October 18, 2025

Mr. Dave Reynolds, Town Administrator
Town of New Castle
P.O. Box 90
New Castle, Colorado 81647

RE: Castle Valley Ranch, 9 North Wildhorse Subdivision
Final Plan Review

Dear Dave,

The purpose of this letter serves to provide comments, concerns and questions regarding the proposed development of 9 North Wildhorse Subdivision of Castle Valley Ranch. To conduct this review, we are in receipt of the following submittal information:

1. An 88-sheet set of Final Plan Application prepared by DHM and subconsultants dated September 25, 2024. Primarily including Civil Plans prepared by Sopris Engineering generally dated 9/16/2024.

The review initially checked the status of previously supplied Preliminary Plan comments which are *copied and pasted in italics* from the May 31, 2025, letter to the Town below. The status of addressing those review comments is shown in red.

1. *Our prior letter identified the need for staff to provide a review and accounting of the EQR's for CVR as related to the water rights transfers and availability. Although this may have already been provided, we have not seen any correspondence or updates relating to such.*
    i. Need status update or documentation from Town staff.
2. *The general layout of the water system as discussed in our prior sketch plan review appears to address the issues of tying to existing infrastructure in Lakota and to the 10" water main in North Wild Horse. The proposal of the PRV is noted as well. When reviewing the specifics of the design currently provided, we do have several concerns that exist in addition to those mentioned in John Wenzel's 5/31/24 memo. Those concerns are noted as follows:*

    a. *All water line alignments will need to have access available for maintenance and repair. Review of the alignments considering maintenance and repair access is necessary (contemplating future development) as the ties (alternatives) to Lakota will traverse some steep grades. Valving needs to be considered on each side of difficult areas of access to assure isolation of problem areas can be provided.*
        i. Align A – Valves are provided on either side of steep area on the Lakota connection.
        ii. Align B – Provide valves at either side of drainage crossing (5+35, 7+58)
    b. *In the profile views of the water line alignments, there will be the need to provide blow offs, air release/vacuum vaults or hydrants at high points in the lines. Several locations have been noted to be needed.*
        i. WL Align A - Sta ~11+50 to ~13+50; Maintain positive grade on water main profile to remove high / low points and eliminate the need for ARV / BO / Drains.

ii. WL Align A – Sta 7+48 +/- needs an ARV/BO
iii. WL Align B – Address High Pt at Sta 3+04.97
iv. WL Align A / B connection - Maintain positive grade on water main profile to remove high / low points and eliminate the need for ARV / BO.
v. Provide adequate detailing to ensure correct installation by Contractor.

c. *Similarly with the high points, there will be low points in the water line that will need to be drained for line shut down/repairs, etc… Several low points are noted to be needing drains/hydrants.*
   i. WL Align B – Address Low Pt at Sta 0+79.7
   ii. WL Align B – Address Low Pt at Sta 5+67.84
d. *In our prior pre-review meeting with the applicant, the Fire Marshal noted the need to provide an additional hydrant somewhere mid-block of the North Wild Horse area between Live/Work buildings 1 and 2.*
   i. Adequate Fire hydrant coverage across project area.
e. *For storm drain and culvert crossings, the need to provide adequate frost protection exists. For the crossing of the 48" diameter pipes in the north end, the water line will need to frost protected as only 24" of cover is provided under the culverts. We would recommend that if it is determined to provide the alignment under the culverts, then the water line will need to be sleeved to avoid the need to remove culverts in case of repair. Likewise, insulation will be necessary. Another option would be to go "over" the culverts with the waterline also being insulated.*
   i. WL Align A – Sta ~8+50 to ~9+00, provide adequate setback (and easement) for 10" water main from 48" culverts and end sections to provide for future excavation of water main without disturbance to 48" culverts and end sections.
f. *Service lines will need to be shown for each building/unit complete with the locations of the curb stops and meter locations. The size and type of material will be necessary and should be sized based upon the anticipated working pressures. Consideration of adequate cover of line type and clearance at sewer and storm drain crossings needs to be made. A minimum of 18" clearance is required or encasement is needed at both storm and sewer crossings. Insulation at storm drain crossings will need to be added at crossings if the 5 ½' of cover cannot be made.*
   i. Curb stops to be located at or within two feet of the property line unless otherwise permitted by the Town.
   ii. Meter locations shall be shown on the plans.
   iii. Parallel water service lines may share the same trench, however, the taps to the water main will need to be no closer than 4 feet from each other to avoid "micro pipe" splitting between the two adjacent taps. Also, taps shall be no closer than 4' to a fitting or a joint.
   iv. All storm drain crossings shall be identified on the water and sewer profiles.
      - Provide a minimum of 18" clearance or encasement for storm and sewer crossings of water main.
      - At crossings where adequate cover above utility is reduced by the storm crossing, installation of insulation shall be shown on the final construction plans.
g. *Fire flows at each hydrant will be necessary to be provided along with the residual pressure being noted.*
   i. Not addressed in Plans or Engineering Report
h. *Valves in each side of each tee (including hydrants) will be required.*

i. Not addressed in Plans.

i. A cut in tie to the North Wild Horse waterline will be necessary (with tee and valves) in lieu of a hot tap.

i. Not addressed in Plans.
ii. Provide hydraulic calculations (Service and Fire Flow) for currently designed water system (one North Wildhorse and one Lakota connection) and calculation for two North Wildhorse (additional connection south of Live/Work 2) and the Lakota connection. The calculations should include the scenario where the Lakota connection is offline. Based on these calculations the Town may require a second connection to North Wildhorse.
iii. At the tie to North Wild Horse, a note references a PRV installation, which is required. Identify and detail, with specificity, the PRV installation complete with manhole, valving, by pass, proper PRV sizing/specification, etc…

j. For the waterline alignment(s) tying to Lakota, for the other parcels that the alignment will cross, there will be the need to provide service stubs to those parcels including valves and end caps to avoid the need for future water line shut downs to provide service to these parcels.

i. Per the Engineering Report, "Water" section; *The applicant coordinated with the adjacent property owners requesting a utility easement. At this point the applicant has not been able to obtain the necessary easements. The town is assisting in obtaining the necessary easements from the adjoining property owner(s).*

k. For the construction drawings, when prepared, the engineer will need to provide all anticipated details for construction in the plan set to avoid any interpretation issues during construction between the contractor/engineer and Town. All work will need to be performed in accordance with the Town's Public Works Manual.

i. Several items not addressed in Plans, shown in other comments and on Plans.
ii. Provide clear direction in construction plans deleting SE details and including the ToNC PWM standard details in the Plans.
iii. Note that all water line fittings are to be polywrapped ductile iron pipe fittings and not PVC. Also, plan view mapping reflects DIP water lines and PVC C900 in profile. Clarify that the PVC C900 pipe is what is to be used.
iv. Assure that all water/sewer crossings can be provided with a minimum separation of 18". This also holds true for all water/storm drain crossings. Assure that water/storm drain crossings provide adequate freeze protection at each crossing.
v. Where water and sewer mains are constructed in areas of fill; a note shall be included on the profile stating the Contractor shall provide a minimum of 95% compaction 10 feet either side of the Sewer / Water main with compaction testing at 200 foot increments in fill areas under pipe, minimum two test locations required per area.
vi. Where water and sewer connections are to be provided to existing facilities, provide detail as to the work required for the connection; existing conditions (size, material, depth), removals, fittings, thrust blocks, testing procedures, etc.
vii. Provide information on how pressure testing, sanitizing, flushing, air release and subsequent operation of the water, sanitary sewer, and storm sewer utilities are performed.

viii. Note that due of SB 18-167, all utilities will need to be installed to be electronically locatable. Details will need to be revised to provide instruction to the contractor that provide tracer wire, magnetic tape, etc… on all subsurface utilities including service lines.

ix. Pothole all existing utility crossings prior to construction of new facilities.

l. The water lines will traverse through the large drainage that is tributary to the project from the front nine of the Lakota Golf Course. It will be necessary to assure that the area of disturbance created with construction will be property erosion protected and that the water line, valves and drains will be adequately protected from the 100-year flooding.

i. The 100-year flood limits calculated with the HEC-RAS model shall be shown on the overall Site and Site Utility Plans to define that there are not impacts to the proposed site infrastructure and address comment 2.l.

3. Sewer service is proposed to be taken from the east end of the existing collection line on North Wildhorse adjacent to the west end of VIX park. Our review of the plan and profile drawings are noted as follows:

a. At each manhole proposed, there is a need to provide at least 0.1 foot of drop from the invert into the manhole to the invert out. Currently, the alignment reflects no drop. This will cause some modification to each profile.

i. Addressed in Plans (0.2 foot drop)

ii. There is a design bust at SMH A4 to be addressed.

b. It will be necessary to provide the elevations of water and sewer at each crossing to determine how separation is being made.

i. Not addressed in Plans, provide detail at each location with Station, Elevation, and Separation.

c. For those locations where the sewer crosses the large drainage from Lakota Golf Course, there will be the need to assure that the sewer line and manholes are protected from the 100 year flood and that the disturbance area is erosion protected from erosion.

i. Not addressed in Plans. See 2.l. above.

d. Sewer ~~service~~ main line plans and profiles will be necessary to be provided in the subsequent construction drawings. Note that tracer wire is now required with all sewer mains and service lines.

i. Included in Plans with comments noted, provide tracer wire for mains and service lines.

ii. Per prior Public Works comments, the manhole spacing between SMH-A2 and SMH-A3 is too great for the Town's bidirectional jetting, reduce spacing to 175'.

4. *This note is repeated from the sketch plan review: Given the magnitude of the area tributary to the draw that bisects the subdivision, care must be taken to assure that any improvements that are constructed in the open space are constructed to be outside the 100-year flood plain and/or designed to resist erosion from excess velocities and are not going to negatively impact the flow carrying capacity of the draw. No buildings, parking lots or roadways shall be located in the 100-year floodplain.*

i. Addressed in Drainage Report, reflect the 100-year flood limits on Plans as noted in 2.l. above.

5. At final plat and for the construction drawings, a detailed grading plan will be needed around each building (complete with spot elevations) to assure that uphill units are not flowing into the sides of downhill units. Likewise, there will be the need to assure that the detailed grading continues to support the drainage patterns and calculations proposed.

i. Site grading comment applies to all site grading.

- Review and ensure drainage away from all structures adheres to Geotechnical recommendations.
- Review and ensure all driveway grading is coordinated with adjacent lot grading and percent slopes are accurately represented between defined points.

ii. Define catch or spill gutter for all parking islands along North Wildhorse Drive. Provide for concentrated flow solution across sidewalk areas.

iii. Define catch or spill gutter for all parking islands in on-site parking and roadway areas.

6. *Construction drawings will need to identify all of the specific grades for storm drain (plan and profile) as well as all of the detailed design of detention ponds and outfalls.*
   i. Provide calculations showing the 100-yr event does not flood units and roadways, on-site, and downstream properties.
   ii. Unable to coordinate Site Drainage Plans to Storm modeling due to naming conventions…overall summary and detention appear acceptable based Plan volume summary.
   iii. Detention model summary results do not match Detention summary on Plan C6.1
   iv. Provide 12" minimum sump in all curb inlets per ToNC standard detail.
   v. Provide detention pond details; required volume, top, bottom, water level, side slopes, weir/overflow, and outlet details on construction plans.
   vi. Provide drainage easement for 12" culvert crossing Vista Loop immediately west of proposed 48" culvert. Noted sheet 2.0.
   vii. Provide drainage easements for detention areas. Noted sheet C2.0.
   viii. Identify how access for maintenance the detention ponds are to be provided.
7. *Preliminary stormwater management plans will be necessary to be provided prior to construction.*
   i. Silt fence (or Sediment Control logs) located along contour downstream of disturbed areas to protect undisturbed areas.
   ii. Inlet protection identified for area basins, curb inlets, and culverts.
   iii. Outlet protection identified above downstream culvert end.
   iv. Vehicle Tracking Pad location(s) identified.
8. *Specific details are needed for the pathway improvements proposed to co-exist with the main drainage from Lakota Golf Course. How will these pathways be protected from erosion and flooding?*
   i. Not addressed in Plans.
   ii. Path / Trail in "open space" locations, grades, materials, and typical cross sections are undefined
9. *For dry utilities, when preparing the final plan for construction and prior to construction, the drawings will need to be updated to assure that the proposed dry utility designs (prepared by the utility provider) continue to integrate with all of the improvements and planning proposed by the developer's team.*
   i. Addressed in Plans.
   ii. The subdivision will not provide natural gas service. Provide documentation from Xcel.
   iii. Construction Plans will require final coordination with utility with utility providers.
10. *As subsequent designs are performed, the water system and raw water system designs will continue to need to be coordinated with the Town. It should still be anticipated that there will likely be the need to install pumping capacity for raw water infrastructure in the upper portions of the proposed subdivision. John Wenzel's memo describes in more detail the information for design that will be necessary for the raw water irrigation system. Like the water and sewer, separation of raw water irrigation from potable water*

will be necessary. Also, the need to identify where service lines are proposed to assure landscaping, snow storage, signage and other utility locations are not going to conflict with the irrigation infrastructure.

i. Provide adequate construction detailing for locating the RW main midway between BOC and SW, showing service locations, maintaining separation, coordinating horizontal and vertical conflicts, and providing RW trench detail.
ii. Based on Town provided 450 gpm at 60 psi static pressure in N Wildhorse, raw water booster pumps will not be necessary per the SE Engineering Report.

11. *Coordination with Town Staff will be necessary to define HOA maintained open space and trails as well as Town maintained open space and trails when developing the final design for open space and trails.*
    i. Provide clear direction on Plans in terms of ownership, maintenance, construction responsibility, or construction details.
12. *Road sections for both the loop road section and North Wildhorse need to be confirmed through coordination with the soils engineer and traffic engineer. As proposed, the road sections do not match the specific recommendations in the soils report. Providing the pavement design calculations to substantiate the current proposal would also be adequate to support the proposal.*
    i. Although the structural pavement sections generally meet the intent of the AG Wassenaar Soils Report for internal Site and North Wildhorse Drive. It is recommended that the pavement design meet a structural number of 3.16 for the previously constructed segments of North Wildhorse Drive, which would equal 4" HMA on 10" ABC.
    ii. The ToNC and CVR standard uses mountable curb and gutter (MCG) rather than vertical curb and gutter. Use MCG on North Wildhorse Drive to maintain consistency with existing segments.
    iii. An 8 ft sidewalk section is located on the south and west side of existing North Wildhorse Drive. Design provides for a 6 ft concrete sidewalk and ribbon curb in parking areas. The implementation of wheel stops should be considered to maintain the proposed narrower 6 ft sidewalk through VIX park.
    iv. Provide 12" wide ABC Class 6 shoulders on North Wildhorse interim road section to protect edge of asphalt.
    v. Note that all pavement ties to existing require a Pavement Joint (T-patch) that involves rotomilling at least 24" of the existing pavement to allow the friction course of asphalt to span the joint of existing asphalt with the lower course of asphalt. Provide a detail that specifically identifies such.
    vi. Provide details identifying how new concrete improvements are to tie to existing.
    vii. The vertical profile shall be designed as follows.
        - For on-site roadway alignment, using a posted speed of 20 mph for stopping sight distance; minimum K = 7 for crest vertical curves and a minimum k = 17 for sag vertical curves.
        - For North Wildhorse Drive roadway alignment, using a design speed of 25 mph for stopping sight distance; minimum K = 12 for crest vertical curves and a minimum k = 26 for sag vertical curves.
        - Check and confirm that 5 ½ ft cover is maintained over the existing water main.
    viii. A vertical curve is required for an algebraic grade difference (|A|) > 1%.

ix. Provide extended viewport of existing North Wildhorse Drive profile (100 ft) to determine existing grade of roadway, delta |A|, and need for and K value of vertical curve based on design speed.

13. *Sheet L-1.0 depicts the areas of the existing drainage that will be disturbed because of trail and infrastructure construction. Further detail will be necessary to support the design of these areas to assure that the 100-year flood does not create erosion and that the proposed infrastructure and units area protected from the flood. As noted during sketch plan, we need to know that all improvements are located outside of the floodplain and what modifications to the draw are proposed, have the capacity to handle the flood and are protected from erosion resulting therefrom.*
    i. Show the 100-year flood limits on Plans as noted in 2.l. above. Provide details for protection on all infrastructure located within or crossing the flood limits on the Plans.
14. *Anticipated future detail for signage and striping is expected in future submittals.*
    i. Speed Limit posted at 20 mph, existing on N Wildhorse Drive.
    ii. Include pedestrian crossing signage as noted on Plan sheet C1.2. [R1-5e (8); R1-6e (4)]
    iii. Show and provide detail for Stop bars, crosswalks, centerline, and parking striping.
15. *We anticipate that the project is going to be constructed in a single phase, however, if it becomes necessary to phase the project, it will be necessary to provide phasing plans for the improvements to assure utility service, access and emergency services can be provided with future infrastructure improvements also being secured.*
    i. Provide specific discussion on the phasing of infrastructure improvements relative to the construction of residential units discussed on sheet 13 of submittal. It is assumed that all infrastructure improvements will be completed prior to beginning building construction and that interim phasing connections and storm water management will not be required, please confirm. If the phasing of improvements are required, then details need to be provided to assure that adequate turn arounds are provided, emergency services are provided and other specific details such as methods of handling drainage, erosion control, short term seeding, etc… are defined and provided.

Please note that as there are a variety of concerns and clarifications noted/requested, we have held back on the review of the cost estimate for the Subdivision Improvements Agreement. Once we confirm the specific scope of work and final construction drawings are prepared, we will provide a review of such. Although there are a variety of concerns and clarifications noted, we do not see that the issues cannot be technically resolved.

Upon your receipt and review, if you have any questions, please don't hesitate to call.

Respectfully,
SGM

Jefferey S. Simonson, P.E.
Principal