

City of San Antonio



AGENDA

Planning Commission

Development and Business Services

Center

1901 South Alamo

Minutes

Monday, March 28, 2022

12:30 PM

1901 South Alamo

****Planning Commission Technical Advisory Committee****

The Planning Commission Technical Advisory Committee (PCTAC) is a subcommittee that advises the Planning Commission on matters as requested by the Commission. Members of the PCTAC are appointed by the Planning Commission.

To watch and listen to this meeting, visit www.sanantonio.gov/DSD/Boards/MeetingVideos. To listen to audio only, call 210 206 LIVE (5483).

Public Comment

Members of the public may provide comment on any agenda item, consistent with procedural rules governing the Planning Commission Technical Advisory Committee meetings and state law. Public comment may also be provided as follows:

1. Submit written comments by email to udcamendments@sanantonio.gov or drop off written comments at 1901 S Alamo by 8am the day of the meeting. Please include your full name, home or work address and agenda item number. Written comments will be part of the official written record only.
2. Leave a voice message of a maximum of two minutes by dialing 210206(PLNG)7564. Your message will be played during the meeting. Please include your full name, home or work address and agenda item number.

*Note: Written comments, voicemails, and request to make comments during the live meeting must be received by Monday March 28, 2022 at 8am to give time for translation.

12:30 Call to Order

-Roll Call

Present: George Peck, Michael Garcia, Samer Dessouky, Robert Sipes, Maria Cruz, Susan Wright, Juan Fernandez, Cara Tackett, Bob Liesman, Ryan Plagens, Ken Brown Robert Hanley, Christopher Fullerton, Robert Tapia, Erik Estrada, Phillip Manna, Deborah Reid, Alex Ramirez, Bianca Maldonado, Joe Nix, Michael Moore

Absent: Allison Cohen, Julia Carrillo Haynes, Seth Teel, Ashley Farrimond, Jody Sherrill, Jesse Vasquez

City Staff: Melissa Ramirez, Logan Sparrow, Monique Mercado, Valerie Huerta- Rodriguez, Audrey Zamora, Joseph Harney, Michael Shannon, Stephen Stokinger, Nefi Garza, Sabrina Santiago

Public Comment – 1 voicemail received.

- Tony Garcia, 243 E Huisache, stated in favor for following: Item 3, amendment 27-11, Item 4, amendment 27-10, Item 6, amendment 27-13

Monique Mercado, Principal Planner, Development Services Department, stated no written comment was received.

Old Business

26. Approval of minutes from March 22, 2022 meeting

MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Manna to Approve as presented.

A verbal vote was taken, and all voted in affirmed.

MOTION CARRIED

New Business

- 24 Discussion and possible action on UDC amendment item 6-2, affecting section 35-102: General Purpose and Intent. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Leslie Provence, Public Food Policy Council, stated the request is to add equity and food security text into the code.

MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Reid to Approve as presented.

The Unified Development Code as established in this chapter has been made in accordance with a comprehensive plan for the purpose of promoting health, equity, community food security, safety, morals, and the general welfare of the community. It is intended to consolidate in one (1) place and in logical order without unnecessary duplication all of the regulations pertaining to land use and development. It is designed to make it possible for all of those concerned with land use and development to have access to all city legislation with respect thereto in one (1) convenient chapter which is capable of being published and distributed as a separate and comprehensive segment of the City Code as a whole.

(a) The zoning and land use regulations set forth in articles II and III are designed to promote the public health, equity, community food security, safety, morals, or general welfare and to protect and preserve places and areas of historical, cultural, or architectural importance and significance.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 25 Discussion and possible action on UDC amendment item 6-3, affecting section 35-301: Purpose. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Leslie Provence, Public Food Policy Council, stated the request is to add community gardens and urban farms as a recognized land use.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Tapia to Approve as Amended.

- Provide for land uses which serve important public needs, such as affordable housing and employment generators, [including community gardens and urban farms](#); and
- Promote mixed-use buildings and mixed-use neighborhoods; and
- Promote infill housing and downtown retail and residential development; and
- Integrate civic uses into neighborhoods; and
- Protect natural resources; and
- Encourage retail development downtown; and
- [Promote equity and community food security](#); and
- [Promote urban farming as means to achieve food security and crop diversification; promote environmental awareness and repair including soil enhancement, reduction of urban heat island, and alternative stormwater management; and promote economic generation and community building. Urban farming has also been shown to lead to healthier food choices and extend life expectancy.](#)

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 1 Discussion and possible action on UDC amendment item 27-8, affecting Appendix H. 5.2.2: Selection of Rational or Hydrograph Method. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is for reference clarification.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Tackett to Approve as Amended.

5.2.2 - Selection of Rational or Hydrograph Method

For drainage areas less than 200 hundred (200) acres, the basis for computing runoff shall be the rational formula (as defined in [Section 5.3](#)) or some other method provided it is acceptable to the Director of [Public Works TCI](#).

For drainage areas 200 hundred (200) acres or greater, the basis for computing runoff shall be a unit hydrograph method (as defined in [Section 5.6](#)), preferably the Soil Conservation Service (SCS) Dimensionless Unit Hydrograph method as contained in the U.S. Army Corps of Engineers Hydrologic Engineering Center HEC-HMS "Hydrologic Modeling Systems".

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 2 Discussion and possible action on UDC amendment item 27-9, affecting Appendix H. 5.3: Rational Method. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to provide guidance regarding Modified Rational Method.

MOTION

A motion was made by Committee Member Tapia and seconded by Committee Member Maldonado to Approve as presented.

5.3.1 – Modified Rational Method General Guidance

The MRM is an adaptation of the rational method which allows the designer to calculate the storage volume required for a small detention basin for watersheds less than 20 acres. In this procedure, the post-development peak flowrate is applied to the time of concentration of the basin to create a triangular hydrograph. (Figure 5.3.1). A series of trapezoidal hydrographs are created for storm durations longer than the time of concentration. The peak flowrate for these hydrographs is determined by the intensity for that duration from the rational equation and occurs at the original time of concentration. The duration which produces the greatest difference in volume between the pre-development peak flow and post-development hydrographs becomes the critical duration, and this volume represents the maximum storage volume.

Several commercial software packages can be used to automate the MRM procedure or the calculations can be performed in a spreadsheet.

Figure 5.3.1

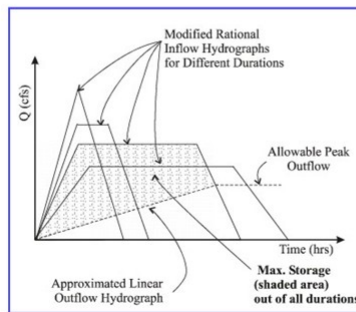


Image source:

https://communities.bentley.com/products/hydraulics_hydrology/w/hydraulics_and_hydrology_wiki/6809/understanding-the-modified-rational-method

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 3 Discussion and possible action on UDC amendment item 27-11, affecting Appendix H. 5.4: Time of Concentration. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add guidance on the Time of Concentration.

Nefi Garza, Public Works Department, explained the use of the tool and answered the committee's questions.

MOTION

A motion was made by Committee Member Tackett and seconded by Committee Member Tapia to Approve as Amended.

Amendment 27-11
Applicant: Public Works

Amendment Title: 'Appendix H. 5.4 – Time of Concentration'
Amendment Language:

5.4.4 -Post Project and/or Ultimate Conditions Development Time of Concentration

For watersheds where proposed/ultimate development conditions are not defined, Time of concentration for post project or ultimate development may ~~shall~~ be calculated using the Denver Lag Time Equation as shown below.

$$T_{LAG} = C_t * \left(\frac{L * L_{ca}}{\sqrt{S}} \right)^{0.48}$$

where:

T_{LAG} = watershed lag time in hours.

C_t = time to peak coefficient.

L = length along the stream from the study point to the upstream limits of the basin in miles.

L_{ca} = length along the stream from the study point to a point along the stream adjacent to the centroid of the basin in miles.

S = weighted average slope of the basin from the study point to the upstream limits of the basin in feet per foot.

The percent impervious (I_a) must already be defined using Table 5.6.1.1.2

This equation was developed for small urban watersheds (less than 5 square miles) with mild slopes. The peaking coefficient can be computed from the percent impervious (I_a) using the following equations:

$$C_t = -0.00371I_a + 0.163 \quad 0 \leq I_a \leq 10$$

$$C_t = 0.000023I_a^2 + 0.002241I_a + 0.146 \quad 10 \leq I_a \leq 40$$

$$C_t = 0.0000033I_a^2 + 0.000801I_a + 0.12 \quad 40 \leq I_a \leq 100$$

As referenced in Appendix H – Storm Water Design Criteria Manual

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 4 Discussion and possible action on UDC amendment item 27-10, affecting Appendix H. 5.4.1: Overland Flow. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to amend the maximum length of overland flow and replace the chart.

Nefi Garza, Public Works Department, commented on the amendment.

MOTION

A motion was made by Committee Member Tackett and seconded by Committee Member Maldonado to Approve as presented.

Ultimate conditions base flood elevation (BFE) means the water surface elevation resulting from the flood that has a 1% chance of equaling or exceeding that level, assuming future conditions hydrology.

Unflooded access means that vehicular traffic has safe access (within the "Proceed with Caution" range per figure [24.3.1C of Appendix H 504-2](#)) to a property from a public street in times of a design storm event (reference [Appendix H 4.3.2 Section 35-504\(b\)\(2\) System Criteria](#)) and to an arterial street that is not adjacent to the development or to a distance of one-quarter mile, whichever is less, during a twenty (20) percent annual chance (20% A.C., or "5-year") storm event.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 5 Discussion and possible action on UDC amendment item 27-12, affecting Appendix H. 5.5.3: Runoff Coefficient. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to clarify Curve Number Calculations for a specific type of development.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Tackett to Approve as presented.

Table 5.5.3A - Runoff Coefficient (C value) - percentage

Character of Area	SLOPE			
	Up to 1%	Over 1% up to 3%	Over 3% up to 5%	Over 5%
Business or commercial areas (90% or more impervious), Existing Pavement / Buildings or Zoning Districts O, C, I-1, I-2, <u>Parking Areas including gravel, road base and decomposed granite.</u>	95	96	97	97

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 6 Discussion and possible action on UDC amendment item 27-13, affecting Appendix H. 5.6.1.1.1: SCS Curve Number Loss. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to modify to include references to the National Engineering Handbook, and updating the floodplain mapping.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Tapia to Approve as presented.

5.6.1.1.1 SCS Curve Number Loss

The SCS curve numbers adopted for use by the City of San Antonio are shown in Table 5.6.1.1.1.1. The hydrologic soil groups are listed in the latest version of the [NRCS National Engineering Handbook, Part 630 – Hydrology, United States Natural Resources Conservation Service \(formerly the Soil Conservation Service\), "Urban Hydrology for Small Watersheds," Technical Release No. 55 \(TR-55\)](#); this document is hereby incorporated by this reference. Soil types that relate to the hydrologic soil group may be found in the latest version of the United States Natural Resources Conservation Service "Soil Survey-Bexar County, Texas;" this document is hereby incorporated by this reference. Soil types may also be based on a Geotechnical Engineering Report.

Table 5.6.1.1.1 - SCS Curve Number by Soil Type

Cover Description	Hydrologic Condition	Curve Number (CN) for Hydrologic Soil Group			
		A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, etc.)	Good	39	61	74	80
Meadow (continuous grass, protected from grazing and generally mowed for hay)		30	58	71	78
Brush (brush-weed-grass mixture with brush the major element)	Good	30	48	65	73
Woods	Good	30	55	70	77

Cover Description	Hydrologic Condition	Curve Number (CN) for Hydrologic Soil Group			
		A	B	C	D
Open Space (Lawns, parks, golf courses, cemeteries, etc.)	Good	39	61	74	80

Meadow (continuous grass, protected from grazing and generally mowed for hay)		30	58	71	78
Brush (brush-weed-grass mixture with brush the major element)	Good	30	48	65	73
Woods	Good	30	55	70	77
Developing Urban Areas (newly graded areas, no vegetation)		77	86	91	94

Streets, Roads, and Parking Areas (including gravel, road base and decomposed granite)	98
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5.6.1.1.2 Green and Ampt Loss

Infiltration losses may also be estimated using the Green and Ampt method. The parameters required for the Green and Ampt method are hydraulic conductivity (in/hr), wetting front capillary pressure or suction head (in), saturated moisture content (in/in), and initial moisture content (in/in). See the latest version of the "San Antonio River Basin Regional Modeling Standards for Hydrology and Hydraulic Modeling" for additional guidance.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 7 Discussion and possible action on UDC amendment item 27-14, affecting Appendix H. 5.6.1.2.3: Clark Unit Hydrograph. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add a reference to the National Engineering Handbook.

MOTION

A motion was made by Committee Member Tackett and seconded by Committee Member Maldonado to Approve as presented.

To use this method in HEC-HMS the parameters of translation and attenuation are defined by the watersheds time of concentration (t_c) and Basin Storage coefficient (R).

- **The Translation** is derived by the time of concentration (t_c), and is defined by Equation 5.4 in this manual, the [NRCS National Engineering Handbook, Part 630](#) ~~TR-55~~ method of calculation. The t_c is provided as a unit of time in hours (hr.)

- **The Attenuation** is the Basin Storage coefficient (R), a measure of the storage within the individual watershed. The larger the R value, the larger the attenuation. This value can be defined by calibration. R is given as a unit of time (hr.)

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 8 Discussion and possible action on UDC amendment item 27-15, affecting Appendix H. 6.2.2: Street Capacity. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to identify on where the Street Capacity Calculations should be taken, as well as language on Hydraulic Capacity Calculations, and ADA ramps.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Plagens to Approve as Amended.

Streets may be used for storm water drainage only if the calculated storm water flow does not exceed the maximum flow depth and velocity allowable for the streets roadway classification as outlined above.

Where streets are not capable of carrying their design criteria storm water discharge inlets or curb openings are then required. The inlets or openings will discharge into a drainage channel or storm drain system. If there is not one available, one shall be provided. Partial flow past the inlet will be allowed when the capacity of all downstream street systems can accommodate the flow. The Inlets and Storm Drain System design criteria requirements are outlined in Chapters 7 and 8.

Curb cuts for driveways and ADA ramps where the back of the ramp is less than the curb height within the ROW on all streets shall be designed for compatibility with the storm water conveyance function of streets. The design criteria maximum frequency must be contained within the right-of-way. Considerations will be given to cross streets as well as drive ways draining to streets.

Where Dwelling units are located on the downhill side of a T-intersection, Cul-de-sac, or knuckle with a street or drainage channel discharging onto it, the street intersection shall be graded so to avoid water flowing over the curb or exceeding a depth equal to the curb height within the drive way approach and out of the right-of-way. Detailed calculations will be required at these locations to show that the discharges are contained within the right-of-way.

No flow capacity tables are provided for the traditional street designs due the variety of geometric properties associated with these streets. When proposing street designs, drainage calculations specific to a proposed street design must be submitted for approval.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 9 Discussion and possible action on UDC amendment item 27-16, affecting Appendix H. 6.2.9: Unflooded Public Road Access. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to clarify the interpretation of the language on what is unflooded access.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Reid to Approve as Amended.

6.2.9 - Unflooded Public Road Access

The following criteria must both be met for existing streets adjacent to the proposed development:

A. Unflooded access (within the "Proceed with Caution" range per Figure 4.3.1C) shall be available from within ~~the each~~ proposed development to an adjacent public street during a regulatory flood event.

B. Unflooded access (within the "Proceed with Caution" range per Figure 4.3.1C) shall be accessible to an arterial street within one-quarter (1/4) mile or less ~~that is not adjacent to the development or to a distance of one-quarter (1/4) mile, whichever is less,~~ during a future condition twenty percent (20%) annual chance (five-year ultimate) flood event.

The director of Public Works ~~PW~~ may waive the design criteria above for developments under three (3) acres in size. Both criteria A and B must be checked for the 100-year storm event.

~~During a design storm event unflooded access (within the "Proceed with Caution" range per Figure 4.3.1C) shall be available from each proposed new development to an adjacent public street during a regulatory flood event. Additionally, unflooded access shall be accessible to an arterial street that is not adjacent to the development or to a distance of one-quarter (1/4) mile, whichever is less, during a future conditions twenty percent (20%) annual chance (five-year ultimate) flood event. The director of TCI may waive the design criteria above for developments under three (3) acres in size.~~

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 10 Discussion and possible action on UDC amendment item 27-17, affecting Appendix H. 7.2.5: Storm Drain Inlets and Outfalls. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to provide clear guidance on the Peak on Peak Hydrologic Analysis.

Nefi Garza, Public Works Department, made comments on the amendment and answered the committee's questions.

Stephen Stokinger, Development Services, made comments on the amendment.

Melissa Ramirez, Development Services, made comments on the amendment.

MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Brown to Approve as Amended without the addition of the added sentence.

7.2.5 - Storm ~~Drain~~ Inlets and Outfalls

7.2.5.1 - Inlets

The drainage system will include inlets on streets, parking areas, and other areas to direct flow into the underground system. For inlets on streets, the HGL at the inlet should be below the gutter and the EGL not be above the top of curb or ponding depth. For area inlets the EGL should not be higher than the ponding depth.

An inlet could also be a pickup structure that channelizes flow from an upstream channel into the underground system. Careful analysis of the junction between the downstream underground system and the upstream channel should be performed to check both the HGL and EGL.

7.2.5.2 - Outfalls

The outfall for the storm drain system should discharge into a natural low, existing storm drainage system, or a channel. The start of the EGL for the storm drain system begins at the outfall. The design engineer should determine the tail water for the downstream drain to find the impact on the proposed outfall. There are two conditions for determining the starting point for the HGL at the outfall. The tail water may be above the critical depth of the outfall conduit or between the critical depth and invert of the outfall conduit. The starting point for the HGL should be either the tail water elevation or the average of critical depth plus the height of the storm drain conduit, whichever is greater. The design engineer will consider an exit loss at the outlet.

If the outfall of the storm drain system is into a river, stream, or creek, the design engineer should consider the coincidental probability of the peaks of both systems occurring at the same time. The assumption of coincident peaks may be appropriate if all the following are true:

- The ratio of the drainage areas lies between 0.6 and 1.4.
- The arrival times of flood peaks are similar for the two combining watersheds.
- The likelihood of both watersheds being covered by the storm being modeled are ~~is~~ 10 square miles or smaller ~~larger~~.

The tail water for the receiving stream should be checked with the peak of the storm drain system.

Roll Call Vote:

In Favor: Garcia, Dessouky, Cruz, Wright, Fernandez, Tackett, Liesman, Plagens, Brown, Hanley, Tapia, Manna, Ramirez, Peck

Opposed: Sipes, Fullerton, Estrada, Reid, Maldonado

MOTION CARRIED

- 11 Discussion and possible action on UDC amendment item 27-18, affecting Appendix H.7.3.11: French Drains. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is for guidance on the language regarding utility trench and French drain.

Nefi Garza, Public Works Department, made comments on the amendment and answered the committee's questions.

MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Reid to Approve as Amended.

When a utility trench project may crosses other utility trenches that are bedded in gravel, and can act similar to a French drain. The designer should evaluate the need for a French drain should be considered to collect shallow groundwater or surface water from the utility trench and discharge it into the storm drain system.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 12 Discussion and possible action on UDC amendment item 27-19, affecting Appendix H. 9.2.4.1: Manning's Equation. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add language to the table regarding Rock Riprap.

MOTION

A motion was made by Committee Member Tackett and seconded by Committee Member Maldonado to Approve as presented.

Table 9.2.4.1 - Manning's Roughness Coefficient

Channel Description	Manning's "n" Value
Concrete Lined Channel (wood float type surface finish)	0.015
Grass Lined Channel with regular maintenance	0.035
Grass Lined Channel without recent maintenance	0.050
Vegetated Channel with trees, little or no underbrush	0.055
Natural Channel with trees, moderate underbrush	0.075
Natural Channel with trees, dense underbrush	0.090
Natural Channel with dense trees and dense underbrush	0.100
Rock Gabion Lined Channel	0.022
Rock Riprap Lined Channel (D50 greater than 12 in)	0.041
Rock Riprap Lined Channel (D50 less than 12 in)	0.038
Overbank Description	Manning's "n" Value

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 13 Discussion and possible action on UDC amendment item 27-20, affecting Appendix H. 9.3.4: Channel Geometry. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is for guidance on Nested Channel Design.

Nefi Garza, Public Works Department, made comments on the amendment and answered the committee's questions

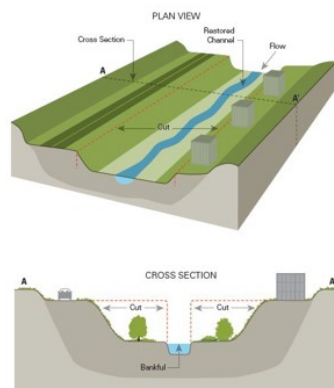
MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Maldonado to Approve as Amended.

9.3.4 - Channel Geometry

The constructed channel geometry may be triangular, rectangular, **irregular**, or trapezoidal in shape. [A new or restored constructed earthen channel may be designed as a "nested channel" using the Priority 3 restoration design approach specified in the San Antonio River Basin Natural Channel Design Protocol \(See Figure 9.3.4 below\).](#) The side slopes should not exceed the requirements in 9.3.3.1 or 9.3.3.2. In areas where traffic safety may be of concern, the channel side slope should be 4H:1V or flatter or other vehicular protection devices may be required.

For natural channels, the channel geometry may be irregular in shape. The channel sections should be checked for areas of erosion and provide corrective measures with the natural channel design.



[Figure 9.3.4 From San Antonio River Basin Natural Channel Design 2013. Reprinted with permission from Stream Mechanics. Adapted from Rosgen \(1997\)](#)

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 14 Discussion and possible action on UDC amendment item 27-21, affecting Appendix H. 9.3.8: Channel Shear Stress. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is for guidance on Channel Velocity versus Channel Shear Stress.

Nefi Garza, Public Works Department, made comments on the amendment and answered the committee's questions.

Troy Dorman, Haliff Associates, made comments on the amendment and answered the committee's questions.

MOTION

A motion was made by Committee Member Reid and seconded by Committee Member Manna to Approve as Amended.

9.3.8 – Earthen Channel Shear Stress Channel Velocity

Compute maximum shear stress at normal depth using the following equation:

(Equation 9.3.8)

$$\tau_s = \gamma R S$$

τ_s = average shear stress at normal depth (lb./sq. ft. or N/m²)

γ = unit weight of water (62.4 lb./ft.³ or 9810 N./m.³)

R = hydraulic radius (ft. or m.) at uniform depth (ym)

S = channel slope (ft./ft. or m./m.)

The following tables 9.3.8.1 and 9.3.8.2 shall be used to determine maximum permissible shear stresses for various channel linings. If retardance classes B, C, D, and E cannot provide channel protection as required, then TRM, concrete, or other linings should be evaluated.

Table 9.3.8.1 – Retardance Class for Lining Materials

(Source: TXDOT – Hydraulic Design Manual, Chapter 7, Section 3 – Roadside Channel Design)

Retardance Class	Cover	Condition
A	Weeping Lovegrass	Excellent stand, tall (average 30 in. or 760 mm)
-	Yellow Bluestem-Ischaemum	Excellent stand, tall (average 36 in. or 915 mm)
B	Kudzu	Very dense growth, uncut
-	Bermuda grass	Good stand, tall (average 12 in. or 305 mm)

-	Native grass mixture little bluestem, bluestem, blue gamma, other short and long stem midwest grasses	Good stand, unmowed
-	Weeping lovegrass	Good stand, tall (average 24 in. or 610 mm)
-	Lespedeza sericea	Good stand, not woody, tall (average 19 in. or 480 mm)
-	Alfalfa	Good stand, uncut (average 11 in. or 280 mm)
-	Weeping lovegrass	Good stand, unmowed (average 13 in. or 330 mm)
-	Kudzu	Dense growth, uncut
-	Blue gamma	Good stand, uncut (average 13 in. or 330 mm)
C	Crabgrass	Fair stand, uncut (10 to 48 in. or 55 to 1220 mm)
-	Bermuda grass	Good stand, mowed (average 6 in. or 150 mm)
-	Common lespedeza	Good stand, uncut (average 11 in. or 280 mm)
-	Grass-legume mixture, summer (orchard grass, redtop, Italian ryegrass, and common lespedeza)	Good stand, uncut (6-8 in. or 150-200 mm)
-	Centipedegrass	Very dense cover (average 6 in. or 150 mm)
-	Kentucky bluegrass	Good stand, headed (6-12 in. or 150-305 mm)
D	Bermuda grass	Good stand, cut to 2.5 in. or 65 mm
-	Common lespedeza	Excellent stand, uncut (average 4.5 in. or 115 mm)
-	Buffalo grass	Good stand, uncut (3-6 in. or 75-150 mm)
-	Grass-legume mixture, fall, spring (orchard grass, Italian ryegrass, and common lespedeza)	Good stand, uncut (4-5 in. or 100-125 mm)
-	Lespedeza sericea	After cutting to 2 in. or 50 mm (very good before cutting)
E	Bermuda grass	Good stand, cut to 1.5 in. or 40 mm
-	Bermuda grass	Burned stubble

Table 9.3.8.2 – Permissible Shear Stresses for Various Linings

(Source: TXDOT – Hydraulic Design Manual, Chapter 7, Section 3 – Roadside Channel Design)

Protective Cover	lb./sq.ft.	N/m ²
Retardance Class A Vegetation (See the "Retardance Class for Lining Materials" table above)	3.2	472
Retardance Class B Vegetation (See the "Retardance Class for Lining Materials" table above)	2.1	101
Retardance Class C Vegetation (See the "Retardance Class for Lining Materials" table above)	1	48
Retardance Class D Vegetation (See the "Retardance Class for Lining Materials" table above)	0.5	29
Retardance Class E Vegetation (See the "Retardance Class for Lining Materials" table above)	0.35	17
Woven Paper	0.15	7
Jute Net	0.45	22
Single Fiberglass	0.6	29
Double Fiberglass	0.85	41
Straw W/Net	1.45	69
Curled Wood Mat	1.55	74
Synthetic Mat	2	96
Gravel, D50 = 1 in. or 25 mm	0.4	19
Gravel, D50 = 2 in. or 50 mm	0.8	38
Rock, D50 = 5 in. or 150 mm	2.5	120
Rock, D50 = 12 in. or 300 mm	5	239
6-in. or 50-mm Gabions	35	1675
4-in. or 100-mm Geoweb	10	479
Soil Cement (3% cement)	>45	>2154
Dycel w/out Grass	>7	>335
Petralflex w/out Grass	>32	>1532
Armorflex w/out Grass	12-20	574-957
Epkamat w/3-in. or 75-mm Asphalt	13-16	622-766
Epkamat w/1-in. or 25 mm Asphalt	<5	<239

Armorflex Class 30 with longitudinal and lateral cables, no grass	<5	>1628
Dycel 100, longitudinal cables, cells filled with mortar	<12	<574
Concrete construction blocks, granular filter underlayer	>20	>957
Wedge-shaped blocks with drainage slot	>25	>1197

The following Table 9.3.8 shall be used to determine maximum permissible channel velocity.--

Where velocities are in the supercritical range, allowance shall be made in the design for the proper handling of the storm water.--

Table 9.3.8 -- Velocity Control

Velocity (fps)	Type of Facility Required	Hydraulic Radius (ft.)	Correction Factor	Maximum Permissible Velocity (fps)
1 to 6 (Maximum Average Velocity = 6 fps)	Vegetated Earthen Channel	0-1 1-3 3-5 5-8 8-10 Over 10	0-8 0-9 1-05 1-15 1-25 1-25	5 5.5 6.3 6.9 7.35 7.5
5 to 12	Turf Reinforcement Mat (TRM)	N/A	N/A	12
6 to 8	Concrete Retards	N/A	N/A	N/A
>8	Concrete Lining or Drop Structures	N/A	N/A	N/A

If Turf Reinforcement Mat (TRM) is proposed, please see City of San Antonio Standard Specifications for Construction Item 584 for submittal requirements. The improvement plan sheets should include the location of the placement, details, and manufacturer's installation instructions.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 15 Discussion and possible action on UDC amendment item 27-22, affecting Appendix H. 9.3: Design Guidelines. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request to add language regarding Channel Junction and Shear Stress.

MOTION

A motion was made by Committee Member Wright and seconded by Committee Member Maldonado to Approve as presented.

9.3.17 - Channel Junctions

Proper energy dissipation shall be provided at all channel junctions to ensure that the shear stress at the outlet of a discharging channel does not exceed the maximum permissible values for the receiving channel, as defined in Section 9.3.8. At channel junctions, banks should be assessed for erosion potential and protected as necessary. Refer to HEC-14 guidelines for appropriate energy dissipators selection and design guidelines. Energy dissipators shall be designed assuming an empty receiving channel.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 16 Discussion and possible action on UDC amendment item 27-23, affecting Appendix H. 10.3: Design Guidelines. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add language for guidance for Culvert Design.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Garcia to Approve as presented.

10.3.18 – Bankfull Culvert Design

Culverts within public drainage easement or public right-of-way, should be designed with respect to bankfull channel design approach, see Figure 10.3.18.1. To determine the appropriate bankfull depth, see design guidance from SARA – Natural Channel Design Protocol and NEH Part 654, Chapter 10 for bankfull channel design.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 17 Discussion and possible action on UDC amendment item 27-24, affecting Appendix H. 10.4: Velocity Protection and Control Devices. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is regarding requirements of Energy Dissipation Checks at outlets into receiving channels that are below culvert elevations, and language for Shear Stress.

The PCTAC recessed into a break at 2:36 p.m. and reconvened at 2:50 p.m.

Due to the PCTAC dialogue, a motion to reconsider item 14 was made.

MOTION

A motion to reconsider item 14, Amendment 27-21 was made by Committee Member Maldonado and seconded by Committee Member Brown.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 14 Discussion and possible action on UDC amendment item 27-21, affecting Appendix H. 9.3.8: Channel Shear Stress. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is for guidance on Channel Velocity versus Channel Shear Stress.

Nefi Garza, Public Works Department, made comments on the amendment and answered the committee's questions.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Wright to Approve as Amended.

9.3.8 – **Earthen Channel Shear Stress Channel Velocity**

Compute maximum shear stress at normal depth using the following equation:

(Equation 9.3.8)

$$\tau_s = \gamma RS$$

τ_s = average shear stress at normal depth (lb./sq.ft. or N/m²)

γ = unit weight of water (62.4 lb./ft.³ or 9810 N./m.³)

R = hydraulic radius (ft. or m.) at uniform depth (ym)

S = channel slope (ft./ft. or m./m.)

The following tables 9.3.8.1 and 9.3.8.2 shall be used to determine maximum permissible shear stresses for various channel linings. If retardance classes B, C, D, and E cannot provide channel protection as required, then TRM, concrete, or other linings should be evaluated.

Table 9.3.8.1 – Retardance Class for Lining Materials

(Source: TXDOT – Hydraulic Design Manual, Chapter 7, Section 3 – Roadside Channel Design)

Retardance Class	Cover	Condition
A	Weeping Lovegrass	Excellent stand, tall (average 30 in. or 760 mm)
-	Yellow Bluestem-Ischaemum	Excellent stand, tall (average 36 in. or 915 mm)
B	Kudzu	Very dense growth, uncut
-	Bermuda grass	Good stand, tall (average 12 in. or 305 mm)

-	Native grass mixture little bluestem, bluestem, blue gamma, other short and long stem midwest grasses	Good stand, uncut
-	Weeping lovegrass	Good stand, tall (average 24 in. or 610 mm)
-	Lepedeza sericea	Good stand, not woody, tall (average 19 in. or 480 mm)
-	Alfalfa	Good stand, uncut (average 11 in. or 280 mm)
-	Weeping lovegrass	Good stand, uncut (average 13 in. or 330 mm)
-	Kudzu	Dense growth, uncut
-	Blue gamma	Good stand, uncut (average 13 in. or 330 mm)
C	Crabgrass	Fair stand, uncut (10 to 48 in. or 25 to 1220 mm)
-	Bermuda grass	Good stand, mowed (average 6 in. or 150 mm)
-	Common lespedeza	Good stand, uncut (average 11 in. or 280 mm)
-	Grass-legume mixture, summer orchard grass, redbud, Italian ryegrass, and common lespedeza	Good stand, uncut (6-8 in. or 150-200 mm)
-	Centipedegrass	Very dense cover (average 6 in. or 150 mm)
-	Kentucky bluegrass	Good stand, headed (6-12 in. or 150-305 mm)
D	Bermuda grass	Good stand, cut to 2 1/2 in. or 65 mm
-	Common lespedeza	Excellent stand, uncut (average 4 1/2 in. or 115 mm)
-	Buffalo grass	Good stand, uncut (3-6 in. or 75-150 mm)
-	Grass-legume mixture, fall, spring orchard grass, Italian ryegrass, and common lespedeza	Good stand, uncut (4-5 in. or 100-125 mm)
-	Lepedeza sericea	After cutting to 2 in. or 50 mm every good before cutting
E	Bermuda grass	Good stand, cut to 1 1/2 in. or 40 mm
-	Bermuda grass	Burned stubble

Table 9.3.8.2 – Permissible Shear Stresses for Various Linings

(Source: TXDOT – Hydraulic Design Manual, Chapter 7, Section 3 – Roadside Channel Design)

Protective Cover	τ_s (lb./sq.ft.)	τ_s (N/m ²)
Retardance Class A Vegetation (See the "Retardance Class for Lining Materials" table above)	3.2	177
Retardance Class B Vegetation (See the "Retardance Class for Lining Materials" table above)	2.1	101
Retardance Class C Vegetation (See the "Retardance Class for Lining Materials" table above)	1	48
Retardance Class D Vegetation (See the "Retardance Class for Lining Materials" table above)	0.6	29
Retardance Class E Vegetation (See the "Retardance Class for Lining Materials" table above)	0.35	17
Woven Paper	0.15	7
Jute Net	0.45	22
Single Fiberglass	0.6	29
Double Fiberglass	0.85	41
Straw W/Net	1.45	69
Curled Wood Mat	1.55	74
Synthetic Mat	2	96
Gravel, D50 = 1 in. or 25 mm	0.4	19
Gravel, D50 = 2 in. or 50 mm	0.8	38
Rock, D50 = 6 in. or 150 mm	2.5	120
Rock, D50 = 12 in. or 300 mm	5	239
6-in. or 50-mm Gabions	35	1675
4-in. or 100-mm Geoweb	10	479
Soil Cement (8% cement)	>45	>2154
Dycel w/out Grass	>7	>335
Petrallex w/out Grass	>32	>1532
Armorfex w/out Grass	12-20	574-957
Erkammat w/3-in. or 75-mm Asphalt	13-16	622-766
Erkammat w/1-in. or 25 mm Asphalt	<5	<239

Armorfex Class 30 with longitudinal and lateral cables, no grass	<5	>1628
Dycel 100, longitudinal cables, cells filled with mortar	<12	<574
Concrete construction blocks, granular filter underlayer	>20	>957
Wedge-shaped blocks with drainage slot	>25	>1197

The following Table 9.3.8 shall be used to determine maximum permissible channel velocity.

Where velocities are in the supercritical range, allowance shall be made in the design for the proper handling of the storm water.

Table 9.3.8—Velocity Control

Velocity (fps)	Type of Facility Required	Hydraulic Radius (ft.)	Correction Factor	Maximum Permissible Velocity (fps)
1 to 6 (Maximum Average Velocity = 6 fps)	Vegetated Earthen Channel	0-1 1-3 3-5 5-8 8-10 Over 10	0.8 0.9 1.05 1.15 1.25 1.25	5 5.5 6.3 6.9 7.35 7.5
≥ 6 to 12	Turf Reinforcement Mat (TRM)	N/A	N/A	12
6 to 8	Concrete Retards	N/A	N/A	N/A
> 8	Concrete Lining or Drop Structures	N/A	N/A	N/A
<small>If Turf Reinforcement Mat (TRM) is proposed, please see City of San Antonio Standard Specifications for Construction item 554 for submittal requirements. The improvement plan sheets should include the location of the placement, details, and manufacturer's installation instructions.</small>				

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

The PCTAC committee proceeded with item 17, amendment 27-24.

- 17 Discussion and possible action on UDC amendment item 27-24, affecting Appendix H. 10.4: Velocity Protection and Control Devices. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is regarding requirements of Energy Dissipation Checks at outlets into receiving channels that are below culvert elevations, and language for Shear Stress.

MOTION

A motion was made by Committee Member Brown and seconded by Committee Member Manna to Approve as presented.

10.4.1 - Excess Velocity

Excess velocity discharge from a culvert to earthen channel or in some instances in concrete lined channel should be minimized ~~so the flow shear stress at the outlet of a culvert does not exceed the maximum permissible values for the receiving channel, as defined in Section 9.3.8. Culvert outlets should be assessed for erosion potential and protected as necessary, with the use of protection or control devices.~~

10.4.2 - Velocity Protection Devices

The velocity protection device used in an earthen channel should not take the place of a velocity control device but may complement a velocity control device.

There are a number of products available to the design engineer to stabilize an earthen channel, including soil retention blankets, articulated concrete blocks, and revetment mattresses. The use of these stabilizing products should be based on the velocity from the culvert outlet structure and the soil erodibility.

10.4.3 - Velocity Control Devices

The velocity control device is used to reduce excessive velocity ~~and reduce the potential for erosion at of the culvert outlets by limiting maximum shear stresses to values listed in table 9.3.8.2, to six (6) feet per second or less for earthen channels.~~

There are a number of control devices that the design engineer can select from. Table 10.4.3 is a list of possible energy dissipators to use on a project. The table has appropriate control device for super critical or subcritical flow. For dissipators not contained within the manual, refer to FHWA Hydraulic Engineering Circular No. 14 ~~and HY-8~~ for design computations.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 18 Discussion and possible action on UDC amendment item 27-25, affecting Appendix H. 13.3: Detention Basins. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add requirements to the Design Frequencies section.

Nefi Garza, Public Works Department, stated comments regarding the amendment and answered the committee's questions.

Melissa Ramirez, Development Services, made comments on the amendment.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Reid to Approve as Amended.

13.3.2.2 - Design Frequencies

The City of San Antonio restricts the outflow rates to the undeveloped or existing one (1) year, five (5) year, twenty-five (25) year, and one hundred (100) year frequencies, 24 hour storm. For ponds with drainage areas greater than 20 acres, ponds shall be designed such that the one hundred (100) year frequency, 6-hour storm can be detained without overtopping the berm elevation basin. The designed basin should not increase flood elevations upstream of the new development. See Chapter 5 "Hydrology" for approved methods of developing flows for the needed frequencies.

13.3.2.9 – Outlet Structure Design Guidelines

The following criteria are design guidelines and considerations for proper analysis of detention outlet structures.

- 1.) Outflow structures that match the flowline of a detention pond are required to be modeled as an equivalent culvert group in both HEC-HMS and HEC-RAS. It is not appropriate to analyze an outflow structure at the flowline of a detention pond as weir structure. A weir is defined by a vertical rise in the flowline that creates a control section for the flow.
- 2.) Location of point discharges ~~points~~ from ~~for~~ detention basins outlets must be analyzed to ensure that discharge from detention basins does not discharge directly onto roadways, unless a storm drain inlet captures runoff preventing flow across travel lanes or discharge is returned to sheet flow condition.
- 3.) The discharge from the outflow structure, overflow structure, and auxiliary/emergency spillway shall not cause adverse downstream impact to adjacent properties and/or structures, as referenced in 9.3.

13.3.3 – Extended Detention Basins

Extended detention basins (EDBs) are an optional design approach that provide both peak flow reduction and water quality benefits. EDBs work by having a longer detention period where stormwater runoff is held in the basin for 24 to 48 hours which enhances settling. EDBs manage frequent storms for water quality by incorporating a small permanent pool to enhance dissolved constituent removal. EDBs shall be designed using the San Antonio River Basin Low Impact Development Technical Design Manual 2nd Edition. Maintenance requirements for EDBs are similar to dry detention but include requirements for sediment removal from forebays and permanent pool areas.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 19 Discussion and possible action on UDC amendment item 27-26, affecting Appendix H. 13.6.2: Inflow Structure. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to provide requirements for trash screenings for underground detention facilities.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Reid to Approve as Amended.

13.6.2 - Inflow Structure

The inflow structure could be the outlet from a storm drain system, roadway culvert, scupper, chute or channel. The discharge velocity at outlets into an earthen basin should be checked for erosion control. The basin hydraulics should be analyzed for the impacts to the inflow structure and upstream drainage system. For underground detention, pretreatment in the form of screening shall be provided to capture floatables and trash to reduce clogging of orifices. Sediment capture or filtration shall be provided to reduce maintenance within the main chamber of the system.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 20 Discussion and possible action on UDC amendment item 27-27, affecting Appendix H. 13.7: Maintenance Considerations. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add language in reference to TCEQ.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Estrada to Approve as presented.

13.7 - Maintenance Considerations

[General maintenance recommendations for detention basins can be found in the TCEQ manual Guidelines for Operation and Maintenance of Dams in Texas \(GI-357\). Maintenance for EDBs shall be based on the San Antonio River Basin Low Impact Development Technical Design Manual 2nd Edition Appendix B.](#)

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 21 Discussion and possible action on UDC amendment item 27-28, affecting Appendix H. 13.8: Certification. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to add language for the developer regarding on when a detention pond should be constructed.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Manna to Approve as Amended.

[13.8.1 Construction Phasing](#)
Detention ponds and associated infrastructure (i.e. interceptor sewers, storm drain systems, mass grading) should be constructed in the early phases of a project to mitigate interim condition flows and prior to construction of impervious cover. Include the pertinent construction phasing notes on the construction plans. Reference Appendix H(c).

For residential subdivisions that include detention pond excavation and/or embankment necessary for providing storage must be substantially complete prior to City inspection of street subgrade, curb, flex base, and pavement within the watershed draining to the detention pond(s).

For site work and non-residential building permits, pond excavation and/or embankment necessary for providing storage must be substantially complete prior to construction of flex base, pavement, pouring building slabs, or constructing other impervious cover within the watershed draining to the detention pond(s).

13.8.2 - Detention Pond Plan Conformance Form

The design engineer shall ~~show~~ complete a "Detention Pond Plan Conformance" form after the completion of the detention pond and provide the completed form to the City. 13.8.3.2 - As-Built Plans for Dams

13.8.3.2 - As-Built Plans for Dams

As-Built plans should be provided upon completion of the dam and impoundment area if required by the owner or by TCEQ requirements.

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

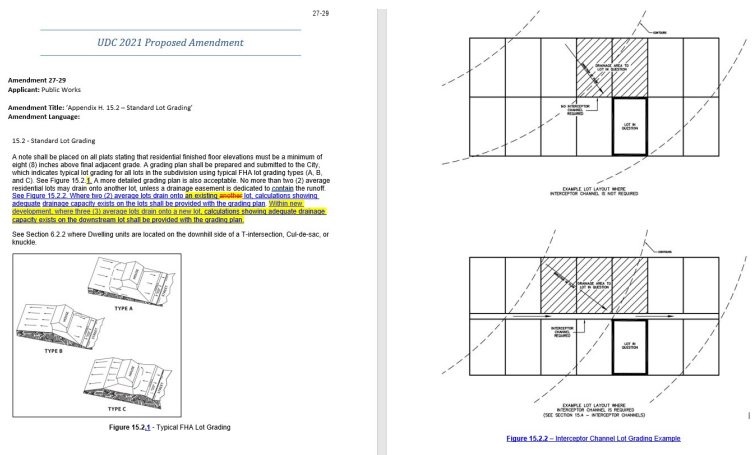
- 22 Discussion and possible action on UDC amendment item 27-29, affecting Appendix H. 15.2: Standard Lot Grading. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to clarify the language regarding on when an Interceptor Channel will be required.

Nefi Garza, Public Works Department, stated comments regarding the amendment and answered the committee’s questions.

MOTION

A motion was made by Committee Member Maldonado and seconded by Committee Member Tapia to Approve as Amended.



A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

- 23 Discussion and possible action on UDC amendment item 27-30, affecting Appendix H. Chapter 19: Definitions. (Logan Sparrow, Policy Administrator, 210-207-8691, UDCamendments@sanantonio.gov, Development Services Department).

Sabrina Santiago, Public Works, stated the request is to make references of definitions in Appendix F.

MOTION

A motion was made by Committee Member Tackett and seconded by Committee Member Maldonado to Approve as presented.

1% annual chance floodplain, (formerly 100-year floodplain)*: The land within a community subject to a one (1) percent or greater chance of flooding in any given year. These areas are typically designated as a Federal Emergency Management Agency (FEMA) Zone A, AE, AH, or AO on FEMA Flood Insurance Rate Maps (FIRM Panels). [May also be referred to as the FEMA effective floodplain.](#)

All weather surface (parking and vehicular access)*: Vehicular "all weather surfaces" shall constitute: poured concrete on prepared subgrade; hot laid asphalt on a prepared base course; single, double, or triple asphalt surface treatment (consisting of applications of asphaltic material, each covered with aggregate) on a prepared base course. Brick/concrete block/tile/flagstone set in mortar or on a prepared base course. The director of planning and development services shall determine if other materials may fit within this category of surface; however, in no case shall a material be considered a "all weather surface" if such surfaces generates or produces any dust or particulate matter that could be airborne to adjacent properties such as occurs with compacted base materials.

Development*: Any manmade change in improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or, drilling operations or storage of equipment or materials. [Capital improvement projects where the grade or ground is disturbed or modified within the project limits to construct proposed improvements will be considered development.](#)

Development plan*: The proposal for development including such drawings, documents and other information necessary to illustrate completely the proposed development. The development plan shall specifically include such information as required by this chapter.

[FEMA Effective Floodplain*:](#) See [1% annual chance floodplain](#)

Filtration basin*: Filtration basins are secondary treatment structures that follow sedimentation basins and release storm water runoff through a filter media to remove additional pollutants.

First flush*: At least the first one-half (½) inch of runoff from a storm event which flushes off and contains a disproportionately large loading of the accumulated pollutants from impervious and non-impervious surfaces.

Floodplain*: Any land area susceptible to being inundated by water from any source (see definition of flooding). ~~The 100-year floodplain is also known as the area of special flood hazard.~~

Floodplain, 100-year*: See 1% annual chance floodplain.

Floodplain management*: The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations*: Zoning ordinances, subdivision regulations, bonding codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications or police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

Floodplain standards or floodplain ordinance*: See Appendix F, Floodplains.

Flood proofing*: Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Flood protection system*: Those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent or the areas within a community subject to a "special flood hazard" and the extent or the depths or associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

Floodway*: [See Regulatory Floodway](#) ~~The channel or a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood. The floodway is the 100-year floodplain in the City of San Antonio.~~

Infrastructure*: Any physical system or facility that provides essential services such as transportation, utilities, energy, telecommunications, waste disposal, park lands, sports, buildings, housing facilities and the management and use of resources regarding the same. Infrastructure includes drainage systems, irrigation systems, sidewalks, roadways, drain systems, water systems, driveways, trails, parking lots, and other physical systems or facilities as generally described above that may not be specifically enumerated in this definition.

Interim Condition: Refers to the time during construction or development that a project site is disturbed between the existing condition and the completed developed condition (which includes appropriate fully completed storm water infrastructure and/or mitigation). For new development, an example might be when a site is cleared of much of the topsoil and vegetation; for redevelopment, an example might be when impervious cover is added prior to removing existing impervious cover.

Intermediate floodplain*: Any channel, creek, stream, branch, or watercourse for surface water drainage that drains an area greater than three hundred twenty (320) acres but less than six hundred forty (640) acres.

Intermittent stream*: A stream that flows only during wet periods of the year (or thirty (30) to ninety (90) percent of the time) and flows in a continuous, well-defined channel.

Levee*: A manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water ~~so as to~~ provide protection from temporary flooding.

LOMR*: A letter of map revision. A LOMR will be submitted for FEMA approval for all changes to the floodplain boundary that are delineated on the current flood insurance rate maps.

Lot, 900 series*: These lots specifically exclude the construction of all residential and nonresidential structures. The series is designed to allow for designation of permeable or impermeable open space and may include but not be limited to parkland required by section 35-503, storm water management facilities, water quality ponds, driveways, gazebos, playgrounds, private streets, utility easements and private ingress/egress easements.

Lowest floor*: The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirement of Section 60.3 of the National Flood Insurance Program regulations.

Low risk flood area*: Low risk flood area as used in section 35-F145 refers to the River Bend area of the San Antonio Riverwalk. For floodplain management purposes, low risk flood areas are defined as either the areas outside the one (1) percent annual chance floodplain and inside the 0.2 percent annual chance floodplain or areas of shallow flooding.

Low Water Crossing*: a vehicular roadway crossing, including public or private driveways, that is designed to provide access during low flow storm events and to be periodically overtopped during higher flow storm events.

Pervious pavement*: A pavement system with traditional strength characteristics, but which allows rainfall to percolate through it rather than running off. A permeable pavement system utilizes either pervious interlocking concrete pavers (PICP), porous asphalt, pervious concrete, or plastic pavers interlaid in a running bond pattern and either pinned or interlocked in place. Porous asphalt consists of an open graded course aggregate held together by asphalt with sufficient interconnected voids to provide a high rate of permeability. Pervious concrete is a discontinuous mixture of Portland cement, coarse aggregate, admixtures, and water which allow for passage of runoff and air. Examples of permeable pavement systems include Grasspave2®, Gravelpave2®, Turfstone®, and UNI Eco-stone®. (See Watershed Management Institute, Inc. and U.S. Environmental Protection Agency, Office of Water, Operation, Maintenance and Management of Storm Water Management (Aug. 1997), at 2-32; Booth and Leavitt, Field Evaluation of Permeable Pavement Systems for Improved Storm Water Management, 65 J. Am. Planning Ass'n 314 (Summer 1999), at 314-325.

Public right-of-way*: A strip of land acquired by reservation, dedication, forced dedication, prescription, or condemnation and used or intended to be used, wholly or in part, as a public street, alley, walkway, drain or public utility line.

Regulatory floodplain*: The land within the community subject to a one (1) percent or greater chance of flooding in any given year assuming ultimate development has occurred throughout the watershed. For the purposes of this section the regulatory floodplain is limited to the reach of the stream which is designated as an area of special flood hazard on the currently effective FEMA Flood Insurance Rate Maps (FIRM Panels). NOTE: As the city's floodplain ordinance (Appendix F of the Unified Development Code) is approved by FEMA as a condition of participation in the National Flood Insurance Program (NFIP), the city's regulatory floodplain is considered FEMA's regulatory floodplain. (note: to be consistent with Appendix F, section 106) Regulatory floodplain may also be referred to as the City of San Antonio (CoSA) ultimate conditions floodplain.

Unflooded access*: Means that vehicular traffic has safe access (within the "Proceed with Caution" range per figure 4.3.1C of Appendix H) to a property from a public street in times of a design storm event (reference Appendix H 4.3.2) and to an arterial street that is not adjacent to the development or to a distance of one-quarter mile, whichever is less, during a twenty (20) percent annual chance (20% A.C., or "5-year") storm event flood (regulatory 100-year flood). A property will be considered to have unflooded access to an existing street if flow depths for access on the street adjacent to the property do not exceed one (1) foot and fall within the safe range on Figure 4.3.1C "Dangerous Conditions on Crossing During Floods."

Violation*: For purposes of the floodplain ordinance, the failure of a structure or other development to be

A verbal vote was taken, and all voted in affirmative.

MOTION CARRIED

ADJOURNMENT

27 Directors Report: Update on UDC Amendment Process

Logan Sparrow, Development Services, stated the PCTAC meetings will meet every 2 weeks for the remaining meetings, and will continue to keep the committee informed of any changes.

There being no further business, the meeting was adjourned at 3:56 pm

ADJOURNMENT

APPROVED

George Peck, Chairman

ATTEST:

Logan Sparrow, Executive Secretary