feet (130').

b. Residential lots which are to be served by an on-site waste disposal system shall have a minimum lot size of one-half (1/2) acre if served by a central water supply and one (1) acre if served by private well. The minimum width of each lot shall be one hundred twenty-five feet (125') and the minimum depth shall be one hundred seventy-five feet (175').

c. All residential lots, whether served by on-site waste disposal systems or a collective sewer system, shall provide a twenty-five foot (25') building setback line and a fifteen foot (15') side street setback for corner lots.

d. Lot width shall be measured from side lot line to side lot line at the front building setback line.

3. **Cul-de-sac lots.** The minimum frontage of a residential cul-de-sac lot shall be fifty feet (50').

G. **Water supply.** Water satisfactory for human consumption shall be available to each lot in the proposed subdivision from a source on the land, a community source, or a public utility source, in adequate and sufficient supply for the intended uses on each lot within the subdivision. Plans and specifications for a private water supply other than an investor-owned water supply corporation, including corporations organized under Article 1434a of the Texas Civil Statutes must be submitted by a registered professional engineer and approved by the State Health Department prior to final plat approval.

H. **On-site waste disposal systems.** On-site waste disposal systems may be approved for both commercial and residential subdivisions, if found to be in compliance

2. **Residential lots.**

   a. The minimum residential lot size in a subdivision which shall be served by central sewer collection and water supply systems shall be fifteen thousand (15,000) square feet. Minimum lot width shall be seventy-five feet (75'), with a minimum lot depth of one hundred thirty feet (130').

   b. Residential lots which are to be served by an on-site waste disposal system shall have a minimum lot size of one-half (1/2) acre if served by a central water supply and one (1) acre if served by private well. The minimum width of each lot shall be one hundred twenty-five feet (125') and the minimum depth shall be one hundred seventy-five feet (175').

   c. All residential lots shall have a twenty-five foot front building setback and all corner lots shall have a fifteen foot building setback line along the common property line of the side street right-of-way.

   d. Lot width shall be measured from side lot line to side lot line at the front building setback line.

3. **Cul-de-sac lots.** The minimum frontage of a residential cul-de-sac lot shall be fifty feet (50').

G. **Water supply.** Water satisfactory for human consumption shall be available to each lot in the proposed subdivision from a source on the land, a community source, or a public utility source, in adequate and sufficient supply for the intended uses on each lot within the subdivision. Plans and specifications for a private water supply other than an investor-owned water supply corporation, including corporations organized under Article 1434a of the Texas Civil Statutes must be submitted by a registered professional engineer and approved by the State Health Department prior to final plat approval.

H. **On-site waste disposal systems.** On-site waste disposal systems may be approved for both commercial and residential subdivisions, if found to be in compliance

installations until such performance bond or letter of credit has been posted and approved by the Village.

Sec. 10. Conceptual plan.

Where the proposed subdivision constitutes a unit of a larger tract owned by the subdivider which is intended to be subsequently subdivided as additional sections of the same subdivision, the preliminary plat shall be accompanied by a layout or conceptual plan of the entire area showing the tentative proposed layout of streets, blocks, drainage, water, sewage and other improvements for the entire area. The conceptual plan, if approved by the governing body, shall be attached to and filed with a copy of the first approved subdivision plat in the permanent files of the Village. Thereafter, plats of succeeding sections of the subdivision shall conform to the approved overall layout or conceptual plan unless the plats shall be changed by the governing body for good cause.

Sec. 11. Conflict with other ordinances.

Whenever the standards and specifications in this ordinance conflict with those contained in another ordinance, the most stringent or restrictive provision shall govern.

Sec. 12. Severability clause.

Should any portion of this ordinance be held invalid or unenforceable for any reason, the same shall not be construed to affect any other valid portion hereof, but all valid portions shall remain in full force and effect.

Sec. 13. Penal Provision.

Any person violating any provision of this ordinance within the corporate limits of the **Village of Bee Cave, Texas**, shall be guilty of a misdemeanor and, upon conviction, shall be fined in an amount not to exceed Two Hundred Dollars ($200.00). Each day such violation continues shall be a separate offense. Prosecution or conviction under this provision shall never be a bar to any other remedy or relief for violations of this ordinance.

This ordinance shall become effective from and after the 24th day of September, 1987.

PASSED AND APPROVED this 22nd day of September, 1987.

BOB HOCKING, Mayor

ATTEST:

VILLAGE CLERK

SECTION 7. DRAINAGE REQUIREMENTS

7.1 GENERAL

Storm drainage facilities are all elements of a drainage system consisting of streets, alleys, storm sewers, channels, culverts, bridges, swales, and any other facility through which or over which storm water flows; all of which the County must have a right in, either in the form of a dedicated right-of-way or floodway and drainage easements. (See Section 6.10.3)

Definitions, formulas, criteria, and data as set out in the Austin Drainage Criteria Manual applies to the provision of these standards. This section shall govern in cases of conflict. The Hydraulic Manual prepared and compiled by the Texas Highway Department's Bridge Division, and dated September, 1970 with subsequent revisions may be in conditions not covered under this section.

All storm drainage facilities shall be designed for fully developed conditions.

Storm drainage from private property shall be taken to street or drainage courses as directly as possible. Storm water from roads and streets shall be taken to defined drainage courses as major drainage courses.

7.2 DRAINAGE PLAN REQUIREMENTS

A drainage plan shall be submitted with the preliminary plan, if possible, but no later than the submission of the final plat. This requirement may be waived, but if the final plat is accompanied by a notarized statement from the owner(s) declaring that drainage plans drawn to the approval of the County Engineer will be submitted at a later date, but prior to the start of any site developments and provided that the owner's engineer has developed sufficient information on drainage to furnish a reasonably accurate estimate of drainage costs for purposes of computing construction security and for location of easements. The drainage plan shall be accompanied by a copy of a topographical drawing at the same scale as the final drawing, showing the location, type, and size of all required drainage structures, and shall indicate the route of proposed drainage. Where lot size is two (2) acres or less, and located adjacent to a major drainage course or overflow channel, such that a part or all of the lot lies in the Flood Hazard Area, or where building sites are proposed to be located in Flood Hazard Areas, the drainage plan shall show proposed building sites and elevations required to put finish floor one foot (1') above the 100 year flood level of the drainage course or overflow channel.

7.2.1 Drainage plans shall be drawn to a scale no smaller than the preliminary plan scale (Section 3.1.3). The scale of supplementary plans, profiles, and cross sections shall be sufficient to clearly show details.

7.2.2 An original or mylar or ozlid reproducible copy of the drainage plan shall be submitted for the affected drainage area. Topographic information shall be shown on the drainage plan as required in Section 3.2.3.4 of these specifications.

7.2.3 Plans shall show storm (flood) water routing and all drainage structures with sizes of culverts, invert elevations, retarding and retaining structures, drainage easements with course and distance of centerlines and boundaries, lot lines, street layout, proposed driveway entrance location and driveway pipe pipe size or driveway low water design, proposed inlets, culverts, roadside ditches, channel sections and slopes, bridges, channel improvements, levees, or berms, fills fills necessary to elevate land above flood levels, (or slab locations and elevations as required - see Section 4.2.8), and flow capacities. Driveway designs shall conform to the driveway standards in Section 8 of these specifications.

7.2.4 The boundaries of the 100 year flood hazard area shall be shown for all waterways, including overflow of structures and related backwater effects. Storm water runoff resulting from a design storm of 100 year frequency shall be contained within the available right-of-way and/or drainage easement. All drainage facilities must be designed for a capacity to safely contain storm water from a design storm of 100 year frequency.

7.2.5 The boundaries of the 100 year frequency design storm flood areas shall be shown and designated as drainage easements for all waterways, including overflow of structures and related backwater effects, unless it can be shown by engineering analysis that the floodway is narrower than the area occupied by the design storm flood, in which case the floodway shall be the drainage easement. (See Section 6.10.3).

7.2.6 The drainage plan shall be prepared by a Registered Professional Engineer of the State of Texas, whose seal and signature shall appear on the plan.

7.3 DRAINAGE DATA REQUIREMENTS

Additional data shall accompany the drainage plan as necessary to completely describe the drainage facilities proposed.

7.3.1 Engineering drainage report to support all drainage designs shall be submitted to the County Engineer. Computations shall be complete and orderly and shall clearly state all assumptions and design base. Where the City of Austin Drainage Manual is used as a design base, use of the forms prescribed in the manual will be acceptable.

7.3.2 Profiles and cross sections shall be submitted as necessary to support flood levels and backwater curves.

7.3.3 Design plans and details of special structures such as box culverts, braidges, inlets, retards, weirs, linings and levees shall be submitted.

7.4 DRAINAGE DESIGN CRITERIA

7.4.1 Development within the extra-territorial jurisdiction (ETJ) of the City of Austin shall be designed for runoff for ultimate development of the area within the watershed for urban and suburban densities and shall be subject to County Engineer's approval. On-site inspections, aerial photographs, land use maps and master plan should be used as an aid in establishing the character of existing and future development. The Austin Drainage Criteria may apply. Development outside the extra-territorial jurisdiction of the City of Austin and other incorporated cities within Travis County shall be designed for runoff from a watershed developed to full suburban density or as approved by the County Engineer. Where the impervious cover exceeds 20% with a conveyance factor greater than 0.8, the Austin Drainage Criterial Manual shall be used to determine adequate storm water management measures.

Other methods of analysis may be used such as the TR-55 (U.S. Soil Conservation Service) development and conveyance parameters will be subject to approval by the County Engineer. Where a master study for the watershed in question has been made available, to include environmentally sensitive areas, the design factor specifically developed for that watershed shall be used.

7.4.2 Suburban subdivisions shall be designed for runoff from a watershed assumed to be developed to full suburban density in accordance with the Austin Drainage Criteria Manual unless a lower density can be established and approved by the County Engineer.

7.4.3 Storm drainage improvements shall be designed such that the storm frequency of twenty-five year (25), computed as above, shall be contained by and passed through all drainage structures, easements, and rights-of-way without overflow. Open channels, whether earthen or lined, are to be designed for runoff from a storm whose frequency is 100 years; the channels shall have a minimum free-board not to exceed one foot (1') to top of bank.

In the case where the open channel is a natural creek, the water surface elevation shall be considered to be that produced from a design storm whose frequency is 100 years. Floodway easements shall be provided as per Section 7.5. Such creek may be modified by cutting and filling in accordance with plans approved by the County Engineer.

All structures, i.e. culverts and bridges, shall be designed for a design storm frequency of 100 years or flood conditions. Overflow condition may be designed with overflow capability to allow passage of the 100 year storm frequency (flood) without damage. 100 year flood overflows shall not exceed twelve inches (12") freeboard across any bridge, culvert, road or street. Overflow sections shall be paved or otherwise protected from erosion.

7.4.4 The spread water, referring to the amount of water that is allowed to collect in streets during a storm of 25 year frequency, shall be as per the provisions of the Austin Drainage Criteria Manual for curb and gutter facilities and criteria for development within environmentally sensitive watersheds. Where development and subdivision drainage system collect runoff by roadside open channel or roadside ditch, the amount of storm water spread is minimized by containing the 25-year frequency within the channel or roadside ditch. No more than six inches (6") of freeboard shall be allowed over bank of channel during a 100-year storm frequency.

7.5 100-YEAR FLOOD AREAS

Location of 100-year Flood Areas: 100-year flood areas shall be the areas surrounding any waterway, as defined by the Flood Plain Regulations of Travis County, (see Travis County Manual, "Guidelines and Procedures for Development Permits"), which shall be covered at any time by the runoff or flood flows associated with the 100-year storm (flood).

7.5.1 Boundaries of all 100-year flood areas shall be shown on the drainage plan and shall be based on detailed hydrologic calculations prepared by a Registered Professional Engineer of the State of Texas unless data is furnished by the County Engineer, or is available from official Flood Hazard Area maps or rate maps maintained by the County. Provide a copy of all calculations used for determining the location of the boundaries of the flood hazard areas for the regulatory 100-year flood.

7.5.2 The 100-year flood area boundaries shall include all backwater effects of overflow of drainage structures; retarding structures, ponding, levees, channelization and lining.

7.5.3 Floodway easements shall be provided along natural drainageways, earth channels and lakes or reservoirs. Floodway easements shall contain all areas beneath the water surface elevation resulting from a storm whose design frequency is 100 years, plus such additional widtn to provide ingress and egress to allow maintenance and to protect adjacent property against conditions such as, but not limited to, erosion and caving-in of banks, etc. as determined and required by the County Engineer. (See Section 6.10.3).

7.5.4 Emergency overflow protection shall be provided in all cases; the magnitude and type of the facility is to be determined after the design and physical situation is known.

7.5.5 Lot shall be graded, when necessary, so that the cross-sectional area between building lines may be considered as emergency overflows. In general, a lot grading which provides a ground elevation one foot above the:

(a) Edge of a designed swale, floodway or drainage easement;

(b) Top of curb of a curbed street or alley;

(c) Top of bank of roadside drainage ditch (channel);

(d) Edge of uncurbed road, street, or drive pavement; or

(e) Similar terrain features may be required to accomplish this purpose.

7.5.6 Minimum floor elevations shall be required to provide protection from flooding, minimum floor elevation may be established, such floor elevations affording freeboard from extreme flood conditions. In general, the minimum floor elevation for any structure located on a site affected shall not be less than one foot (1') above the:

(a) Top of curb of curb street

(b) Edge of a designed swale, open channel, floodway or drainage easement line; or

(c) Edge of uncurbed road, street, or drive pavement; or

(d) Similar terrain features.

7.5.7 Minimum elevation for roads or streets or alleys crossing or adajcent to an open drainageway or channel including natural creek and streams, etc., shall be above the water elevation of a design storm whose frequency is 100 years.

7.6 RESPONSIBILITY OF OWNER OR DEVELOPER FOR STORM DRAINAGE

7.6.1 The owner or developer of property to be developed shall be responsible for the conveyance of all storm and flood waters flowing through or abutting subject property. This responsibility includes the drainage directed to that property by prior development as well as the drainage naturally flowing through property by reason of topography (see Travis County Manual "Guidelines and Procedures for Development Permits").

7.6.2 Where the improvement or construction of a storm and flood water drainage facility is required along a property line common to two or more owners, the owner hereafter proposing developing or use of his property shall be responsible for all the required improvements on either side of the common property line, regardless of ownership, at the time of development, including the dedication by the legal owner(s) of all necessary rights-of-way or easements, to accommodate the improvements. (see Section 6.10.3)

7.6.3 The responsibility of the owner or developer shall extend to provision of adequate off-site drainage improvements to accommodate the full effects of the development of his property. When the owner/developer certifies by affidavit that a bonafide attempt to meet off-site drainage requirements has not been successful, the County may assist, at its discretion, in the acquisition of necessary property rights to provide for construction of off-site drainage improvements. The owner/developer shall make adequate guarantees that he will stand the full cost of acquiring said property rights and shall retain full responsibility for construction of the required off-site improvements.

7.7 DRAINAGE STRUCTURES

7.7.1 Culverts shall be corrugated metal pipe of galvanized steel, aluminum, or shall be reinforced concrete pipe culverts. Culverts shall be designed for AASHTO 20-44 loading and shall be furnished and installed in accordance with the requirements of the latest edition of the "Standard Specifications for Construction of Highways, Streets and Bridges" of the Texas Highway Department, Item 460 and Item 464. Protective coatings shall be provided where specifically requested by the County Engineer.

7.7.2 Unless otherwise approved by the County Engineer, the design and construction of concrete boxes and bridges shall conform to applicable standards of the latest design standards of the "American Association of State Highway and Transportation Officials" and the "Standard Specifications for Construction of Highways, Streets and Bridges" of the Texas Highway Department.

7.7.3 Design of channels shall consider velocities and shall be shaped, graded, lined or protected to minimize or prevent scour and erosion from excessive velocities. This requirement shall extend to roadside drainage ditches often called "bar" ditches. Concrete or rock retards shall be used where necessary and shall be constructed to meet Texas Highway Department Specifications or Travis County Specifications (see Section 9.1.8.1.1 and Figure 9.10).

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7.7.4 Curbs, gutters and enclosed storm drains are not contemplated for use on suburban or rural subdivision streets. In the event

that special conditions warrant the use of curb and gutter, with or without attendant storm drains, the resulting transitions between curbed and guttered streets and normal suburban or rural streets shall be designed as required in Section 9 of these specifications or as approved by the County Engineer. Where curbs, gutters, and enclosed storm drains, inlets and catch basins are used, they shall be constructed to the requirements of "Standard Specifications for Public Works Construction" of the City of Austin.

7.7.5 Open channels may meet the criteria Austin Drainage Criteria Manual, or the Texas Highway Department, or S.C.S. TR. No. 25 Design of Open Channels and shall be constructed in accordance with one of the following design methods: for earthen channels; lined channels; natural creek channels as approved by the County Engineer.

SECTION 8 DRIVEWAY ENTRANCE STANDARDS

8.1 APPLICATION OF DRIVEWAY ENTRANCE STANDARDS

The following driveway entrance standards are required for construction of driveways on public right-of-way in subdivisions constructed in Travis County outside incorporated areas. These standards are also recommended for driveway construction on public right-of-way in unincorporated portions of Travis County which is not in subdivisions.

8.2 DRIVEWAY ENTRANCE APPROVAL PROCEDURE

8.2.1 GENERAL:

Approval must be obtained for driveway entrance installation where the driveway entrance standards are required. Application is made and approval is obtained thru the County Engineer's Office, concurrent with Development Permits required by "The Travis County Regulations for Flood Plain Management."

Where application is made thru the County Engineer's Office, all data will be forwarded to the appropriate Precinct Office. Where installation is to be performed by County forces, further arrangements must be made by the applicant at the Precinct Office.

8.2.2 APPLICATION FORM:

To obtain approval for driveway installation where driveway installation standards are required, the applicant must complete and sign a standard Driveway Application Form. The Driveway Application Form will require the applicant to furnish the following information:

8.2.2.1 Date of application

8.2.2.2 Name, address and phone number of applicant

8.2.2.3 Name, address and phone number of owner (if different from applicant)

8.2.2.4 Number and width of driveway entrances requested

8.2.2.5 Distance and direction of driveway (centerline) from lot corner

8.2.2.6 Elevation of property line in relation to edge of pavement at drive location (estimate)

8.2.2.7 Type of driveway entrance requested (culvert or dip-type)

8.2.2.8 Design size of culvert from approved subdivision drainage plans. (County Engineer's Office will provide this information if not known by applicant)

8.2.2.9 Whether County installation is requested

8.2.2.10 Approximate date of driveway installation (if known)

8.2.3 ADDITIONAL INFORMATION AND AFFIDAVAIT:

The application form will provide room for other information as necessary to describe the proposed facility and will contain space for a sketch, if necessary. The bottom portion will contain an affidavit form which must be signed by the applicant and which will indicate his agreement to construct the driveway in accordance with the standards, and, where the driveway approach is to be constructed by other than County forces, to request inspection of culvert installation or ramp surface preparation at least 48 hours prior to pavement of the drive.

8.2.4 APPROVAL:

On satisfactory completion of the Application Form, the form will be signed by the County Engineer, Precinct Supervisor or their authorized representatiaves, which signature will authorize the applicant to proceed with installation, but such installation must be by separate agreement with the appropriate Precinct Office.

8.3 GENERAL DRIVEWWAY DESIGN STANDARDS

8.3.1 Location:

No driveway shall be constructed within 150' of a signalized intersection or within the curb return of a street intersection or within the radius of the edge of pavement or traveled roadway at an intersection on a curve.

8.3.2 Width of Residence Driveways:

Minimum driveway pavement width on the public right-of-way for single family residences shall be twelve feet (12') with a maximum of thirty feet (30') and with fifteen feet (15') most desirable. Driveway base shall be 2' wider than pavement except for dip-type drives.

8.3.3 Width of Multi-Family and Commercial Driveways:

Multi-family residences and commercial uses shall have driveway

pavement widths of twenty feet (20') minimum and forty-five (45') maximum, with thirty feet (30') most desirable and a twenty-four foot (24') minimum for two-way driveways.

8.3.4 Radii:

Driveway pavement radii shall be a minimum of five feet (5') into curbed streets and a minimum of ten feet (10') into uncurbed streets and shall be a maximum of fifteen feet (15') for either curbed or uncurbed driveways.

8.3.5 Common Drives:

Common driveways may be approved provided a permanent access easement has been granted to each property owner to use the portion of driveway on the other lot.

8.3.6 Number of Driveways:

On driveway access to any public road or street, a maximum of two (2) driveways will be permitted to any property with more than one hundred feet (100') of adjacent right-of-way. If roadway frontage along any public right-of-way is one hundred feet (100') or less, driveway access will be limited to one (1) access only. Where dip-type driveway installations are used (See 8.6.1 and Figure 8.1 and 8.2) two (2) driveways per lot will be allowed regardless of lot frontage.

8.3.7 Driveway Grades:

The maximum driveway grade for the portion of driveway constructed on public right-of-way shall be 10% (measured from the edge of shoulder) for residential driveways on local streets and 6% for commercial and industrial driveways. Multiple family driveways and commercial and industrial drives onto a street or road with a higher classification than a residential collector shall have a maximum grade of 3% for the first thirty feet (30') off the edge of the paved way of the street or road.

8.3.8 Variations:

Any variations from the above standards (i.e., a loading dock or special facility) must receive prior approval from the County Engineer.

8.3.9 Sight Distance Problems:

If sight distance problems are anticipated at the location of the proposed driveways, only one (1) driveway will be permitted at a site to be determined by the County Engineer or his representative that provides the safest access to the public right-of-way. Where alternate access is possible, access at hazardous locations may be prohibited.

8.4 STANDARDS FOR UNCURBED STREETS

8.4.1 Conveyance Standards:

Driveway installations requiring conveyance for storm drainage along roadside ditches shall be designed so as to provide adequate passage of the twenty-five (25) year local storm runoff for suburban and urban locations and ten (10) year local storm runoff for rural locations.

8.4.2 Overflow:

Additional provision shall be made for adequate overflow of storm runoff attributable to local storms in excess of the twenty-five (25) year or ten (10) year storm design frequency without damage to the adjacent road. Where culverts are used, pavement or riprap around culvert openings shall be required as shown on standard details provided (see Figure 8.3) unless roadside ditch grades are less than 5% or natural features will assure erosion of drive and road shoulder do not occur.

8.4.3 Culvert Pipe Length:

The length of culvert pipe where used shall be sufficient to allow for driveway base width (including radius as applicable) plus three times the pipe diameter plus three (3) feet, but in any case, no less than twenty feet (20'). The minimum pipe diameter allowed is eighteen inches (18") or Design 2 pipe.

8.4.4 Driveway Design Selection by County Engineer:

Where a drainage plan has not been submitted in accordance with Section 7 of these specifications, driveway design for flood water conveyance will be as specified by the County Engineer, with consideration of such factors as existing or proposed street drainage crossings, ditch shape, slope and subsoil type and location with relation to drainage breaks and/or culvert crossings. Should the applicant prefer to provide his own driveway design selection, such design and accompanying calculations shall be submitted by a Registered Professional Engineer.

8.4.5 Variances from Drainage Design Standards:

In subdivisions with roads constructed prior to January 1, 1980, where it is apparent that the existing roadside drainage system is inadequate to convey the required storm runoff and it is also apparent that normal roadside ditch maintenance will not allow improvement of the drainage system to convey the required storm runoff, the County Engineer may reduce the design requirements for pipe culverts or driveway dips to meet the available conveyance capacity.

8.5 STANDARDS FOR CURBED STREETS

Driveways cut into curbed streets shall be constructed to the general standards for driveway construction of the City of Austin. (See Appendix D.)

8.6 DRIVEWAY INSTALLATIONS - UNCURBED STREETS

8.6.1 Dip-type Driveway Installations:

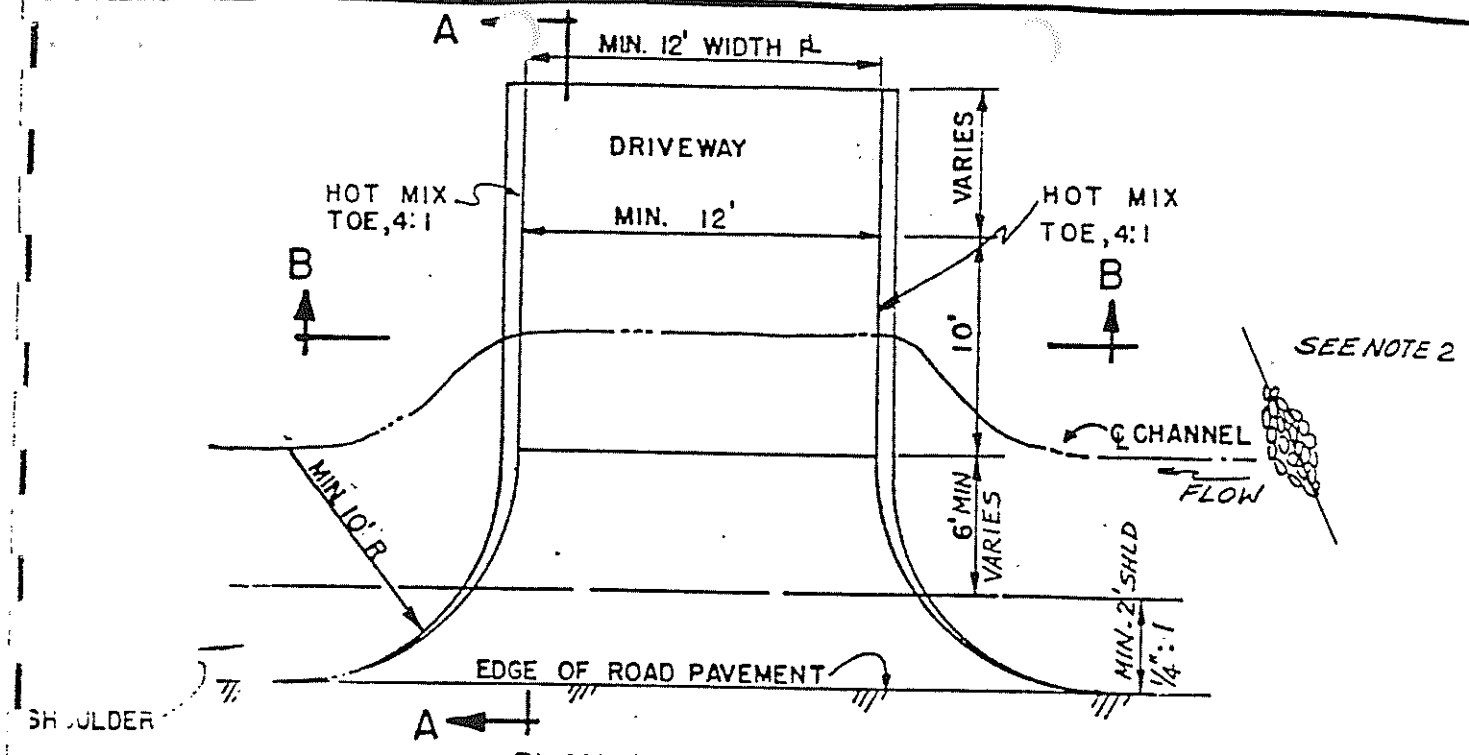
Properly designed and installed dip-type driveway installations function better to pass roadside drainage without scour damage to driveway or road shoulders or surface and are preferred where terrain will allow economical installation. Standard designs are provided in this section for both concrete and asphalt surfaces. (See Figure 8.1 and Figure 8.2). Installation of dip-type driveways approved under these standards will be inspected by the County Engineer's staff or Precinct forces for conformance with standard designs as applicable. Installations by County precinct forces of dip-type driveways are not contemplated since complete installation can generally not be achieved within the public right-of-way.

8.6.2 Culvert Pipe Driveway Installations:

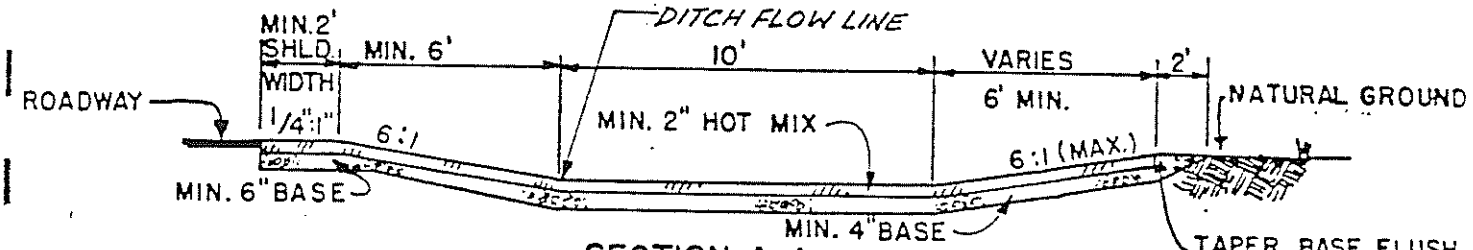
Installation of culvert pipe driveway entrances approved under these standards and which is to property adjacent to accepted County roads, shall be under the supervision of the County Precinct Road Foreman. The property owner, builder or subdivision developer shall install the driveway to meet these standards and as directed by the Road Foreman, or applicant may request installation by Precinct forces. Installation by Precinct forces shall be at the option of the Precinct Commissioner or his staff. Provisions shall have been made in advance with the Precinct office for reimbursement to the County. Reimbursement shall include cost of the pipe and base material required. County installations will not include driveway pavement or overflow protection required (See Section 8.4.2). No Precinct inspection or installation will commence until the property owner, builder or developer has an approved application and has presented same to the Precinct.

8.7 PERMIT FEES

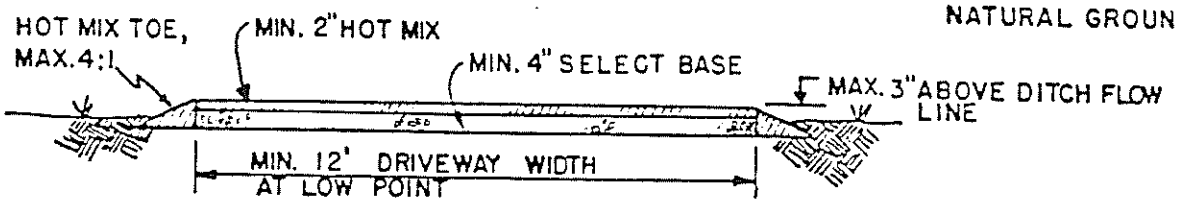
For permit fees, see Section 12.



PLAN VIEW



SECTION A-A



SECTION B-B

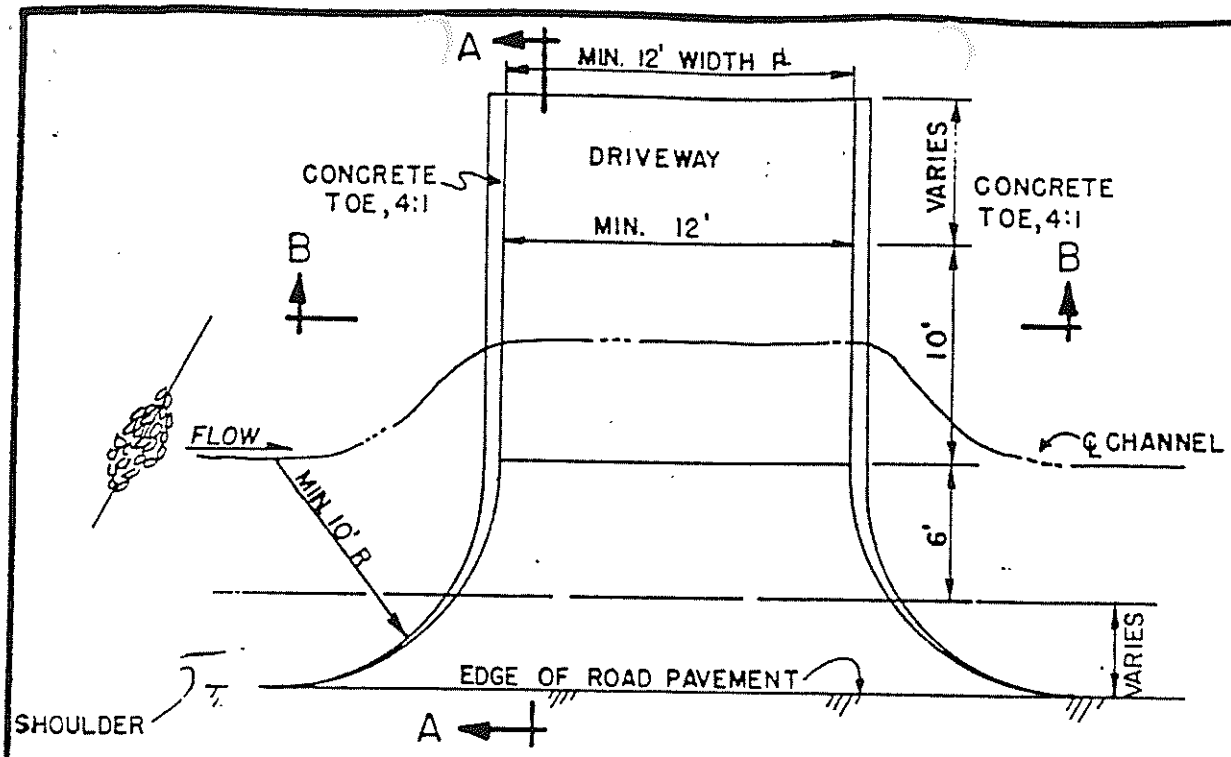
NOTES:

1. USE AS DESIGNED WITH DITCH GRADE FROM 0% TO 3%.
2. ADD DITCH RETARD AT 10' UPGRADE OF DRIVE WITH DITCH GRADE OF 4% TO 6%. SEE FIGURE 9.10.
3. USE CONCRETE DIP-TYPE DRIVEWAY AT DITCH GRADES OVER 6%.

ASPHALT DIP-TYPE DRIVEWAY

REVISED 9-6-83

FIGURE 8.1



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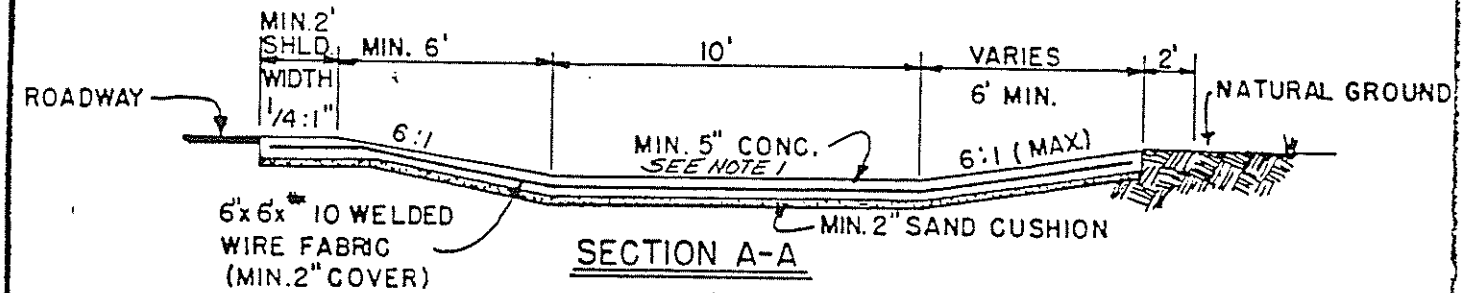
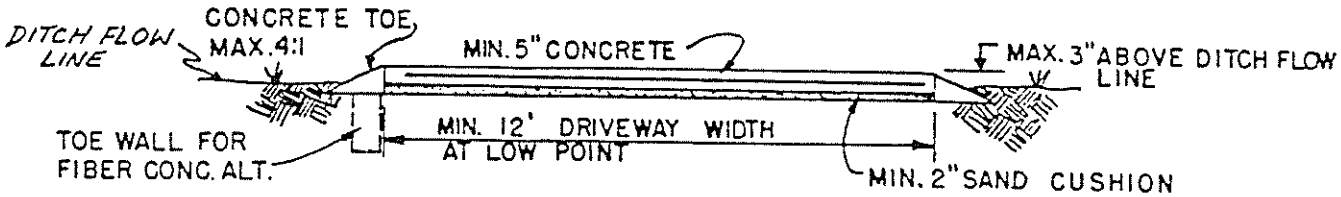


SECTION A-A



SECTION B-B

NOTES:

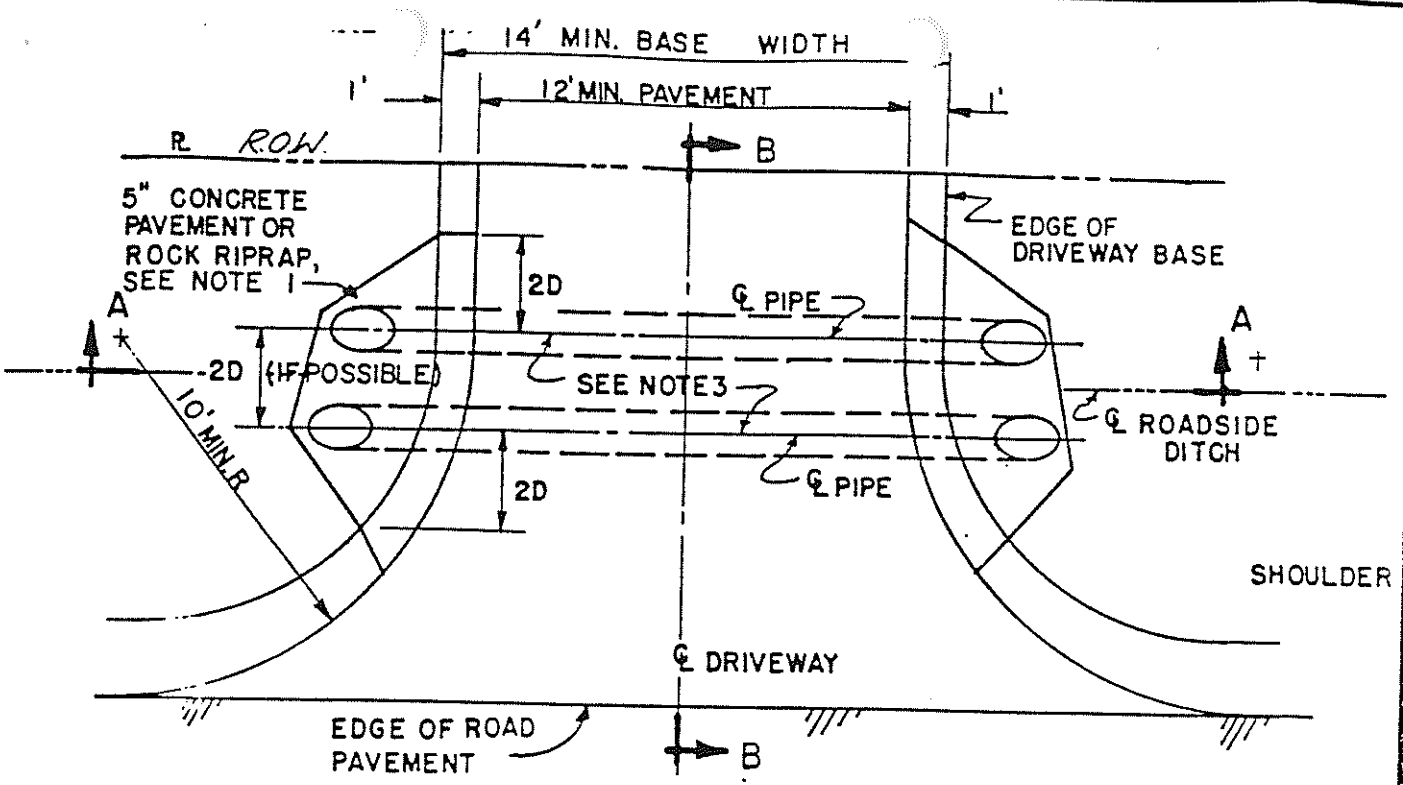
1. AN ACCEPTABLE ALTERNATIVE TO ABOVE IS 3" STEEL FIBER CONCRETE REINFORCED WITH FIBERS AS APPROVED BY THE COUNTY ENGINEER AND WITH 6" x 12" DEEP ANCHORED TOE WALL AND FULL SURFACE VIBRATION.
2. ADD DITCH RETARD 10' UPGRADE OF DRIVE WITH DITCH GRADE OVER 4% FOR BLACK SOILS AND OVER 8% FOR CALICHE SOILS. SEE FIGURE 9.10.

"A"

CONCRETE DIP-TYPE DRIVEWAY

REVISED 9-6-83

FIGURE 8.2



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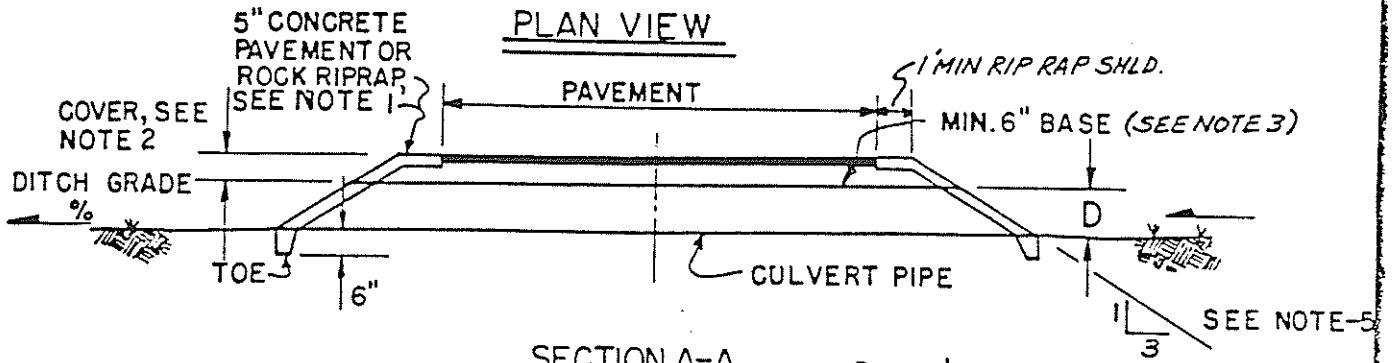
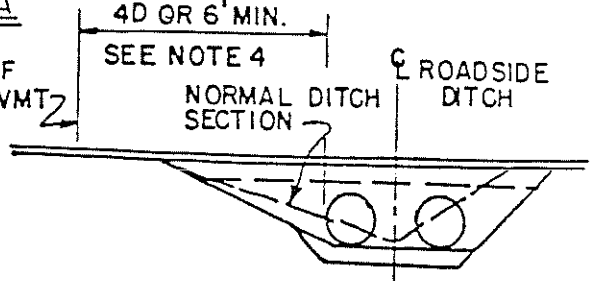


SECTION A-A



SECTION B-B

NOTES:

1. 5" CONCRETE PAVEMENT OR MORTARED ROCK RIPRAP SHALL BE INSTALLED WITH DITCH GRADES OVER 5%.
2. MINIMUM COVER OVER CONCRETE PIPE SHALL BE 6" AND 9" OVER CMP OR CMPA.
3. MULTIPLE PIPES SHALL BE USED IF REQUIRED PIPE DIAMETER OR RISE PLUS REQUIRED COVER EXCEED DITCH FLOW LINE DEPTH BY MORE THAN 6".
4. WHERE DISTANCE FROM ROAD PAVEMENT EDGE TO NEAR EDGE OF CULVERT FOR MULTIPLE CULVERT INSTALLATIONS EXCEEDS SIX(6) FT. OR 4 x PIPE DIA., CONSIDER DIP-TYPE DRIVE
5. FOR COLLECTORS OR ARTERIALS, INCREASE SLOPE TO 3:1

DRIVEWAY WITH CULVERT

REVISED 9-6-83

FIGURE 8.3

SECTION 9 STREET DESIGN AND CONSTRUCTION STANDARDS

9.1 DESIGN STANDARDS

Design standards, unless specifically called out below, shall be standards that are found in common usage by the City of Austin and the Texas State Department of Highways and Public Transportation. Design guidelines shall follow the "American Association of State Highway Transportation Officials", "Geometric Design for Local Roads and Streets", and a "Policy on Geometric Design of Rural Highways".

9.1.1 LOCAL STREET GRADES

9.1.1.1 Urban Local Street Section:

A minimum of 0.40% and a maximum grade of 20% are generally acceptable on urban street sections without the use of specialized drainage control measures.

9.1.1.2 Suburban and Rural Local Street Section:

A minimum grade of 0.50% and a maximum grade of 5% for soft soils in the Ferris-Heiden, Houston Black-Heiden, Burleson-Wilson and other soft soil associations and 8% for harder soil associations, are generally acceptable on suburban and rural local street sections without the use of specialized drainage control measures.

9.1.1.2.1 Grades ranging between 5% and 12% depending on soil type shall require the use of riprap and ditch retards or other acceptable means of erosion control of the ditch line (Figure 9.10).

9.1.1.2.2 Grades ranging betwen 12% and 15% shall require the use of special design techniques including underground drainage facilities; concrete riprap ditch lining; or other suitable structures. The use of crossroad culverts for frequent removal of drainage from the road ditch on the upslope side to the down side lot line or other suitable points is recommended for long ditch runs on all grades. Ditch runs in excess of 800 feet without cross road drainage (or other relief) for grades to 12% and in excess of 400 feet for grades over 12%, must receive special approval of the County Engineer.

9.1.1.2.3 Grades in excess of 15% are not considered acceptable in suburban and rural local street sections except under special conditions as approved by the County Engineer.

9.1.1.2.4 Widening of right-of-way by ten feet (10') to allow ditch centerlines at least five feet (5') further from roadway shoulders for ditches on both sides and eight feet (8') for ditch on one side only, may be considered as an alternative to roadside ditch erosion control for grades between 5% and 15% where approved by the County Engineer.

9.1.1.2.5 Local conditions and varying road designs can be expected to alter the precise application of erosion control measures to actual grades. Where practical, erosion control measures and/or grade selection shall be based on joint field investigation with final approval by the County Engineer.

9.1.1.2.6 The normal backslope in cut and fill sections shall be 3 horizontal to 1 vertical. Backslopes shall vary based upon soil characteristics, ground water, surface drainage. Variation in backslope shall be approved by the County Engineer.

9.1.2 DESIGN SPEED

For use with Design Guidelines (Geometric Design Guide for Local Roads and Streets - AASHTO, 1971), design speeds for local streets (both rural and suburban subdivisions) shall be assumed to be 30 MPH and for minor collectors, 40 MPH, unless otherwise approved by the County Engineer. Design speed for higher type streets and main county roads shall be State Standard speed limit (55 MPH) unless otherwise approved by County Engineer.

9.1.3 HORIZONTAL ALIGNMENT

9.1.3.1 Generally, the minimum centerline radius permissable is:

200 ft. for streets of 50 ft. right-of-way (curb and gutter)
300 ft. for streets of 60 ft. right-of-way.
400 ft. for streets of 70 ft. right-of-way.
500 ft. for streets of 80 ft. right-of-way.
600 ft. for streets of 90 ft. right-of-way.

9.1.3.2 The minimum tangent between reverse curves:
50 ft. for streets of 50-60 ft. right-of-way
100 ft. for streets of 60-80 ft. right-of-way
200 ft. for streets of 80-100 ft. right-of-way

9.1.3.3 Increased radius may be required where the street grades, street cuts, or other natural or man-made obstacles limit stopping sight distance on the curve to below that required by the design speed.

9.1.3.4. Superelevation may be used to control surface drainage and centrifugal forces, but not to reduce the minimum centerline radius.

9.1.3.5 Design for horizontal curves including stopping sight distance and superelevation shall conform to the formula, principals, and guidelines of the American Association of State Highway and Transportation Officials (AASHTO) "A Policy on Geometric Design of Rural Highways."

9.1.4 VERTICAL ALIGNMENT

9.1.4.1 Street grades will conform to Paragraph 9.1.1. Changes in grades of over 0.8% shall be connected by vertical curves.

9.1.4.2 Vertical curves: Minimum length of vertical curves shall be 50 feet or shall conform to the formula:

$$L = KA \text{ (whichever is the greater)}$$

Where L is the algebraic difference in the tangent approach grades expressed as a whole number; and K is established in accordance with Table 2 of the Design Guidelines "Geometric Design for Local Roads and Streets" which are referenced in Paragraph 9.1.

9.1.4.2.1 Special consideration shall be given to streets where the horizontal alignment, overhead obstructions, or the presence of cross traffic or other natural or man-made conditions exist such that stopping sight distance would become the controlling parameter as it relates to the determination of a minimum length of vertical curve.

9.1.4.2.2 Item 9.1.4.2 shall conform to the formulas, principals, and guidelines of the AASHTO "A Policy on Geometric Design of Rural Highways" and the "Geometric Design Guide for Local Roads and Streets."

9.1.5 INTERSECTIONS

9.1.5.1 General

Intersections shall be designed for the control of traffic generated by the project, control of existing traffic that might use the project for access to some other area, and the future safety of the public.

9.1.5.1.1 Centerlines of opposed "T" intersections shall be a minimum of 150' apart.

9.1.5.1.2 "T" intersections on the same side or four-way intersections shall be a minimum of 300' apart, except where the access to a higher use thoroughfare might be affected or where topography would dictate a variance.

9.1.5.1.3 Four-way or cross intersections are discouraged except where such an intersection is determined as desirable by the County Engineer from the standpoint of access, traffic flow, or safety.

9.1.5.1.4 Street intersections shall have an angle of intersection of not less than 80 degrees nor more than 100 degrees, measured between the centerlines, or the projection of the centerlines of the intersecting streets.

9.1.5.2 Grades

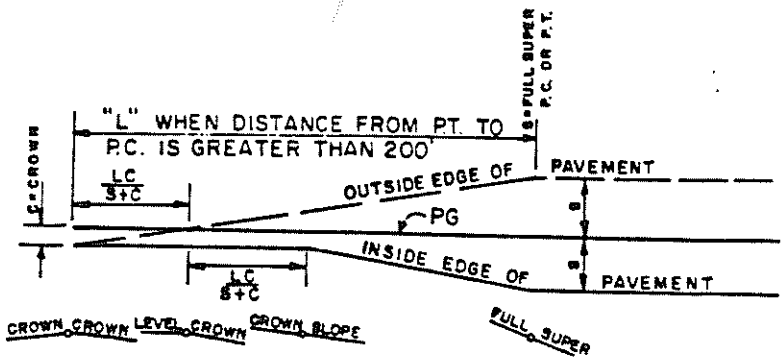
Approach grades on an intersecting street should be limited to 3% ± for at least fifty feet (50') unless sight distances are in excess of the Design Guide minimums for stopping on a grade level, in which case the approach grades should not be greater than 6%.

9.1.5.3 Major Intersections

Streets intersecting federal routes, State highways, or Farm to Market Roads or Ranch to Market Roads shall require approval of the State Department of Highways and Public Transportation.

9.1.5.4 Intersections of Curbed Streets with Uncurbed Streets

Curbed to uncurbed street intersections shall be designed with appropriate concern for the interfacing of the differing drainage systems.



DIAGRAMMATIC PROFILE
NORMAL SUPER TRANSITION
ROTATED ABOUT CENTERLINE

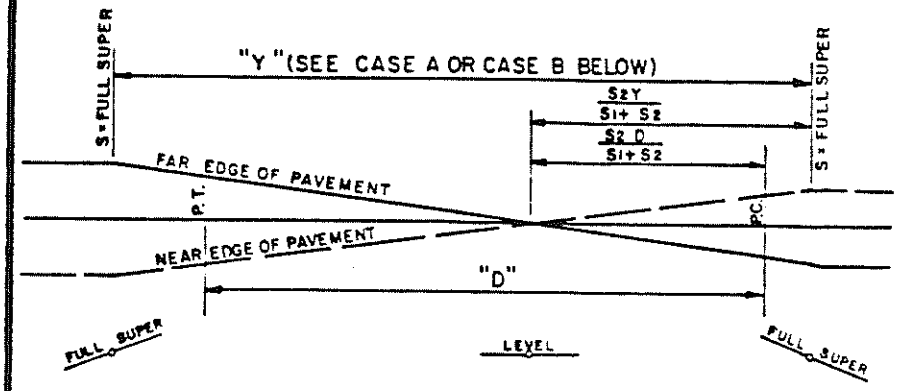


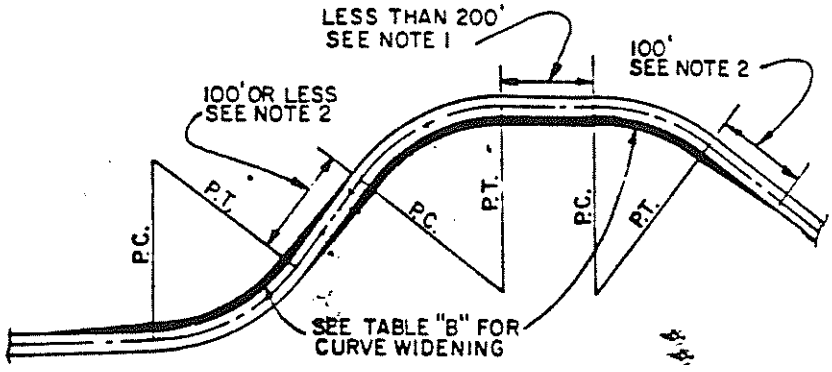
TABLE A

SUPER ELEVATION				
DESIGN SPEED	RADIUS FT.	DEGREE OF CURVE	"S" RATE FT./FT.	"L" RUN-OFF FT.
30 MPH	300' UP	19.0 OR LESS	0.04	100
	275'	21.0	0.06	110
	250'	23.0	0.08	145
	230'	25.0	0.10	180
	UNDER 230'	OVER 25.0	0.10	180
35 MPH	425' UP	13.5 OR LESS	0.04	110
	380'	15.0	0.06	115
	350'	16.5	0.08	155
	320'	18.0	0.10	195
	UNDER 320'	OVER 18.0	0.10	195
40 MPH	573' UP	10.0 OR LESS	0.04	125
	500'	11.5	0.06	125
	460'	12.5	0.08	170
	425'	13.5	0.10	210
	UNDER 425' *	OVER 13.5 *	0.10	210
55 MPH	1432' UP	4.0 OR LESS	0.04	150
	1,275	4.5	0.06	150
	1,150	5.0	0.08	190
	1,042	5.5	0.10	240
	UNDER 1045 *	OVER 5.5 *	0.10	240

* WIDENING REQUIRED

TABLE B

WIDENING		
DESIGN SPEED	DEGREE OF CURVE	WIDENING
40 MPH	13.5 OR LESS	0
	13.5 TO 18.0	2.0
	18.0 TO 21.0	2.5
	21.0 TO 25.0	3.0
55 MPH	5.5 OR LESS	0
	5.5 TO 10.0	2.0
	10.0 TO 13.5	2.5
	13.5 TO 18.0	3.0



CURVE WIDENING DIAGRAM

9.1.5.4.1 Where curbed street intersects continuing uncurbed street, standard curb and gutter shall terminate at the property line or as necessary to allow drainage from the curbed street to enter the uncurbed street bar ditch without erosion to shoulder areas. Concrete or mortared rock riprap may be required to protect the shoulder area.

9.1.5.4.2 Where an uncurbed street intersects a continuing curbed street, the curb line shall be cut and removed and a standard urban curb return designed into the uncurbed street with the curb face at the ditch centerline of the uncurbed street. A concrete riprap transition shall be constructed to convey drainage out of or into the uncurbed ditch line. (See Figure 9.2) The concrete riprap transition may be eliminated for discharge into the uncurbed street from the curbed street if transition grades are less than 2% or if an inlet is located within 100' of the intersection. For drainage from uncurbed street into the curbed street, for grades less than 5% on the uncurbed street, two ditch checks at 10' and 30' from end of curb return may be used in lieu of riprap transition.

9.1.5.4.3 Pavement shall be placed on a radius as shown in Figures 9.1 and 9.2. Care will be taken in installation to match existing pavement. Curbed street crown will be full crown (unless cross spilling) to at least 50 ft. from curb end to assure flow of drainage enters bar ditch.

9.1.5.4.4 For curbed street discharging into curbed street, surface drainage that has been carried by the curb and gutter from a point more than 200 feet distance from the intersection with the uncurbed street shall be removed by the use of inlets draining to the drainage pipe required at the intersection so as not to interrupt the flow of drainage in the bar ditch of the uncurbed street. (See Figure 9.1).

9.1.5.4.5 Item 9.1.5.4.4 may be deleted if the surface drainage from the urban street can be directed from the ends of the curb and gutter to the bar ditch of the suburban street without surcharge of the curb and

gutter, exceeding the City of Austin's criteria for reduction of carrying capacity (Drainage Criteria Manual, Section 3.01E) and provided adequate erosion control can be maintained.

9.1.6 ROAD CROSS-SECTIONS

9.1.6.1 Suburban and rural local street cross-sections, transitions, tapers, modified cul-de-sacs and cul-de-sacs shall conform to Figures 9.3 thru 9.8.

9.1.6.1.1 Cross-sections shall be modified to accommodate the property conveyance and routing of drainage in accordance with Section 7.

9.1.6.1.2 If curb and gutter are used, the City of Austin design standards related to curb and gutter should apply.

9.1.6.1.3 Temporary turnarounds as in Figure 9.9 shall be required on all local streets not designed as cul-de-sacs, unless specifically waived by the County Engineer.

9.1.6.1.4 All local streets shall be constructed to the end of the street dedication.

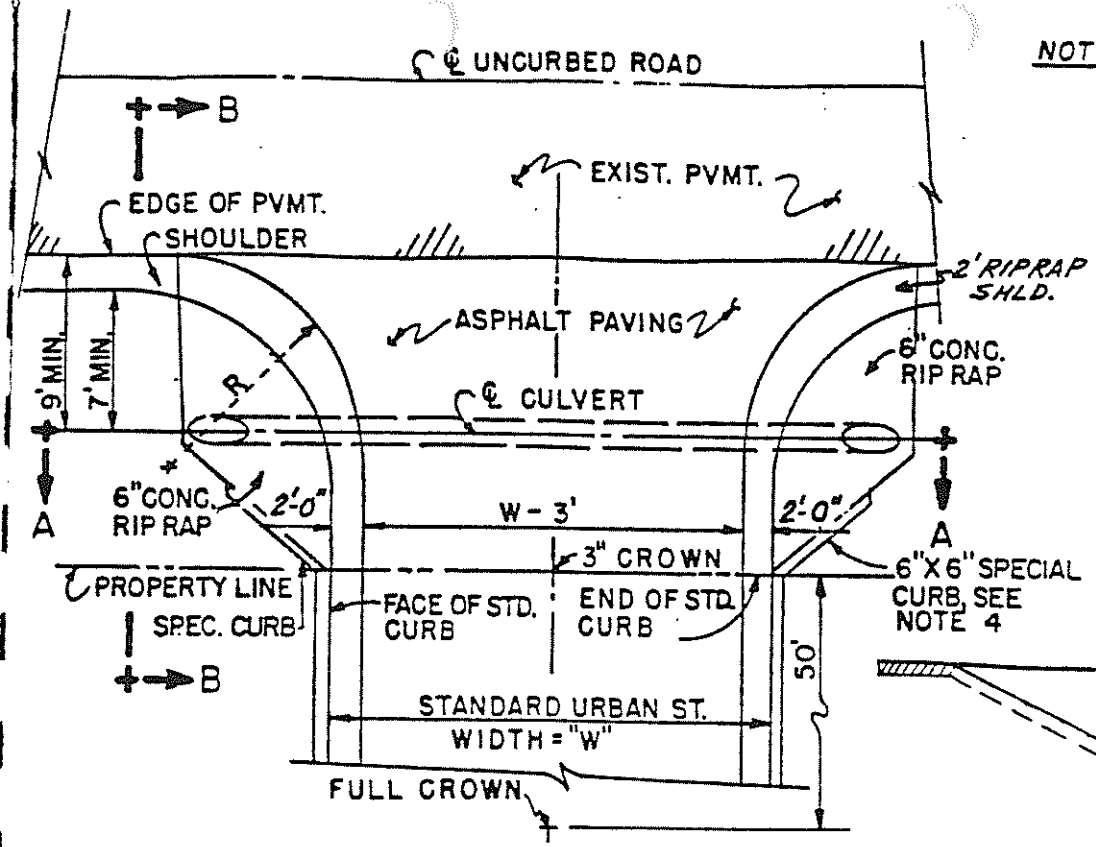
9.1.7 FLEXIBLE PAVEMENT

9.1.7.1 Subgrade Preparation

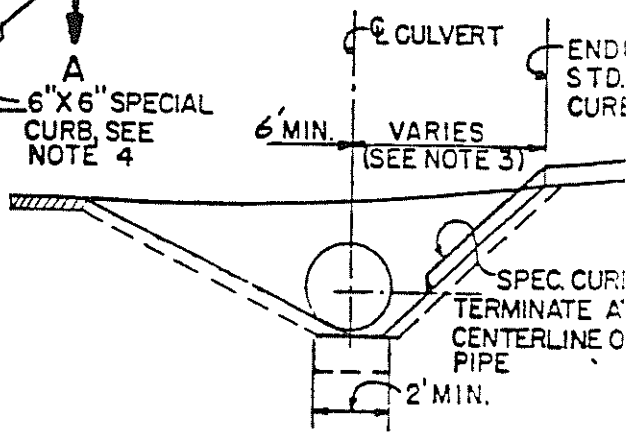
The roadbed shall be excavated and shaped in conformity with the applicable typical section for the right-of-way and to the grades established by approved plans.

9.1.7.1.1 All subgrade soils which are determined by test to be unstable or otherwise unsuitable for roadway foundation shall be removed and replaced with suitable material approved by the County Engineer.

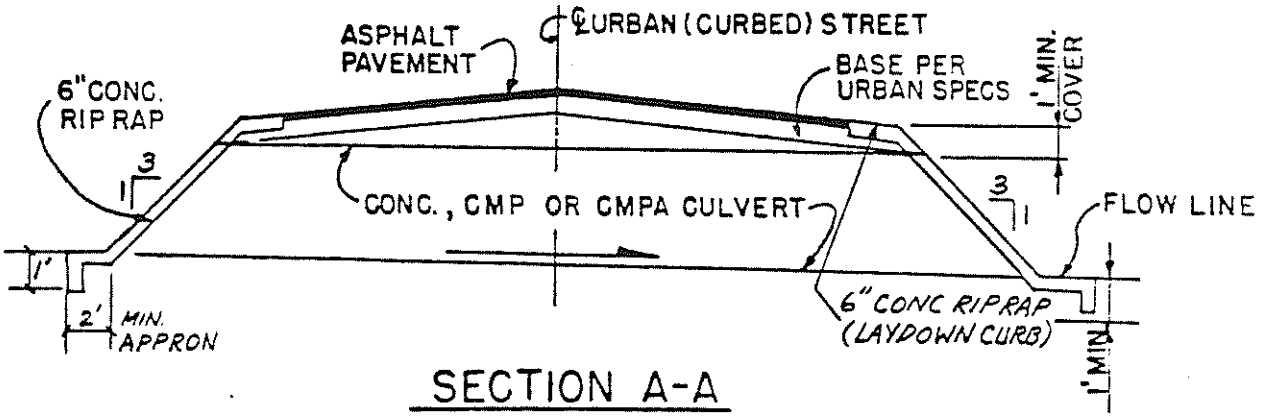
9.1.7.1.2 The subgrade shall be thoroughly wetted with water and reshaped and rolled to the extent necessary in order to place the subgrade in an acceptable condition to receive the base material.



NOTES:
1. FOR "W" LESS THAN 30', R=2
2. FOR "W" MORE THAN 30', R=2
3. RIP RAP (OR ROCK) CHANN FROM ROAD DITCH T END OF CURB IF URBAN S DRAINS TOWARD UNCURBI ROAD, 3' MIN. OTHERWISE
4. PLACE 6"X6" SPECIAL CURI TO DIRECT FLOW WHEN DRAINAGE IS TOWARD UNCURBED ROAD



SECTION B-B

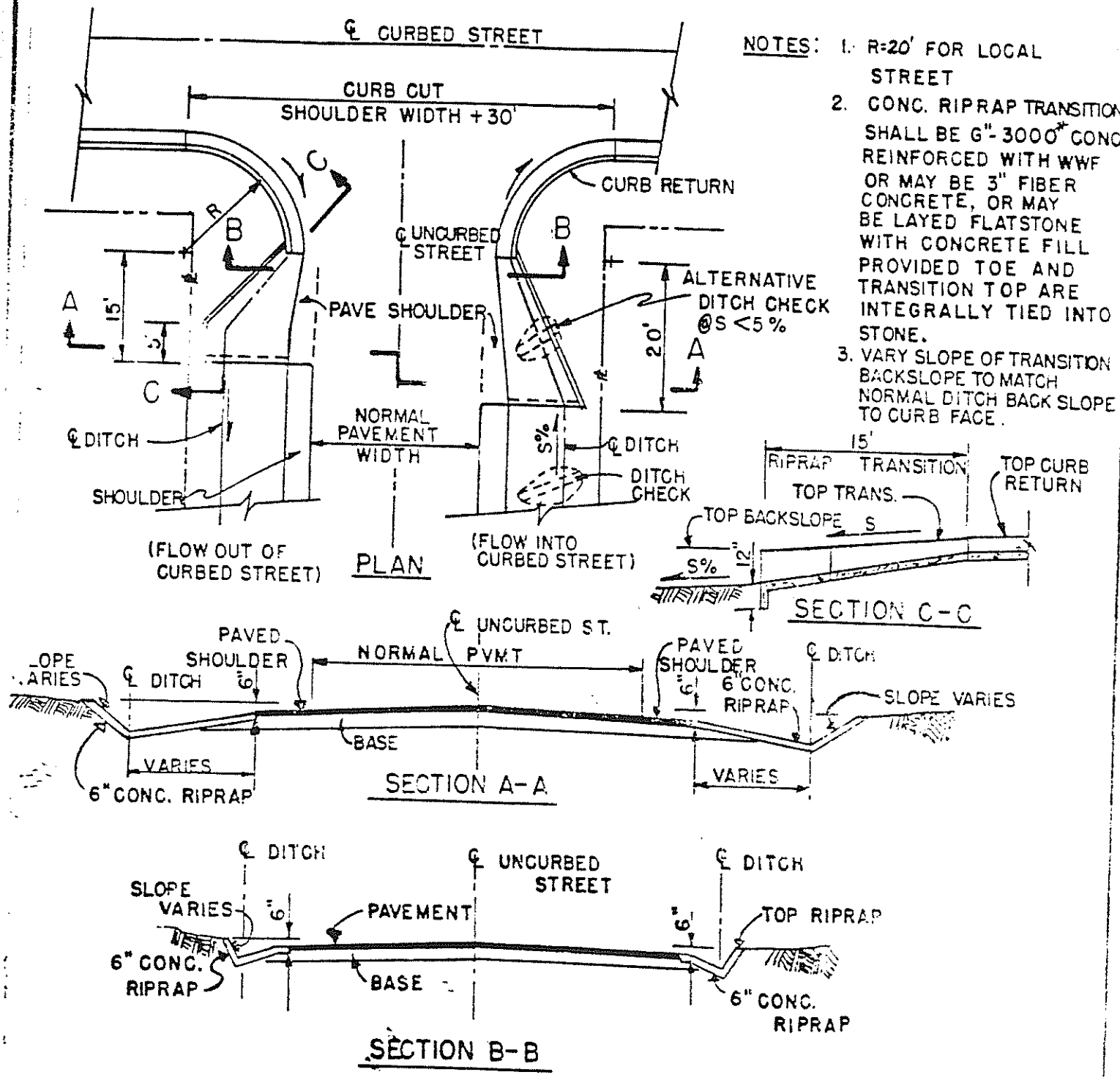


SECTION A-A

CURBED STREET-UNCURBED STREET INTERSECTION

TYPICAL DETAILS-PIPE SIZE TO 30" DIA. (31" RISE)

(FOR LARGER PIPE SPECIAL SECTIONS MAY BE NECESSARY)



UNCURBED STREET-CURBED STREET INTERSECTION

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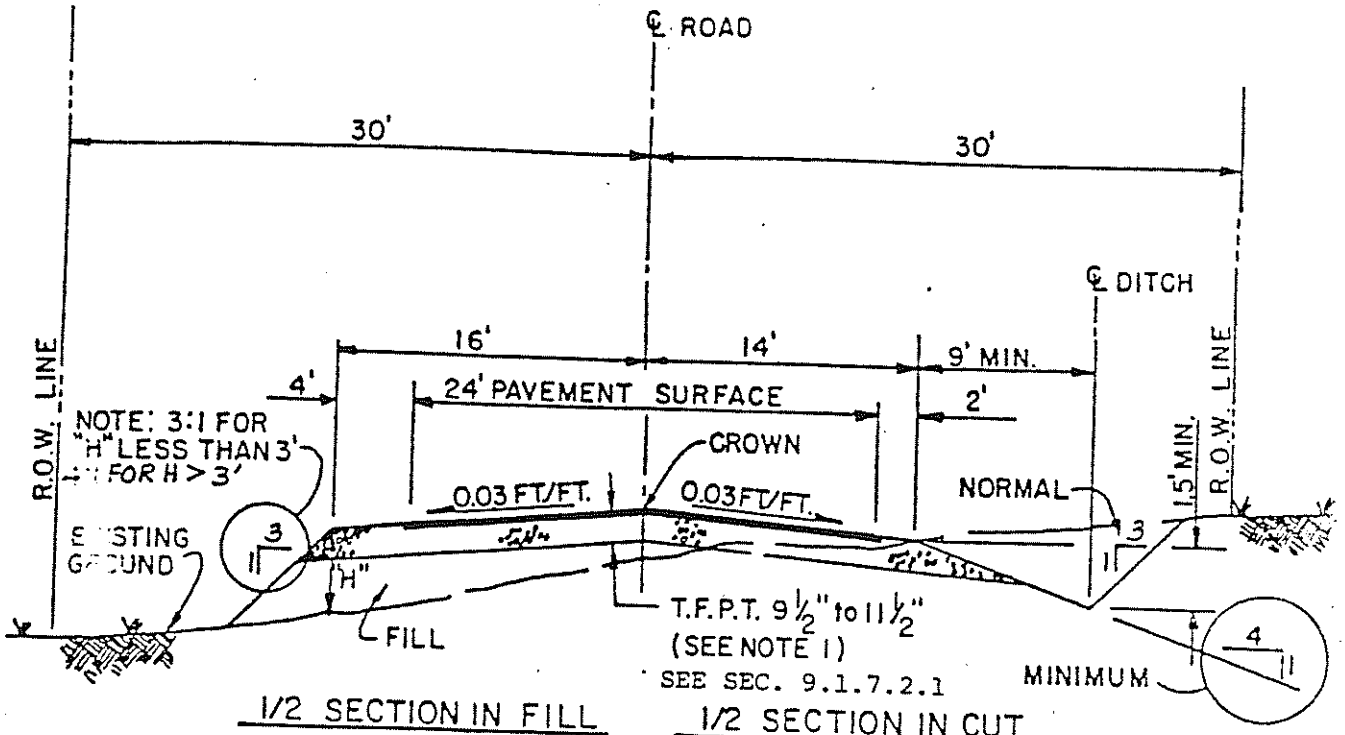
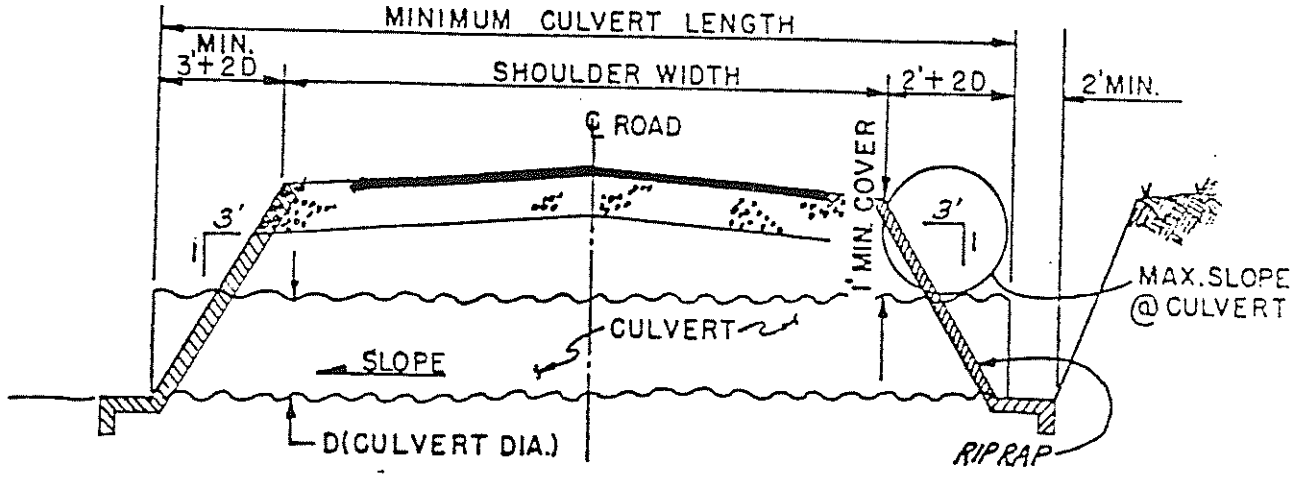
PAGE 24 OF 53 "A"

FIGURE 9.2



1/2 SECTION IN FILL 1/2 SECTION IN CUT

Note 1. T.F.P.T. = Total Flexible Pavement Thickness (top of pavement surface to top of subgrade). Minimum Pavement Surface shall be 1 1/2 inches thick A.C. Pavement or approved equal.



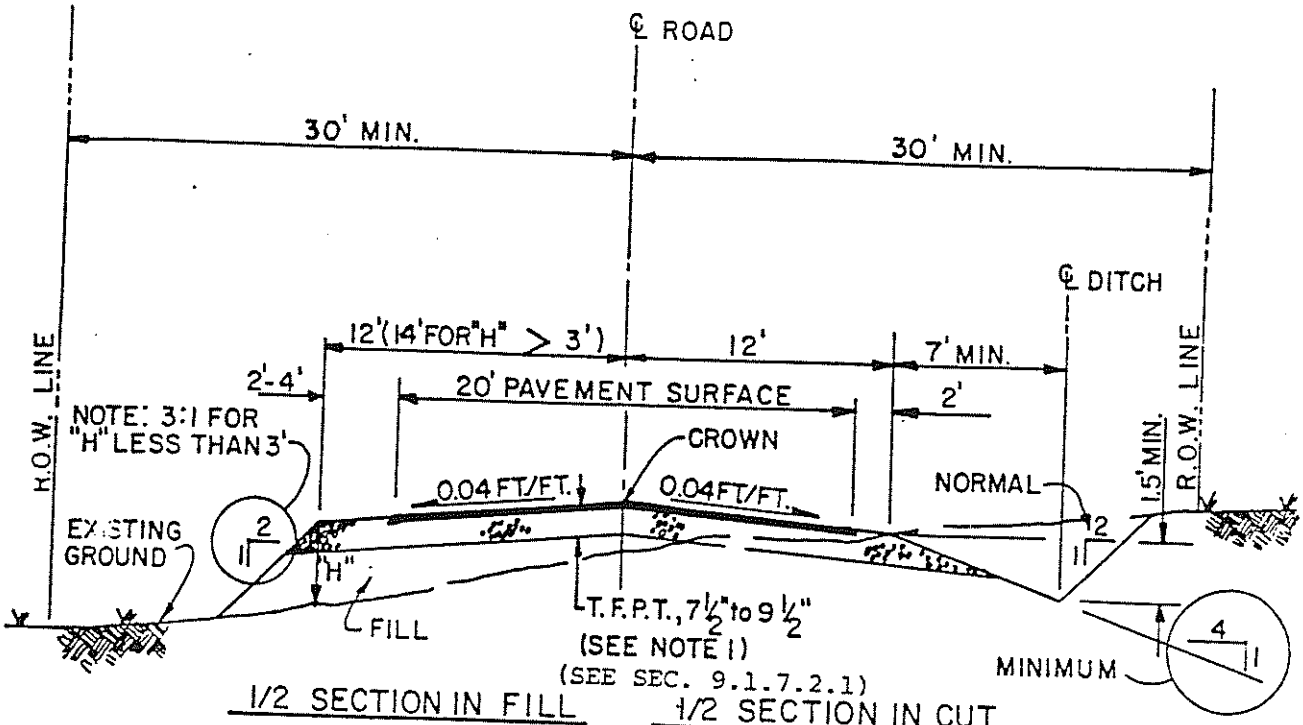
CULVERT IN FILL CULVERT IN CUT

TYPICAL SUBURBAN LOCAL STREET

NOTE: ALL CULVERT END DESIGN SHALL BE SUBJECT TO HYDRAULIC FLOW CONDITIONS AND COUNTY ENGINEER APPROVAL. ENERGY DISSAPATORS MAY BE REQUIRED WHERE DISCHARGE VELOCITIES EXCEED ALLOWABLE CULVERT DISCHARGES.

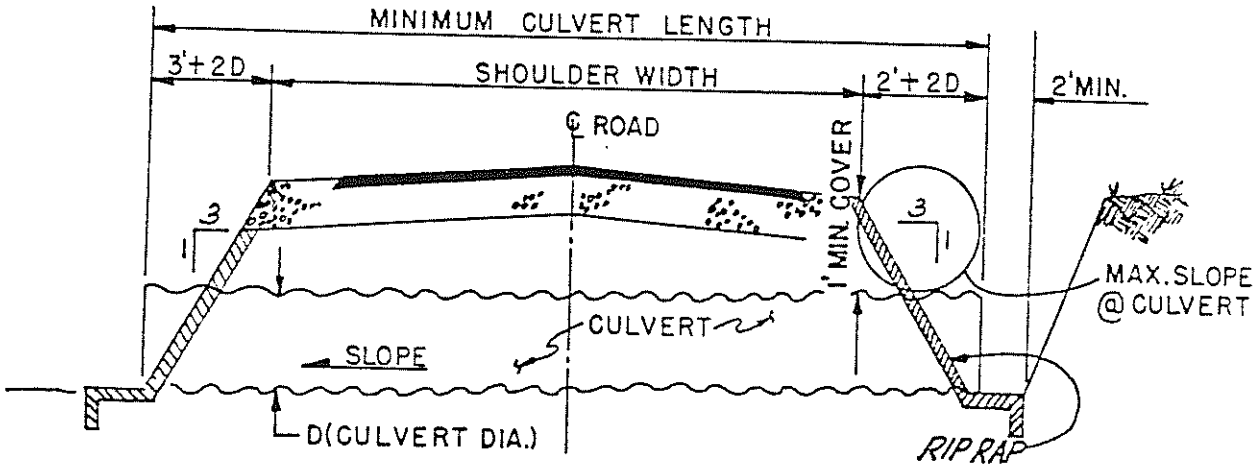
REVISED 9-6-83

FIGURE 9.3



1/2 SECTION IN FILL 1/2 SECTION IN CUT

NOTE: 1. T.F.P.T. = Total Flexible Pavement Thickness (top of pavement surface to top of subgrade). Minimum Pavement Surface shall be 1 1/2 inch minimum thick A. C. Pavement, 3/4 inch thick 2-course penetration pavement, or approved equal.

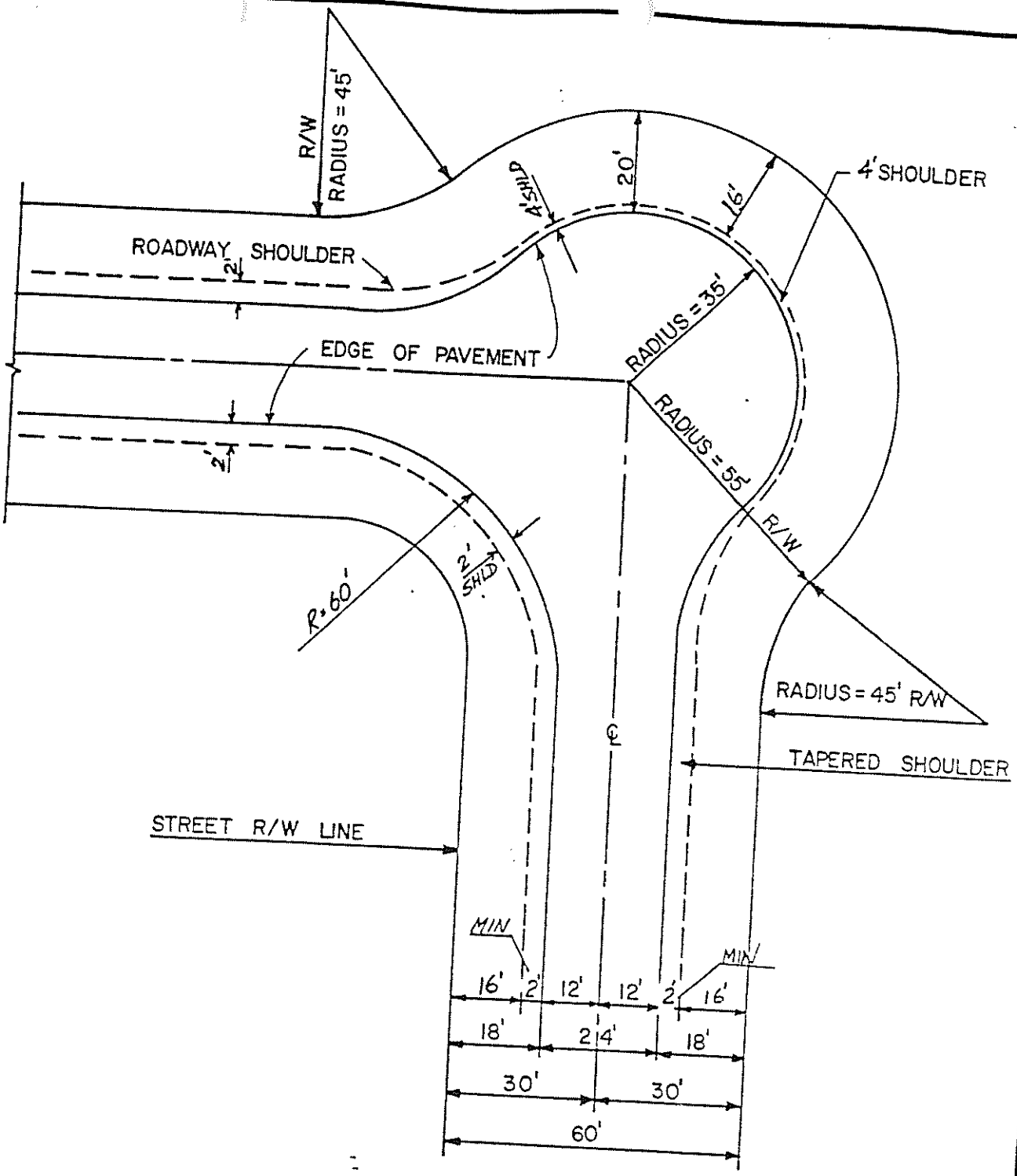


CULVERT IN FILL CULVERT IN CUT

TYPICAL RURAL LOCAL STREET

REVISED 9-6-83

FIGURE 9.4



TYPICAL EYEBROW PAVING DETAIL

SUBURBAN SECTION
60' R.O.W.

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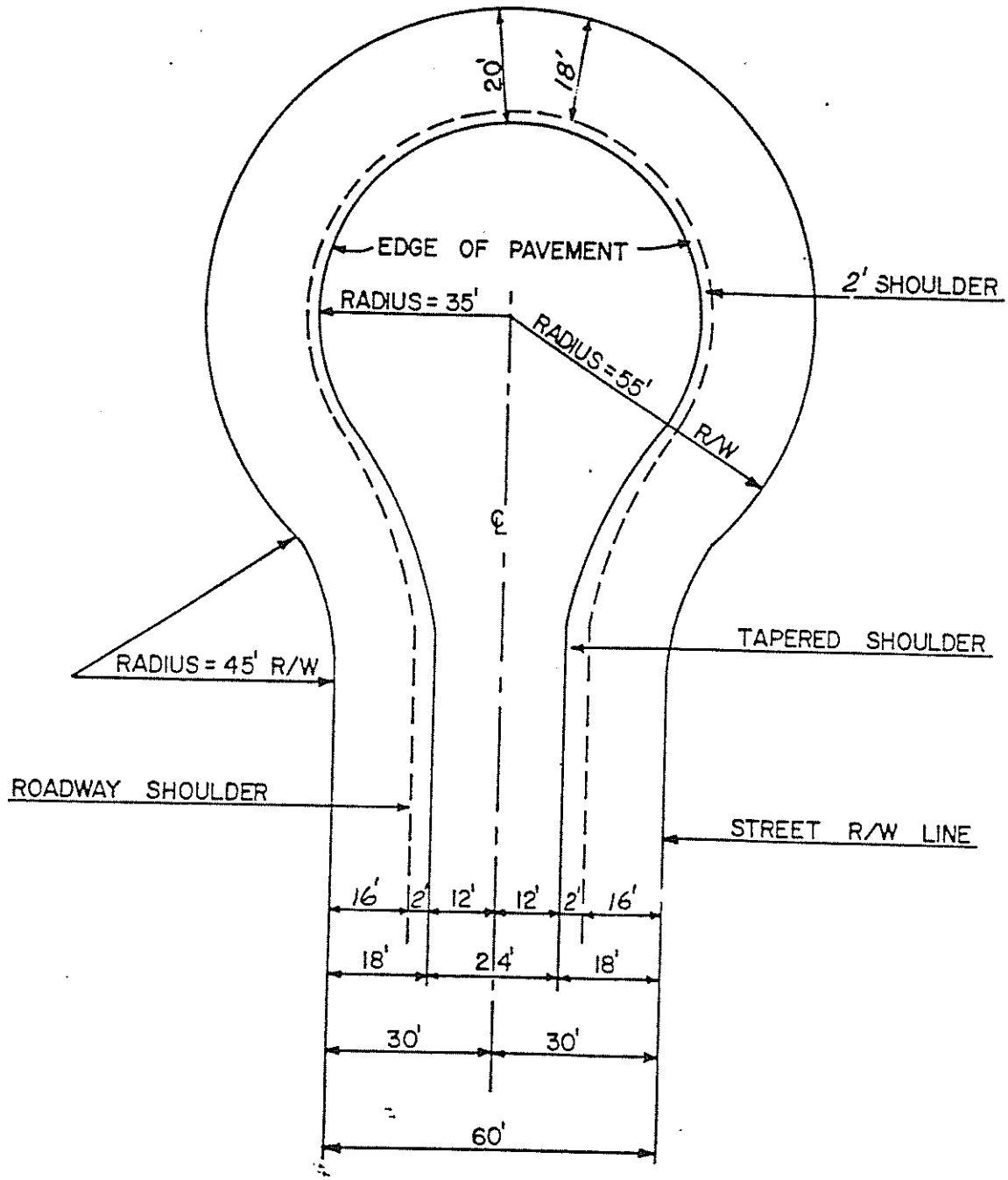
FIGURE 9.5

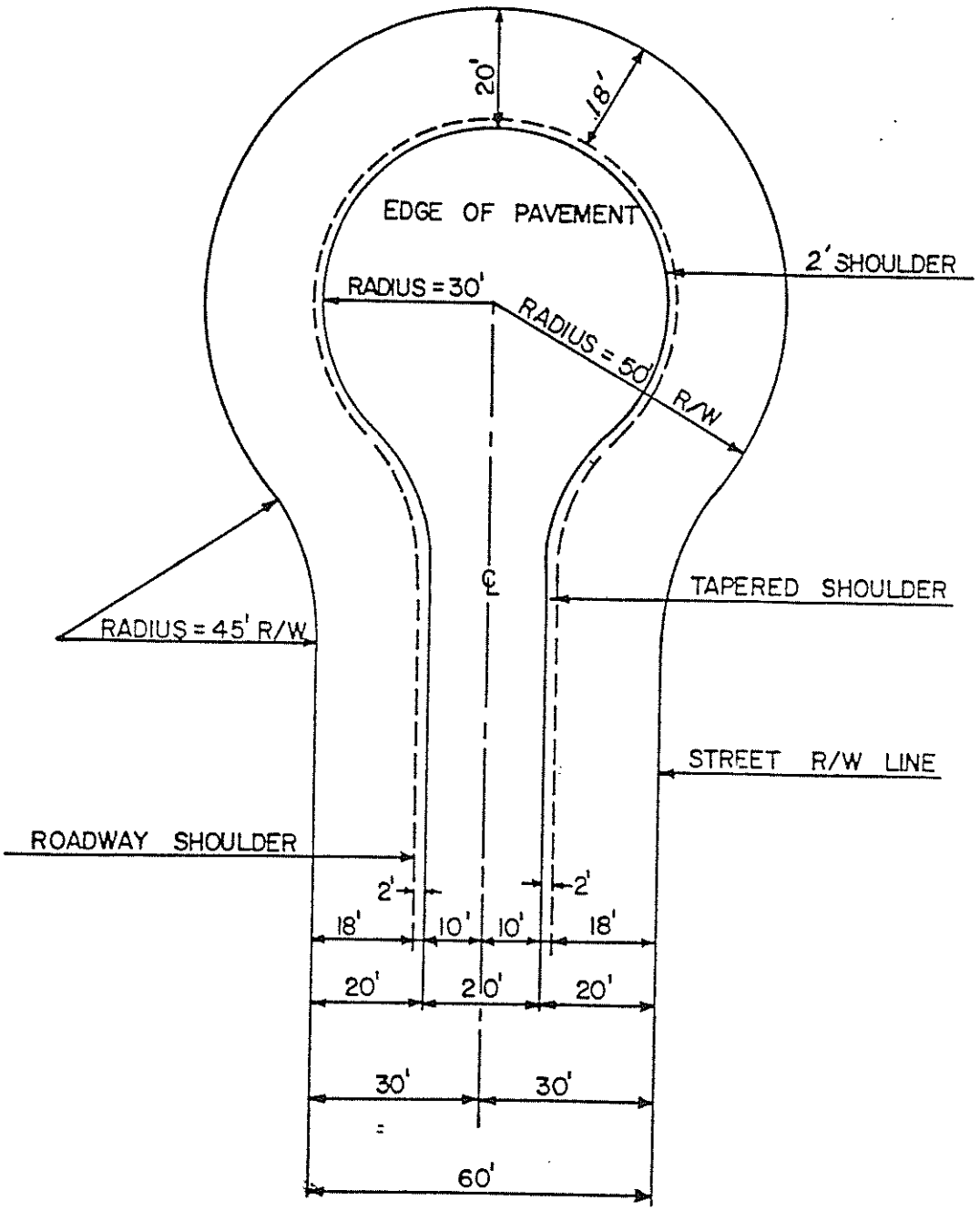


TYPICAL CUL-DE-SAC PAVING DETAIL

SUBURBAN SECTION
60' R.O.W.

REVISED 9-6-83

FIGURE 9.7



TYPICAL CUL-DE-SAC PAVING DETAIL

RURAL SECTION
60' R.O.W.

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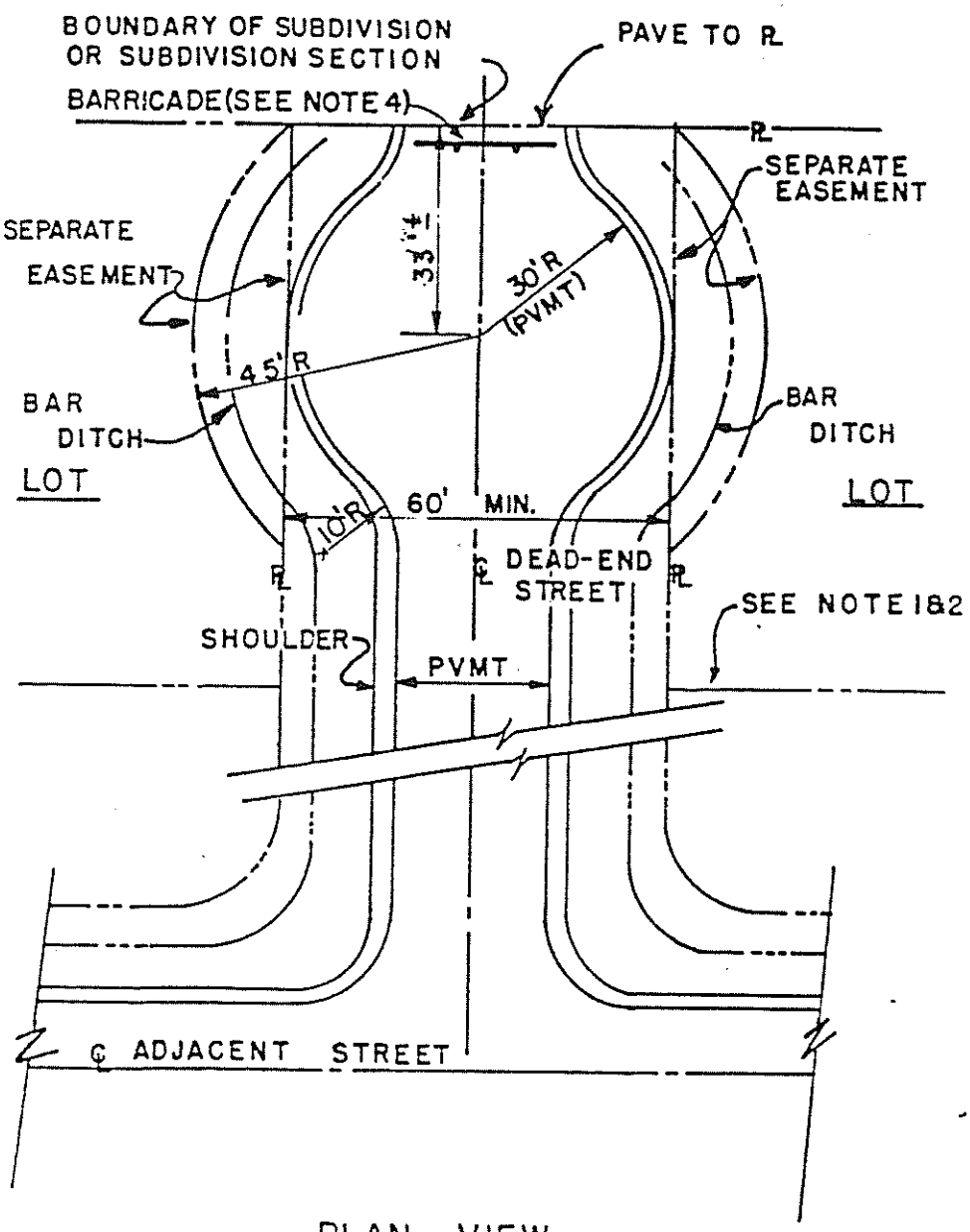
FIGURE 9.8



PLAN VIEW

NOTES:

1. Temporary turn around construction and easements may be waived if all lots bounding Dead-End street also front other adjacent streets.

2. If temporary turn-around is waived, access to Dead-End streets from bounding lots shall be prohibited.

3. Separate easement shall be shown as a restriction on bounding lots which may be removed by separate action on continuation of Dead-End street.

4. Standard City of Austin type barricade shall be placed at end of dead-end streets.

TEMPORARY TURN-AROUND ON DEAD-END STREET

REVISED 9-6-83

FIGURE 9.9.

9.1.7.1.3 Material imported to the construction site for use in fill sections, or for the completion of shoulders or slopes shall be from a source approved by the County Engineer.

9.1.7.1.4 "Density Control of Subgrade" will be specified for all fills and may be required for other subgrade areas if site conditions warrent. Tests from a known soils laboratory supplied by the owner/developer or contractor will be required indicating to the County Engineer that the subgrade has been compacted to a minimum of 95% TEX. 113E Density to a depth of 4" for all subgrade and for the full depth of all fills. (See 11.3.4 for required tests).

9.1.7.1.5 In those instances where removal of unsuitable subgrade material is not feasible, the engineer may consider the use of soil stabilization. A complete set of soil test must be accomplished and a report of the engineering properties both before and after stabilization must be provided along with the design criteria as established by a known soils laboratory. Certification of the design and of quality control during construction must also be provided. Soil stabilization specifications and procedures must be approved by the County Engineer prior to use.

9.1.7.2 Pavement Design

9.1.7.2.1 Soils from the following soils series (See Manual "Soil Survey of Travis County, Texas" Soil Conservation Service, June 1974) are considered poor for use as street subgrade and streets located on these soils will require a minimum Total Flexible Pavement Thickness (TFPT) of 9 1/2" for rural local streets and 11 1/2" of TFPT for suburban local streets: Altoga; Austin; Burleson; Chaney; Crawford; Crockett; Denton; Eddy; Ferris; Heiden; neutral subsoil variant; Hornsby; Clayey variant; Houston Black; Lewisville, Miller; Purves; San Saba; Speck; Stephen; Tarrant; Trinity; Volente; and Wilson.

9.1.7.2.2 Soils from the following soils series (See Manual referenced in 9.1.7.2.1) are considered fair for use as street subgrade and streets located on these soils shall require a TFPT of 7 1/2" for rural local streets and 9 1/2" for suburban local streets: Bergstrom; Brackett; Dougherty; Frio; Hardeman; Hornsby; Lincoln; Norwood; Patrick; Pedernales; Travis; and Yahola.

9.1.7.2.3 The developer may submit pavement designs by a qualified Professional Engineer on actual on-site testing of foundation materials and standard pavement design may be used in lieu of the specified minimum.

9.1.7.3 Base Courses

Flexible base material shall be placed in lifts not over 6" thick unless compaction equipment provided can be used to demonstrate to the satisfaction of the County Engineer that thicker lifts may be compacted. Prior to the placement of the first lift of base material, the subgrade will be inspected for conformity with grade, section and required density (See 9.1.7.1.4)

9.1.7.3.1 The first lift shall be compacted in accordance with an approved method and shall be required to have either "Ordinary Compaction" or "Density Control" method of compaction. (See 9.3.6.1)

9.1.7.3.2 When the County Engineer requires "Ordinary Compaction" be specified (see 9.3.6.1), compaction will be in conformity with the following provisions:

The course shall be wetted to optimum moisture content and rolled until uniform compaction is secured. Throughout the compaction process, the surface will remain consistent with plan grades and section.

9.1.7.3.3 When "Density Control" is specified (see 9.3.6.1) compaction will be in conformity with the following provisions:

The course shall be wetted to optimum moisture content and compacted to the extent necessary to ultimately meet the specified "Density". Base may be

completed in sections and tested for the density. Throughout the compaction process the surface will remain consistent with plan grades and section.

It shall be the responsibility of the contractor to maintain tested sections at the specified density and section until all courses on all sections are complete and paved.

Tests by a known soils laboratory supplied by the owner/developer or contractor will be required when "Density Control" is specified.

9.1.7.3.4 When pavement design requires TFPT to be in excess of 7 1/2 inches, the base material shall be placed and compacted in accordance with Items in 9.1.7.3 in two or more equal lifts of 6 inches compacted thickness or less.

9.1.7.3.5 Succeeding lifts shall conform to the same specifications as the first course. The surface of any previous course will be scarified and rebladed and compacted with the succeeding course when thirty (30) days or more elapse between courses, unless after inspection, the County Engineer feels scarifying is not needed.

9.1.7.3.6 When "Density Control" is specified, a minimum of 95% of TEX.113E Density shall be required.

9.1.7.4 Material

The base course or courses of a flexible pavement design shall be made up of one or more of the following materials: Bank-run gravel, processed gravel, or crushed stone.

9.1.7.4.1 Bank-run gravel shall consist of durable particles of gravel mixed with approved binding material, and will be free from thin or elongated pieces, lumps of clay, soil, loam, or vegetable matter. Material containing gravel or conglomerate of two inches (2") in their largest dimensions shall be broken up and uniformly mixed with the remainder of the material. When properly slaked and tested by standard laboratory methods, this material shall meet the following requirements:

Retained on 1 3/4 inch sieve	0 - 5%
Retained on No. 4 sieve	30 - 65%
Retained on No. 40 sieve	60 - 80%
Passing No. 200 sieve	15 - 25%

"Soil Binder" when properly prepared and tested by standard laboratory methods shall meet the following requirements:

Liquid limit shall not exceed	- 35
Plasticity index shall not exceed	- 12

9.1.7.4.2 Processed gravel shall consist of durable particles of gravel mixed with approved binding material. All oversize shall be crushed or removed in such a manner that a well-graded product will be produced. When properly slaked and tested by standard laboratory methods, this material shall meet the following requirements:

Retained on a 1 3/4 inch sieve	0%
Retained on a 3/8 inch sieve	15 - 50%
Retained on a No. 4 sieve	30 - 65%
Retained on a No. 40 sieve	65 - 80%
Passing a No. 200 sieve	15 - 25%

"Soil Binder" when properly prepared and tested by standard laboratory methods shall meet the following requirements:

Liquid limit shall not exceed	- 35
Plasticity index shall not exceed	- 12

9.1.7.4.3 Crushed stone shall consist of durable particles of stone, crushed, and mixed with approved binding material. When properly slaked and teted by standard laboratory methods, this material shall meet the following requirements:

Retained on a 1 3/4 inch sieve	0%
Retained on a 7/8 inch sieve	10 - 35%
Retained on a 3/8 inch sieve	30 - 50%
Retained on a No. 4 sieve	45 - 65%
Retained on a No. 40 sieve	70 - 85%
Passing a No. 200 sieve	10 - 20%

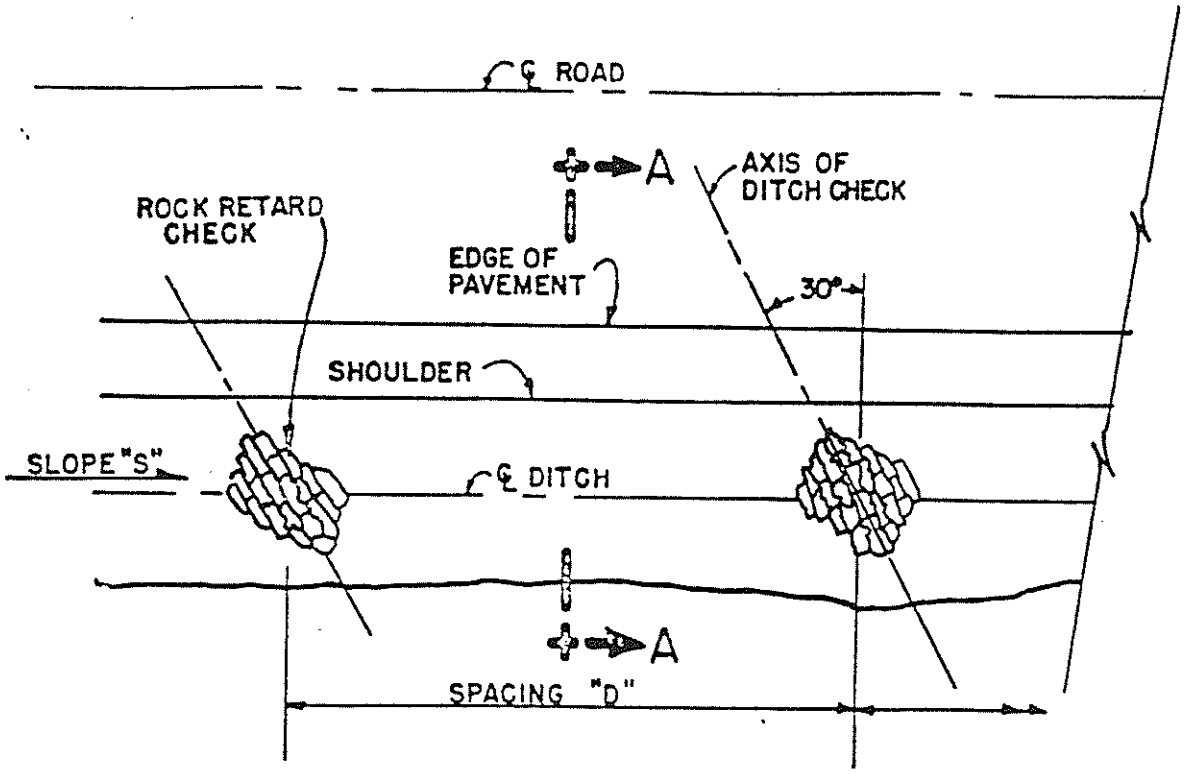
"Soil Binder" when properly tested by standard laboratory methods shall meet the following requirements:

Liquid limit shall shall not exceed - 30
Plasticity index shall not exceed - 12

9.1.7.5 Pavement Surfacing Design

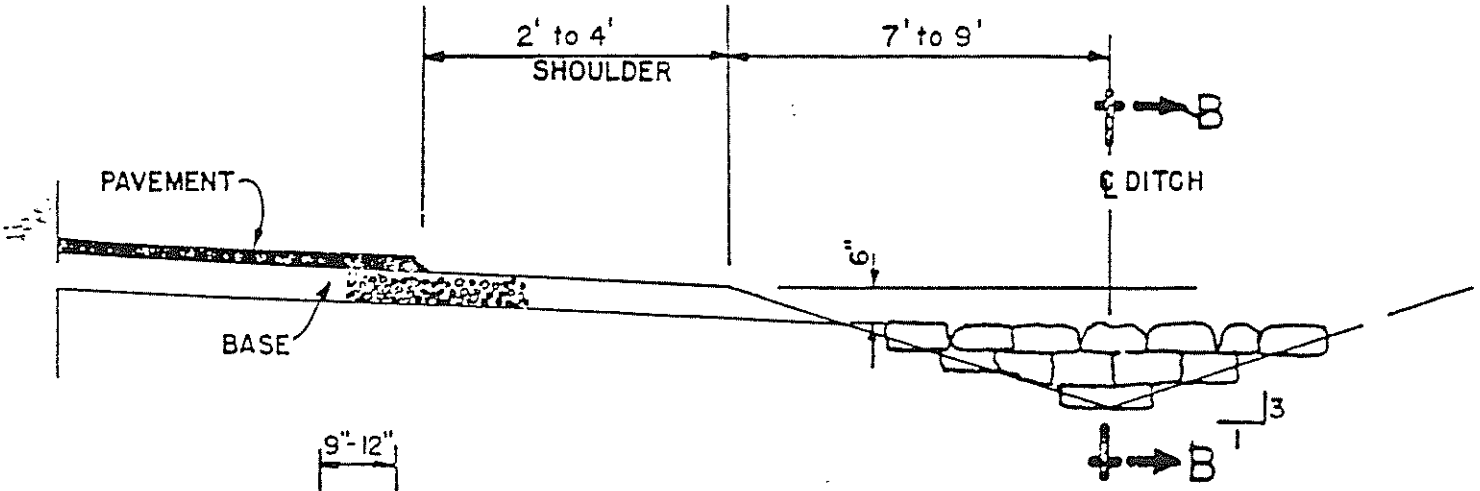
Standard pavement surfacing shall meet the specifications set in Part II, Division III of the Texas Department of Highways and Public Transportation 1982 (TDHPT) "Standard Specifications for Construction of Highways, Streets and Bridges", Items 310, 322 or 340 (Type "C" or "D") for Rural local streets and Items 310 and 340 (Type "C" and "D") for Suburban local streets. For higher standards of street (Collector or arterial) pavement surfacing shall be as specified by the County Engineer. Detailed County pavement specifications for use with Item 322, including oil types and rates of application, aggregate sizes and rates of application, prime type and rates, and other specific details acceptable to the various County precincts, will be provided by the County Engineer where the contractor elects to perform this type of paving application.

Pavement surfacing widths and thickness shall be as shown on Figure 9.3. and 9.4 (Typical Suburban local street cross section and typical rural local street cross section.) Where pavement surfaces wider than shown are proposed for use on local streets, cross section dimensions shall be increased by the amount of over-pavement width so that shoulder width and shoulder ditch centerline dimensions on each side of pavement surface shall remain as shown in the figures.

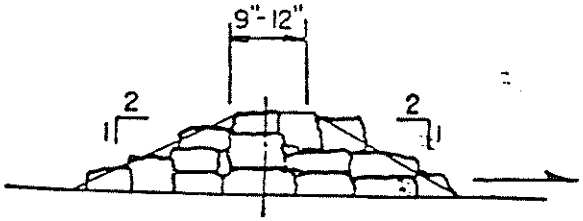


PLAN

D= 10'+ 2/S (FT/FT)
(30' MINIMUM)



SECTION A-A



SECTION B-B

TYPICAL ROCK RETARD CHECK

FIGURE 9.10

9.1.9.2 Bridge design loading and widths for local roads and streets shall conform to the standards set forth in the Design Guidelines. Bridge widths for higher type roads shall conform to Design Standards for Farm and Ranch to Market Roads, secondary roads division, TDHPT, or as directed by the County Engineer.

9.1.9.3 Structures of this nature require the specific approval of the County Engineer.

9.1.10 VARIANCES

The implementation of details of the specifications in Item 9.1 are subject to an interpretation of their applicability to any specific development site by the County Engineer.

9.2 CONSTRUCTION DRAWINGS

9.2.1 Submission Required

Detailed plans for construction of streets and drainage facilities for suburban and rural subdivisions shall be submitted to the County Engineer for approval.

9.2.2 Drawings Required and Standards

9.2.2.1 General Standards

Plans shall contain a signature block for approval by the County Engineer in addition to all other typical information found on construction plans and all other data necessary for actual construction.

Plans shall also contain a print of the subdivision plat reduced to a size and a scale divisable by ten to conform to the scales of construction drawings.

In the case of plans submitted which include construction not located on or adjacent to the subdivision, a location map for the off-site construction shall also be included in the plans.

Drawing features not specifically mentioned herein shall be those normally found in use by engineers designing facilities for use by the City of Austin and/or the Texas Department of Highways and Public Transportation.

9.2.2.2 Street Plans

Design details for the construction of streets and drainage facilities shall conform to the requirements

of Section 9 and Section 7 of these specifications and shall be of a scale ratio no larger than 50'=1" horizontal and 5'=1" vertical.

9.2.2.2.1 Existing ground line and finished grade profiles shall be shown at the centerline of the right-of-way. In addition, cross-sections shall be drawn for each street. Cross-sections will be at each 100 ft. station on land whose maximum ground slope is over 10%, at 200 ft. for land whose maximum ground slope is less than 10% and at 300 ft. for land whose maximum ground slope is less than 5%, and at points of special interest. Alternatively, finish grade and ground line profiles shall be shown for road shoulders and for ditch lines where these latter vary significantly from standard and are not shown elsewhere as drainage plans.

9.2.2.2.2 All existing and proposed drainage and major utility appurtenances shall be shown in plan and profile.

9.2.2.2.3 Typical cross-sections shall be shown for all sections of roadway having similar drainage and/or traffic carrying requirements.

9.2.2.2.4 A drainage map showing all appropriate drainage areas, times of concentrations, and flows used in the design of the street drainge, storm sewers system, and culverts shall be included in the plan.

9.2.2.3 Detailed Drainage Construction Plans

Construction plans shall be submitted for the modification of natural drainageways, creeks, or rivers; location, size, type and invert elevations of all culverts; the channelization of design storm runoff in excess of 30 cubic feet per second (cfs); the conveyance of storm runoff in storm sewer pipe; dams, and retention and detention systems.

9.2.2.3.1 Drainage construction plans shall conform to Section 7 of these specifications.

9.2.2.3.2 Channel or watercourse cross-sections shall be included at a sufficient spacing, scale and dimension to adequately determine or delineate the water surface profile,

velocity, and other necessary parameters of the design flow under consideration.

9.2.2.3.3 Plans shall shown the design in plan and profile on the same sheet and be of a scale ratio no larger than 50'=1" horizontal and 5'=1" vertical.

9.2.2.3.4 Included on the plan sheets or in a separate document shall be the design basis and calculations pertinent to the facility. They shall be legible and progress clearly and logically to a conclusion.

9.2.2.4 Utility Plans (See 4.5.3 for conditions under which developer must provide)

Plans for the installation of sanitary sewer lines, water lines, electric lines, storm sewer lines, or any other similar underground service line are required to have the approval of the City of Austin, LCRA, water supply corporation, water district, or any other governing body having rightful jurisdiction. These plans are then to be submitted to the County Engineer for final approval of location and alignment, depth of bury, type and method of backfill, restoration of surfaces after installation, location of valves, controls of manholes and other features projecting to the surface, and other utility features which can be expected to affect the public roads and streets in the proposed subdivision as well as outside the subdivision. Review of such features shall include design details for all items covered in statutory authorities granted to Commissioners' Court for control of utility installations in public roads and outside of incorporated areas. Approval of plans for the construction of utilities where no governing body claims jurisdiction will rest entirely with the County Engineer.

9.2.2.4.1 Plans showing the lines and grades in both plan and profile are required for the installation of water lines in excess of 12 inches in diameter. Smaller lines may be shown in plan only if typical details are provided which will clearly show depth of bury under streets, drainage ditches and culverts, other utilities, etc.

9.2.2.4.2 Plans for the installation of storm sewer and sanitary sewer lines shall show the lines and grades of said lines in both plan and profile.

9.2.2.4.3 Location and installation of utilities within the same easement as drainage shall be allowed only when no other alternative exists. A separate easement, outside that required for the floodway shall be provided wherever possible.

9.2.2.5 Time of Submission and Approval

Submission of construction plans is preferred prior or concurrent with filing of final plat and other documents. If affidavit for future submission is provided with final plat as required in Section 4 of these specifications, construction plans shall be provided as soon as possible after final plat is submitted. The affidavit shall state the maximum time period following submission of the final plat for completion and submission of plans as required.

Plans shall be reviewed by the County Engineer or his staff and if found satisfactory, will be approved within two weeks of submission or will be returned for correction if not found satisfactory. Construction shall not commence until plans are approved.

9.3 CONSTRUCTION STANDARDS

Construction standards for items not specifically mentioned below shall be those found in use within Travis County as "Standard Specifications for Construction of Highways, Streets and Bridges" latest edition of the Texas Department of Highways and Public Transportation.

9.3.1 Underground Utilities

Construction standards for underground utility installations outside the street right-of-way shall meet the requirements of the utility authority with jurisdiction. Construction standards for underground utility installation within the street right-of-way (or within drainage or other multi-use public easements) shall also meet the requirements of the utility authority to the top of pipe bedding. Construction standards for underground utility installation above the top of pipe bedding including installation of valves, manholes, hydrants, and other features, shall be in accordance with County construction standards.

9.3.1.1 Backfill Materials

For utilities installed in new subdivision streets prior to construction of flexible pavement, backfill above pipe bedding with material from excavation will be allowed provided the excavated material has a plasticity index less than 15 and can be readily compacted. Rock excavation materials shall not be used as backfill unless excavation has been by wheel, chain, or other cutter which has pulverized the rock so that at least 95% of the material is smaller than 2" with a gradation which will readily compact to the specified density.

9.3.1.1.1 For utilities installed after flexible pavement is in place, backfill above pipe bedding (or top 2' of trench, whichever is the lessor) shall be select material meeting the following requirements:

100% passing 1 3/4" sieve;
50% - 85% retained on No. 40 sieve;
Liquid limit not over 40;
Plasticity Index not over 12.

9.3.1.1.2 For utilities installed in existing County roads outside of the boundaries of new subdivisions, other backfill methods and materials may be specified in accordance with current County requirements for installations in public roads.

9.3.1.2 Backfill Compaction

Backfill compaction for utilities installed outside right-of-way or outside of areas under future flexible base or greater than 2' below the top of trench, shall be to the in-place density of the surrounding ground or to 90% of optimum density (TEX.113E) of the backfill material, whichever is the lessor. Backfill compaction for the top 2' of trench under future flexible base shall be compacted to density of surrounding ground or 95% of optimum density (TEX.113E) for the backfill material.

All backfill in the top 2' of trench shall be brought to optimum moisture content and compacted in 6" layers. Compaction below the top 2' shall be preferably in 6" layers but not over 10" layers.

9.3.1.3 Replacement of Flexible Pavement

Where flexible pavement (base and surfacing) is

removed to install utilities, replacement and restoration shall be in accordance with current utility cut policies in effect for County roads, but in no case shall the quality of base or surfacing be less than that required by these specifications.

9.3.1.4 Utilities Along Roadside Ditchlines

Underground utilities shall not be located along the flowage area of roadside ditchlines unless approved erosion control measures are taken. A minimum of 6" of Class B concrete riprap ditch capping and/or cement stabilized trench backfill are minimum requirements for erosion control. (This requirement may be waived where slopes are flat and the design engineer can demonstrate that normally compacted backfill will not erode.)

9.3.1.5 Waterlines

Construction of waterlines shall meet the following requirements: (See Item 9.2.2.4)

9.3.1.5.1 Waterlines in public right-of-way shall have a minimum of 30" of cover measured from either the top of pipe or valve actuating nut (whichever is applicable) to the finish ground surface.

9.3.1.5.2 Prior to the start of final street construction, the approving authority shall have notified the County Engineer in writing that all the authorities' requirements for the construction of waterlines in the street right-of-way (including testing and sterilization) have been satisfactorily fulfilled.

9.3.1.5.3 Valve boxes and other fittings to be located in pavement areas shall be adjusted to grade prior to placement of pavement surfacing.

9.3.2 Installation of Storm Sewer Systems and Culverts

Prior to the start of final street construction, the design engineer shall provide the County Engineer with a letter certifying that the completed storm sewer and/or culvert construction was installed in accordance with the approved plans.

9.3.2.1 Culvert Grades

Culverts shall be installed as nearly as possible to the same grade line as approach and discharge ditches in order to minimize deposition of eroded material at entrance, exit on in the barrel and to avoid undercut erosion near the exit. A field check of actual flow line elevations shall be made for each culvert at some time prior to culvert backfill. Data sheets showing actual flow line elevations shall be furnished to the County Engineer. Design invert elevations will be adjusted as necessary based on field measurements to allow best culvert grade.

9.3.2.2 Culvert Bedding and Backfill

Culvert bedding (i.e., excavation, foundation and laying) and backfill shall conform to the requirements of the Texas Department of Highways and Public Transportation, Standard Specifications for the Construction of Highways, Streets and Bridges, current edition, Item 460.8 (C.G.M.P.), Item 461.8 (C.M.P.A.), and Item 464.3 (R.C.P.)

9.3.2.3 Cover Over Culverts

Culverts shall be installed with the minimum cover shown in Figures 9.3 and 9.4, except that R.C.P. culverts may be installed with minimum cover equal to total flexible pavement thickness. Culvert pipes installed without adequate cover shall be removed and replaced to provide necessary cover or street grades shall be elevated, whichever causes the least effect on adjacent roadway and drainage.

9.3.3 Construction Materials

9.3.3.1 Reinforced Concrete Pipe (RCP)

Variations in size, shape, length and reinforcement shall conform to ASTM-76 specification.

9.3.3.1.1 Installed ASTM C-76 or C-655 (circular pipe), ASTM C-506 (Arch), or ASTM C-507 (elliptical) pipe will be free of fractures and cracks. It shall be the responsibility of the contractor to maintain the pipe in good and acceptable condition until the construction is accepted on the entire project.

9.3.3.1.2 Pipe joints shall be of the rubber gasket type, conforming to ASTM C361 or C443 specifications, or cold-applied plastic asphalt sewer joint compound type. No rigid jointing shall be permitted except with Class A concrete bedding.

9.3.3.2 Corrugated Galvanized Metal Pipe (CGMP)

Corrugations, seams, end finish, size, and permissable variations shall conform to AASHTO 460.2 - M-218 or AASHTO 460.3 - M36,M-218 specifications.

9.3.3.2.1 Installed pipe will be free of large dents, crushed areas and large rust areas.

9.3.3.2.2 Pipe to be reused or damaged in handling will be reshaped, straightened, and if necessary, cleaned, wirebrushed and re-coated with a zinc oxide paint meeting Federal Specification TT-P-641b.

9.3.3.3 Reinforced Concrete Structures

All types of structures involving the placement of structural concrete shall conform to the applicable sections of Item 420, Concrete Structures of the 1982 Standard Specifications for Construction of Highways, Streets and Bridges of the Texas Department of Highways and Public Transportation.

9.3.4 Ditch and Channel Excavation (Other than roadside ditches)

9.3.4.1 Excavation

Excavation shall be to the lines and grades of the approved plans.

9.3.4.1.1 Side slopes shall be smoothed and graded to a minimum 3:1 slope unless otherwise approved. Where local soils will support growth, slopes shall be seeded as soon as practical following excavation.

9.3.4.1.2 Excavation spoil will be stockpiled or disposed of in a method approved by the County Engineer.

9.3.5 Right-of-Way Clearing and Subgrade Preparation and Sterilization

9.3.5.1 Clearing

Land clearing shall not commence until such time as plans are approved and plats and securities filed or

until the owner/developer has obtained a Travis County Development Permit, see Section 12.

9.3.5.1.1 On streets whose right-of-way is 50 ft. the right-of-way shall be cleared of all objects, natural or man-made, that will adversely affect traffic flow or drainage.

9.3.5.1.2 On streets whose right-of-way is 60 ft. or greater, the right-of-way shall be cleared of all objects, natural or man-made, to a point where the backslope of the bar ditch meets natural ground, or to a point where objects left in position will not affect traffic flow or drainage, whichever is less.

9.3.5.1.3 No trees, vegetation, advertising signs, landscaping medians shall be permitted within the right-of-way without the specific approval of the County Engineer.

9.3.5.2 Pre-construction Clearing for development shall not be permitted before final plat approval. Minimal clearing for the purposes of surveying and testing survey may be permitted, however, provided significant natural ground cover is not removed.

Clearing of road right-of-way may be permitted where final plat or street and drainage dedication has been approved by the Commissioners' Court and fiscal arrangement in such form and amounts deemed necessary to assure completion of work is provided. The start of clearing will be subjected to the anticipated submittal and approval of plans by the County Engineer.

9.3.5.3 Subgrade Preparation

Before the placement of base material, the subgrade shall conform to the lines and grades and cross-sections of the approved plans.

9.3.5.3.1 Subgrade shall be free of boulders, stumps and other foreign matter.

9.3.5.3.2 Fills must be placed and compacted on horizontal lifts of not over 12" depth to the specified density. Fill sections whose depth exceeds eight feet (8') at any point on the cross-section shall require a slope stability analysis and/or approval of the County Engineer.

9.3.5.3.3 Construction control of roadway subgrade shall conform to Item 9.1.7.1 of these specifications and will be approved by the County Engineer prior to the placement of base material. (See Section 10.3.4.for tests.)

9.3.5.4 Subgrade Sterilization

Within one week prior to placement of base, the shoulder portion of the subgrade soil shall be sterilized unless otherwise authorized by the County Engineer. The portion of shoulder subgrade soil to be sterilized shall be a minimum of 7' wide each side beginning at one foot (1') inside the edge of future pavement. Soil sterilizing agent shall be approved by the County Engineer and applied at the rate specified by the manufacturer.

9.3.6 Placement of Base Material

9.3.6.1 Base Material Quality Control

Base material shall conform to Item 9.1.7.3 and 9.1.7.4 of these specifications and the placement shall be approved by the County Engineer prior to paving.

9.3.6.1.1 "Density Control" shall be required for all suburban local streets, for all higher standard streets and for all rural local streets in subdivisions with over 1000 L.F. of streets or with subsoils as listed in 9.1.7.2.1 (See Section 10.3.5 for required tests.)

9.3.6.1.2 When Item 9.1.7.3.3 (Density Control requirement) applies, the tests shall be provided to and analyzed by the County Engineer prior to paving.

9.3.6.1.3 Where density control is not required, the developer shall arrange for sufficient inspection by the design engineer to assure conformance of the construction with these specifications, or shall make other arrangements for quality assurance which meet the approval of the County Engineer.

9.3.6.2 Placing and Finishing Base Material

Base material shall be placed, shaped, compacted and finished to the lines, depths and surfaces shown on

the approved drawings.

9.3.6.2.1 The finished surface of base prior to placement of pavement surfacing shall be smooth, hard and uniform, free of stones, rocks, loose gravel or other undesired objects. Finished surfaces shall not vary more than 0.10 feet from the established grade and approved cross-section.

9.3.6.2.2 The compacted thickness of base course, compacted in place shall be within 1/2" of the thickness shown on the drawings. The contractor shall be required to correct any areas found deficient in thickness by scarifying, adding additional base material reblading and recompacting as directed.

9.3.7 Pavement Surfacing Materials and Placement

9.3.7.1 Materials for Urban Streets - See City of Austin Public Works Specifications.

9.3.7.2 Materials for Suburban Local Street Pavement Surfaces shall be as specified in TDHPT Standard Specification Item 340, Hot Mix Asphaltic Concrete Pavement. When no specific asphaltic material is specified on the plans, the Asphalt Cement shall be AC-10, (Item 300.2 (2)) unless otherwise directed by the County Engineer. The paving mixture shall be a Type "C" or Type "D" unless otherwise shown on the drawings or directed.

9.3.7.2.1 Prior to placement of pavement surfacing, an asphaltic prime coat shall be placed over the prepared base surface. The prime coat shall be as specified in TDHPT Standard Specifications Item 310 with material per Item 300.2. When no specific asphaltic material is specified in the plans, the prime material shall be a cut-back type MC-30 (Item 300.2.(4) applied at a rate not to exceed 0.2 gal/sq.yd. of surface.

9.3.7.3 Materials for Rural Local Street Pavement Surfaces shall be as specified in TDHPT Standard Specifications Item 340, Hot Mix Asphaltic Concrete Pavement or Item 322, Two Course Surface Treatment. Materials for Item 340 shall be as specified in 9.3.7.2 above. When no specific asphalt material and application rate is specified on the plans on Item 322, the material shall be anionic emulsion EA-HVRS

(Item 300.2(6)) applied at a rate of 0f.25 gal/sq.yd. of surface for the first course and at a rate of 0.35 gal/sq.yd. of surface for the second course. When no specific aggregate is specified in the plans, the aggregate for the first course shall conform to TDHPT Standard Specifications Item 302, Type "B", Grade 4 applied at a rate of 35 lbs./sq.yd. of surface; and the aggregate for the second course shall conform to TDHPT Standard Specifications Item 302 Type "B",Grade 5 applied at a rate of 30 lbs/ sq.yd. of surface.

9.3.7.3.1 Prior to placement of pavement surfacing for Item 322, an asphaltic prime coat shall be placed over the prepared base surface. The prime coat shall be as specified in TDHPT Standard Specifications Item 310 with material per Item 300.2 When no specific asphaltic material is specified in the plans, the prime material shall be a 15% solution of EA-11M anionic asphalt emulsion (Item 300.2(6) applied at 0.2 gal/ sq.yd. of surface or as directed by the County Engineer.

9.3.7.4 Placement of Suburban Local Street Pavement Surfaces shall be in accordance with TDHPT Standard Specifications Item 340 utilizing a spreading and finishing machine as specified in Item 340.4(4) and construction methods as specified in Item 340.6. Edges of pavement shall be tapered and rolled for consolidation when directed by the County Engineer.

9.3.7.4.1 Pavement shall be carefully located laterally so that a shoulder of design width remains on either side.

9.3.7.4.2 Pavement laydown shall be started and stopped in such a manner that joints meet specified surface tolerances. Particular care shall be taken to assure smooth regular radius and transitions at intersection corners. Hand placed asphalt in radiis shall be compacted to the same density as machine-layed asphalt and shall meet the same surface tolerances.

9.3.7.5 Placement of Rural Local Street Pavement Surfaces shall be in accordance with TDHPT Standard Specifications Item 340 (as specified above) or Item 322 using construction methods as specified in Item 322.3 and as follows:

9.3.7.5.1 Where asphaltic material is applied in more than one pass, great care shall be taken to assure that an even lap is obtained between passes.

9.3.7.5.2 The distributor shall be kept clean and nozzles shall be periodically checked to assure uniform operation. Skips and runs shall be cause for rejection of surfaces. A record of distributor calibration shall be furnished the County Engineer upon request.

9.3.7.5.3 Where rolling is not specified on the plans, the first and second courses shall be rolled at least two complete passes following application of aggregate with a pneumatic-tired roller beginning at the outer edges of the surface placement and working towards the center. Each aggregate spreader used in the work should be followed by two rollers to properly complete the rolling.

by the County Engineer and applied at the rate specified by the manufacturer.

9.3.6 Placement of Base Material

9.3.6.1 Base Material Quality Control

Base material shall conform to Item 9.1.7.3 and 9.1.7.4 of these specifications and the placement shall be approved by the County Engineer prior to paving.

9.3.6.1.1 "Density Control" shall be required for all suburban local streets, for all higher standard streets and for all rural local streets in subdivisions with over 1000 L.F. of streets or with subsoils as listed in 9.1.7.2.1 (See 11.3.5 for required tests.)

9.3.6.1.2 When Item 9.1.7.3.3 (Density Control requirement) applies, the tests shall be provided to and analyzed by the County Engineer prior to paving.

9.3.6.1.3 Where density control is not required, the developer shall arrange for sufficient inspection by the design engineer to assure conformance of the construction with these specifications, or shall make other arrangements for quality assurance which meet the approval of the County Engineer.

9.3.6.2 Placing and Finishing Base Material

Base material shall be placed, shaped compacted and finished to the lines, depths and surfaces shown on the approved drawings.

9.3.6.2.1 The finished surface of base prior to placement of pavement surfacing shall be smooth, hard and uniform, free of stones, rocks, loose gravel or other undesired objects. Finished surfaces shall not vary more than 0.10 feet from the established grade and approved cross-section.

9.3.6.2.2 The compacted thickness of base course, compacted in place shall be within 1/2" of the thickness shown on the drawings. The contractor shall be required to correct any areas found deficient in thickness by scarifying, adding additional

base material, reblading and recompacting as directed.

9.3.7 Pavement Surfacing Materials and Placement

9.3.7.1 Materials for Urban Streets - See City of Austin Public Works Specifications.

9.3.7.2 Materials for Suburban Local Street Pavement Surfaces shall be as specified in TDHPT Standard Specification Item 340, Hot Mix Asphaltic Concrete Pavement. When no specific asphaltic material is specified on the plans, the Asphalt Cement shall be AC-10, (Item 300.2(2) unless otherwise directed by the County Engineer. The paving mixture shall be a Type "C" or Type "D" unless otherwise shown on the drawings or directed.

9.3.7.2.1 Prior to placement of pavement surfacing, an asphaltic prime coat shall be placed over the prepared base surface. The prime coat shall be as specified in TDHPT Standard Specifications Item 310 with material per Item 300.2. When no specific asphaltic material is specified in the plans, the prime material shall be a cutback type MC-30 (Item 300.2(4) applied at a rate not to exceed 0.2 gal/sq. yd. of surface.

9.3.7.3 Materials for Rural Local Street Pavement Surfaces shall be as specified in TDHPT Standard Specifications Item 340, Hot Mix Asphaltic Concrete Pavement or Item 322, Two Course Surface Treatment. Materials for Item 340 shall be as specified in 9.3.7.2 above. When no specific asphalt material and application rate is specified on the plans on Item 322, the material shall be anionic emulsion EA-HVRS (Item 300.2(6) applied at a rate of 0.25 gal/sq.yd. of surface for the first course and at a rate of 0.35 gal./sq.yd. of surface for the second course. When no specific aggregate is specified in the plans, the aggregate for the first course shall conform to TDHPT Standard Specifications Item 302, Type B, Grade 4 applied at a rate of 35 lbs./sq.yd. of surface; and the aggregate for the second course shall conform to TDHPT Standard Specifications Item 302 Type B, Grade 5 applied at a rate of 30 lbs./ sq.yd. of surface.

9.3.7.3.1 Prior to placement of pavement surfacing for Item 322, an asphaltic prime coat shall be placed over the prepared base surface. The prime coat shall be as specified in TDHPT Standard Specifications Item 310 with

material per Item 300.2. When no specific asphaltic material is specified in the plans, the prime material shall be a 15% solution of EA-11M anionic asphalt emulsion (Item 300.2(6) applied at 0.2 gals./sq.yd. of surface or as directed by the County Engineer.

9.3.7.4 Placement of Suburban Local Street Pavement Surfaces shall be in accordance with TDHPT Standard Specifications Item 340 utilizing a spreading and finishing machine as specified in Item 340.4(4) and construction methods as specified in Item 340.6. Edges of pavement shall be tapered and rolled for consolidation when directed by the County Engineer.

9.3.7.4.1 Pavement shall be carefully located laterally so that a shoulder of design width remains on either side.

9.3.7.4.2 Pavement laydown shall be started and stopped in such a manner than joints meet specified surface tolerances. Particular care shall be taken to assure smooth regular radius and transitions at intersection corners. Hand placed asphalt in radiis shall be compacted to the same density as machine-layed asphalt and shall meet the same surface tolerances.

9.3.7.5 Placement of Rural Local Street Pavement Surfaces shall be in accordance with TDHPT Standard Specifications Item 340 (as specified above) or Item 322 using construction methods as specified in Item 322.3 and as follows:

9.3.7.5.1 Where asphaltic material is applied in more than one pass, great care shall be taken to assure that an even lap is obtained between passes.

9.3.7.5.2 The distributor shall be kept clean and nozzles shall be periodically checked to assure uniform operation. SKips and runs shall be cause for rejection of surfaces. A record of distributor calibration shall be furnished the County Engineer upon request.

9.3.7.5.3 Where rolling is not specified on the plans, the first and second courses shall be rolled at least two complete passes following application of aggregate with a pneumatic-tired roller beginning at the

outer edges of the surface placement and working towards the center. Each aggregate spreader used in the work should be followed by two rollers to properly complete the rolling.