

## **Engineering 1<sup>st</sup> Sufficiency Review – Aspire Subdivision**

- **Section A – Maps, Plats, Plans, and Figures**

- A8 Preliminary Plat

- The below comment made in 2<sup>nd</sup> element was not addressed. The preliminary plat still shows Bent Branch Road.
      - Other (preliminary sufficiency items)
        - i. 5. Article 3-020.12.A states, “New streets that will align with existing streets must have the same name as the existing street”. The main access to this subdivision is from Sommers Street to the southwestern portion of the property. However, once this street hits this subdivision, it becomes Bent Branch Road. The main Road Construction plan sheet changed the street name, but all other plans still call out Bent Branch Road. Need to correct the inconsistency. We recommend calling each road a generic name (i.e. Road A, Road B, etc.) since there will be a condition of approval requiring the street naming exhibit to be reviewed and approved by Development Services prior to filing the amended plat per Article 3-020.12.
    - Alley must intersect with Sommers Street and Crosscut Way at right angles (Article 3-020.9B) and provide acceptable visibility (Article 3-020.9D).
    - Alleys providing fire apparatus access to the multi-family lots must be minimum 20’ paved width (Article 3-020.3F and MCPWSS Table 7-5).
    - The 10’ and 15’ P.U.E.s in the multi-family reference the wrong benefiting lots (Article 5-010.4H).
    - Select a new proposed road name for “Junction Way”. In the USPS addressing standards, the word Junction is reserved for the road type, like Drive, Avenue, Trail, etc. Junction Way is akin to Avenue St (Article 5-010.4D and MCPWSS 7.4.8F).
    - Provide names for the two alleys at the southern extent of the project. Emergency services will have difficulty locating them if they are addressed off of other roads. The southern one would be logical to continue as Waterside Drive all the way to the intersection with Bent Branch Road/Sommers Street (Article 5-010.4D and MCPWSS 7.4.8F).
    - Subdivision Application Section 2.c states that water rights will be abandoned/transferred. The preliminary plat does not contain the required note for removal of water rights (Article 3-060.4C).

- A12 Road Plans

- All sheets – relocate sumps at curb ramps to the upstream flow path side (MCPWSS 6.3.4B).
    - All sheets – Sump placement seems to be random and not relatively balanced on both sides of the roads. Not related to low points. Check drainage basins in storm drainage report.
    - All Sheets – Consider traffic calming and pedestrian safety measures for internal intersections; these are local residential streets for which the City has set target speeds of 20 mph. At the least, I’d recommend curb extensions at gateway intersections (Sommers & Crosscut, Waterside & Aspire Lp) and something (curb extensions or a traffic circle) at the one four leg intersection of Heartwood & Aspire.
    - Provide a complete grading plan (Article 5-020.11). Some street profiles show a large amount of fill dropping from the bench heading east (Waterside, Aspire, Junction, Crosscut). Street profiles must substantially follow natural contours while not exceeding maximum grades (Article 3-140.6C).

- Add plan and profile for alleys and show drainage plan (MCPWSS 7.2.2E.7).
- Sheet 3 of 20 – Add curb ramp at the end of the proposed sidewalk on the east side of Waterside Drive to the existing sidewalk in Waters Edge. (PROWAG R201.1)
- Sheet 3 of 20 – The proposed chicane island at the north end of Waterside Dr is not a complete design for an effective chicane (missing parking lane island) - see image for example. Also, a facility like this should have associated lighting, even on a local street.



- Sheet 4 of 20 – Add curb extension, crosswalk marking, and signage to the mid-block crossing (MCPWSS 7.3.7).
- Sheet 5 of 20 – Add east-west pedestrian crossing between Lot 91/Lot 76 (MCPWSS 7.4.12J.2). Moving the pedestrian access to the trail from between Lot 77/78 to between Lot 76/77 to align with this crossing would also reduce the pedestrian access distance along this block face.
- Sheet 7 of 20 – Remove the pedestrian crossing/sidewalk at the alley entrance. Add curb extensions to the southern intersection leg and maintain the throat width (2 drive lanes) to the alley. Provide sidewalk on the east side to access the trail.
- Sheet 8/16 of 20 – Add ped crossing at the corner of Lot 142 and Lot 126, crossing to the Common Area (MCPWSS 7.4.12J.2). This will be a projected pedestrian desire line to the pedestrian network in the common area (NACTO Urban Street Design Guide). Add curb extension, crosswalk marking, and signage to these crossings (MCPWSS 7.3.7).
- Sheet 12/13 of 20 – Alley alignment must intersect the road at a right angle and must allow a single vehicle que at the stop line of the alley to meet AASHTO sight visibility requirements. The northern alley alignment is currently too skewed.
- Sheet 12/13 of 20 – Alleys providing fire apparatus access to the multi-family lots must be minimum 20' paved width (MCPWSS Table 7-5)
- Sheet 14 of 20 – Show Sommers St off-site improvements and tie-in with on-site improvements. Square up alley with Sommers St to reduce speed of vehicles turning off of Sommers. Add curb extension, crosswalk marking, and signage to the mid-block crossing (MCPWSS 7.3.7).
- Sheet 17/18 of 20 – Clarify trail surfacing material. The trail is shown as concrete but called out as gravel. It should be asphalt to match the existing trail in Waters Edge - verify with Parks. Trail and connectors must meet PROWAG accessibility requirements (grades, rest areas, stairs, handrails, etc...) Add profiles for all pedestrian connections between Waterside Drive and the river trail. Check grades of pedestrian connectors from Waterside Drive to trail. Show existing trail in Waters Edge and proposed tie-in. Estimate grades to be verified with a profile view:
  - 7.5% from beginning of trail from road down to river
  - 10% sections on trail from 5+25 to 7+25
  - ~14% between Sta 19+00 (road) – 3236' to Sta 4+44 (trail) – 3220'

- ~10% between Sta 14+50 (road) – 3227' to Sta 8+80 (trail) – 3218'
  - ~12% between Sta 5+10 (road) – 3232' to Sta 14+55 (trail) – 3216'
- Sheet 20 of 20 – Make parking lanes 7' wide (including gutter) on sections A/B. (Table .2A for low density local residential street and MCPWSS Table 7-5). Wider drive lanes on section C are acceptable due to geometry but drive lane width cannot include gutter. (MCPWSS Table 7-5)
- Show utility service access for existing sewer main on east side of the property (Article 3-020.3F and MCPWSS 5.3.4A.1).
- A14 Watermain Plans
  - All sheets – Show existing and proposed fire hydrants (Article 5-020.12)
  - All sheets – Show trees/sumps/sewer services/other utilities to evaluate clearances (MCPWSS 4.2.2A).
  - All sheets – Minimize high points in the water main profile to avoid unnecessary air-relief. Add air-relief valves as necessary (MCPWSS 4.3.6).
  - All sheets – Call out main horizontal deflection (MCPWSS 3.2.2A.4). Ensure it doesn't exceed 60% of manufacturer's recommendation (MCPWSS Appendix 2-A, Section 02660, Part 3.2D.2.f)
  - Sheet 3 of 20 – Match the profile stationing to the plan stationing (reverse the profile).
  - Sheet 15/16 of 20 – How is alley going to be drained? We want to avoid conflict with water main routing and any necessary drainage facility. Water main should be centered unless there are clearance issues to other facilities.
  - Sheet 4 of 20 – Show existing sewer main (MCPWSS 4.2.2A).
  - Sheet 13 of 20 – Tee into Sommers St main at 90 degrees. Typical comment for other relevant sheets.
  - Sheet 20 of 20 – Horizontal fitting near 15+30 not realistic. Need to adjust so 22.5/45/90 degree bend can be used.
- Water Main Report
  - Include a more in-depth explanation of the phasing of the water system in relation to the subdivision phases.
  - Calculate water demands (MCPWSS 4.2.3B).
  - Discuss fire flow requirements (MCPWSS 4.2.3B.4).
- A15 Sewermain Plans
  - All sheets - INV IN and INV OUT appear backwards, double check all invert elevations.
  - All sheets – Show trees/sumps/water services/other utilities to evaluate clearances (MCPWSS 5.2.2A).
  - All relevant sheets – Show service lines from existing main (MCPWSS 5.2.2A.5).
  - Sheet 4 of 16 – Move manhole lids minimum 2' from gutters and out of wheel paths (MCPWSS 5.3.4.A.1.c)
  - Sheet 5 of 16 – Missing pipe size callout on profile (MCPWSS 5.2.2A.6.a).
  - Sheet 5 of 16 – Show existing sewer mains (MCPWSS 5.2.2A.5). Confirm that connection to wet well is feasible given the other sewer main connections.
  - Sheet 6/8/9/11/12/13/15 of 16 – Place terminal manholes that will not be extended further at minimum depth, adjust grade of sewer main accordingly to maximum of 10% grade in order to avoid using drop structures.
  - Sheet 7 of 16 – It is unclear what is proposed at the North intersection of Heartwood Place and Aspire Loop where existing and proposed sewer mains intersect (Sta. 4+89 on Sheet 8, Sta. 0+00 on Sheet 7). Show existing sewer mains and call out abandonment (MCPWSS 5.2.2A.5). Will the existing manhole be re-used or replaced?
  - Sheet 10 of 16 – Street names are mis-labeled. Correct and check other sheets.
  - Sheet 3/14/16 of 16 – Label depth in these minimum cover locations. Ensure minimum depth of 4' from top of pipe to finish grade is maintained. (MCPWSS

- 5.3.1.C.1) Use flat tops for manholes less than 5' from pipe invert to rim elevation. (MCPWSS 5.3.1.C.3)
  - Is there room to build on Lots 1-5 with the existing sewer main? How is access to the existing sewer main being maintained?
  - Sheet 15 of 16 – 6-inch sewer services required for multifamily lots (MCPWSS 5.3.3B.1.b)
  - Confirm existing sewer can serve lots West of Bent Branch Road by a gravity sewer service. (i.e. no ejector pumps). Lots 100 to 110 especially.
- Sewer Report
  - Pipe sizing discussion is inadequate. Does not discuss carrying capacity of proposed pipe. Does not compute peaking factor and peak flow. Also need to discuss pipe sizing for section where existing sewer main is to be replaced. (MCPWSS 5.2.3B).
  - Need to discuss existing lift station and ability to handle new flows (MCPWSS 5.2.3C).
- A16 Phasing Plan
  - Roads
    - Phase 1 does not include adequate emergency service access (Article 3-020.3F). Fire truck turnaround is not sufficient as shown and would require a fire official approved temporary turnaround. Either a temporary cul-de-sac or installation of the southern alley (preferred).
  - Non-motorized
    - Phase 1-4 would not have access to the existing park. Temporary access for Phases 1-4 will likely be a condition of approval until Phase 5 is completed.
  - Water
    - Could not evaluate hydrants phasing for fire protection.
  - Sewer
    - Phase 1 sewer would require extension to lift station (and all stubs for adjacent phases)
    - Phase 6 services for Lots 142-148 would be long services from the existing sewer in common area (phase 5).
    - Which phase would require abandonment of the existing sewer through lots 182 and 87? Phase 4 will require abandonment of existing sewer beneath Lot 87 or platting with the existing sewer/easement in place.
- A17 Sommers Street Offsite Improvements
  - City staff acknowledge off-site improvements are under Missoula County jurisdiction.
  - Provide transit stop improvements at Sommers/Speedway (Article 3-020.4G).
  - Provide ramps for Sommers St pedestrian crossings at every intersection. At the very least, the crossings at the Speedway intersection should be striped.
  - Provide curb extensions on the continuous side of T-intersections (Dakota Ave, Colorado Ave) for those pedestrian crossings and additional traffic calming benefits.
  - Recommend centerline striping on Sommers (not required per MUTCD max volume threshold, but projected volume is approaching/at what we would consider reclassifying as a City collector) and sharrows to emphasize the route's potential bicycle greenway traffic.
  - City Complete Streets policy and PW Manual suggest lighting is appropriate on Sommers, especially considering the lack of a proposed dedicated bike facility.
  - Section B – drive lane cannot include gutter pan.
  - Is there opportunity for a JUT on the east side and bury of overhead utilities?
  - With a potential water main project beginning at the corner of Sommers/Dakota, road improvements may be held south of this intersection to avoid removing newly installed infrastructure. Timing of both projects, and a future Highway 200 project, would need to be considered as well.

- **Section C – Subdivision Application**

- Section 2.e – Where is the referenced attachment? *“Attached in Section C of this application are existing water rights.”*
- Section 6.e.v (Water Supply) – The below capacity comments from the pre-application notes need to be incorporated into the response. We will work through the issues related to the capacity issues, probably through conditions of approval, but the issues need to be acknowledged in the application.
  - The City does not have sufficient water rights for the Canyon River well. We would request water rights be dedicated to the public if water rights exist for the property.
  - Insufficient existing system capacity to provide fireflow to Canyon River. City is working on Special Facility District to fund improvements to East Missoula water system. Phase 1 would be upsizing a water main in Sommer’s St. The water model shows when this section of water main is upsized it allows for the required fireflow in Canyon River.

- **Section L – Traffic Impact Study**

- City staff acknowledge off-site improvements are under Missoula County jurisdiction. These comments will be provided to Missoula County Public Works.
- It is recommended that the developers work with Missoula County and MDT to help implement the planned widening of Highway 200 through East Missoula and monitor the traffic conditions at the intersection of Highway 200 and Sommers Street during the development process to determine if a traffic signal is warranted at this intersection through 2030.
- [The East Missoula Highway 200 Corridor Plan](#) – shows the proposed section of Hwy 200 at Sommers in Figure 5-10 on Page 97. It lists Bus stop and striped crossing improvements are planned for the Hwy 200/Sommers intersection. Note: No traffic signal or roundabout is currently proposed in this plan. However, the TIS states the projected LOS for this intersection is D and E for the peak hours.
- Look to realign Sommers Street to a 90-degree angle with its intersection of Hwy 200.
- Minimum driving lanes on Sommers need to be 10’ on asphalt, no driving lane width shall be shown on adjacent gutter pan.

- **Section N – Grading and Drainage Report**

- Proposed Condition needs to consider run-on from upgradient areas, including Sommers Street, Waterside Drive in Waters Edge, and neighborhoods to the West.
- Blanket use of Type A soil is not appropriate. NRCS soils report indicates Type B soils are present. Additionally, Geotech report indicates clay lenses were encountered.
- Post-development curve numbers should be based on actual proposed impervious area. Where impervious extents are not known (i.e. lot layouts) base CN on maximum impervious area allowed by zoning.
- Update pre and post development condition figures to show all requirements for MCPWSS 6.2.3.A5 and 6.2.3.A6, including land cover assumptions, curve numbers, and soil types. Elements can be shown across multiple figures as needed for clarity.
- Pre and post development condition analysis areas should have matching extents or provide justification for variations.
- Basins GG, HH, and NN are missing from Table 3-5.
- Proposed and existing contours are indistinguishable in proposed condition figure.
- Discuss multifamily stormwater control in greater detail. Runoff originating in parking lots and from multifamily roofs should be infiltrated by private sumps outside of the ROW.
- Single family lots should be graded to provide a drainage path to the ROW without directing runoff to across neighboring lots. Drainage across neighboring lots is allowable if drainage easements are provided.

- Provide more information about the swale in Basin NN. The report states that the swale will act as a detention facility but also states the swale will have centerline slopes up to 12%. Swale detention capacity should account for centerline slope.
- Swale in Basin NN should have 1-ft of freeboard and meet setback requirements of MCPWSS 6.3.11.
- Discuss swale drawdown time.
- **Recommended Conditions of Approval if not addressed in sufficiency.**
  - Proof of abandonment of sewer main and easement from East Missoula Sewer District
  - Transferring of water rights to City
  - SID/RSID waiver statement for roadway improvements to Sommers Street including the intersection of Sommers Street and Highway 200.
  - Utility access road for existing sewer main
  - Temporary non-motorized connection from trail to existing park for use until Phase 5 is completed.
  - Accessible route to nearest transit stops on Speedway.
  - Latecomers agreement or other method for Dakota water main.