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Memorandum

To: Stacey Nerger, Senior Planner
Date: December 8, 2022
From: Michael Walton, P.E., Senior Development Review Engineer
Cc: Alex Mestdagh, P.E., Engineering Services Manager
Tom Williams, P.E., Director of Engineering/Public Works

Subject: SUB22-048 & SP22-119 Trails at Crowfoot F9 AMD 1 – Engineering 1st Review

The Engineering Department has reviewed the documents submitted with this application. The submittal consisted of the following documents:

<u>Document</u>	<u>Dated</u>
Construction Plans	October 2022
Site Plan	October 2022
Plat	October 2022
Drainage Report	October 2022
Traffic Impact Study	October 2022

Thank you for the opportunity to review this application. Based on our review we have the following comments:

Traffic and Roadway Review Comments

The following comments concern traffic, access, roadway design, and construction standard issues for the subject property. They are based upon our review of the submittal documents in accordance with the criteria presented in the Town of Parker’s *Roadway Design and Construction Criteria Manual* (RDCCM), as revised, November 2020. Additional regulatory and planning documents may have been utilized in the review and are referenced in the comments where appropriate.

CONSTRUCTION PLANS – CIVIL

1. Please show the construction of the Bayou Gulch Road sidewalk through the Lot 1 frontage. While the ultimate roadway widening will be constructed by the Town, the sidewalk is the responsibility of the developer of the adjacent property. Please work with Town ensure the sidewalk is constructed in a location consistent with the ultimate roadway plans.

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2. The RIRO access point on Bayou Gulch Road should include a channelizing island physically restricting left turn movements. When this access is reconstructed with the ultimate roadway widening, this island can be removed.
3. The proposed access point along Alpine Phlox Street appears to conflict with the existing Type R inlet and necessary curb transition. Please verify adequate spacing is provided between the access point and inlet. If not, please either relocate the access point to accommodate the inlet or propose the appropriate relocation of the inlet to accommodate the access point.
4. Provide signing and striping labeling on the appropriate preferred sheet.
5. Provide the following note on the Overall Utility plan sheet in the PWSD construction set:

"The proposed utility connection will require a Town right-of-way permit prior to commencing work. The Town requires connections to be bored to the extent possible, and any street cut allowed by the Town will be required to be patched according to the Town's construction standards and details. The limits of patching will be determined by the Town at the time of construction. The Town of Parker does not allow roadway closures for utility work."

SITE PLAN – CIVIL

1. Provide and identify all necessary sight triangles and easements on the landscape plan in conformance with the town's standard detail 24.

PLAT – CIVIL

1. Once the sight triangles have been evaluated in accordance with Town standard detail 24, provide and identify a sight line easement on the plat anywhere the sight triangles fall outside of the right of way extents.
2. Provide the easements requested within the Construction Plan – Stormwater comments on the Plat.
3. Provide the following additional notes on the Plat Cover Sheet:
 - 1) ACCESS EASMENT ARE HEREBY GRANTED OVER ALL PRIVATE ENTRANCES AND INTERNAL ROADWAYS WITHIN THE DEVLOPMENT FOR THE BENEFIT OF ALL CURRENT AND FUTURE OWNERES OF THIS PROPOERTY FOR INGRESS, EGRESS AND TRAFFIC CIRCULATION. SHOULD THIS PROPERTY BE SUBDIVIEDED INTO ADDITIONAL LOTS, ALL SUCH LOTS SHALL HAVE THE RIGHT TO USE ALL SUCH ENTRANCES AND ROADWAYS FOR PUBLIC ACCESS PURPOSES.
 - 2) NO CERTIFICATES OF OCCUPANCY, TEMPORARY OR OTHERWISE WILL BE ISSUED UNTIL ALL PUBLIC IMPROVEMENTS AND NECESSARY ONSITE IMPROVEMETS ARE COMPLETED AND ACCEPTED IN WRITING BY THE TOWN.

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- 3) PRIVATE ACCESS DRIVES/ROADWAYS MUST BE CONSTRUCTED PRIOR TO THE ISSUANCE OF TEMPORARY CERTIFICATE OF OCCUPATION AND/OR CERTIFICATE OF OCCUPANCY FOR ANY DEVELOPMENT OCCURRING ON PROPERTY SHOWN HEREIN.
- 4) WITHIN THE SIGHT TRIANGLES, AS SHOWN, LIMITED LANDSCAPING SHALL BE ALLOWED BUT NO SOLID STRUCTURES OR TREES WILL BE PERMITTED. SOLID STRUCTURES SHALL INCLUDE, BUT NOT BE LIMITED TO, FENCES, MAILBOXES, AND UTILITY BOXES. LANDSCAPING WITHIN THE SIGHT TRIANGLES WILL BE LIMITED TO SHRUBS AND PLANTINGS THAT AT MATURITY WILL BE NO TALLER THAN TWO FEET. LANDSCAPING WITHIN THE SIGHT TRIANGLE SHALL BE MAINTAINED BY THE PROPERTY OWNER OR APPROPRIATE ASSOCIATION.

TRAFFIC IMPACT STUDY

1. Please discuss the assumed trip distribution of site-generated traffic with Staff. Specifically, Staff believes that less than 50% of the traffic will exit to the east, and more than 0% will exit to the south. More of the traffic is likely to use Bayou Gulch Road.
2. Pass-by trips should be included in the assignment of Site-Generated Traffic exhibit (Figure 7a), or on a separate exhibit that shows the total turning movements from site generated traffic. Pass-by trips will contribute to the turning movements in and out of the site and need to be included in the analysis for potential turn lanes. Please note that it appears likely that Town Criteria will require turn lanes on North Pinery Parkway and/or Bayou Gulch Road, which will be the responsibility of the Developer.
3. Please add information on site-generated traffic totals for the Douglas County intersection to the south of the site (Bayou Gulch Road/Vista Arroyo Street) for future reference.

PUBLIC IMPROVEMENT COST ESTIMATE

1. Provide a public improvement cost estimate for review once the site plan gets closer to being finalized.
2. Please note that the cross pans and curb ramps along the public roadways as well as the necessary pavement restoration work to accommodate the proposed utility tie ins within the public right of way must be included within the cost estimate and secured through the subdivision agreement.

Stormwater Review Comments

The following comments concern drainage, erosion and sediment control, and non-point source pollution control issues for the subject property. They are based upon our review of the submittal documents against the criteria presented in the Town of Parker's, *Storm Drainage and Environmental Criteria Manual* (SDECM), as revised, February 2014. Additional regulatory and

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planning documents were utilized in the review and are referenced in the comments where appropriate.

CONSTRUCTION PLANS – ENVIRONMENTAL

GENERAL COMMENTS

1. Omit all existing and proposed utilities from the CBMP Drawings, except those relating to stormwater.
2. Include within the plan set **ALL** the town's 31 CBMP Notes & Details.
3. Provide a legend of symbols to correspond to the Town's 31 CBMP Notes & Details. Use the appropriate symbol for the CBMP on the plans.
4. Add a callout/label on all properties adjacent to the project stating that no work shall occur in these areas.
5. Utilize the four standard inlet protection types listed in the Town's standard details. Provide unique blocks and labeling for each type of inlet protection used.

INITIAL CBMP PLANS

6. Provide a callout outside the perimeter controls along the public sidewalk(s) to be modified/replaced with the project that states the following:
"ALL WORK WITHIN PUBLIC RIGHT-OF-WAY (ROW) WILL REQUIRE A TOWN ROW PERMIT. INITIAL AND INTERIM CBMPs FOR WORK WITHIN THE TOWN'S ROW SHALL BE COORDINATED WITH THE TOWN'S ENVIRONMENTAL INSPECTOR PRIOR TO THE BEGINNING OF ANY ROW WORK."
7. Provide a minimum of 2 callouts for Portable Toilet Protection (PTP) due to the size of the proposed site.
8. Show Vehicle Tracking Control (VTC) to be a minimum of 50-feet in scale on plans.

INTERIM/FINAL CBMP PLANS

9. Provide the proposed grading contours.
10. Provide and identify callouts for Debris and Trash Control (DTC) on all adjacent existing roadways and on all proposed paved driving areas interior to the site (ie. 1 for each roadway, 1 for the access road, and 1 for the proposed parking area/drive lanes).
11. Show Masonry Work Protection (MWP) on the plans in a minimum of 2 locations.
12. Provide and identify Sidewalk Transition Protection (STP) for the proposed curb ramps within the public right of way. Provide the blocks and linework for the necessary Sediment Control Log (SCL) and Rock Socks (RS) as shown on the Town's standard detail.

CONSTRUCTION PLANS – STORMWATER

1. All storm sewer systems collecting drainage from the proposed drive aisles and parking areas must adhere to the standards and specifications outlined within Section 6.3.3 of the Town's SDECM, including the use of 18-inch minimum RCP and dedication of drainage easements. This applies to all storm sewer downstream of INLET 2.
2. Please either move the screening wall a minimum of 5-feet back from the proposed storm sewer infrastructure or consider alternative locations for the storm sewer infrastructure to accommodate the potential future need for maintenance and repair of the storm sewer system.
3. Provide additional storm sewer within the proposed private access road to capture and convey these flows through subsurface infrastructure into the existing storm sewer system. While the drainage report identifies overland sheet flow of these areas in the interim condition, once developed utilization of roadways for storm water conveyance should be minimized to the extents feasible.
4. Provide additional storm sewer structures in lots 2 and 3 for the future development to tie into the currently proposed system. Please note it would be the Town's preference to provide area inlets as the future tie in points and additionally provide diversion ditches on the final CBMP plan along the downstream receiving perimeter of the site to direct flows to said inlets in the interim condition. If the layout of the additional requested storm sewer within the access drive does not readily accommodate a tie in point for Lot 3, please provide the preferred tie in point for said lot (southernmost Type R inlet along Alpine Phlox Street) within the narrative of the drainage conformance letter.
5. Provide a separate plans and profiles for the storm sewer downstream of receiving flows from paved driving surfaces as this is the only extents of the system which will be reviewed and inspected by Town staff.
6. Provide the minor storm (5-year) hydraulic grade line on all storm sewer profile's as well.
7. Please consider converting Inlet 2 to a Type R inlet in sump or providing a larger inlet and sump for Inlet 3. Maintaining a single inlet style will help simplify construction and will make long term maintenance easier.
8. Please consider the use of a 4-foot minimum depth for any proposed concrete inlet or manhole structure to ensure that adequate clearance is provided for maintenance activities. Specifically, Inlet 1 was noted to not meet the preferred minimum depth.
9. Provide a section for the proposed swale to inlet 1 and identify the anticipated 100-year water surface elevation on the section.
10. Provide CDOT standard details for all proposed concrete storm sewer infrastructure.
11. Provide the Town's standard detail for manhole covers.

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SITE PLAN – STORMWATER

1. All storm sewer systems collecting drainage from the proposed drive aisles and parking areas must adhere to the standards and specifications outlined within Section 6.3.3 of the Town's SDECM, including the dedication of drainage easements. Provide all proposed drainage easements and infrastructure on the landscaping sheet of the site plan set and on the proposed plat documents.
2. Provide a minimum of 7-feet from any existing or proposed tree to the edge of any existing or proposed storm sewer infrastructure.

DRAINAGE REPORT

1. Please note that Trails at Crowfoot Filing 10 is referenced throughout the report, but it is staff's understanding that this will fall within Filing 9. Please verify and revise as appropriate.
2. Reference the Construction Plan – Stormwater comments regarding the request for additional infrastructure within the access drive and adjacent lots. While sizing said additional infrastructure, please ensure everything is sized to accommodate the flows anticipated if the two adjacent lots were developed to the percent impervious proposed within the master drainage report (ie the 90 plus percent impervious values).
3. The proposed basins for the additional lots were noted to be evaluated at the impervious value of the interim condition of the lots. Please evaluate all drainage from undeveloped lots with the assumed impervious value of 90% or greater as appropriate to accommodate the future development of these lots.
4. Several basins were noted to discharge offsite without being captured by proposed infrastructure. Please note that streets should only be utilized as a means of storm water conveyance where necessary and to the extent feasible all flows should be captured and conveyed by the proposed subsurface storm sewer infrastructure.
5. The narrative states that only a portion of the proposed flows from basin P-4 will be captured by the proposed inlet, but the calculations provided in the appendix appear to indicate a much larger capacity for receiving flows. Please verify both the calculations and narrative and revise as appropriate.
6. Include the full area or proposed improvements within the extents of the proposed basins. Specifically, the access to Bayou Gulch Road is not fully encompassed by the proposed basins provided.
7. Provide the minor storm hydraulic analysis of the storm sewer system as well in the appendix.
8. Please also include the velocities calculated during the StormCAD hydraulic analysis of the proposed storm sewer. Please note that per criteria the velocity should be no less than 3-feet per second within the minor storm event and no greater than 20 feet per second in the major storm event.

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The submittal is not in general conformance with the Town of Parker's *Roadway Design and Construction Criteria Manual* and *Storm Drainage and Environmental Criteria Manual*. The submittal must be revised and re-submitted for review.

An attempt has been made to identify all of the items that do not meet the Town of Parker's design criteria; however, it remains the developer's responsibility to ensure that all criteria are met.

If you have any questions regarding the comments, please do not hesitate to contact the Engineering Department at (303) 840-9546.