

April 1, 2020

**El Paso County Planning and Community Development**

Attn: Kari Parsons, Project Manager/Planner II  
2880 International Circle  
Colorado Springs, CO 80910

**Re: Falcon Marketplace Final Plat (SF-19-001 CDR-16-007)**

Ms. Parsons,

Please accept this response letter to comments received February 28, 2020

Responses to comments are in ***Bold Italics*** and follow each review comment.

Transportation / Traffic Impact Study (TIS)

1. *\*(5) When Woodmen Road is expanded to 6 lanes, the location and function of this access point will potentially exacerbate conflicts due to anticipated higher traffic speeds on Woodmen Road. Staff recommends that escrow be required in the amount necessary to remove the right-in and roundabout in the future. Potential removal of the right-in due to safety issues and/or widening of Woodmen Road will be addressed in an access permit as noted on SP-17-001 conditions of approval. A draft access permit will be provided when available. (TBD) Acknowledged.*
6. *\*(13) Regarding the traffic signal at Meridian and Eastonville, coordination with EPC DPW will be provided at the final plat/construction stages. Comments will be provided when available. (TBD) Comments are being collated and will be provided as soon as available. Comments were provided on November 1 and have been incorporated into this memo below. Resubmittal of the remaining CD sheets is required. Remaining sheets resubmitted for review with this submittal.*
7. *\*(14) Reduction of the speed limit on Meridian Road between Woodmen Road and a location near Owl Lane (verify MUTCD requirement) is being considered by the County Engineer if this development proceeds. Provide signage as appropriate on the plans. Unresolved; this signage can be confirmed with the County Engineer; address on the plans. Partially resolved; see redlines (sheet C5.16). Note: per MUTCD standards, "Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices. The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles." The timing of installation for this signage will be addressed in conditions of approval. Acknowledged.*
8. Resolved.

\* Preliminary Drainage Report (PDR) / Drainage Plans

1. Resolved.
6. Resolved.
11. \*(11) Geotechnical issues (also see Geotech. study comments below). **Unresolved** (response is that this will follow).
  - a. Page 31 of the geotech. study states that "In no case should water be allowed to pond near or adjacent to foundation elements, hardscaping, utility trench alignments, etc." Discuss how the proposed drainage design accomplishes this. Partially resolved; final liner details need to be provided with FDR or in this report prior to pond construction. Comment remains. Partially resolved see redlines regarding liner details. Requirements for quality control, testing and final certifications for the pond liner will need to be discussed and agreed to prior to construction. The thickness of topsoil mixture above the liner (liner depth) needs to be discussed and verified. Comment remains; provide specifications when available. Partially resolved; additional details will be required during construction.
  - b. Address anticipated pond SR4 embankment settlement. Provide additional study and construction requirements when available. Resolved; tracking of settlement will be addressed at construction stage. **Provide monitoring plan details. Partially resolved; provide complete details when available. Monitoring plan details added to survey control sheet.**
  - c. Consider replacing the proposed area drain and pipe at the northwest corner with a swale along the north property line to the proposed rundown. Maintenance access appears likely to be difficult as proposed and the geotech. study recommends "properly designed drainage swale" at the tops of excavation slopes. Partially resolved; stabilization of and maintenance access to the 3:1 (and steeper?) excavated slope along the north side of Pond SR4 will need to be further addressed with the final pond design. (If the extent of overlot grading includes the slopes, this needs to be addressed with overlot grading.) Comment remains; access road design, offsite grading (requiring easements) sheet flow locations and rundowns and the concrete rundown need additional detail to ensure adequate access and functioning. Unresolved. Partially resolved; see remaining redlines. Partially resolved; see updated redlines. Additional details regarding the pond inflow area, including offsite easements, are required. Provide options analysis regarding geocells and articulated mats when available. Partially resolved; additional details and easements need to be resolved prior to construction. Resolved; **placement specifications will need to be addressed prior to construction. Reference UDFCD specifications which can be found at [https://udfcd.org/wp-content/uploads/uploads/resources/specifications/Division%2031%20-%20Earthwork/31\\_37\\_00\\_Riprap\\_Boulders\\_Soil\\_Riprap\\_and\\_Bedding.pdf](https://udfcd.org/wp-content/uploads/uploads/resources/specifications/Division%2031%20-%20Earthwork/31_37_00_Riprap_Boulders_Soil_Riprap_and_Bedding.pdf); if these (specifically section 3.02.A.1) are acceptable please confirm. UDFCD specifications are acceptable, and have been noted on the plans for reference and provided to the contractor.**
  - d. Resolved.
21. \*(21) Note: If any of the CLOMR excerpts have been revised with the design (i.e. StormCAD), provide revised versions in the report calculations.
22. \*(22) Verify outlet grate velocity of Pond SR4. Address compliance with UDFCD safety criteria (see redlines). Unresolved. This can be addressed/verified prior to outlet construction. Unresolved. Unresolved. **To be provided. Handrail added**

*above outlet structure to provide safety access out of 100-yr ponding depth. Relevant sheets of pond construction documents resubmitted for review.*

23. Resolved.

#### Final Drainage Report

(\*\*cursory comments; address the PDR comments above in the FDR as well)

4. Address the need for a deviation for developed areas (including Meridian Road) not treated by WQCV facilities. If a deviation is required, provide the deviation request form. Partially resolved; the areas of offsite improvements appear to require WQCV as well, based on the County's updated MS4 permit. It seems that most, if not all, of the runoff flows to Pond MN southeast of Meridian Road, so there is justification in allowing that pond to treat the flows. Please discuss with Staff. The deviation requests can be combined if all flows get to Pond MN. *Partially resolved; see redline. Resolved. The outlet orifice plate on Pond MN will need to be repaired, whether by the Falcon Highlands Metro District or by the Falcon Marketplace developer at the time of road construction. Provide documentation when available. The agreement is in process and will be provided to the County when complete.*
5. *through 8 - resolved.*

#### Construction Plans / Grading and Erosion Control Plan / SWMP / Geotechnical Issues

(\*\*cursory comments)

1. Ensure that all items on the GEC and CD checklists (attached) are provided or addressed. (Checklists will be verified on the next review.) *As noted at the beginning of these comments, updated checklists are required to be provided by the design engineer. Provide with the next submittal. Instructions are provided below the list of attachments. Checklists can be found at: [https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Copy-of-GEC-SWMP\\_Checklists.xlsx](https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Copy-of-GEC-SWMP_Checklists.xlsx). Provide the completed GEC checklist. Checklists will be verified with the next review. An updated ESQCP form is also required as part of ECM updates; provide with the next submittal. The form can be found at <https://planningdevelopment.elpasoco.com/wp-content/uploads/Engineering/EngineeringDocuments/Erosion-and-Stormwater-Quality-Control-Permitrev.2019.docx> *Partially resolved; see redlines. Partially resolved; see SWMP checklist redlines. Provide GEC checklist. Revised checklist submitted.**
2. *through 10 - resolved.*
11. **Resolved.**
12. The following conditions of approval remain on the Early Grading Plans:

- a. (1.) Documentation of all easements necessary for offsite construction shall be provided prior to issuance of a construction permit. Provide updated GEC plan sheets showing the easements when available. **Unresolved**; draft easements for all applicable offsite construction areas will need approval by the County Attorney if the grantee is the County, and need to be signed prior to construction. **Resolved; verify County Attorney approvals.**
  - b. Resolved.
  - c. (3.) The riprap spillways proposed for Pond SR4 construction are not approved at this time. Provide an analysis for the use of riprap, geocellular products and articulated concrete block products. Written notification from PCD staff is required prior to installation of the spillway protection. **Provide complete details on how the concrete curb/gutter ties into the riprap rundown on the north side of the pond. Address details of the grout wall, including materials and reinforcement bars/mesh/fibers. Unresolved (response is that this will follow).** ← *Further details added to the applicable pond construction documents, and reference noted to the UDFCD specifications.*
  - d. (4.) Outlet structure construction requires separate written notification from PCD staff. Additional information regarding outlet grate/trash rack design is required for verification of velocities. **Unresolved. (safety railings to be provided?)** ← *As noted above, see revised construction documents.*
  - e. (5.) Additional information is required on how groundwater will be handled during pond construction. Provide additional geotechnical study/potholing information on groundwater levels and the geotechnical engineer's concurrence with these CDs when available. **Unresolved (response is that this will follow).** ← *Letter from PSI (Geotech) sent separately to Jeff R for review. Contractor to follow all applicable regulations when groundwater is encountered as outlined in the SWMP.*
  - f. (6.) Additional requirements for the inflow pipe from the northwest (class of pipe, anchoring/support, and watertight joints) may apply. Construction of this pipe and appurtenant items shall not begin without written County approval. **Unresolved (response is that this will follow).** ← *Pipe is now noted as Class 4 RCP with water tight joints. Toe/cut off walls are provided at the inflow and outflow points.*
13. Resolved.
14. On Sheet C4.10 show all drainage/utility facilities next to the lane extension. Verify that guardrail is not required. **Unresolved.** *Show all information on the plan and address guardrail warrants, clear zone and vehicle speeds in the response. Is the check dam and north side of the ponding/channel area outside of the area of concern? See updated/remaining redlines; verify that additional guardrail is not required due to non-recoverable slopes and the proposed headwall. Partially resolved; see redlines on the new sheets. Update guardrail specifications. Guardrail specifications updated to the 2019 edition.*
15. *Revise the cross-section on Meridian Road at Station 2+00 as appropriate. Verify the proposed adjacent grade slope at Sta. 15+00 (is ECB needed?). Provide cross-sections or extend the ones provided across Meridian through the proposed raised median and turn lanes on Meridian Road approaching Eastonville Road and on Eastonville east of Meridian Road.* **Unresolved.** *X-sections emailed separately to Jeff R for review. Adjacent slopes along Meridian are no steeper than 4:1.*
16. Provide documentation of agreement with the property owner to the north that work on their driveway is agreeable and a new driveway permit will be obtained.

**Unresolved.** Agreement is in process and will be provided to the County for review.

Forms / SIA / Financial Assurance Estimate Form / Other

(Not reviewed in detail at this time pending resolution of comments on other documents.)

1. *Resolved.*
2. Note the draft O&M Manual for Pond SR4 will be provided by Staff when available. **(TBD)**
3. *Resolved.*
4. \* *The landscape plan included with this submittal shows trees in existing and proposed ROW in several areas including along Meridian Road. Some of these trees need to be moved depending on final site design and construction plans. A license agreement will be required at the final plat stage for private landscaping remaining in the ROW, including the proposed roundabouts. (see redlines). Unresolved; see Planning comments; verify that landscaping in the roundabouts meets sight distance control requirements.* See updated Planning comments.
  - a. *Some trees are shown within the sight distance triangles now shown on the plat. Depending on the crown/canopy width and height as the tree grows, trimming may be required. Reference ECM Section 2.3.6.G.2.*
  - b. *Most of the species identified in the roundabouts are not found in the plant palette or schedule. Verify and revise as appropriate. Unresolved. The vegetation appears to have been removed from the roundabouts. If this is the case, a plan for some other vertical features to control sight distances needs to be provided. Discuss with Staff. Roundabout landscape revised, and preliminarily reviewed by Jeff R. See construction document set and separate elevation exhibit.*
5. Provide all items required by the Engineering Final Submittal Checklist (attached), when available.
6. *The lighting plan needs to address pedestrian lighting at the roundabouts consistent with Roundabout Design comment #3 above. Unresolved. Lighting plan being revised and coordinated with Galloway (King Soopers).*
7. Verify that MS-4 and SDI forms have been updated for all three ponds as applicable (to be verified with next review). **Unresolved.** Updated MS-4 and SDI forms emailed separately to Jeff R.

**Note: These are additional comments regarding intersection improvements.**

Transportation / Traffic Impact Study (TIS) – Intersection Improvements

6. \*(13) Regarding the traffic signal at Meridian and Eastonville, coordination with EPC DPW will be provided at the final plat/construction stages.
  - a. Please find below a standard signal equipment specification list for use in equipment callouts. The fire preemption #12 (opticom system) is not needed (not used in the County). We do not use preemption for emergence vehicles.

- b. Sheet C5.15 (Meridian Road Striping Plan):
- i. *Resolved.*
  - ii. Show the proposed right turn arrow as being consistent with the following: (1) For the arrow design, reference the optional narrow elongated turn lane arrow design shown in MUTCD Figure 3B-24. (2) For the arrow placement, reference latest revised CDOT S-627-1 Pavement Markings, Sheet 5, Arrow Placements at Intersections. ***Partially resolved; revise arrow placement. The "Optional Narrow Elongated Arrows" can be found on page 10-11 of this pdf: <https://mutcd.fhwa.dot.gov/SHSe/Pavement.pdf>. Arrow shape and location revised as requested***
  - iii. Provide white channelizing and cross-hatching pavement marking for the northbound left turn lane being consistent with the left turn lane pavement markings for eastbound Woodmen Road at Golden Sage Drive where crossing-hatching lines are spaced at 50-foot intervals and there is a more gradual gore point at the beginning of the turn lane that includes bay entering taper channelization and a longer channelizing line adjacent to the through movement. Also, please add left turn lane arrows, per the MUTCD narrow elongated turn lane arrow design and CDOT S-627-1 Pavement Markings, Sheet 5 mentioned previously. ***Partially resolved; verify taper ratio. Taper ratio added to plans.***
- c. Sheet C5.16 (Meridian Rd & Eastonville Rd Striping Plan):
- i. Is the proposed W13-1 (45 mph) advisory speed plaque sign installation for southbound Meridian Road accurate and has this signing been adequately justified by the Engineer of Record in the TIS? ***Unresolved (see TIS comment #7). Still under review – response to be provided to Jeff R over email.***
  - ii. *Resolved.*
  - iii. Address the turn lane criteria noted in ECM Figure 2-27, Required Storage Lengths for Signal-Controlled Intersections, for the southbound right turn lane. The proposed 253-foot length seems considerably shorter than recommended. Has a deviation been approved at this location? ***Unresolved. Still under review, and related to the speed limit noted above – response to be provided to Jeff R over email.***
  - iv. *Resolved.*
  - v. Show turn lane arrows, per the MUTCD narrow elongated turn lane arrow design and CDOT S-627-1 Pavement Markings, Sheet 5 mentioned previously. ***Partially resolved; revise arrow placement and verify detail as noted above. Arrow shape and location revised as requested***
  - vi. *Resolved.*
  - vii. Modify the crosswalk pavement marking layouts to be consistent with the latest revised CDOT S-627-1 Pavement Markings, Sheet 3 crosswalk line detail of 8 foot (minimum) long and 12 inches wide with placement per the crosswalk notes and corresponding detail. ***Unresolved. Detail revised as requested***
  - viii. *Resolved.*

- ix. *Resolved.*
  - x. Provide dotted extension line pavement markings through the intersection for all approaches that contain double left turn lanes, consistent with CDOT S-627-1 Pavement Markings, Sheet 4, Typical Double Left Turn Markings detail. ***Partially resolved; revise linetype and label to match CDOT detail. Revised as requested***
  - xi. The proposed 56-foot through movement redirect taper for eastbound Eastonville Road, east of Meridian Road, is significantly less than what the taper length formula would yield. Has a deviation been approved at this location? ***Resolved; label taper ratio. Taper ratio labeled.***
  - xii. A raised (curbed) right turn channelized island in the northeast corner that facilitates the use of the existing acceleration lane by the westbound Eastonville Road right turn movement, would also allow refuge and facilitate safer pedestrian crossings in conjunction with the acceleration lane operation. Address whether this would be beneficial and practicable. ***Unresolved. Channelized islands at this intersection do not appear to be beneficial. Truck turning would be adversely affected in the SW corner, and no pedestrian connection is proposed for the NE corner.***
  - xiii. Similarly, a raised (curbed) right turn channelized island in the southwest corner would facilitate the use of the acceleration lane; however, the proposed new closely spaced access to the south precludes the use of an acceleration lane. Address whether there would be benefits and/or drawbacks in providing the island. ***Unresolved. See above.***
  - xiv. Provide Keep Right signing on Meridian Road with placement and panel face orientation consistent with MUTCD Figure 2B-17. ONE WAY Signing for Divided Highways with Median Widths Narrower Than 30 Feet and Separated Left-Turn Lanes. ***Unresolved. Additional signage added.***
  - xv. Provide MUTCD Advance Street Name Signs (D3-2) on Meridian Road, consistent with other Meridian Road signalized intersections. Provide advance street name sign panel design and layout details in the project plan sheets for sign fabrication, consistent with MUTCD standard panel sizing and FHWA Standard Highway Signs, 2012 Supplement sign design information. Reference the appropriate CDOT Standard Plan detail sheets for sign support information. ***Unresolved. Still under review.***
- d. Sheet C6.10 (Traffic Signal Plan): ***Unresolved.***
- i. Add all traffic signal timing and traffic signal operational notes contained in the construction drawings dated 8/19/15 (revised 12/15/15), for the traffic signal installation at Claremont Ranch Filing No. 9 access, including the revised notes at the end of this memo. See <https://epcdevplanstorage.blob.core.windows.net/project/ab90e3bf-b6dd-4c45-8b3c-4e8ce527cd81/95a76377-75cf-46fc-8149-56bb390ff656.TIF> (also attached). ***Notes have been added. It is clear that signal timing/programming is still required and will be provided during construction.***

ii. All signal pole mast arm lengths, except for maybe the 35-foot mast arm should be lengthened to enable signal heads to be properly spaced and placed over the approach lanes, with the 50-foot arm (northwest corner) especially needing to be lengthened as a result of the proposed double left turn lane geometry for the westbound approach, which will also require an additional overhead mounted traffic signal head on this mast arm for the westbound left turn movement, consistent with the eastbound approach multiple overhead left turn signal head configuration. In addition, the length of mast arms will help ensure proper signal head spacing and placement, as designed, should signal pole locations need to shift due to utilities or other factors during construction, which typically occurs. ***Longer mast arms and additional/adjusted signal heads have been provided as requested.***

iii. If using the separate flashing yellow arrow left turn signal head displays (which would be the first known installation in EPC) need to verify that the overhead signage (adjacent to the left turn signal head mounted), per CDOT Supplement to the MUTCD's Standard Highway Signs, Regulatory Signs Library R10-27a (Left Turn Yield On Flashing Yellow Arrow – 30 x 36) accompanies this separate left turn signal head. ***No longer applicable as no flashing yellow signal head are proposed.***

Regarding the previous protected and permissive mode left turn signal head displays comment, the professional engineering consultant that prepared the plans needs to document that the available sight distance for the opposing Meridian Road northbound and southbound left turn movements is sufficient for permissive phasing as the plans show the opposing left lane geometry as being negatively offset, which will adversely affect the available sight distance for viewing opposing through movements. Should the sight distance be documented as being limited, protected-only left turn phasing with left turn only signal head operation would need to be considered, but the preferred option would be to improve the left turn lane geometry to include positive offsets (which is feasible with the median), thereby allowing the proposed, and much more efficient, protected and permissive mode left turn operation. This similar situation exists for eastbound and westbound Eastonville Road, but the opposing outside left turn lanes are even more negatively offset due to the double lefts. As a result, more significant geometric modifications would be necessary to achieve sufficient opposing left turn sight distance, but given the opposing double left turn movements and the minor road approach designation, the professional engineering consultant that prepared the plans needs to document whether or not protected-only left turn phasing with left turn only signal head operation should be the preferred option. Address all necessary revisions in the TIS modeling. ***LSC are checking signal timing for the eastbound approach to ensure left turn demand can be met. DBC has provided protected***



*left turn phasing for all approaches on the plans. Additional sight distance exhibit email to Jeff R for review.*

- iv.
  - v. Add an overhead three-section through (circular-only indications) signal head face for the eastbound Eastonville Road approach where presently there is only one shown in order to have two overhead through movement signal indications, which would be consistent with the westbound Eastonville Road approach. **Done**
  - vi. As mentioned previously, provide an additional overhead mounted left turn traffic signal head for the westbound Eastonville Road double left turn movements, which would be consistent with the eastbound Eastonville Road approach two overhead left turn signal head configuration for the double left turn movements. **Done**
  - vii. The proposed use of pole-mounted traffic signal heads for left turn displays (left-side approach signal pole) and through displays (right-side approach signal pole) seems appropriate and is consistent with CDOT Traffic Signal Standard Plans which show left and right-side pole mounted traffic signal heads.
- e. Sheet C6.11 (Traffic Signal Plan): **Unresolved. Requested revisions to notes and sign types/locations has been completed.**
- i. Update all reference dates (3) in Note #1.
  - ii. Revise Note #8 to reference CDOT standards for caissons.
  - iii. Provide overhead street name sign design and layout sign panel details in the project plan sheets for sign fabrication, per MUTCD standard overhead panel size and FHWA Standard Highway Signs, 2012 Supplement sign design information. The presently shown sign panel design information is incomplete and not consistent with the MUTCD and SHS.
  - iv. Per MUTCD Section 2B.19 Intersection Lane Control Signs (R3-5 through R3-8) and Section 2B.20 Mandatory Movement Lane Control Signs (R3-5, R3-5a, R3-7, and R3-20), suggest utilizing the overhead Mandatory Movement Lane Control (R3-5) signing (one sign panel over each lane) for the eastbound and westbound Eastonville Road double left turn movement approaches due to the multiple turn lane configuration for these approaches and which would be used in place of the proposed R3-8 signing, since R3-8 signing is noted in the MUTCD as being post-mounted and used in advance of the intersection, whereas R3-5 signing is noted as being used at the intersection and as being mounted overhead over the specific lanes to which they apply.
  - v. Per MUTCD Section 2B.19 Intersection Lane Control Signs (R3-5 through R3-8), the proposed overhead Mandatory Movement Lane Control (R3-5) signing shown for the northbound and southbound Meridian Road single left turn lanes should be omitted.
  - vi. Designated marked pedestrian crossing locations, pedestrian phasing, heads, pushbuttons, and pedestrian infrastructure (i.e., pedestrian curb ramps, landing areas, partial sidewalk) for all pedestrian crossing locations should be provided, even if pedestrian infrastructure beyond

the intersection may not presently exist, unless an operational / safety need has documented certain pedestrian crossings as being undesirable and therefore needing to be prohibited and signed as such. Provide a documentable reason for prohibiting specific crossings or provide complete pedestrian crossings for all four crossing locations. Ensure that the proposed phasing diagram sequence shows pedestrian phasing for the applicable pedestrian crossing locations. **Signal Plan accommodates pedestrian indications/push buttons for only striped crosswalks as shown on plan.**

- vii. In addition to the note that mentions the use of the MUTCD R10-3e traffic signal pedestrian actuation educational (pushbutton) sign, this sign should be shown on the design layout on the plan sheet for ready sign reference.
- viii. Consider using only one conduit across Meridian Road, on the north side of the intersection, which should minimize signal cable / wiring pull lengths, based on the proposed northwest corner controller cabinet location. Use 2-3" and 3-2" runs for the conduits. **Done**

We trust you find our responses to this review of the Falcon Marketplace Final Plat acceptable. We look forward to working with the County in processing the submittal. Please call if you have any questions or require any additional information.

Respectfully,

**Drexel, Barrell & Co.**



Tim D. McConnell, P.E.