



Technical Memorandum

To: Michael Leamons – City of Glen Rose
Jim Holder – City of Glen Rose

From: Chris Hay, P.E.

Date: May 18, 2021

Subject: Squaw Valley Meadows Plan Submittal – Engineering Review Comments

The City received plans on May 5, 2021 for the Proposed Squaw Valley Meadows development located East of Bull Adams Lane (formerly County Road 303) across from the Squaw Valley Golf Course as part of a plat submittal, which was received on May 17, 2021. The plans have been reviewed with the following comments:

1. The submitted plat does not match dimensions/lot numbers shown on the plans. Specifically, there are conflicts with the dedicated drainage channel widths.
2. Lot 165 on the submitted plat does not have bearings/distances shown on the detailed views (Sheet 3 of 4). Ensure all lots are described with bearings/distances as required and are shown on the plat.
3. Section 10.02.034(a)(10) of the Subdivision Ordinance requires that the developer shall include the improvements of adjacent city streets or county roads to city standards in the overall development of the area. This would include development of Bull Adams Lane up to City Standards as a Collector Street.
4. Section 10.02.034(a)(11)(E) of the Subdivision Ordinance requires testing of the soil to determine appropriate subgrade preparation for street design. Provide testing and applicable subgrade treatment, if required, shall be indicated in the plans and specifications.
5. Section 10.02.034(b) of the Subdivision Ordinance requires construction of an adequate storm sewer system, consisting of inlets, pipes, and other underground drainage structures unless the runoff cannot be handled by a pipe 84-inches in diameter or smaller.
6. Section 10.02.034(b)(3) of the Subdivision Ordinance requires that the 100-year storm be retained within the street right-of-way. Provide calculations showing conformance with this requirement.
7. Page 4-13 of 91 Drainage Areas – What is the source of the e-b-d values used? Provide time of concentration calculations.
8. Page 14 of 91 Drainage Channel Profile – Proposed drainage channel does not maintain continuous slope towards outfall. Provide more detailed profile, with proposed slopes, that does not impede flow from reaching the outfall. Slope arrows on plan do not match profile. The proposed profile does not start at Sta. 0+00 as shown on the plan view.
9. Page 15 of 91 Drainage Channel Typical Sections
 - a. There are two sections referenced as '*Drainage Channel 1 – Section 1*'. Clarify section titles.
 - b. Show water surface elevation on sections for 50-year and 100-year event.
 - c. Will the drainage easement contain the 100-year event? Will the 100-year event impact adjacent property?

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- d. Drainage Channel 1 – Section 4 is shown as 2' deep, while the upstream Drainage Channel 1 – Section 3 is shown as 2.5' deep. The channel flow capacities are shown both as 492.9 cfs. Please clarify that this is correct. No bottom width is indicated on Drainage Channel 1 – Section 4.
 - e. Drainage Channel 1 – Section 2 is shown as a variable bottom width. Do the plans indicate where to transition between the different bottom widths.
 - f. Drainage Channel 1 – Sections 2 & 3 are shown as 50' easement widths on Page 15 of 91 but are dimensioned as 40' on Page 2 of 91. The section dimensions indicate that a 50' easement is required. The plat/lot layout shall be adjusted to match the required width.
 - g. Slopes shown on the calculations do not appear to match the minimum slopes shown on the drainage channel profile drawing.
 - h. Runoff calculations for the drainage channels indicate the design flow is a summation of individual peak flows from drainage areas with different times of concentrations calculated using the Rational Method. The Rational Method cannot be used to add peak flows from separate drainage areas with different times of concentrations.
 - i. Runoff for Channel 2 chart shows DA1A going towards channel 2. Runoff value reflects DA2A. Please clarify.
 - j. Concrete Valley Gutter at CR 303 shows bottom width as 40', while on Page 44 of 91 the Low Water Crossing Detail for County Road 303 shows the bottom width as 50'. Please clarify.
10. Plans show to increase runoff to Bull Adams Lane (CR 303) on the West side of the proposed development with direct runoff from DA1E, DA1F, DA1G, and possibly a portion of DA1B. Provide calculations showing that downstream drainage paths can handle the increased runoff and convey it to an adequate discharge point.
 11. Plans show to increase runoff to Bull Adams Lane (CR 303) at the Northwest corner of the development with direct runoff from DA1D, DA1C, DA2, DA2A, DA1A, DA1, and DA1B. Provide calculations showing that downstream drainage paths can handle the increased runoff and convey it to an adequate discharge point or provide agreement from downstream properties owner(s) accepting increased runoff. This will include the golf course (County) and the owner of the cemetery, or calculations indicating that the cemetery property will not be affected by the discharge.
 12. Plans show multiple low water crossings that would impede vehicular access on multiple interior streets and on Bull Adams Ln (CR 303) during rain events. This includes multiple lots that would be inaccessible for periods of time due to low water crossings on both sides.
 13. Low water crossings should require adequate signage and safety warnings.
 14. Provide culvert design, including sizing calculations, plan and profiles, etc. for all proposed culverts.
 15. General Comment on Roadway Plans – Street profiles do not reflect low water crossings.
 16. General Comment on Roadway Plans – Sidewalks are shown encroaching on lots. See Whippoorwill Drive and Fox Court, Whippoorwill Drive and Honey Suckle Way, and Mimosa Lane and Bunny Run Court.
 17. Page 18 of 91 Proposed Roadway (Whippoorwill Drive) – Roadway and culvert improvements are shown extending across Bull Adams Lane (CR 303). Revise connections to match up with existing roadway.
 18. Page 21 of 91 Roadway Details – Pavement section details don't match typical section shown on Page 16 of 91. Remove details that don't apply and make sure details match City Standard pavement section, including subgrade preparation, as required.
 19. Page 44 of 91 Proposed Roadway (Whippoorwill Drive) – Roadway and culvert improvements are shown extending across FM 200. Revise connections to match up with existing roadway.
 20. Water service is provided by Somervell County Water District (SCWD). Plans and specifications shall meet their requirements. Provide documentation that SCWD has approved/accepted the plans and specifications.

21. Water line along Bull Adams Ln (CR 303) shall be dimensioned as 4' Maximum off the property line, rather than 4' Minimum off the property line, to provide adequate clearance between the water line and proposed sewer line alignment.
22. General Note on Sewer Plan and Profile Drawings – Show the calculated slope on each section of proposed sewer main.
23. General Note on Sewer Plan and Profile Drawings – Areas on the plan show shallow sewer, areas of approximate 1' of cover. Developer shall adjust the sewer to meet minimum depth shown on plans as 29" of minimum cover and/or to ensure adequate depth to allow sewer services to gravity flow into the main at all lot locations.
24. General Note on Sewer Plan and Profile Drawings – Hatching is shown under roadways in Plan view. Are these proposed cased bores or open cut encasement? Please confirm what this represents. In some spots, services are shown connecting to the main in these areas.
25. Page 71 of 91 Sewer Line Plan & Profile (Whippoorwill Drive) – Sta. 0+00 manhole does not appear to match City Project. Proposed Manhole "A" invert is shown as 600.64, while the City Project shows 600.72. The proposed Manhole "A" will be constructed as part of the City Project.
26. Pages 74 & 75 of 91 Sewer Line Plan & Profile (Honey Suckle Way) – Profile does not show proposed grade. The area around Proposed Manhole "M" is approximately 30" from top of manhole to invert. The worst spot appears to be approximately 1'-3" of cover to top of pipe from existing ground. This does not meet the minimum depth requirement as shown on plans.
27. Page 80 of 91 Sewer Line Plan and Profile (Mimosa Lane) – Extend sewer to end of cul-de-sac to pick up services.
28. Pages 81-82 of 91 Sewer Line Plan & Profile (Honey Suckle Way) – Profile does not show proposed grade.
29. Pages 83 - 85 of 91 Sewer Line Plan & Profile (Bobcat Court, Ringtail Court, & Fox Court) – Profile does not show proposed grade. Extend sewer to end of cul-de-sac to pick up services.
30. Page 86 of 91 Sewer Line Plan & Profile (CR 303) – Sta. 0+00 manhole does not appear to match end of City Project. Proposed Manhole "A" on the sheet is approximately 40' off the end manhole on the City project. Proposed Manhole "A" shows an invert elevation of 604.87, while the city project shows an end invert of 604.90.
31. Page 87 of 91 Sewer Line Plan & Profile (CR 303) – Last section of sewer line shows to be approximately 1' of cover. The section after Proposed Manhole "D" shall be at minimum slope to allow maximum depth at the end of the line cleanout.
32. Check sewer depth at drainage channels and confirm no conflicts.
33. A number of manholes are shown in the curb/sidewalk, ensure these don't interfere with flowlines or walkways.
34. Sewer details don't match NCTCOG standards, confirm with Public Works Dept. that details are ok. Details reference standard drawings (i.e. No. 5100) that are not clear. Lateral stubout show 4'-0" minimum under curb, which is not possible based on proposed profiles in spots.