

City of Denton
Stormwater Design Criteria Manual

Development Community Comments
2/8/2018

	Section	Comments	Responses
1	1.2	How is conflict between design engineer and review engineer resolved?	See Section 1.2 where the City Engineer must approve any deviations from this Manual.
2	1.1	Add DDC document titles	Done
3	1.1	Clarify which document has seniority	Section 1.1 and 1.2 indicate that the DDC is the overarching authority, the Criteria Manual implements the DDC, and the iSWM Manuals support the Criteria Manual
4	2.0	Clarify that definitions are for this manual only	Done
5	2.0	Channel may be more efficient resulting in less storage due to lower WSE. What if storage is still available after improvements? Is BFE of existing or proposed conditions?	I recommend no change in the valley storage preservation requirements. A more efficient channel typically has higher velocities, which affects streambank protection. The loss of valley storage has a direct impact on peak flows downstream. The iterative process needed to determine the impacts of loss of valley storage is not often undertaken. I feel like allowing loss of valley storage benefits a particular property owner, but can have an adverse impact on properties downstream, and the Code allows no adverse impact. Since every instance of allowable floodplain modification includes a no adverse impact provision, and nearly every instance requires a variance, a developer could demonstrate that the loss of valley storage has no adverse impact on other properties as part of the variance process. Storage is based on the BFE, defined as the existing conditions water surface.
6	3.1.1	Table 3.1 - Consider use of other hydrologic methods for gutter flow and inlets	Added the SCS method as an allowable method for gutter and inlet design
7	3.1.1	Does Table 3.2 conflict with Table 3.1?	Conflict resolved by allowing the SCS method for gutter and inlet design.
8	3.1.1	Is footnote 2 used correctly?	Footnote 2 is only a caution
9	3.2	Discussion about the use of full development conditions for pre-development analysis	This section is intended for downstream analysis, not for detention considerations. The intent is to determine the impact of the development relative to a fully developed basin. I recommend no change here.
10	3.2	Are the questions raised relevant, since development causes increases in volume and velocity downstream?	Velocity increases downstream are not a given, and the questions lead to the necessary analysis of Streambank Protection and Flood Mitigation
11	3.2.1	Acquisition of downstream easement can be difficult, or even impossible	The intent of this paragraph is that when downstream improvements are needed, an easement must be acquired. There is no vested right to make downstream improvements on other properties without easements. If an easement cannot be obtained, then other means of mitigation are available, including detention.
12	3.2.2.1	Should flood mitigation review include the three storm events listed?	Corrected - flood mitigation should only address the flood mitigation storm event (100-year).

13	3.2.2.2	Downstream easements can be difficult to acquire	See question 11
14	3.2.2.2	Is the upstream developer responsible for downstream improvements for ultimate conditions?	Yes. This is necessary to avoid incrementally impacting downstream properties with multiple projects, and ensures a development has addressed its impacts with respect to the whole.
15	3.2.2.2	Is this section for the 25-year storm?	No, it is the flood mitigation storm (100-year)
16	3.2.2.2	How does this option work, given that development increases flow without detention.	Option 2 requires improvements (onsite or offsite) that maintain existing downstream conditions, based on a downstream assessment. Option 3 requires improvements to maintain existing discharges from the site, and generally does not require a downstream assessment unless it is to consider the possible effects of coincident peaks. Option 3 generally does not consider the downstream impacts.
17	3.3.1	Define the term habitat protection	This term has been eliminated, since it is really a function of another portion of the Denton Development Code (Subchapter 17) and related documents.
18	3.3.2.B.1.c	Clarify the valley crossing requirement	This section has been revised and clarified. Valley gutters are allowed on both sides of the intersection, as the measures needed to limit them to one side are difficult to implement. No valley gutters should be permitted across collectors or above.
19	3.3.2.B.1.h	What if other facilities are not available? Onerous to small lots. Small site could be 6 cfs.	This section has been revised to indicate a 3 cfs limit. The intent is that a discharge greater than 3 cfs requires detention or an underground system. The concern is discharging excess flow out into the street that impacts vehicles by exceeding the allowable flow widths.
20	3.3.2.C.2	What is the intent of this requirement?	The intent is to ensure that water flowing swiftly down a street to a "T" intersection or sharp turn does not overflow into the lot but can make the necessary turn.
21	3.3.2.C.4	At which point along the street should the measurement to the finish floor elevation be made?	Revised to indicate the midpoint of the lot is the point of reference.
22	3.3.2.B.3	Gutter or valley?	Table 3.5 is only for valley gutter flow. Gutter flow can be to curb depth per Table 3.4. This likely requires an inlet upstream of a valley gutter.
23	3.3.2.D.1	Clarify that grate inlets are only prohibited on public streets, not private developments	Grate inlets use is clarified. A redundant provision in Section 2 is removed.
24	3.3.2.D.2.d	Clarify required inlet locations	This section has been revised to clarify the intent
25	3.3.2.D.2	Requirements for parking lots or streets?	These provisions are generally for public streets.
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27	3.3.2.D.2.o	Identify design requirements for overflow	The overflow should convey the 25-year storm.
28	3.3.2.D	Can computer printouts be used for the calculation tables?	Yes, if they provide the required information.
29	3.3.2.E.2.a	Reconsider requirement that flows less than 300 cfs be in a storm drain	The City's main concern here is the probability of the City eventually having to maintain a channel on site. The actual intent is to allow anything greater than 300 cfs to be conveyed in an open system. This applies only to public storm systems.

30	3.3.2.E.2.h	Clarify what is intended for the connection between private and public storm drains	This section has been clarified to allow several possible options for the connection.
31	3.3.2.E.2.i	Reconsider or clarify the prohibition of inlets serving as junction boxes.	The concern is that should the inlet be plugged for some reason, the entire system upstream is unable to function. Storm drains parallel to the street may not run through inlets.
32	3.3.2.F	Clarify the ponding limit on parking lots, further discussion of the 2 cfs limit for discharge from driveways	Clarified to show the parking is not detention, and limiting the depth of ponding, see also comment 19. The intent is that the 3 cfs discharge limit is per driveway or flume.
33	3.3.2.G.2	Why not allow Ultra Flow pipe for driveway culverts? Can box culverts be direct drive?	The City has determined that for longevity, strength and maintenance, all culverts in public right of way will be reinforced concrete pipe. Direct drive box culverts could be considered on a case by case basis by the City Engineer.
34	3.3.3.B	Open Channel vs. Natural Channel?	All open channels, whether natural or improved, shall be designed for the 100-year storm.
35	3.3.3.B	Natural or Earthen (Urban, Rural, Forest)?	Earthen channels are improved channels, natural channels are undisturbed.
36	Table 3.10	What if existing velocity exceeds the allowable for a natural stream?	See Section 3.2.1, where it is indicated that if existing velocities exceed the maximum allowable velocities, no increase in velocity will be permitted.
37		Same question as 36	See response 36
38		Why is a 15' maintenance easement required outside the 100-year floodplain limit, since maintenance will not be done during a 100-year storm? Why is maintenance access required along natural streams and HOA maintained channels?	Damage due to debris could extend to the floodplain limit, limiting access without the easement. Maintenance could be needed in a natural stream to remove blockages, etc. HOA maintained channels still require maintenance and thus a maintenance area. The easement allows (but does not obligate) the City to step in if the HOA does not do maintenance necessary to prevent flooding.
39	3.3.5	Maintenance access requirements redundant - simplify	Section simplified, redundancies removed.
40		Why design detention for storms other than the flood mitigation storm?	The other three storms are smaller but more frequent. It is necessary to ensure the pond provides detention under a range of storm events.
41	3.6.A.3	Consolidate requirements for private and public detention ponds	Currently private ponds require a 10' unobstructed access around the pond, while public ponds require a 20' access around it. Very few ponds are accepted for public maintenance.
42	3.6.B.20.a	Could steps be used for access to ponds? Are they subject to ADA requirements?	I don't see an exception in the Texas Accessibility Standards for this use or anything like it. I suggest that if anything is placed in the pond that facilitates use (picnic tables, playground equipment, ball fields or courts) that an accessible route be included. If the enhancements are only landscaping, no accessible route be required. Stairs could be used in either instance.

43	3.6.B.20.g	Trees, bushes, etc. drain into detention ponds anyway. Why add a trash rack for trees in the pond?	Leaves that fall into the pond have nowhere else to go but to the outlet structure. Leaves that fall outside the pond do not necessarily end up in the pond. The trash rack is to prevent clogging of the outlet from leaves and debris that will certainly end up there. It would be better to require trash racks on all ponds than to eliminate them because of trees in the pond.
44	3.6.1	Driveway discharge limits?	Surface discharge from detention facilities into public streets would be subject to the 2 cfs discharge limit.
45	3.8.1	Discuss stream habitat	Developed and undeveloped floodplains are defined in the Denton Development Code (Subchapter 17) but they impact the requirements for fill in the floodplain, so are referenced here
46	3.8.1	This section uses a zoning variance process for a subdivision process	The intent here is to require exceptions to be approved by the P&Z, not the staff level.
47	3.8.1	Why 15% valley storage loss for minor streams?	The 15% loss is considered a reasonable concession to allow for some floodplain reclamation without major downstream impact.
48	3.8.1	Stream buffers are uniform, not related to the non-uniform reality.	The stream buffers are found in DDC Subchapter 17. They are intended as a tool to protect the stream habitat. It would be a logistical difficulty to require an assessment and vary the stream buffer for each specific site.
49	3.8.4.A	Is this section needed, and if so, what does it accomplish?	This section has been eliminated.
50	3.9	Any drainage easement?	The intent of the manual is that fences are prohibited from all drainage easements, except those that contain an underground storm drain system.
51	3.9	Are parking lots allowed in drainage easements?	In limited cases.
52	3.10.1	Can be a combined system now, why change?	This is a water quality issue. There was not intent to change the current policy. I understand that currently, the WQv can be in the same pond, but the WQv volume is added to the detention volume.

Other comments

	3.8.2	Zone X (shaded) should not be treated as Zone A with regard to map changes. Consider allowing a flood study to establish BFE's and set easement limits, but without requiring the FEMA LOMR process.	Zone X (shaded) should be treated like Zone A, and require a CLOMR/LOMR for modification. This is a higher standard than FEMA requires. However, FEMA does recognize a Zone X (shaded) as a flood hazard area and shows it on their FIRM maps. Keeping the maps current is a requirement of FIS, and part of good floodplain management. This section has been revised to list the FEMA flood zones that apply. FEMA is currently trending toward converting Zone X (shaded) to Zone A.
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