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DEVIATION REQUEST AND DECISION FORM

Updated: 7/6/2019

Comments from V2 do not seem to have been addressed. Please address comments from V2.

PROJECT INFORMATION

Project Name :	Silverado Ranch, Filing 2
Schedule No.(s) :	3516000001
Legal Description :	N2 SEC 16-15-63 EX TH PT PLATTED TO SILVERADO RANCH FILING NO 1

APPLICANT INFORMATION

Company :	
Name :	Mr. Stan Searle
	☐ Owner ☒ Consultant ☐ Contractor
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Phone Number :	719-649-9590
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ENGINEER INFORMATION

Company :	LSC Transportation Consultants, Inc.		
Name :	Jeffrey C. Hodsdon	Colorado P.E. Number :	31684
Mailing Address :	2504 E. Pikes Peak Ave, Suite 304 Colorado Springs, CO 80909		
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OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

_____ _____

Signature of owner (or authorized representative) Date

Engineer's Seal, Signature
And Date of Signature

Sign and stamp the document

DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request)

A deviation from the standards of or in Section **D.5.6** of the *Engineering Criteria Manual* (*ECM*) is requested. The applicant requests that all roads in Silverado Ranch be allowed to be constructed with crushed asphalt (reclaimed asphalt pavement (RAP)) surfacing instead of the ECM standard material of compacted gravel. Note: The roads have been approved to be private and maintained by the HOA.

Identify the specific ECM standard which a deviation is requested:

D.5.6 Gravel for Gravel Roads Table D-7
Gravel described in this section shall be used for gravel shoulders, repairing gravel surfaces, or in cases where gravel roads are allowed. The gradation specification for this material is listed in Table D-7.

Appendix F - Standard Drawing SD 2-10 Rural Gravel Local Roadway
This standard drawing calls out *"Gravel/Low Grade Pavement"* for the roadway surface.

State the reason for the requested deviation:

Please refer to the attached applicant reason for the request.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

- The proposed alternative is to construct and maintain the subdivision roads utilizing a design which incorporates reclaimed asphalt pavement (RAP) material rather than exclusively gravel with prescribed material specification called out in Table D-7 of ECM Section D.3.6.
- ECM Section D.3.6 Gravel Roads indicates a minimum thickness of 6 inches shall be used on all newly constructed gravel roads meeting material specifications presented in Table D-7.
- Please refer to the attachment supplement by the applicant.
- The following are publications which address the use of RAP. Applicable references relate to the use of RAP material for use in gravel roadway construction and maintenance, rather than as a base material for roadways with rigid or flexible pavement
    - ***GRAVEL ROADS CONSTRUCTION & MAINTENANCE GUIDE*** (August 2015 USDOT FHWA) - Section 3.5 Recycled Asphalt – **PLEASE REFER TO ATTACHED SUPPLEMENT WITH SOME EXCERPTS**
        - ots15002.pdf (dot.gov)
    - Reclaimed Asphalt Pavement - Material Description - User Guidelines for Waste and Byproduct Materials in Pavement Construction - FHWA-RD-97-148 (dot.gov)
    - https://www.fhwa.dot.gov/pavement/recycling/
    - https://www.fhwa.dot.gov/publications/research/infrastructure/structures/97148/rap134.cfm

LIMITS OF CONSIDERATION

(At least one of the conditions lis idered.)

☐ The ECM standard is inappli

☐ Topography, right-of-way, or ndue hardship and an equivalent alternative that can accomplish t mise public safety or accessibility.

☒ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Meeting the gradation criteria of this table could be difficult as most crushed asphalt is processed and close to a single gradation; Please provide a gradation for the proposed material to asses the material properties

Provide justification:

Silverado Ranch, as an equestrian community, has a specific road design issue. Crushed asphalt is a superior alternative for Silverado Ranch as an equestrian community with respect to safety for horses and riders (see veterinarian quote above), and other factors. Please refer to attachment by the applicant. Absent the deviation, ECM-standard gravel roads present a hardship and an increased safety risk to horses and riders.

The justification would be met, provided:

The proposed gravel material meets the ECM criteria for depth and material specifications called out in Table D-7 of ECM Section D.3.6. while accounting for any necessary variations in the specifications which should be applied to the use of RAP. Variations would be based on applicable elements of guidance in the FHWA publications and manuals referenced above being followed (with respect to the use of RAP material for use in gravel roadway construction and maintenance).

AND/OR

Include discussion of existing subgrade and the suitability of placing crushed asphalt on this material

(if required) A design by a geotechnical vel road design) is submitted and approved, which indicates a RAP alterna e design objectives and does not compromise public safety or accessibility with respect to vehicles and other roadway users – passenger motor vehicles, the occasional trucks of type typically associated with low-volume, local residential roads, fire district vehicles, pedestrians, bicycles, and equestrians.

CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is **not based exclusively on financial considerations**. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with **all of the following criteria**:

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

The deviation would be superior for a site-specific intended user of the roadways – equestrian riders/horses (an equestrian community). Please refer to the attached supplement by the applicant.

These criteria would be met, provided:

The proposed gravel material meets the ECM criteria for depth and material specifications called out in Table D-7 of ECM Section D.3.6. while accounting for any necessary variations in the specifications which should be applied to the use of RAP. Variations would be based on applicable elements of guidance in the FHWA publications and manuals referenced above being followed (with respect to the use of RAP material for use in gravel roadway construction and maintenance).

AND/OR

(if required) A design by a geotechnical engineer (with qualifying expertise in unpaved/gravel road design) is submitted and approved, which indicates a RAP alternative and specifies that it can accomplish the same design objectives and does not compromise public safety or accessibility with respect to vehicles and other roadway users – passenger motor vehicles, the occasional trucks of type typically associated with low-volume, local residential roads, fire district vehicles, pedestrians, bicycles, and equestrians.

This suggests that a blend of RAP and aggregate could be used. If so, please provide a comment. The FHWA document suggests that as a better product than pure RAP

The deviation will not adversely affect safety or operations.

- The deviation would be superior for safety of a site-specific intended user of the roadways – equestrian riders/horses (an equestrian community). Please refer to the attached supplement by the applicant.
- The applicant intends to utilize a roadway material which incorporates RAP, to achieve health and safety benefits relative to lower levels of airborne dust caused by high winds in this area of the County, when compared to ECM standard gravel roadways.

These criteria would be met, provided:

The proposed gravel material meets the ECM criteria for depth and material specifications called out in Table D-7 of ECM Section D.3.6. while accounting for any necessary variations in the specifications which should be applied to the use of RAP. Variations would be based on applicable elements of guidance in the FHWA publications and manuals referenced above being followed (with respect to the use of RAP material for use in gravel roadway construction and maintenance).

AND/OR

(if required) A design by a geotechnical engineer (with qualifying expertise in unpaved/gravel road design) is submitted and approved, which indicates a RAP alternative and specifies that it can accomplish the same design objectives and does not compromise public safety or accessibility with respect to vehicles and other roadway users – passenger motor vehicles, the occasional trucks of type typically associated with low-volume, local residential roads, fire district vehicles, pedestrians, bicycles, and equestrians.

The deviation will not adversely affect maintenance and its associated cost.

There is no impact on EPC operations as these are private roads built to EPC standards (except for the surfacing) with no EPC maintenance responsibilities. The crushed asphalt road surface will improve long term maintenance costs for the homeowner's association.

The deviation will not adversely affect aesthetic appearance.

No impact on aesthetics is anticipated.

The deviation meets the design intent and purpose of the ECM standards.

- The intent is to provide a roadway surface which performs comparable to or superior to ones with an ECM-standard gravel surface, while being superior for safety of a site-specific intended user of the roadways – equestrian riders/horses (an equestrian community).

The intent and purpose of the ECM standards would be met, provided:

The proposed gravel material meets the ECM criteria for depth and material specifications called out in Table D-7 of ECM Section D.3.6. while accounting for any necessary variations in the specifications which should be applied to the use of RAP. Variations would be based on applicable elements of guidance in the FHWA publications and manuals referenced above being followed (with respect to the use of RAP material for use in gravel roadway construction and maintenance).

AND/OR

(if required) A design by a geotechnical engineer (with qualifying expertise in unpaved/gravel road design) is submitted and approved, which indicates a RAP alternative and specifies that it can accomplish the same design objectives and does not compromise public safety or accessibility with respect to vehicles and other roadway users – passenger motor vehicles, the occasional trucks of type typically associated with low-volume, local residential roads, fire district vehicles, pedestrians, bicycles, and equestrians.

The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

- The requested deviation meets control-measure requirements of Part I.E.3 and Part I.E.4 of the MS4 Permit.

REVIEW AND RECOMMENDATION:

Approved by the ECM Administrator
This request has been determined to have met the criteria for approval. A deviation from Section _____ of the ECM is hereby granted based on the justification provided.

Denied by the ECM Administrator
This request has been determined not to have met criteria for approval. A deviation from Section _____ of the ECM is hereby denied.

ECM ADMINISTRATOR COMMENTS/CONDITIONS:

1.1. PURPOSE

The purpose of this resource is to provide a form for documenting the findings and decision by the ECM Administrator concerning a deviation request. The form is used to document the review and decision concerning a requested deviation. The request and decision concerning each deviation from a specific section of the ECM shall be recorded on a separate form.

1.2. BACKGROUND

A deviation is a critical aspect of the review process and needs to be documented to ensure that the deviations granted are applied to a specific development application in conformance with the criteria for approval and that the action is documented as such requests can point to potential needed revisions to the ECM.

1.3. APPLICABLE STATUTES AND REGULATIONS

Section 5.8 of the ECM establishes a mechanism whereby an engineering design standard can be modified when if strictly adhered to, would cause unnecessary hardship or unsafe design because of topographical or other conditions particular to the site, and that a departure may be made without destroying the intent of such provision.

1.4. APPLICABILITY

All provisions of the ECM are subject to deviation by the ECM Administrator provided that one of the following conditions is met:

- The ECM standard is inapplicable to a particular situation.
- Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship on the applicant, and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

1.5. TECHNICAL GUIDANCE

The review shall ensure all criteria for approval are adequately considered and that justification for the deviation is properly documented.

1.6. LIMITS OF APPROVAL

Whether a request for deviation is approved as proposed or with conditions, the approval is for project-specific use and shall not constitute a precedent or general deviation from these Standards.

1.7. REVIEW FEES

A Deviation Review Fee shall be paid in full at the time of submission of a request for deviation. The fee for Deviation Review shall be as determined by resolution of the BoCC.

Applicant Supplement

TRANSPORTATION
CONSULTANTS, INC.

Applicant Supplement:

THE REASON FOR THE DEVIATION:

The applicant requests that all roads in Silverado Ranch be allowed to be constructed with crushed asphalt surfacing instead of the approved compacted gravel. A recent Amendment to Filing 1 of Silverado Ranch approved the subdivision for private roads maintained by the Silverado Ranch Homeowners Association. Thus, these are PRIVATE ROADS WITH NO COUNTY MAINTENANCE RESPONSIBILITY. The applicant simultaneously applied for a Waiver to allow crushed asphalt road surfacing. It was the applicant's understanding that this Waiver was approved along with the Plat Amendment approval. However, the Waiver was apparently not processed concurrently with the plat amendment. Staff has now requested the applicant now apply for a Deviation to allow the entire subdivision to have crushed asphalt road surfacing instead of gravel.

SAFETY: Silverado Ranch PUD is planned as an equestrian-friendly rural community. It is designed with trails and open space suitable for recreational uses, especially equestrian uses. It is designed and marketed to appeal to families who want a rural lifestyle, including well-maintained roads. Crushed asphalt is the safest road surface for horses and their riders. Dr. Vicki Wynn, a local veterinarian writes:

"I am writing to discuss the safety of road materials for horses and their riders. Several factors should be considered, including comfort and injury possibilities for the horse, and fall injuries for both the horse and rider. A surface with a cushion and some give is ideal. Certainly, a crushed asphalt mixture is safer than loose gravel (which is safer than a hard surface like concrete or regular asphalt) as it will provide both give for the weight of the horse and rider, less chance of hoof and leg injury, and less chance of serious injury should there be a fall. When properly maintained, the crushed asphalt would provide the best surface for both horse and rider's safety."

RESIDENT PREFERENCE: The residents will be able to maintain the private roads to a standard they choose for an equestrian-oriented community. All current residents and owners are fully supportive of having private crushed asphalt roads maintained by the HOA and signed the now-approved Plat Amendment Application Form.

ECM STANDARDS COMPLIANCE: Roads will be built to ECM standards for gravel roads with the exception of crushed asphalt to replace compacted gravel.

SURFACE STABILITY: Crushed asphalt has increased surface stability vs. gravel and other benefits. This is important for Silverado Ranch's location in a significantly windy area of the County.

WIDESPREAD ACCEPTANCE: Crushed (screened) asphalt is accepted as class six material by most everyone except El Paso County. The surface packs tighter and remains smoother longer.

EXPLANATION OF THE ALTERNATIVE AND COMPARISON TO ECM STANDARDS

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

The alternative to crushed asphalt for Silverado Ranch is gravel surfacing.

Crushed asphalt has increased surface stability vs. gravel.

Crushed asphalt will enhance the health of the residents by reducing inhalation of the blowing gravel road dust in a windy area.

Other jurisdictions have embraced crushed (screened) asphalt as an accepted class six material.

Asphalt Industrial: Major retailer of asphalt maintenance products. Statements on website about crushed asphalt:

"**Gravel vs. Asphalt Millings - Which One is the Best Option**

"In the debate of asphalt millings vs gravel for driveways, clear differences in cost, upkeep, and environmental impact emerge. This concise guide dives into those key aspects, giving you the comparative insights needed to make a confident choice for your home.

Key Takeaways

- Asphalt millings offers an eco-friendly, cost-effective, and durable driveway material option with a long lifespan and minimal maintenance, while traditional gravel provides a classic look with more maintenance needs.

- Physical and functional attributes such as weather resistance, aesthetic preferences, and installation costs are important comparison factors between asphalt millings and gravel, with asphalt millings being generally more durable and lower in long-term cost.

- Environmental considerations play a significant role in choosing driveway materials, with asphalt millings being more sustainable due to the reuse of materials

- Employing recycled asphalt millings in road construction and other asphalt ventures conserves natural resources while cutting down on construction debris. This makes asphalt millings a viable option for those seeking to undertake a green initiative in their asphalt paving projects.

- Hence, opting for asphalt millings for your driveway or other asphalt projects can be an intelligent, environmentally friendly, and economical choice. It not only helps in resource conservation, but also ensures a robust and durable driveway."

General Kinematics is the premier manufacturer of vibrating equipment for the processing of bulk materials. They state on their website:

"Benefits of Using Crushed Asphalt

Some of the other benefits of using crushed asphalt include:

- Durability
- High-quality
- Eco-friendly
- Sustainability
- Weather-resistant
- No maintenance
- Affordable
- Appearance
- Good bonding ability
- Recycled
- Preserving other limited resources for different uses
- Versatile

- Compared with other types of materials, such as gravel, crushed asphalt lasts longer and is also more durable.

- Crushed asphalt can be used in nearly every way that concrete, asphalt, or gravel can be used, but there's the added benefit of cost-effectiveness, and the eco-benefit of using recycled material."

SAFETY AND OPERATIONS

The deviation will improve public safety by making it safer for horses and their riders to cross the private roads within the subdivision. It will also improve the health and safety of residents by lowering dust caused by high winds in this area of the County. There is no impact on EPC operations as these are private roads maintained by the HOA.

MAINENANCE AND ASSOCIATED COST

There is no impact on EPC operations as these are private roads built to EPC standards (except for the surfacing) with no EPC maintenance responsibilities. The crushed asphalt road surface will improve long-term maintenance costs for the homeowner's association.

AESTHETICS

No impact on aesthetics is anticipated.

Excerpts from *Gravel Roads Construction & Maintenance Guide*

TRANSPORTATION
CONSULTANTS, INC.

Excerpts from the publication:

GRAVEL ROADS CONSTRUCTION & MAINTENANCE GUIDE

(August 2015 USDOT FHWA)

Introduction (page ix)

The final section of the manual covers innovations in the gravel road maintenance and rehabilitation industry. Change is constant in almost every aspect of this modern world and new and different methods of maintaining gravel roads is no exception. There are new ways of stabilizing roads, new methods of dust control, and different kinds of equipment available for maintenance or rehabilitation of gravel roads. **Alternative surface materials such as recycled pavement or blends of recycled and virgin aggregate are being used. Not all of these innovations may be available or practical for every local agency, but everyone is encouraged to take an objective look at each alternative. Then, an informed decision can be made about changing the way gravel roads are designed and maintained within their particular jurisdiction.** Appendix A provides brief, basic guidance on construction or reconstruction of gravel roads

Section III: Surface Gravel

3.1: What is Good Gravel? (p.57)

The answer to this question will vary depending on the region, local sources of aggregate available and other factors. Some regions of the country do not have good sources of gravel (technically called aggregate in many places). A few coastal regions in the United States use seashells for surface material on their unpaved roads; **other regions use** materials such as clinker (locally known as "scoria" in some States), slag, **reclaimed materials such as recycled asphalt** or concrete pavement, and others as applicable in different regions of the country. However, this section of the manual will discuss the most common sources of material. They are quarry aggregates such as limestone, quartzite and granite; glacial deposits of stone, sand, silt and clay; and river gravels that generally are a mix of stone and sand. **One thing should be stressed: it pays to use the best quality material available.**

3.2: Difference Between Surface Gravel and Other Base Materials (p.58)

Too often surface gravel is taken from stockpiles that have been produced for other uses. For instance, the gravel could have been produced for use as base or cushion material for a paved road. There are two **major differences between surface gravel and base (cushion) material** which are: gravel for base material will generally have larger top-sized stone and a very small percentage of clay or fine material. This is necessary for the strength and good drainage characteristics needed in base gravels. If this material is used as a surface gravel, it will not form a crust to keep the material bound together. It will become very difficult to maintain. Other gravel could have been produced simply as fill material for use at building sites. This material often has a high content of sand-sized particles which make it very drainable. This is a desirable characteristic in fill material since water can quickly flow through it and drain away from under building foundations and parking lots. But, if this material is used on a gravel road, it will remain loose and unstable. **A good gravel road needs gravel with sufficient fine material which has a plastic or "binding" characteristic.**

3.3: Good Gradation (p.58)

Gravel is a mixture of three sizes or types of material: stone, sand and fines. This will be discussed further in the next section. Without a good blend of these three sizes, the gravel will perform poorly….

Good quality surface gravel may cost more, but it is often well worth the extra cost. Quality can only be determined by proper field sampling and then testing in a materials lab.

3.5 Recycled Asphalt (p.59)

As more of our asphalt pavements wear out, many of them are recycled. This is usually done by milling or crushing. Sometimes the material is available for use on a gravel road. It can be a good surface, but there are pitfalls. In this material, the bituminous portion of the old pavement becomes the binder. When placed on a road in hot weather, the recycled asphalt can take on the characteristic of pavement. It can become so tightly bound blade maintenance cannot be done. But it will be a weak pavement due to the oxidized condition of most recycled asphalt. It will often develop potholes and will be hard to maintain. To help overcome this problem, the material should be placed at a minimum 3-inch compacted depth and only on a road that has a strong subgrade. **A better option is to mix the recycled asphalt with new surface gravel. As little as 30 percent and as much as 60 percent of new surface gravel blended with recycled asphalt has performed well on local roads. This will generally provide a material that has a reasonably good binding characteristic, but remains workable for maintenance and reshaping.** Recycled asphalt has also been mixed with crushed, recycled concrete and the performance has been acceptable.

Please refer to the publication for additional information and guidance

https://www.fhwa.dot.gov/construction/pubs/ots15002.pdf