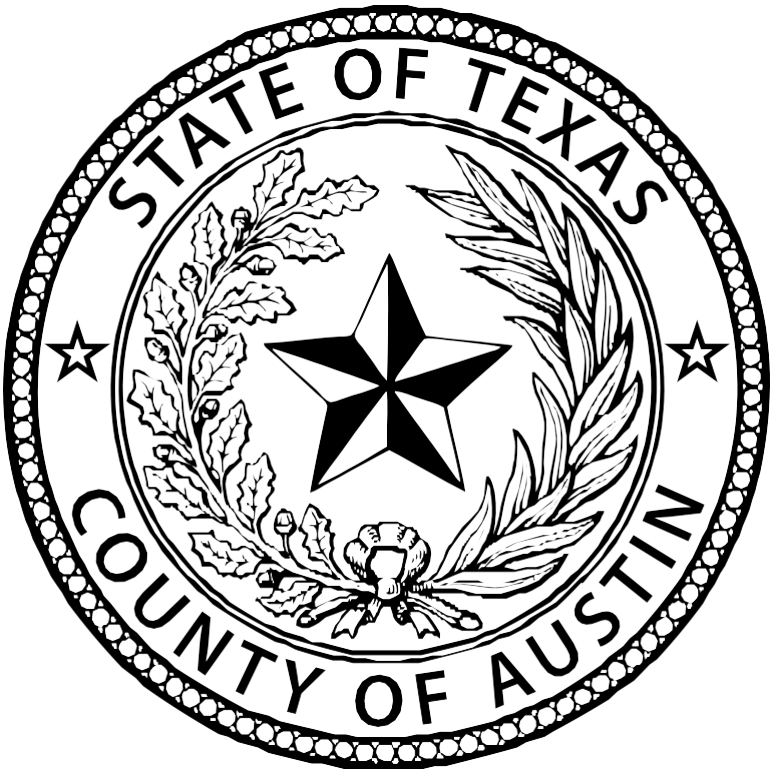
AUSTIN COUNTY SUBDIVISION AND DEVELOPMENT REGULATIONS



VOLUME II
DRAINAGE DESIGN MANUAL

TABLE OF CONTENTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

SECTION I
GENERAL INFORMATION AND ADMINISTRATION

A. OFFICIAL NAME
The official name of these regulations shall be the "Austin County Subdivision and Development Regulations**, Volume II - Drainage Design Manual**."

B. AUTHORITY
These regulations are adopted under the authority of the Constitution and Laws of the State of Texas, including but not limited to the Texas Local Government Code, as amended, and any other applicable laws, regulations, and approved orders.

C. APPLICATION AND PURPOSE
(1) All development in Austin County shall provide drainage facilities and improvements in accordance with the following requirements and design standards.

(2) The purpose of these standards is to provide for the health, safety, and general well-being of the public by assuring that adequate drainage facilities and structures are provided in all subdivisions and to provide infrastructure that can be maintained without imposing a burden on taxpayers.

D. EFFECTIVE DATE
(1) These regulations shall become effective December 22, 2025, unless otherwise indicated. Subsequent amendments and changes are found in the History Section of the regulations.

(2) Plans approved before the effective date shall be subject to the regulations in effect at the time of plan submittal.

(3) At the time of application, all proposed developments/improvements, permit requests, etc., shall comply with these regulations found within all respective volumes of these regulations.

E. CONSISTENCY WITH OTHER REGULATIONS
(1) These regulations shall be consistent with the adopted Austin County Subdivision and Development Standards (Volume I), the Standard Construction Details (Volume III), and any other supplemental land use and community development policies that may be adopted by the Commissioners' Court.

(2) These regulations shall be cumulative of all other orders of Austin County, Texas, and shall repeal any of the provisions of said previous orders.

(3) If a conflict should arise with other applicable orders, the strictest shall apply until an updated order is approved by the County Commissioners' Court or as interpreted by the County Engineer as outlined in Section I (G).

(4) If a permit, plat, or other item requiring approval is issued or approved in error and it violates the current adopted regulations, that permit does not invalidate the established regulations, and that permit, plat, or other item requiring approval shall be voided immediately upon notification.

F. AMENDMENTS

(1) As needed, the Commissioners' Court may amend these regulations to reflect desired changes and updates in policy. The Commissioners' Court shall hold public hearings on all proposed written amendments in open session after publication in a newspaper of general circulation for at least fifteen (15) days before the public hearing date.

(2) As an exception, the County Engineer may amend the illustrations within these regulations to better assist in graphically depicting portions of these regulations.

G. INTERPRETATIONS

(1) As needed, the County Engineer shall provide interpretations of these regulations.

(2) Rulings made by the County Engineer are issued on a case-by-case basis and shall not set a precedent for other similar situations. The Engineer should use a known accepted basis for his decision (example: Previous Austin County Regulations, TxDot Manual, adjoining County Regulations, AASHTO, Corps of Engineers …Ect).

(3) Should an applicant disagree with the interpretation provided, that decision may be appealed to the Commissioners' Court at the next available meeting, as listed in the latest submittal calendar.

H. ENFORCEMENT

(1) Any person, firm, or corporation that violates any of the provisions of these regulations or who fails to comply with any provision hereof within Austin County shall be subject to civil or criminal penalties, pursuant to Section 232.005 of the Texas Local Government Code, including enjoining the violation and recovering damages to complete construction and/or bring about compliance.

I. SEVERABILITY CLAUSE

If any section, article, paragraph, sentence, clause, phrase, or word of these regulations, or application, thereto any person or circumstances is held invalid or unconstitutional by a Court of competent jurisdiction, such holding shall not affect the validity of the remaining portions of these regulations; and the Commissioners' Court hereby declares it would have passed such remaining portions of these regulations despite such invalidity, which remaining portions shall remain in full force and effect.

THIS PAGE IS INTENTIONALLY LEFT BLANK

SECTION II
GENERAL DRAINAGE REQUIREMENTS

A. DRAINAGE PLAN

A drainage plan may be required upon request by the County Engineer or designee on a case-by-case basis to determine potential adverse impacts attributed to any proposed subdivision or development, regardless of the size or project.

(1) If required, a drainage plan shall be submitted prior to platting or development so that the County Engineer may review the design with regard to potential drainage problems.

(2) The drainage plan shall include an existing drainage map and a proposed drainage map.

(3) The entire contributing drainage area for the proposed subdivision/development shall be shown at an appropriate scale for review. This map may also serve as the location (vicinity) map for the project. Drainage areas within the proposed subdivision shall be shown on a map prepared from a field or aerial survey.

(4) Areas that are off-site and contribute to the stormwater discharge passing through the subdivision shall be clearly identified.

(5) Direction of flow within streets, alleys, natural and improved channels, and at system intersections shall be clearly shown on the drainage area maps. This includes sags, crests, and corners.

(6) Existing and proposed drainage channels shall be clearly shown and differentiated on the drainage area maps.

(7) The drainage plan shall show drainage areas contributing to each storm drain inlet or point of collection, volume of stormwater being collected, size of storm drainage structure (including driveway culverts), drainage easements, finished floor elevations (if appropriate), and any other information which will clarify the proposed design.

(8) The most recent FEMA Floodplain Boundaries (and source of information) shall be shown on the drainage plan.

(9) The maximum allowable flow for a receiving channel may be further restricted to the downstream channel's capacity times the ratio of the proposed development area divided by the watershed of the receiving channel.

(10) Any other requirements set forth by the County Engineer shall be shown on the drainage plan.

(11) The drainage plan shall be prepared by a licensed professional engineer.

B. DRAINAGE IMPROVEMENT REQUIRED

(1) Drainage improvements, including but not limited to detention ponds, channel improvements, grading, culverts, and existing facility improvements, shall be provided in accordance with these design standards listed below.

(i) To provide for the conveyance of all stormwater from the development, when fully developed, to an adequate discharge point.

(ii) To fulfill any purpose for which these requirements are imposed.

(iii) To adequately protect the development from flooding, including the effects of the 100-year design storm.

(iv) To properly control any drainage resulting from the development so as to not increase the upstream or downstream water surface elevation, post-development stormwater runoff shall not exceed pre-developed stormwater runoff.

(v) Upstream or downstream storm drainage improvements and/or easements beyond the limits of the development may be necessary to meet this requirement.

(vi) To provide for the conveyance of existing storm drainage flowing through the development.

(vii) Where development may create a problem within the subdivision, provisions shall be made for drainage easements to allow for proper control of drainage and for future maintenance within the easement.

C. OFF-SITE DRAINAGE

(1) Off-site drainage facilities and improvements shall be provided by the development whenever additional stormwater runoff from the development would adversely affect any off-site property or would overload an existing drainage facility, whether natural or man-made as required by 30 Texas Administrative Code, Section 285, Subchapter A.4, Rule 285.4 (c).

(2) Where stormwater runoff has been collected or concentrated to one point, it shall not be discharged onto adjacent properties, except into existing creeks, channels, or storm drains, unless drainage or flowage easements are obtained for those properties.

D. RESERVED

E. FEMA FLOODPLAIN

(1) Any proposed development within the FEMA floodplain shall comply with the current Austin County Flood Damage Prevention Order.

(2) Open space is highly encouraged within a subdivision plat and specifically within the FEMA floodplain boundaries.

(3) Lots located in depressions and in or adjacent to the FEMA Floodplain boundaries, or other critical elevations established by a flood control easement, shall show on each lot the minimum recommended finished floor elevations, based on engineer's design, which shall not be less than two (2) feet above the 100-Year water surface elevation, or the more critical elevation. Austin County shall not be responsible for any flooding or flood conditions that occur in these areas.

F. CHANNEL REQUIREMENTS

(1) Channel regulations and improvement requirements shall be based on the amount and concentration of the stormwater runoff produced from the proposed development and any additional upstream contributing drainage areas.

(2) All developments shall provide for the permanent improvement and modification of existing drainage channels as necessary to serve the development, subject to and in accordance with the following:

(i) Channels which serve drainage basins larger than one (1) square mile shall be maintained in a natural state, unless separate approval is obtained from the Austin County Commissioners Court and is based on a Professional Engineer's Sealed recommendation.

(ii) Channels of local drainage systems serving areas less than one (1) square mile may be lined with concrete or an improved grass-lined channel.

G. CHANNEL ACCESS ROADS AND RAMPS

Any development which makes use of any channel within or on the perimeter of the development to provide for stormwater runoff may be required to provide adequate access roads and ramps for channel maintenance purposes as directed by the County Engineer.

H. LOT DRAINAGE

(1) Each lot shall be designed or graded with positive drainage to direct stormwater into an abutting street, alley, channel, or inlet.

(2) If drainage is provided in the rear of any lot by an alley or closed storm drainage system consisting of inlets and pipes, the alley or drainage system shall be designed for the 25-year design storm.

(3) Where it is not practical to provide abutting drainage facilities for each lot, drainage facilities shall generally be required wherever the stormwater runoff from no more than two (2) lots is directed across a third residential lot or whenever the facilities are necessary to avoid an adverse effect on any other lot.

(4) Lots that are lower than the road or roads on which they abut shall have a finished floor elevation of no less than one (1) foot above the finished grade of the uphill side of the proposed structure

To prevent damage from stormwater runoff. This can be accomplished by adding fill and/or a swale.

(5) Lots located in depressions shall have a minimum finished floor elevation shown on the final plat. This elevation shall not be less than two (2) foot above the 100-year water surface elevation.

(6) The developer is responsible for notifying a prospective buyer of the above requirements. Austin County will not be responsible for any flooding or flood conditions that occur in these areas.

(7) Structures built on lots which are lower than the road or roads on which it fronts and/or abuts shall be built at a finished floor elevation above the proposed grade of the yard adjacent to the slab on the uphill side of the property, and/or a shallow dip section (swale) shall be built in the yard to prevent storm drainage water from ponding and damaging houses on properties that are lower than the road.

(i) Careful attention shall be paid to the drainage design for the subdivision in order to alleviate potential localized flooding on individual lots.

(ii) The developer or builder is responsible for notifying prospective buyers of the above requirements. Austin County shall not be responsible for any flooding or flood conditions that occur in these areas.

(8) For the purposes of permits, any drainage easements along the side of the lots shall be considered drainage swales. The drainage easement that traverses the subdivision shall be considered the main subdivision drainage, and no structures shall be placed on drainage easements.

I. STANDARD DETAILS

Standard details adopted by the Texas Department of Transportation Hydraulic Design Manual as amended, may be used for applicable drainage facility improvements. The Commissioners' Court hereby adopts this Manual as an applicable standard for Hydraulic facilities, including open channels, bridges, culverts, storm drains, and stormwater quantity and quality control systems. Should conflicts arise between the Austin County Drainage Design Manual and the Texas Department of Transportation Hydraulic Design Manual, the Austin County Drainage Design Manual shall control.

THIS PAGE IS INTENTIONALLY LEFT BLANK

SECTION III
STORM DRAINAGE DESIGN CRITERIA

A. APPLICATION

(1) Stormwater Runoff: All stormwater drainage improvements shall be designed based upon the entire contributing drainage area being fully developed.

(2) A downstream assessment may be required at the direction of the County Engineer. Depending upon project and site-specific conditions, as well as downstream facilities, the developer may be required to provide a narrative and detailed calculations demonstrating the degree of downstream impacts.

(3) The intent of the downstream assessment is to analyze the pre-project and post-project hydrologic and hydraulic conditions to ensure that post-developed runoff is conveyed downstream in an acceptable manner.

B. GENERAL

(1) The design of storm drainage improvements in Austin County shall be based on flood discharges determined by using an appropriate method. The adopted coefficient shall be used.

(i) The maximum outflow from the development shall be **0.125 CFS per acre**.

(ii) The minimum detention required shall be based on the following:

a. Commercial and Urban Subdivision
Detention Volume Min. = (Acreage)x(0.60+((% impervious/100)*0.40)

b. Rural Subdivision
Detention Volume Min. = (Acreage)x(0.25+((% impervious/100)*0.75)

(iii) The Rational Method may be used to estimate peak flow for basin areas of 640 acres or less. Maximum outflow rate (i) and minimum detention volumes (ii) shall still be met.

(iv) The SCS Unit Hydrograph Method may be used for basin areas of any size and all design applications. Maximum outflow (i) and minimum detention volumes (ii) shall still be met.

(v) The Texas Department of Transportation (TxDOT) Regression Equations may be used for basin areas from 10 to 100 square miles for rural design applications (see current TxDOT Hydraulic Manual – Regression Equations Section).

(2) The Rational Method is based on the direct relationship between rainfall and runoff, and the method is expressed by the following equation:

$$Q=CIA$$

Where,

Q = the maximum rate of discharge (cfs). **C** = a coefficient of runoff
I = intensity of rainfall (in/hr) **A** = the drainage area (acres)

Values for the runoff coefficient are given in Table 1.

TABLE 1. RUNOFF COEFFICIENTS FOR TYPES OF LAND USE

TYPE OF AREA OR LAND USE	ADOPTED RUNOFF COEFFICIENT "C"
Parks or Open Areas	0.30
Residential Areas (Lots of 1.0 acre or more)	0.45
Residential Areas (Lots of less than 1.0 acre)	0.75
Commercial / Industrial Areas	0.90
Agricultural Areas	0.30
Business Areas	0.95
Multifamily/Multi-Tenant Developments/RV Parks/Mobile & Manufactured Home Community	0.90
Streets (Asphalt and Concrete)	0.95
Drives, Walks, and Roofs	0.95

(3) Rainfall Intensity is the average rainfall rate in in/hr for a duration equal to the time of concentration for a selected return period. Once a particular return period has been selected for design and a time of concentration calculated for the drainage area, the rainfall intensity can be determined from Rainfall-Intensity-Duration data given in the NOAA ATLAS 14 Precipitation Frequency Data Server. EDBLKUP tool can be found at:

https://ftp.txdot.gov/pub/txdot/des/atlas14/

Other methods may be accepted if approved in advance in writing by the Austin County Engineer.

(i) Rainfall intensity can be determined from the formula:

$$I = \frac{b}{(t+d)^e}$$

where,
i = rainfall intensity (in/hr)
t = rainfall duration (min) (equal to the time of concentration)
b,d, and **e** = parameters found in the ISWM Technical Manual

(ii) The time of concentration (tc) is the time in minutes required for overland flow from the most hydraulically remote point in the watershed to a point where the runoff is concentrated plus the time of flow in a closed conduit or open channel to the design point.

(iii) The time of concentration may be determined by using methods accepted as a standard engineering practice. The minimum inlet time of concentration for various types of areas to be used for design purposes can be seen in Table 2.

TABLE 2. INLET TIME OF CONCENTRATION

TYPE OF AREA	MINIMUM TIME	MAXIMUM TIME
Parks or Open Areas	20 Minutes	30 minutes
Single Family Residential	15 Minutes	20 Minutes
Multifamily/Multi-Tenant Developments/RV Parks/Mobile & Manufactured Home Community	10 Minutes	20 Minutes
Industrial	10 Minutes	20 Minutes
Business	10 Minutes	20 Minutes

(4) Stormwater Design Frequencies:

(i) Recommended design storm frequencies for the storm drainage improvements in Austin County are listed in Table 3.

TABLE 3. DESIGN STORM FREQUENCIES

DRAINAGE FACILITY	MINIMUM DESIGN STORM
Roadway Ditches & Driveway Culverts	5-year
Enclosed Storm Drainage	25-year
Roadway Culverts and All Bridges	100-year plus one-foot of freeboard above the 100-year water surface elevation
Earthen & Concrete Lined Channels (channel solely for conveying stormwater runoff)	100-year plus one-foot of freeboard above the 100-year water surface elevation

**The discharge for 100-year return frequency storm and the resulting possible damages there from shall be evaluated to determine if said damages are sufficient to warrant enlargement of the planned facility.*

(5) Street Drainage Requirements:

(i) The permissible water spreads for streets are based on the 5-year design storm.

(ii) All streets shall be capable of conveying a 100-year design storm without water exceeding the right-of-way limits and/or drainage easement on adjacent lots.

(iii) The spread limits listed in Table 4 shall apply to the following streets and facilities:

TABLE 4. PERMISSIBLE WATER SPREAD (5-YEAR DESIGN STORM)

TYPE OF ROAD	DESIGN
Regional Arterial	One lane open in each direction
Minor Arterial	One lane open
Collector	Top of curb

Note: Inverted crown sections are permitted only in alleys.

C. CULVERTS:

(1) All culvert designs, including safety end treatments, headwall, and wingwall designs, must be

signed and sealed by a licensed professional engineer in the State of Texas.

(2) The developer shall install all drainage culverts as designated by the Engineer who designed the drainage system and with the approval of the County Engineer.

(3) The plat shall notify lot owners that the size of required drainage culverts for driveways is designated in the drainage study on file in the Department of Development.

(4) Design of culverts shall include the determination of upstream Headwater conditions as well as downstream tail water conditions, velocities and flooding conditions. The maximum discharge velocity from the culvert shall not exceed the permitted velocity of the receiving channel or conduit at the outfall to prevent erosive conditions.

D. ROADWAY CULVERTS:

(1) Culverts shall be constructed of reinforced concrete pipe (RCP) or Smooth wall corrugated HDPE pipe (HDPE) and designed to the 100-year frequency with one-foot of freeboard.

(2) Safety End Treatments (SETs) or headwalls must be designed for all roadway culverts. The slope for the SET shall not exceed 4:1.

(3) Roadway Culverts shall be designed in accordance with the adopted TxDOT Hydraulic Manual.

E. DRIVEWAY CULVERTS:

(1) Culverts shall be constructed of reinforced concrete pipe (RCP), Smooth wall corrugated HDPE or corrugated metal pipe (CMP) and designed to the 5-year design storm at minimum. Any culverts designed less than the 5-year design storm must obtain written approval of the County Engineer before installation.

(2) The use of multi-barrel CMP shall be limited and reviewed on a case-by-case basis by the County Engineer. Multi-barrel box culverts are preferred if required.

F. PIPE SYSTEM REQUIREMENTS:

(1) Storm drain systems capable of conveying the 25-year design storm are required when water spread limits are exceeded. Storm drain conduit shall be sized to full flow using Manning's Equation or other methods accepted as a standard engineering practice.

$$Q = \frac{(1.486)AR^{\frac{2}{3}}S^{\frac{1}{2}}}{n}$$ where;

Q = is the discharge (cubic feet per second)
A = the cross-sectional area of flow (square feet)
R = the hydraulic radius (feet)
S = the slope of the hydraulic (ft/ft)
n = the coefficient of roughness

(i) Storm sewer pipe sizes shall be selected so that the average velocity in the pipe will not exceed fifteen (15) feet per second nor less than two and one-half (2.5) feet per second.

(ii) The minimum storm sewer pipe diameter shall be fifteen (15) inches.

(iii) Pipe soffits at changes in pipe sizes shall be set at the same elevation.

(iv) Vertical curves in the conduit will not be permitted, and horizontal curves will be permitted only with the approval of the County Engineer.

(v) Storm sewer systems shall be reinforced concrete. Alternative materials may be submitted to the County Engineer for consideration.

(2) The storm drain system shall be evaluated using the 100-yr design storm to ensure there are no adverse impacts onsite, upstream, or downstream.

(3) Manholes shall be placed at the connection of two (2) or more laterals, at pipe junctions having pipe sizes greater than twenty-four (24") inches, at alignment changes, and at the beginning of the storm drain system.

(i) Maximum manhole size and specification shall be in accordance to Table 5:

TABLE 5. MANHOLE SIZE AND MAXIMUM SPACING

Pipe Size (Inches)	Maximum Spacing (feet)
18 - 36	600
42 - 60	1,000
> 60	No Limit

B. CHANNELS:

The calculations for capacity of channels shall consider the effects of backwater from downstream conditions.

C. ROADWAY CHANNELS AND SWALES:

(1) Channels or swales to be located in the dedicated right-of-way adjacent to a proposed County Road or located on private property within a drainage easement shall have a minimum grade of one percent (1%) to prevent ponding. A pilot channel shall be required for any channel with a grade of less than one percent (1%). The pilot channel design shall be included in the civil plan

submittal as designed by the developer's engineer.

D. NATURAL CHANNELS:

(1) Channels may be left in a natural state if both of the following conditions are met and certified by a licensed engineer in the State of Texas:

(i) Channel velocities are less than eight (8) feet per second based on the 100-year design storm.

(ii) The flow from the 100-year design storm is contained within the natural channel while allowing one-foot of freeboard.

E. IMPROVED CHANNELS:

(1) If a natural channel is to be replaced by an improved channel, the flow from the 100-year design storm must be contained in the improved channel while allowing for one-foot of freeboard.

(2) Improved channels shall contain a lined section if the design velocity is greater than six (6) feet per second.

(3) Lined sections shall be designed in accordance with the adopted TxDOT Hydraulic Manual.

(4) Lining types such as concrete, rock walls and gabions, may be used upon approval of the County Engineer.

(i) For lined channels, all of the channel bottom and at least the first three (3) feet (vertical height) of the side slopes up from the channel bottom shall be lined unless otherwise approved by the Engineering Department.

(ii) Earthen sides above the lined section (or totally earthen channels) shall be on at least three (3) horizontal to one (1) vertical slope and shall have approved ground cover to prevent erosion.

(5) Unless shown to be feasible in a soils report sealed by a registered professional engineer in the State of Texas and approved by the County Engineer, improved channels shall have minimum side slopes of:

(i) Three (3) feet horizontal to one (1) foot vertical for earthen, grass-lined side slopes (3:1)

(ii) Two (2) feet horizontal to one (1) foot vertical for concrete-lined side slopes (2:1)

(6) Channels discharging into watercourses shall have the same invert level as the watercourse.

F. DETENTION PONDS/FACILITIES

(1) Detention may be used to reduce peak discharge where conditions prevent conveying stormwater to an adequate discharge point, or studies show that off-site structural facilities will not mitigate hydraulic effects more efficiently.

(2) Detention facilities shall be constructed only in areas to be dedicated to a private entity or special district for purposes of long-term maintenance (i.e., homeowners' association, homeowner, Municipal Utility District, Fresh Water Supply District, or similar, etc.)

(3) The following requirements and design standards shall apply to detention ponds to the extent they do not conflict with any applicable Federal or State laws or regulations, as amended:

(i) The 100-year design storm shall be used to determine the volume of storage required.

(ii) Detention facilities shall be designed so that any additional runoff generated by the proposed development will not increase the amount of original discharge for storm frequencies from the 5-year to the 100-year design storm.

(iii) Detention ponds shall be designed with a minimum of one (1) foot of freeboard above the 100-year design stormwater surface elevation.

(iv)

(4) The Unit Hydrograph Method is recommended to determine the volume of runoff storage for drainage areas of any size. For drainage areas less than 200 acres, other methods accepted as standard engineering practice are allowable.

(5) Any outflow structure which conveys water through the embankment in a conduit shall be designed with reinforced concrete. This includes utilizing existing ponds for detention/retention.

(6) The conduit shall withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.

(7) The outflow structure of a detention basin discharging water into any natural stream or unlined channel shall discharge at a non-erosive rate, unless approved erosion protection is provided.

(8) Detention basins resulting from excavation shall provide positive drainage with a minimum bottom slope of one (1) percent. A pilot channel is required when the minimum bottom slope is less than one (1) percent.

(9) The side grade for any excavated detention basin, which is not a rock, shall not exceed 3:1. Side slopes and bottom shall be protected from erosion with grass or other approved materials.

(10) Earthen embankments used for water impoundments must be constructed with suitable fill material and be designed based upon geotechnical investigations of the site. Embankments shall be protected from erosion with grass or other approved materials.

HEC-HMS

For basins over 640 acres in size, Austin County will require a HEC-HMS hydrograph analysis covering the site and the adjacent parts of the watershed utilizing Atlas 14 rates.

This analysis should verify that the proposed improvements will not increase runoff rates anywhere in the system and, therefore, will have no negative impacts on adjacent properties.

The engineer must submit a complete design report with sufficient detail (program input, program output, and discussion of methods and assumptions used) for Austin County staff to review.

Before beginning this type of analysis, please check with Waller County to receive the most current baseline HEC-HMS model of the area for development (if one is available). In no case shall the detention storage rate be less than the minimum detention required as follows:

Detention Volume Min. acre-ft/acre = (Acreage)x(0.60+((% impervious/100)*0.40)

Hydrograph timing will not be accepted as a substitution for detention.

A full downstream study must be performed to confirm that the downstream channel can handle the fully developed watershed it receives and remain within its banks. Downstream channel improvements may be required, in addition, further restriction of the outflow rate may be required along with additional detention.

SECTION IV
EASEMENTS

A. APPLICATION

The following requirements for drainage improvements, channels, and facilities required for any development shall apply:

(1) All drainage systems and facilities that are not to be included within an existing or proposed public street right-of-way shall be located within easements to be dedicated to the County or a special district with adequate access to a public street.

(2) Prior to acceptance of any public drainage facilities, all easements within which the facilities are located shall be cleared of all buildings, structures, fences, trees, or other obstacles that would interfere with drainage flow and access to the easement.

(3) The developer shall be responsible for maintenance of drainage easements until maintenance obligations are transferred to HOA, property owner, district, or similar entity, or if the land is sold. Notwithstanding, responsibility under a maintenance bond shall remain in effect until released following inspection.

(4) The landowners shall be responsible for the maintenance of drainage easements located on their property.

(5) Floodways and/or floodplains provide for the drainage needs of the development & surrounding areas shall be dedicated as a drainage with access easement to the limits defining the floodway or floodplain. Easements shall be dedicated with a minimum of 150’ or as required based on hydraulic analysis, including all upstream tributaries, but in no case will be less than the floodway plus 50 feet on each side.

(6) Easements for closed drainage systems shall be in accordance with the following minimum standards, unless special circumstances warrant additional or reduced, as determined by the County Engineer.

PIPE SIZE	MINIMUM EASEMENT WIDTH
36” and under	15 feet
42” through 54”	20 feet
60” through 66”	25 feet
72” and above	Larger of: 30 feet or (Pipe Diameter + 20’)

(7) Easements for improved channels shall be provided with sufficient width for maintenance access.

(i) Channels having a top width greater than 30 feet and a side slope steeper than 4:1 shall have access roads of 30 feet in width along both sides of the channel unless otherwise approved by the County Engineer.

(ii) Utilities shall not be located within any existing drainage easement unless it is also designated for utility use.

(iii) No utilities shall be located in any lined channel in such a way as to interfere with maintenance of or access to the channel.

(8) A drainage easement shall be provided for a required outfall channel or ditch to the point where the flowline matches natural grade.

(9) To provide for maintenance, a drainage easement shall be provided at least fifty (50') feet beyond any outfall headwall.

(10) The Austin County Commission shall maintain a Drainage Map to define the min. easements required for all natural and man-made channels in the county. Until such time this Drainage Map is adopted, the min. easement will be the limits of the 100-year flood plain, as shown on the most current FEMA Floodplain Map or as determined by hydraulics in a Hydraulic study showing the ditch size required for the fully developed watershed, plus 30' each side for maintenance and access.

B. Austin County Drainage District #1 (ACSWCD)

The following requirements for any development shall apply when located the limits of authority of the Drainage District.

(1) If a proposed development is within the Austin County Drainage District, the County Engineer will require a letter from the Austin County Drainage District before issuing a development permit.

THIS PAGE IS INTENTIONALLY LEFT BLANK

SECTION V - IXX
RESERVED

THIS PAGE IS INTENTIONALLY LEFT BLANK

SECTION XX
DEFINITIONS

A. APPLICATION

(1) For these regulations, the following terms, phrases, words, and their derivations shall have the meaning ascribed to them in this section.

(2) If the terms, phrases, words, and their derivations are not located within these sets of regulations, it may be located in the County's other associated development regulations.

(i) Definitions not expressly prescribed herein are to be construed in one of the following methods as determined by the County Engineer to apply a definition that closely applies:

(a) In accordance with customary usage in subdivision, planning, and engineering practices; or,

(b) The most recent edition of Black's Law Dictionary.

(ii) Any interpretation shall be addressed by the County Engineer as outlined in Section I (F).

(2) The definitions in this section shall also apply to Volume I (Subdivision and Building Standards) and Volume III (Standard Construction Details) of the Austin County Subdivision and Development Regulations, unless otherwise indicated.

B. DEFINITIONS

ACCESS RAMP
A route used to provide entry for vehicles and machinery into a channel.

ACCESS ROAD
A route parallel to and at the top of the bank of a channel used for maintenance of channels.

BASE FLOOD
The flood having a one percent chance of being equaled or exceeded in any given year.

CHANNEL
Any open or closed device for conveying flowing water.

DRAINAGE AREA OR BASIN
The land area or catchment area upon which rainfall contributes runoff to a specific location.

DRAINAGE FACILITIES OR SYSTEM
One or more conduits, channels, ditches, swales, pipes, detention devices, or any other device, work, or improvement, natural or man-made, which is used, designed, or intended to be used to carry, direct, detain, or otherwise control stormwater.

DETENTION
The storage of stormwater runoff for a controlled release during or immediately following the design storm.

FLOOD HAZARD BOUNDARY MAP (FHBM)
An official map issued by the Federal Emergency Management Agency (FEMA), where the areas of special flood hazards have been designated.

FLOOD INSURANCE RATE MAP (FIRM)
An official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated both the special flood hazard areas and the risk premium zones applicable to the community.

FLOOD INSURANCE STUDY
An examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation, and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

FLOODPLAIN
For purposes of these rules, the floodplain is the area designated as subject to flooding from the base flood (100-year flood) on the Flood Insurance Rate Map. The floodplain includes the floodway when established.

FLOODWAY
The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

FLOODWAY FRINGE
The area located within the floodplain and outside the floodway.

FREEBOARD
The vertical distance between the design water surface level and the top of an open conduit left to allow for wave action, flotation debris, or any other condition or emergency without over-topping the structure.

HYDROGRAPH
A graph showing stage, flow, velocity, or other properties of water versus time at a given point in a stream or conduit.

INLET
An opening into a storm drain system for the entrance of surface water runoff.

INVERTED CROWN SECTION
A street cross-section usually reserved for alleys, in which the center of the street is lower than the edges so that drainage is carried down the center of the street.

LOCAL DRAINAGE SYSTEM
Any drainage facility or system which serves an area having a contributory drainage basin of less than a one (1) square mile area.

OFF-SITE
Located outside the boundary of a development.

ON-SITE
Located within the boundary of a development.

PIPE
A closed conduit through which water flows.

POSITIVE DRAINAGE
The practice or system of proper grading to direct runoff away from structures and to prevent ponding.

POSITIVE OVERFLOW
Refers to when inlets do not function properly or the design capacity of a conduit is exceeded, the excess flow can be conveyed overland along a road, alley, or special drainage easement.

SOFFIT
Inside top of a pipe.

TIME OF CONCENTRATION
The estimated time, in minutes, required for stormwater runoff to flow from the most hydraulically remote section of the drainage area to a specific design point.