Kimley»Horn

November 22, 2019

Lindsay Darden
El Paso County
2880 International Cir.
Colorado Springs, CO 80910

RE: ***Green Mountain Falls County Documents Review Comments and Redlines***

Thank you for the comments on November 18, 2019 for the above-mentioned project. In an effort to address your comments concisely and simplify your review process, we have summarized your comments and our responses below.

Construction Documents

GENERAL OVERALL COMMENTS

1. Is the sidewalk to the north of the building flush with parking or is there a curb transition? If no curb transition, wheel stops might be needed for the spaces that front the sidewalk along the building to preserve the accessible path of travel along the sidewalk from potential vehicle overhang.
   Response: Wheel stops have been added to the NW and NE stalls bordering ADA routes.

2. If there is no objection to the proposed changes to the Detention Maintenance Agreement, please accept them and submit a clean copy for final review.
   Response: A clean copy of this document has been provided in this submittal.

3. Please review the lighting plan with the landscape plan to ensure there are no tree/light conflicts. There appear to be trees in close proximity to light poles. The trees are required to be on planting islands, so the lighting plan may need to be revised to move light poles to the exterior edges of parking lot. Note to avoid conflicts there should be 15-20 feet between each light pole and tree center. We want to avoid a situation where trees must be pruned in an unsightly manner or removed in the future due to shading out site lighting.
   Response: Light poles and trees have been relocated to provide at least 15' of clearance.

4. Submit confirmation that the State Non-Jurisdictional Water Impound Structure application form has been submitted to the state.
   Response: This form has been filled out and submitted to the state.

5. Recommendations for the foundation preparation and embankment construction of the detention pond are required per DCM Vol. 1 Section 11.3.3.
   Response: Kimley-Horn has coordinated with the engineer of record who prepared the Geotechnical Report (YEH and Associates). YEH concurs with KHA that recommendations for embankment and for foundations are not applicable in this instance relative to the proposed detention ponds. The ponds are designed to drain over 40-72 hours and therefore

there is limited hydrostatic pressure on the sides of the ponds. Additionally, the proposed ponds do not have embankment or proposed foundations since the ponds are being cut into the existing ground. If further explanation is desired, please contact the engineer or record from YEH and associates who prepared the report.

GEC CHECKLIST

1. Soils/Geotech report shall provide embankment recommendations. Incorporate any recommendations into the design. See comment on GEC plan.
   Response: Kimley-Horn has coordinated with the engineer of record who prepared the Geotechnical Report (YEH and Associates). YEH concurs with KHA that recommendations for embankment and for foundations are not applicable in this instance relative to the proposed detention ponds. The ponds are designed to drain over 40-72 hours and therefore there is limited hydrostatic pressure on the sides of the ponds. Additionally, the proposed ponds do not have embankment or proposed foundations since the ponds are being cut into the existing ground. If further explanation is desired, please contact the engineer or record from YEH and associates who prepared the report.

2. Provide sediment basin and outlet protection details. See comment on GEC plan.
   Response: Sediment basin and outlet protection details have been added.

3. Please label the existing and proposed storm water facilities. See comment on GEC plan.
   Response: Existing and proposed storm water facilities have been included to the GEC plans on a separate sheet.

GEC PLAN

1. Review 1 comment: The property line shown on the legend does not match the line type shown on the plans. Revise so that they match.
   Response: Property line types now match.

2. Review 1 comment: Provide inverts and slopes of the proposed storm lines.
   Response: Inverts, sizes and slopes of storm lines have been added as a separate sheet.

3. Review 1 comment: Please label all proposed and existing storm water facilities (i.e. culverts, storm pipes, inlets, manholes, etc.) providing their size/type.
   Response: All storm water facilities are called out on a separate sheet.

4. Review 1 comment: Please label this structure.
   Response: Structure has been called out as existing HVAC enclosure.

5. Review 1 comment: Provide BMP detail for temporary sediment basin and outlet protection indicated on the plan.
   Response: Sediment basin and outlet protection BMP details have been added to the plans.

6. Review 1 comment: Provide detail for proposed manholes.
   Response: Manhole details have been added.

7. This arrow is pointing to contour lines. Please revise accordingly.
   Response: Callout location has been updated.

8. Please identify that this section of pipe is to be removed.
   Response: Pipe identification has been added.

9. Fix the contours in this area to tie back to existing. Also, the proposed grading has a slope greater than 3:1. Revise accordingly.
   Response: Grading and forebay structure have been updated in this area.

10. The outfall doesn't appear to provide an adequate energy dissipation. Consider providing energy dissipation within the site's property. CDOT would have to approve any improvements within their ROW.
    Response: Energy dissipation has been added at this outfall and is contained within the property. See detail per Utility sheet in the recent SDP.

11. Please indicate the type and size of protection provided.
    Response: Size and type of protection are called out.

12. Review 1 comment: Please identify the size and type of protection of the rundowns leading to the pond. Also show the maintenance access ramps of the ponds (see DCM vol. 1 section 11.2.2) This may be provided in the detention pond construction plans/details.
    Response: Size of rundowns called out as 4' wide concrete rundown. Maintenance access roads are now shown on the plans.

13. Please show and label the manhole shown on the drainage calcs.
    Response: This connection is a 45º wye. StormCAD modeling has been updated to model this transition.

14. Review 1 comment: Please label the proposed septic system.
    Response: Septic system has been called out.

15. The width of the top of each of the pond embankments shall be a min. of 12 ft. Refer to DCM Vol. 1 Section 11.3.3. Note that a Geotechnical report with recommendations for the foundation preparation and embankment construction shall be submitted with the complete design analysis for all permanent detention facilities.
    Response: Kimley-Horn has coordinated with the engineer of record who prepared the Geotechnical Report (YEH and Associates). YEH concurs with KHA that recommendations for embankment and for foundations are not applicable in this instance relative to the proposed detention ponds. The ponds are designed to drain over 40-72 hours and therefore there is limited hydrostatic pressure on the sides of the ponds. Additionally, the proposed

ponds do not have embankment or proposed foundations since the ponds are being cut into the existing ground. If further explanation is desired, please contact the engineer or record from YEH and associates who prepared the report.

16. Please label these contour lines.
    Response: Contour lines have been labeled.

17. I assume this is erosion protection. Please label it providing the type and size.
    Response: This has been called out on the plans.

18. Provide riser pipe detail or construction information (size of pipe, height, hole diameter) of the temporary sediment basins.
    Response: Riser pipe detail has been provided on the storm plan sheet (part of GEC set).

19. Please include the detention pond construction details in the GEC plan set. They do not have to be removed from the drainage report, but they should be included within the GEC plan set as the GEC plans are the construction documents that will be used in the field.
    Response: Detention pond details have been included in the GEC set.

SDI WORKSHEET

1. Please update the SDI worksheet with any changes that are done to the pond designs.
   Response: These have been updated.

DRAINAGE REPORT

1. Please update this sentence to reflect the updated design that is proposed.
   Response: This sentence has been updated.

2. Please provide the flow captured (TYP.)
   Response: Catch Basin Tables have been updated to show the flow capture in each basin.

3. Per the drainage plan, these are PVC (TYP.)
   Response: Pipe types/diameters have been updated in the StormCAD modeling.

4. Adjust the design so that release is equal to or less than the pre-development flow.
   Response: Outflows have been updated to be equal to or less than pre-development flows.

5. The 1st page (Detention Basin Stage-Storage Table Builder) of the UD Detention calculation for the west pond appears to be missing. Please provide for review. Also, ensure that the watershed area comment provided on review 2 is addressed.
   Response: The 1st page has been added, and the watershed areas are up to date.

6. This does not meet the Senate bill (15-212) criteria of draining 97% of flow for the 5 yr. storm within 72 hrs.
   Response: Drain times for the ponds have been revised.

7. This should be selected as ponds are providing flood control (TYP.)
   Response: BMP sheets now model per the EURV as requested.

8. Please show and label the manhole indicated on the drainage calculations.
   Response: This connection is a 45º wye. StormCAD modeling has been updated to model this transition.

9. Based on design calculations, it appears that protection is required at this outfall.
   Response: Protection has been added at the outfall in reference.

10. Please label the existing culvert.
    Response: Culvert in reference has been labeled.

11. Fix arrow so that it is pointing to the notch.
    Response: Arrow has been updated.

12. Please include the detention pond construction details in the GEC plan set. They do not have to be removed from the drainage report, but they should be included with the GEC plan set as the GEC plans are the construction documents that will be used in the field.
    Response: Sheets have been added to the GEC set.

13. Provide dimensions of concrete rundown.
    Response: Size of concrete rundown has been called out.

14. The trickle channel is encroaching into the toe of the bank of the pond. Please revise the trickle channel of the pond accordingly.
    Response: The trickle channel and outlet structure locations have been updated.

15. Per the design calculations the WQCV elevation should be 7884.2 (TYP. Elevation comments)
    Response: Ponds have been updated and all elevations for the outlet structures and spillways have been updated.

16. Per the design calculations, the invert should be at the basin bottom. Please revise detail or design calculation accordingly.
    Response: The invert out elevation of the pipe that leaves the detention pond outlet structures is completely independent of the design of the pond and the associated outlet structure. The bottom basin elevation for each of the ponds is equal to the elevation of the flowline of the trickle channel at each structure and the lowest orifice of each of the steel plates. The invert out of the pipe exiting each outlet structure is designed lower than these

elevations to allow positive drainage within the outlet structure and is not representative of the basin bottom elevation.

17. Please indicate the end slopes of the spillways.
    Response: The end slopes have been called out at 4:1 slopes.

GEOTECHNICAL REPORT

1. Add PCD File No. PPR1933
   Response: This has been added to the cover sheet.
2. This report does not provide recommendations for the detention facility. Per Chapter 11, Section 11.3.3 of the El Paso County Drainage Criteria Manual, a Geotechnical report with recommendations for the foundation preparation and embankment construction shall be submitted with the complete design analysis for all permanent detention facilities. Please provide the appropriate recommendations for the detention facilities per DCM Vol. 1 Section 11.3.3
   Response: Kimley-Horn has coordinated with the engineer of record who prepared the Geotechnical Report (YEH and Associates). YEH concurs with KHA that recommendations for embankment and for foundations are not applicable in this instance relative to the proposed detention ponds. The ponds are designed to drain over 40-72 hours and therefore there is limited hydrostatic pressure on the sides of the ponds. Additionally, the proposed ponds do not have embankment or proposed foundations since the ponds are being cut into the existing ground. If further explanation is desired, please contact the engineer or record from YEH and associates who prepared the report.

FINANCIAL ASSURANCE ESTIMATE

1. PVC
   Response: This quantity has been added.

2. Per the design calculations there are a total of 4 manholes
   Response: Design calculations have been updated; 3 manholes are proposed.

Please contact me at (719) 453-0180 or eric.gunderson@kimley-horn.com should you have any questions.

Sincerely,
KIMLEY-HORN AND ASSOCIATES, INC.

Eric Gunderson

Eric Gunderson P.E.
Project Manager