



April 23, 2013

Sean Madden  
Jefferson County - Engineering  
100 Jefferson County Parkway  
Suite 3550  
Golden, CO 80419-3550

Dear Sean:

**RE: 12-1170100A; Referral Comments for Leyden Ranch West, City of Arvada**

CVL Consultants has considered your review comments dated March 25th, 2013 for the referenced subdivision. We have restated your comments below and addressed them per the italicized responses.

Jefferson County Permits

Sean Madden, will be the point of contact for all future submittals and correspondence related to the Leyden Ranch East and West projects. Comments will be provided to CVL Consultants and the City of Arvada. CVL Consultants will contact the applicant regarding these comments.  
***Response: Acknowledged.***

The applicant is required to obtain a Jefferson County Land Disturbance Permit from Planning and Zoning and a construction permit from Transportation and Engineering for the construction activities related to improvements within unincorporated Jefferson County (i.e., the grading of the County's pond, the construction of the pond appurtenances, and the emergency access road over the Leyden Landfill).  
***Response: Acknowledged.***

The applicant is required to get Planning and Zoning approval of the construction drawings for improvements to and within Leyden Road in unincorporated Jefferson County and obtain a Right-of-Way Construction Permit from Transportation and Engineering.  
***Response: Acknowledged.***

Sanitary Sewer

1. The sanitary sewer installation within the Jefferson County right-of-way (Leyden Road) will require the following:
  - Pavement removed for the sewer main trench; the Contractor shall replace the removed pavement with full depth pavement in accordance with an approved pavement design report. Generally speaking, the extent of the new pavement shall be from the north saw cut line for the sewer trench to the south edge of proposed

pavement. The exact amount of full depth pavement replacement shall be determined during construction as dictated by actual conditions in the field.

***Response: Per discussions between the client; Bryant Winslow and Jefferson County a pavement design will not be required for approvals. The pavement design will be required and provided at the time of permitting.***

2. All construction, excavation, road restoration, and traffic controls that take place in the County right-of-way shall be per Jefferson County Roadway Design and Construction Manual, as well as Right-of-Way Construction Permit policies.

***Response: A note describing the above has been added to the construction plan documents.***

3. The geotechnical investigation and pavement design report shall be submitted to the Jefferson County Transportation and Engineering Division for approval.

***Response: A geotechnical report has been included with this submittal. Per discussions between the client; Bryant Winslow and Jefferson County a pavement design will not be required for approvals. The pavement design will be required and provided at the time of permitting.***

4. Triangular sections of roadway restoration will not be permitted. The contractor should use rectangular patches for proper compaction of HMA.

***Response: A note describing the above restoration has been included in the plan documents.***

5. Mill and overlay will have smooth transitions. If not possible with conventional methods then the contractor shall implement infrared patching.

***Response: A note describing the above transition has been included in the plan documents.***

6. Change “Highways and Transportation Department” to “Transportation and Engineering Division” throughout the plans.

***Response: The department title has been revised as requested.***

7. Arvada’s specifications should be included in the plans.

***Response: Arvada specifications for sanitary sewer are included in the construction plans.***

8. The plans should clearly define what jurisdiction improvements are taking place and the most restrict requirements should take precedence.

***Response: A note indicating which jurisdiction improvement applies has been added to the construction plans.***

### Leyden Road Plans

1. Leyden Road in regard to the Leyden Ranch East, please install curb and gutter with a four foot shoulder from Street K to the beginning of the roadway improvements.

***Response: The city of Arvada has conceptual plans completed for Leyden Road adjacent to the Leyden East project. It is highly likely that revisions will be made to the***

*conceptual drawings that would jeopardize the value of curb and gutter constructed by the Leyden East project. Leyden East has almost no frontage contiguous to the Leyden Road right of way. These facts have led the City of Arvada to agree that constructing curb and gutter in this area should not be pursued or required.*

2. At a minimum all asphalt will need to be removed to the north cut line. If Leyden Road is damaged north of the cut line the entire roadway may need to be milled and overlaid.  
***Response: The plans have been revised and a note added concerning damage north of the cut line.***
3. Show how the excavated material be handled/stored/staged.  
***Response: Material handling/storage and staging plans shall be provided by the contractor.***
4. On all drainage ditches within the County please install silt fences with J hooks to break up the long runs on steep slopes.  
***Response: The grading and erosion control plans have been revised and updated.***
5. The plans show several rock check dams for embankment. We suggest using a turf reinforcing mat such as a coconut soil retention blankets with amended soils with native grass seed. This will be less maintenance for Jefferson County.  
***Response: Rock check dams have been removed and replaced with erosion control blanketing and sediment control logs.***
6. More erosion controls are needed along the emergency access location.  
***Response: The grading and erosion control plans have been revised and updated.***
7. Traffic control will show the road being open both ways during the night and weekends.  
***Response: The traffic control plans shall be provided by the contractor.***
8. Show how any open trench will be protected from vehicles and citizens.  
***Response: To be provided by the contractor.***
9. For Leyden Ranch West, the drainage pipes crossing Leyden Road need to be extended to accommodate the future major collector template of Leyden Road, two through lanes, left-turn lane, bike lanes on both sides of road, and an 8' sidewalk on both sides of road.  
***Response: Acknowledged.***

### Drainage Plans

1. Comment: Sheet 5.4
  - Add additional five foot interval labels on the existing contours.  
***Response: Additional contour labels have been added.***
  - Provide soil riprap on each side of the concrete low flow channel below the Pond B outfall swale for the first 15 feet of this low flow channel.  
***Response: Soil riprap has been added as requested.***

- Provide stations for the low flow channel.  
***Response: Stations added.***
  - The heavy dashed line showing the 100 year water surface elevation makes it difficult to identify the location of the western end of the concrete low flow channel. Please clearly identify where the end of this channel is located. If needed, provide a separate detail that has a larger scale.  
***Response: Stationing and Northings and Easting's have been added.***
  - Provide horizontal control to layout the low flow channel.  
***Response: This has been provided as requested.***
  - Please provide cross-sections for detention pond. These cross sections shall identify the existing slope of the landfill and proposed grading information.  
***Response: A typical section has been added.***
  - Remove the trickle channel at the point where it bends northwest.  
***Response: The northwest portion has been removed as requested.***
  - The ownership boundaries shall be shown more clearly.  
***Response: The property lines are called out accordingly.***
  - Provide compaction requirements for pond modifications.  
***Response: Compaction notes have been added as requested.***
  - Provide a detail that clearly shows that only the top inch of soil before shall be scarified prior to installing the new embankment.  
***Response: The scarification note has been added to the typical section.***
2. Comment: Sheet 5.5
- Investigate if the 12" Pond E outfall can be relocated to the west to reduce the depth of trench cut. If the 12" were moved west, the grading between Pond "C" and the Street "J" cul - de - sac could be revised to lower the finish grades in this area.  
***Response: The outfall has been relocated to the west to parallel the property line.***
  - The pond C outfall shall be located to the west within the development boundary and not within the landfill / Jefferson County property boundary.  
***Response: The Pond C outfall has been relocated to daylight in fill within the landfill area.***

3. Comments: Sheet 6.6

- SDMH 168 has a drop of over 13 feet. Provide a detail that shows a special base be installed to withstand the forces of flows dropping at this large distance. Recommend increasing the strength on the concrete and energy dissipation.

***Response: The inlet from the cul-de-sac has been removed, so the drop has been eliminated.***

- SDMH 168 is over 22 feet deep. Provide a manhole with an intermediary bench for safety during maintenance procedures.

***Response: Intermediate bench called out.***

4. Comment: Sheet 6.7

- For Inlet 011(Double Type D), recommend the 24” CMP discharge into the eastern Type D not the western one. Identify the inverts of this Type D inlet and the upstream side of the existing 6’ x 4’ culvert.

***Response: Do to the realignment from Inlet 010, this was not necessary. Inverts are provided.***

- Show the riprap protection to be installed at the outlet of the existing 6’ x 4’ culvert.

***Response: 2’ drop rundown provided.***

- Recommend that the swale south of the 6’ x 4’ culvert be reconstructed with soil riprap.

***Response: Soil riprap swale provided.***

- The Type “C” inlet with a close mesh grate has a very small capacity. Recommend this be a “D” or double “D”. Also the pipe crossing the Church Ditch should be increased in size to accommodate the flows from a larger inlet.

***Response: A Type D inlet has the same grate as a Type C, so the Standard Inlet Grate was utilized to increase the capacity of the inlet.***

Additional Drainage Design Comments

1. The street side ditch along the emergency access road does not appear on the plans.

***Response: The grading and contours for the street side ditch are depicted on grading sheet 1.5.***

2. The emergency access road shall not be paved. Further, we recommend that the emergency access road be graded (super elevation) 2 percent to the upper street side ditch, no crown.

***Response: At the request of life safety responders, asphalt paving has been proposed along the emergency access road. Additionally, due to the steep slope of the roadway; asphalt paving has been considered.***

***The emergency access road has been designed to be super elevated to the upper street side ditch, with no crown.***

3. A water quality pond for the emergency access road may not be required if constructed as described in comment 2, above.

***Response: Water quality, for the majority of the road surface, will be provided via the roadside ditch (i.e surface treatment) which will be seeded, blanketed and have a sediment control log placed on 5-foot intervals. At the location of the inlet connection to the existing box culvert, the concrete v-pan has been removed and replaced with a soil riprap trickle channel. This replacement will allow for water quality to be achieved via a surface treatment.***

4. Provide the 5 yr and 100 yr hydraulic and energy grade line for all proposed storm sewer within Jefferson County property.

***Response: HGLs are provided***

### Traffic Comments

1. Submit a single sheet dedicated to traffic plans for both entrances.

***Response: Traffic plans shall be provided by the contractor.***

2. On a separate sheet, provide the dimensions for all the striping for both the easterly and westerly connections.

***Response: The dimensions for the east and west entrances have been provided.***

3. Bicycle lane markings will not be allowed.

***Response: Bicycle lane striping has been removed.***

4. Provide street light at Leyden Road and the main access that meets county standard as shown in the County's Roadway Design and Construction Manual.

***Response: Street light locations and details have been coordinated with the City of Arvada Traffic Engineering Department.***

5. Provide a detail showing the restriping should be epoxy paint with thermoplastic pavement/ arrow markings.

***Response: A note has been added to the striping plans.***

6. Show signs for median nose and Right Lane Must Turn Right with delineators at each intersection.

***Response: The requested signage has been added to the construction documents.***

#### General Plan Comments

- For riprap rundowns on steep slopes use 12” of granular bedding and eliminate using geo-fabric within the County ROW.

***Response: The riprap rundowns have been revised as requested.***

#### Ownership/Annexation

- Please delineate the jurisdictional boundaries between Arvada and Jefferson County very clearly.

***Response: The jurisdictional boundaries have been depicted.***

### CONCLUSION

These comments are based solely upon the submitted plans provide by the City of Arvada. If the proposed off-site layout and design are altered, Planning Engineering reserves the right to modify these initial comments or add appropriate additional comments. This office requires that all future submittals for this development be referred to us electronically for review and comment.

***Response: Acknowledged.***

Sincerely,



Sarah J. Kolz  
Project Manager