



UDC Amendment Request Application for Internal Parties ***(City of San Antonio Departments)***

Part 1. Applicant Information

Name: Sabrina Santiago Organization (if applicable): City of San Antonio - PWD

Address: 1901 S. Alamo St.

Phone: 210-207-0182 Email: sabrina.santiago@sanantonio.gov

Signature: _____ Date: _____
(Include title if representing a governmental agency or public/private organization)

Part 2. Basis for Update (check only one)

- Clarification amendments to provide for ease of interpretation and understanding of the existing provisions of the UDC
(Note: Clarification amendments should not change or alter the intent or meaning of existing UDC provisions)
- Editing change that does not alter the impact of the provisions being addressed including changes such as spelling, grammar correction, formatting, text selection, or addition of text in compliance with existing ordinance, statutes or case law
- Completed Rule Interpretation Determination (*RID*)
- Requested by the Zoning Commission, Planning Commission, Board of Adjustment, HDRC, City Council or other appropriate city board or council (CCR, resolution or signature of the chairperson is required)
- City of San Antonio Staff Amendment

Part 3. Reason(s) for Update (check all that apply)

- Modify procedures and standards for workability and administrative efficiency
- Eliminate unnecessary development costs
- Update the procedures and standards to reflect changes in the law or the state of the art in land use planning and urban design
- See Part 4 (*if none of the provided choices in this section apply, please discuss the reasons for the proposed update in Part 4*)

Part 4. Summary of Proposed Update with Suggested Text (see application instructions)

The changes to Sections 5.4.1, 5.4.2, and 5.4.3 update references to national standards, revise references to existing tables within Appendix H, and remove the limit on channel velocities of less than 6 feet per second which is an arbitrary limit.

Part 5. Cost Impact Statement

Section 35-11(a) of the UDC requires that all requests for amendments include a Cost Impact Statement. The Cost Impact Statement should be justified with substantiating information, such as cost estimates or studies.

The requested change to the UDC (please check appropriate box):

By how much?

(Indicate either a dollar amount or percentage above or below current construction and/or development costs)

A. Will not impact the cost of construction and/or development.

B. Will increase the cost of construction and/or development.

C. Will decrease the cost of construction and/or development.

Part 6. Cost Impact Narrative and Back-Up Information

Please fully quantify the Cost Impact Statement that was provided in Part 5. Attach all relevant data and associated costs that you wish to have considered as well as a narrative explaining how the Cost Impact Statement was developed. If you need additional space, please attach additional sheets.

Be sure to:

- Consider and indicate initial and long-term maintenance costs;
- Consider city cost (i.e. personnel costs and costs to enforce);
- Indicate and be able to rationalize the baseline (current costs) and the cost projections associated with your request.

Updated design parameters to national standards that are already being used.

UDC 2021 Proposed Amendment

Amendment 27-10

Applicant: Public Works

Amendment Title: 'Appendix H. 5.4.1 – Overland Flow'

Amendment Language:

5.4.1 - Overland Flow

Flow over plane surfaces: Maximum allowable flow length is 100 feet ~~time is twenty (20) minutes.~~
~~Minimum is five (5) minutes.~~

- The overland flow time chart from "Design" by Elwyn E. Seelye may be used to calculate overland flow times. ~~Note that the minimum time has been reduced to five (5) minutes.~~

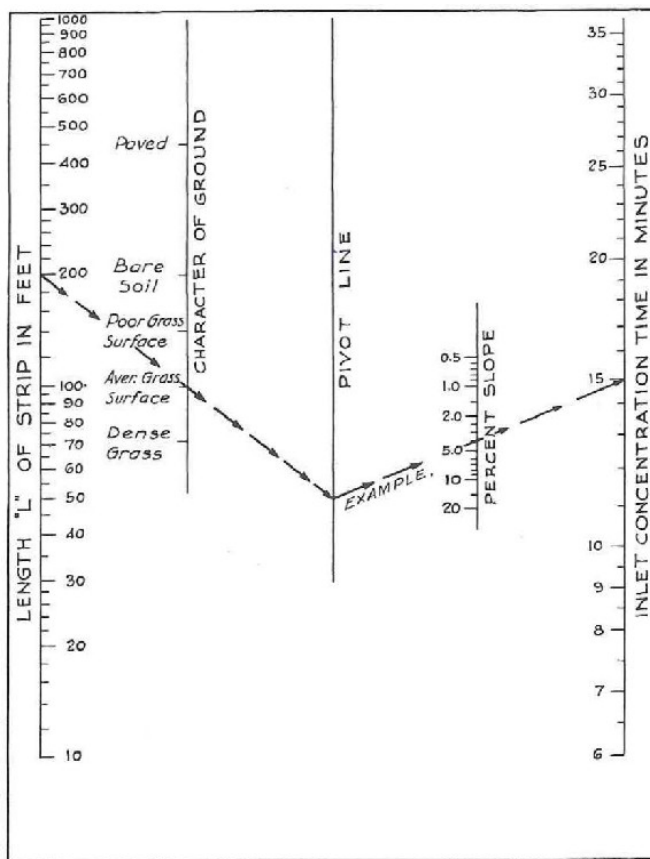


Figure 5.4.1 - Overland Flow Time (Source: "DESIGN" by Elwyn Seelys Figure. H)

- TR-55 "Urban Hydrology for Small Watersheds," SCS 1986 may be used, ~~please consider the maximum (20 min.) and minimum (5 min.) when defining the flow length (L).~~

(Equation 5.4.1)

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}}$$

T_t = travel time (hr.)

n = Manning's roughness coefficient

L = flow length (ft.)

P₂ = 2-year, 24-hour rainfall*

s = slope of hydraulic grade line (land slope, ft/ft)

*in San Antonio and its ETJ please [reference Figure 5.5 and Tables 5.5.2.1.A-E for P₂ values](#) use 4.44 inches for the two (2)-year, twenty-four (24)-hour rainfall value

Table 5.4.1 - Roughness Values for sheet flow

Roughness Coefficient (Manning's n) for sheet flow	
Surface Description	n ¹
Smooth surface (concrete, asphalt, gravel or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤ 20%	0.06
Residue cover > 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses ²	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods ³ :	
Light underbrush	0.40
Dense underbrush	0.80

1. The n values are composite of information compiled by Engman (1968)
2. Included species such as weeping lovegrass, bluegrass, buffalo grass, blue gamma grass, and native grass mixtures
3. When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

5.4.2 - Shallow Concentrated Flow

Overland flow usually becomes shallow concentrated flow after a maximum of ~~one~~^{three} hundred (~~100~~³⁰⁰) feet: Use Manning's equation to estimate travel time for defined swales, bar ditches, street sections, etc. or Figure 5.4.2 from TR-55 "Urban Hydrology for Small Watersheds," SCS 1986, may be used where a geometric section has not been defined.

(Equation: 5.4.2)

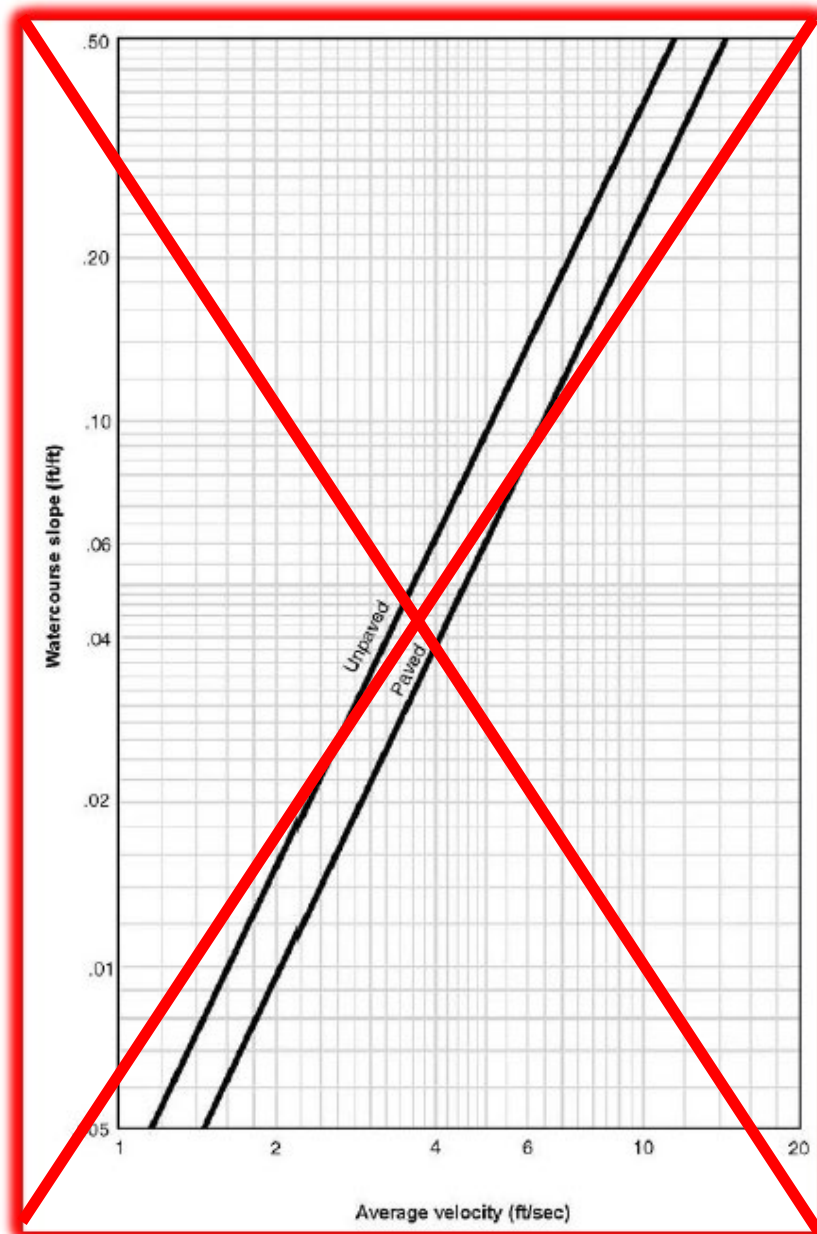
$$T_{sc} = \frac{L_{sc}}{3600 K S_{sc}^{0.5}}$$

T_{sc} = shallow concentrated flow time (hr.)

L_{sc} = shallow concentrated flow length (ft.)

K = 16.13 for unpaved surface; 20.32 for paved surface

S_{sc} = shallow concentrated flow slope (ft./ft.)



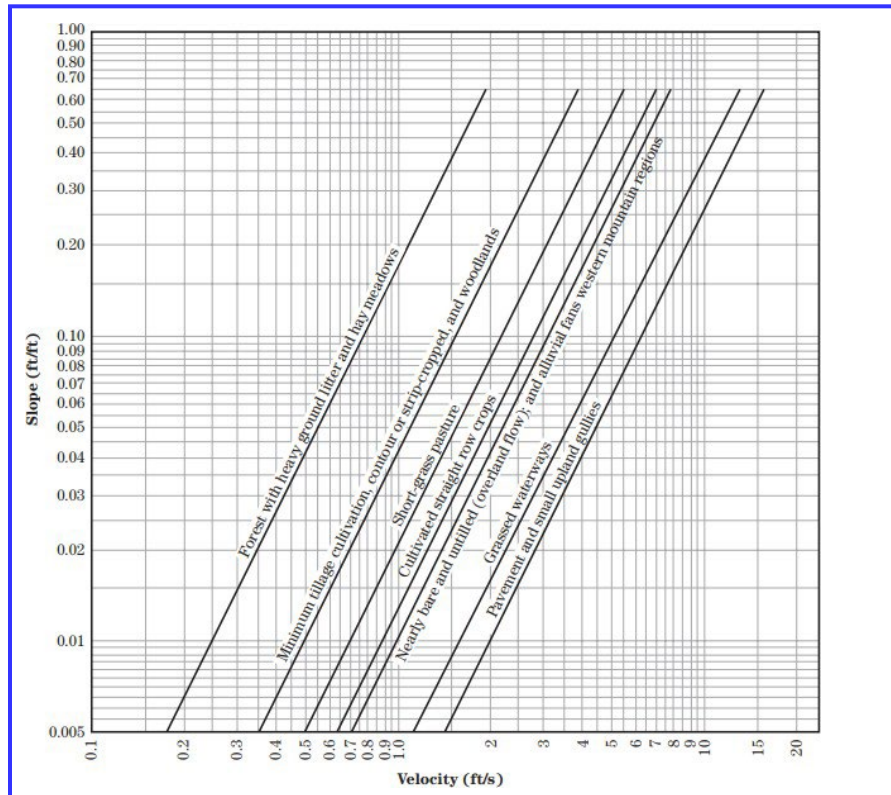


Figure 5.4.2 - Average Velocities for Estimating Travel Time for Shallow Concentrated Flow (Source: [NRCS Technical Release 55—Figure 3-1](#) NRCS National Engineering Handbook, Part 630 Hydrology, Chapter 15: Figure 15-4)

5.4.3 - Channel Flow

Use existing computer models where available or Manning's equation if the data is not available. **When estimating the time of concentration, non-floodplain channel velocities for ultimate watershed development should not be less than six (6) fps.**

(Equation 5.4.3)

$$T_{ch} = \frac{L_{ch}}{3600 \cdot 1.49/n \cdot R^{2/3} \cdot S_{ch}^{1/2}}$$

T_{ch} = channel flow time (hr.)

L_{ch} = channel flow length (ft.)

S_{ch} = channel flow slope (ft./ft.)

n = Manning's roughness coefficient

R = channel hydraulic radius (ft.) and is equal to a/P_w

UDC 2021 Proposed Amendment

***** Recommended Approval by PCTAC on March 28, 2022 *****

Amendment 27-10

Applicant: Public Works

Amendment Title: 'Appendix H. 5.4.1 – Overland Flow'

Amendment Language:

5.4.1 - Overland Flow

Flow over plane surfaces: Maximum allowable flow length is 100 feet ~~time is twenty (20) minutes.~~
~~Minimum is five (5) minutes.~~

- The overland flow time chart from "Design" by Elwyn E. Seelye may be used to calculate overland flow times. ~~Note that the minimum time has been reduced to five (5) minutes.~~

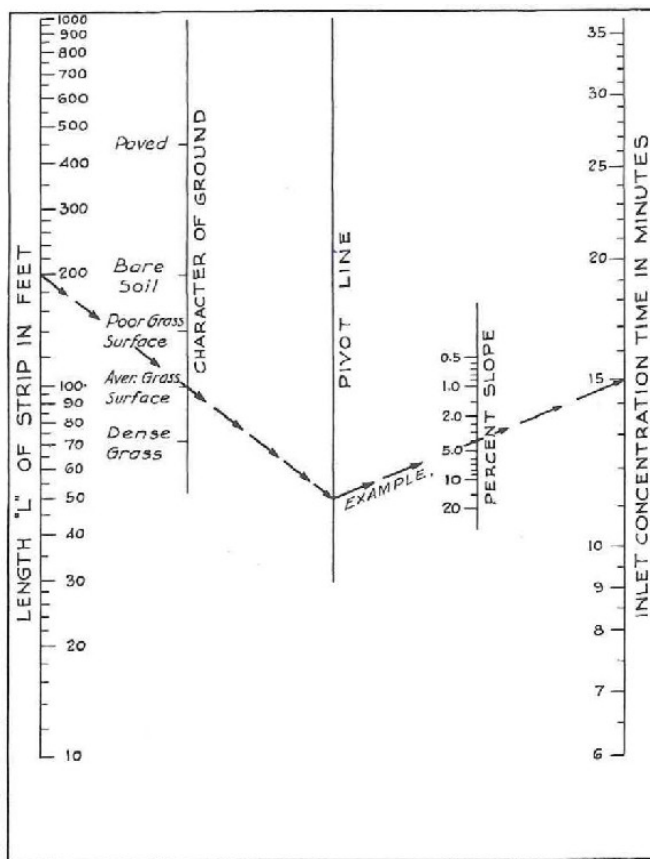


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(Equation 5.4.1)

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}}$$

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P₂ = 2-year, 24-hour rainfall*

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Range (natural)	0.13
Woods ³ :	
Light underbrush	0.40
Dense underbrush	0.80

1. The n values are composite of information compiled by Engman (1968)
2. Included species such as weeping lovegrass, bluegrass, buffalo grass, blue gamma grass, and native grass mixtures
3. When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

5.4.2 - Shallow Concentrated Flow

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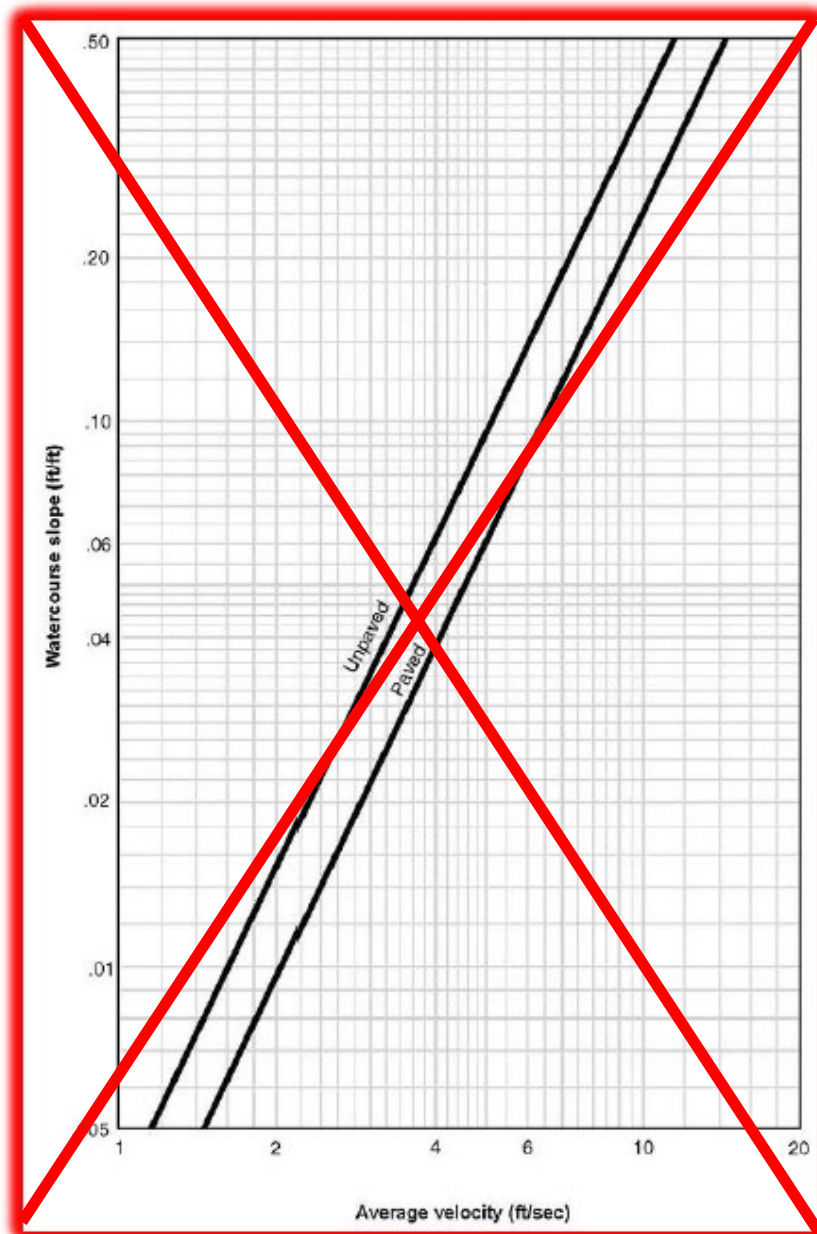
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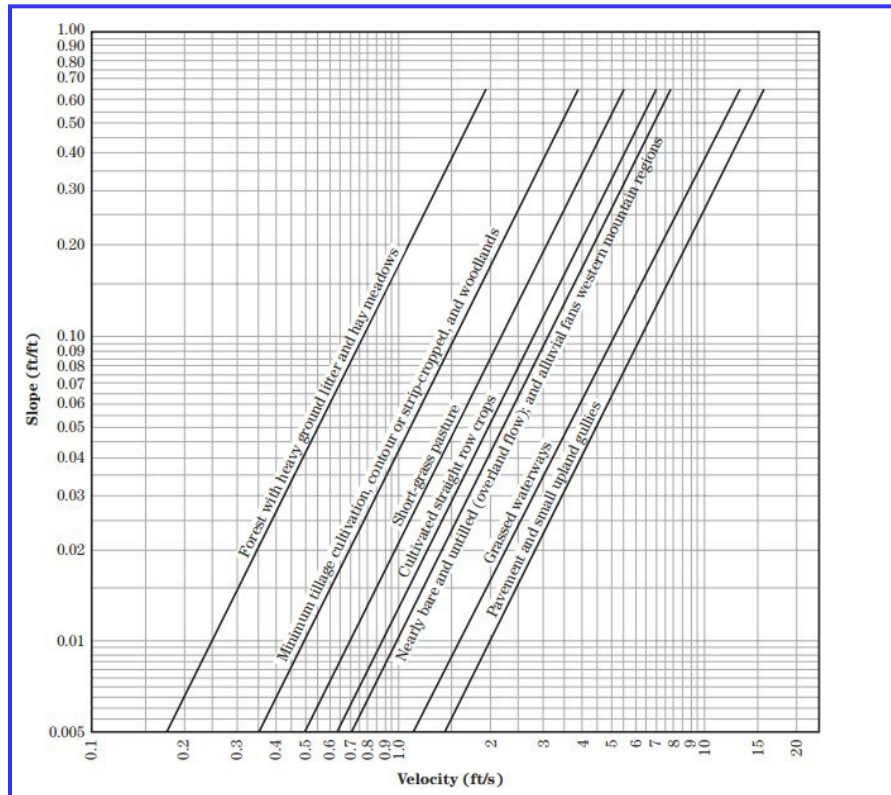


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UDC 2021 Proposed Amendment

*****Recommended Approval by Planning Commission on July 27, 2022*****

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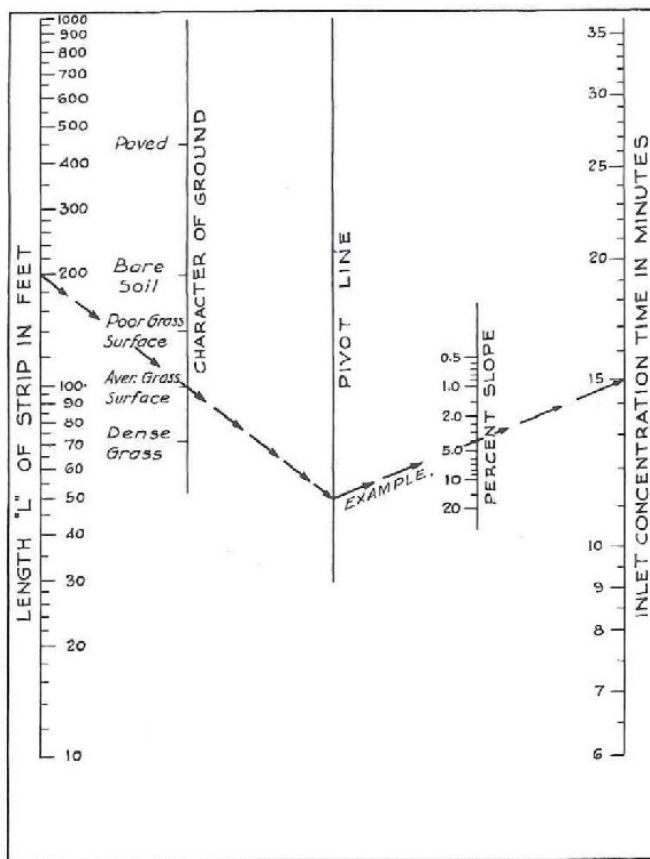


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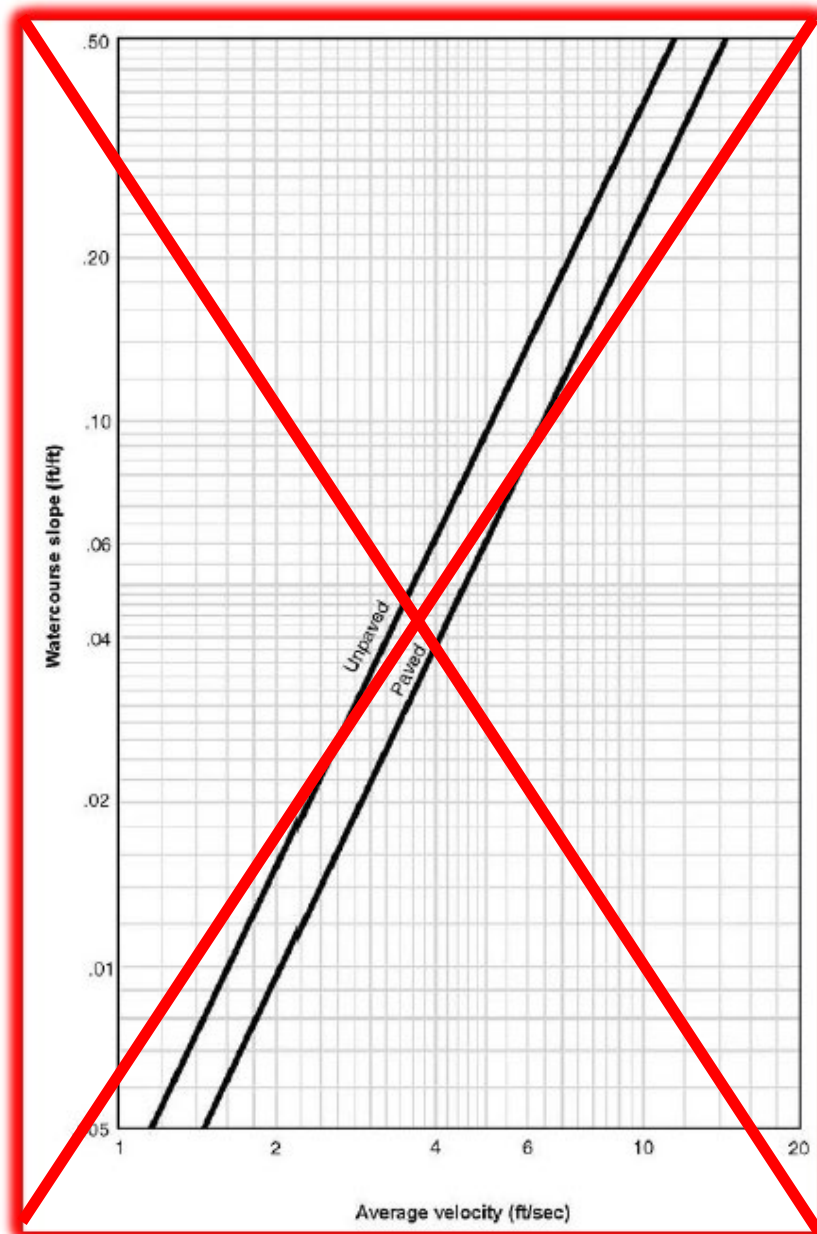
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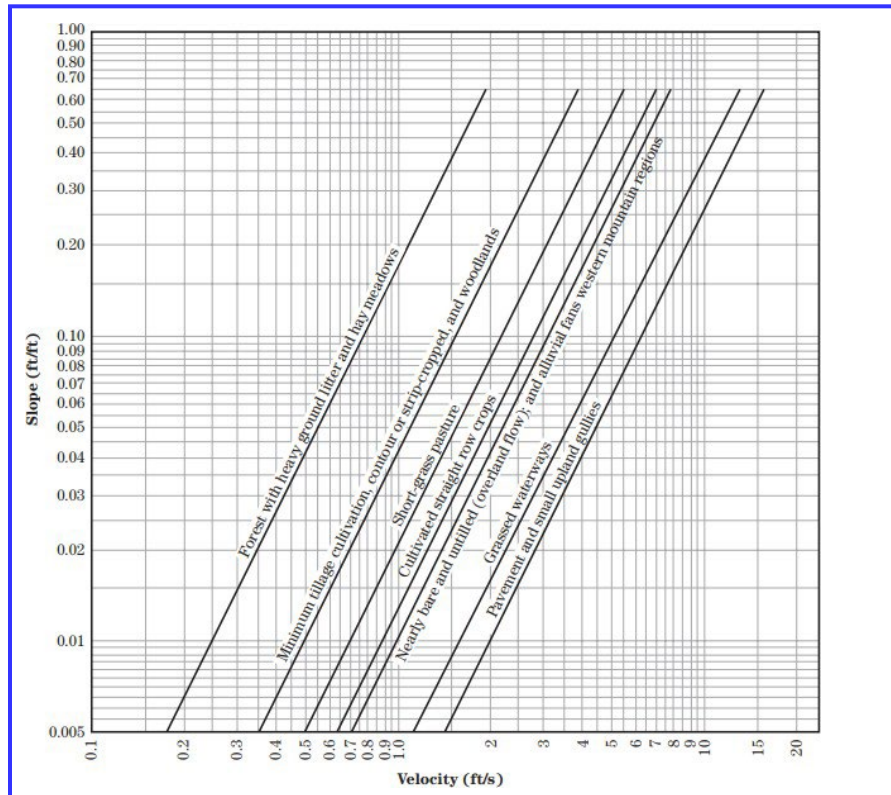


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***** Approved by City Council on November 3, 2022 *****

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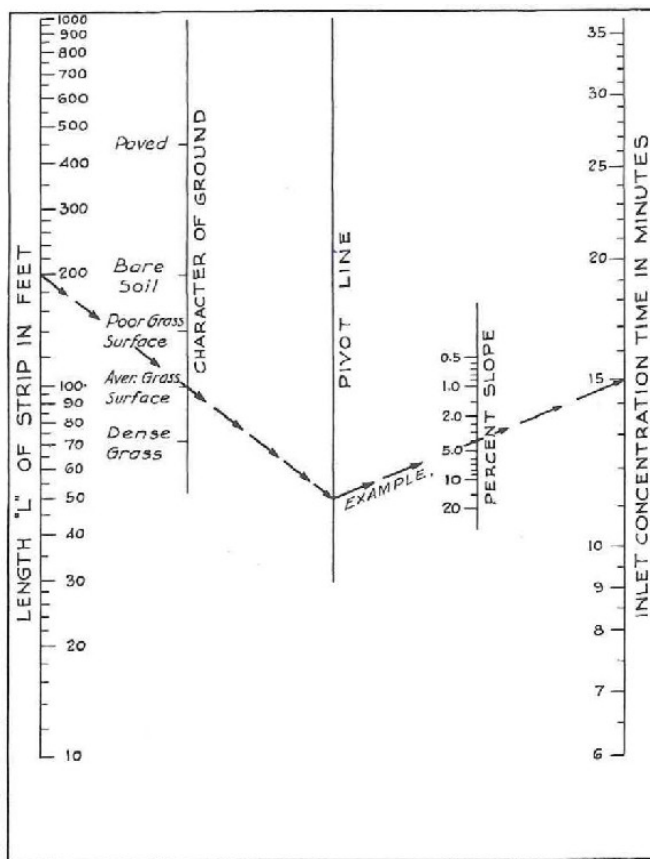


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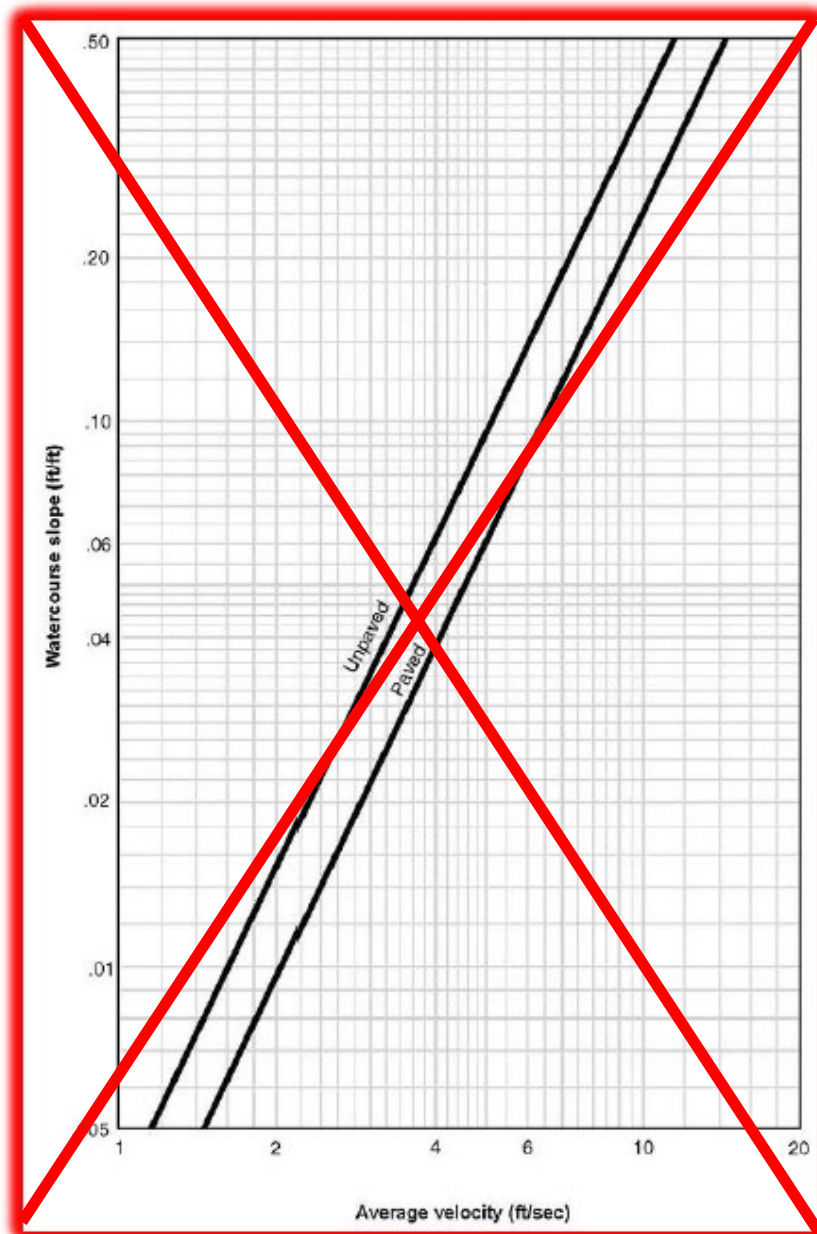
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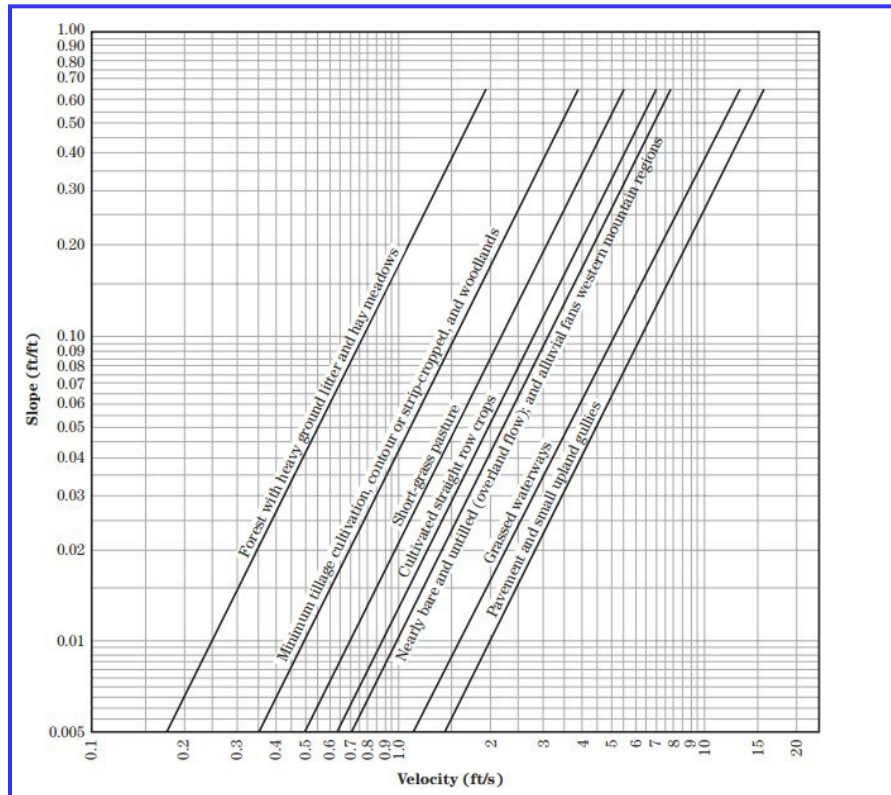


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