

## Design Exception #2 Slopes at the Truck Ramp

### Design Exception Statement

At the Truck Ramp use slopes greater than 2.5:1 as directed by the project Landscape Architect to create a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable.

### Process

A presentation was made to the Design Exception Issue Task Force at Meeting #2 on June 21, 2021.

The Design Exception process was reviewed by the Project Leadership Team on DATE. Meeting notes document their agreement that the CSS process was followed.

Reasoning for this Design Exception was developed using a Core Value Analysis Matrix and includes:

- The goals for the grading, simply stated, are to create a natural look and to build a slope that is sustainable, will revegetate, have minimum erosion, and is maintainable.
- Complementing surrounding physical characteristics
  - The surrounding slopes are approximately 2:1 (H:V). Using a 2.5:1 slope would result in larger areas of disturbance and sliver fills that are difficult to stabilize and establish seeds. Further, to complement the surrounding physical characteristics, the design is striving to screen the concrete barrier at the truck ramp from the highway as much as possible.

The Design Exception Team agreed to forward their recommendation to the Project Leadership Team supporting steeper slopes at the Truck Ramp.

At the Project Leadership Team #9 held on August 6, 2021, the TT recommendation was presented, the PLT reviewed the process used and agreed that the CSS guidance had been followed.

### Documentation for this Design Exception

- Design Exception ITF meeting #2 presentation June 21, 2021
- Design Exception ITF meeting #2 meeting notes
- Project Leadership Team meeting #9 presentation
- Project Leadership Team meeting #9 notes
- Core Value Analysis Matrix



## Summary of Design Exception ITF Aesthetic Concern and the Design Team's Plan

**Aesthetic Concern** - Steep Slopes may not revegetate successfully

**Design Plan, Specifications, and Field Supervision to address the concern** - As directed by the project Landscape Architect the contractor will construct a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable



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**Issue Task Force Design Exceptions Meeting # 2**  
**June 21, 2021**



# Agenda Overview

Meeting goal

Truck Escape Ramp Design Exception

Future Design Exceptions

Next Steps



## Meeting Goal

Discuss and agree upon a path forward for the Design Exceptions at the Truck Escape Ramp for finished slopes greater than 2.5:1



# Design Exceptions Process

- Review criteria
- Review Design Exceptions in light of the design refinements and existing conditions
- Present and discuss the individual design options for the best balance possible



# Design Exception at the Truck Ramp

... Design exceptions may assist a designer in finding a transportation solution that balances impacts to scenic, historic, and culturally or environmentally sensitive area while still providing for safety and mobility...

1. **Complementing surrounding physical characteristics**
2. Enhancing safety
3. Increasing capacity
4. Reducing costs
5. Protecting the environment
6. Preserving historic and scenic elements
7. Interfacing with multiple modes of transportation
8. Utilizing new technology or innovative approaches
9. Doing the right thing



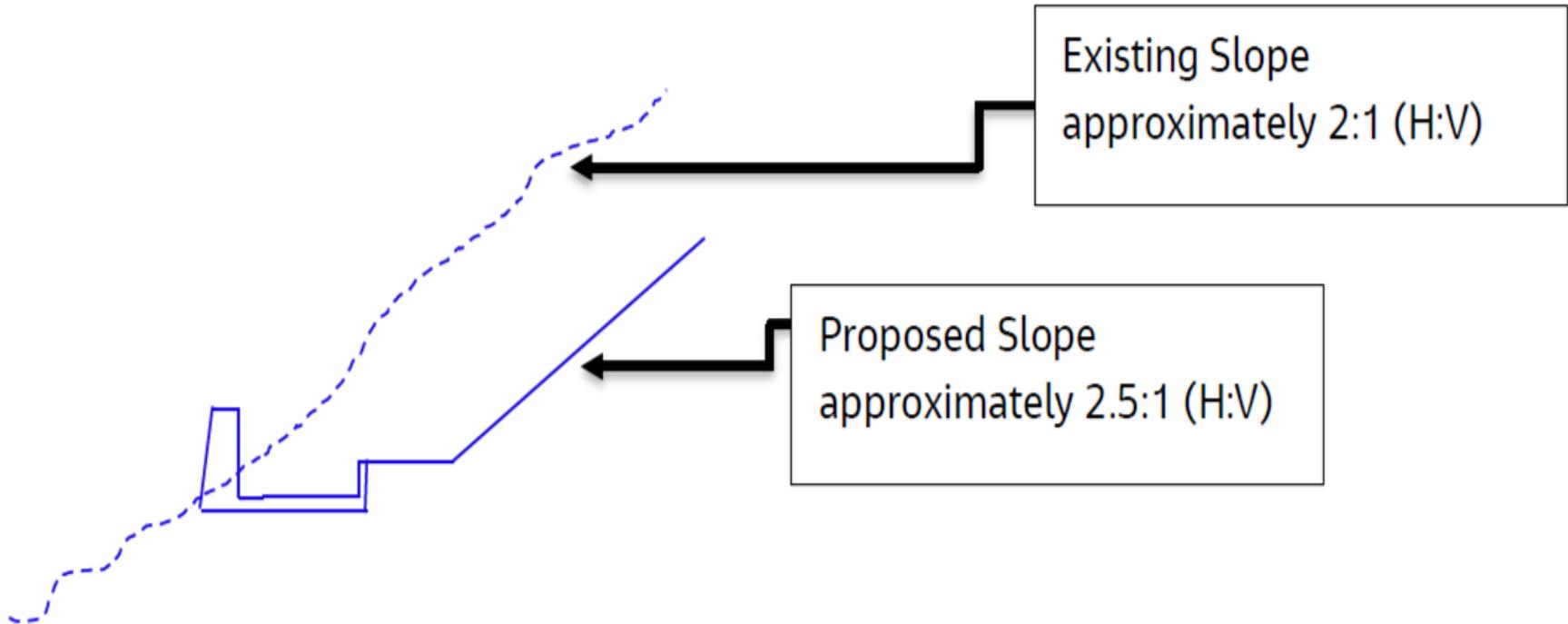


# Design Exception at the Truck Ramp

Design Criterion	ID	Mile Post	Justification for Criterion Exception
<p><b>Cut and Fill Slopes</b> Cut and fill embankment will not exceed a slope of 2.5:1 (H:V).</p> <p><b>Disturbance</b> Construction will be fully contained with areas of historic or current disturbance if no centerline change occurs.</p>	<p><b>Lower Truck Escape Ramp</b></p> <p>A design exception is needed at the lower truck escape ramp because the existing slopes are approximately 2:1.</p> <p>Additionally, there is a concrete barrier which defines the edge of the truck escape ramp. Approximately 1 to 3 feet of the barrier height would be exposed for about 65 feet of length with a 2.5:1 slope.</p>	<p>182.5</p>	<p><b>Goal for all grading:</b></p> <ol style="list-style-type: none"> <li>1. <u>Create a natural look.</u></li> <li>2. <u>Build a slope that is sustainable and will revegetate.</u></li> </ol> <p><b>Criterion Exception: Complementing surrounding physical characteristics.</b> The surrounding slopes are approximately 2:1 (H:V). Using a 2.5:1 slope would result in disturbance outside the historic disturbance.</p> <p>Further to complement the surrounding physical characteristics, the design is striving to have the concrete barrier at the truck ramp screened from the highway as much as possible.</p>

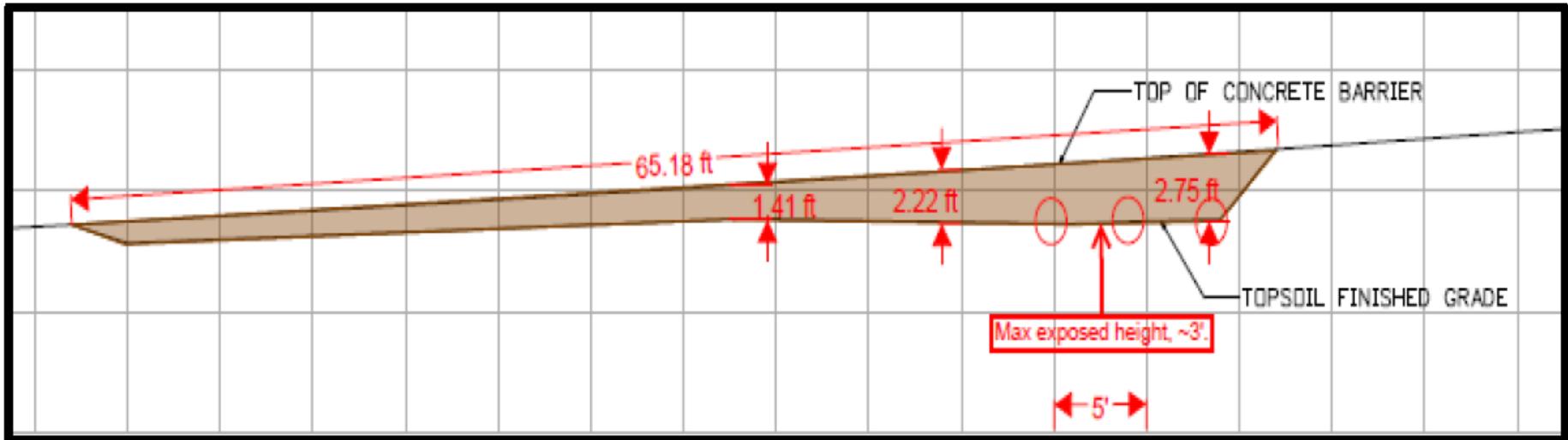


# Existing Slope at the Truck Ramp





# Design Exception at the Truck Ramp a View from the Interstate





## Design Exception Options at the Truck Ramp

1. Use boulders with a 2.5:1 to 2:1 slope to limit exposed barriers
2. Use a 2.5:1 slope resulting in up to 3' of exposed barrier
3. Use varying slopes as steep as 1.3:1 to eliminate exposed barriers

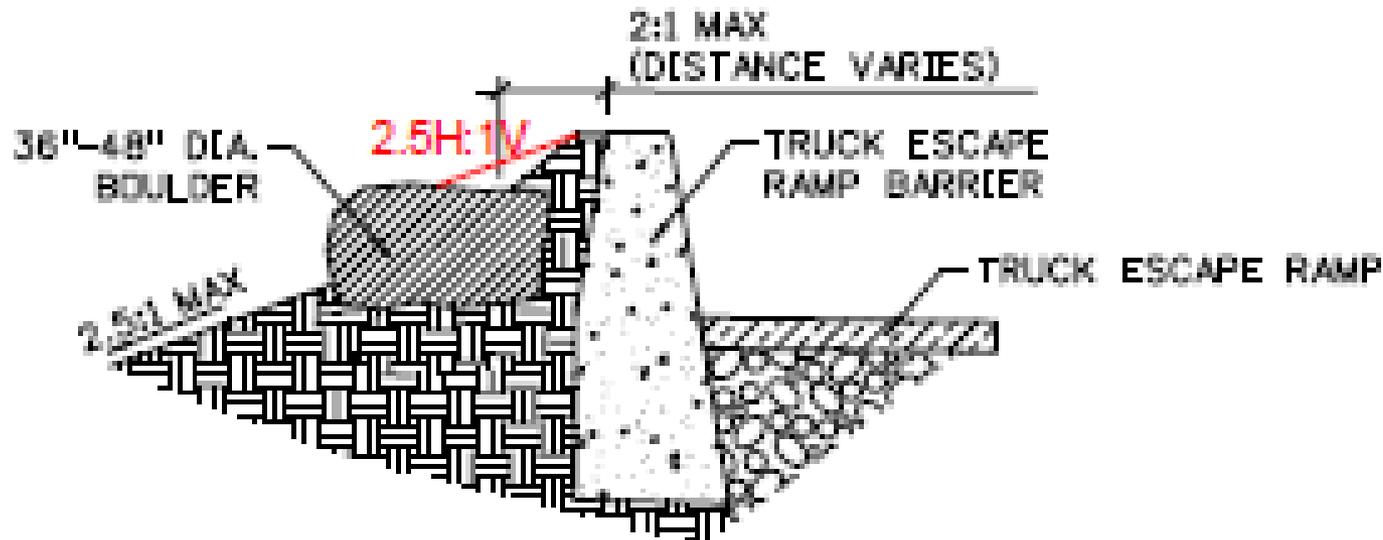
With options 1 and 2 exposed barriers could be screened with boulders and vegetation





## Design Exception Options at the Truck Ramp

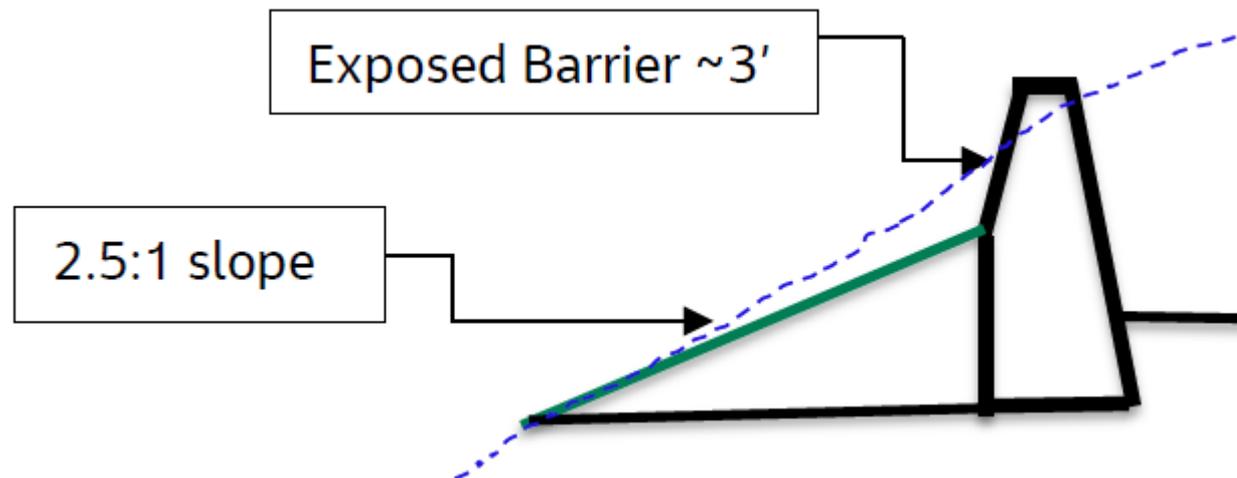
Use boulders with a 2.5:1 to 2:1 slope to limit exposed barriers





## Design Exception Options at the Truck Ramp

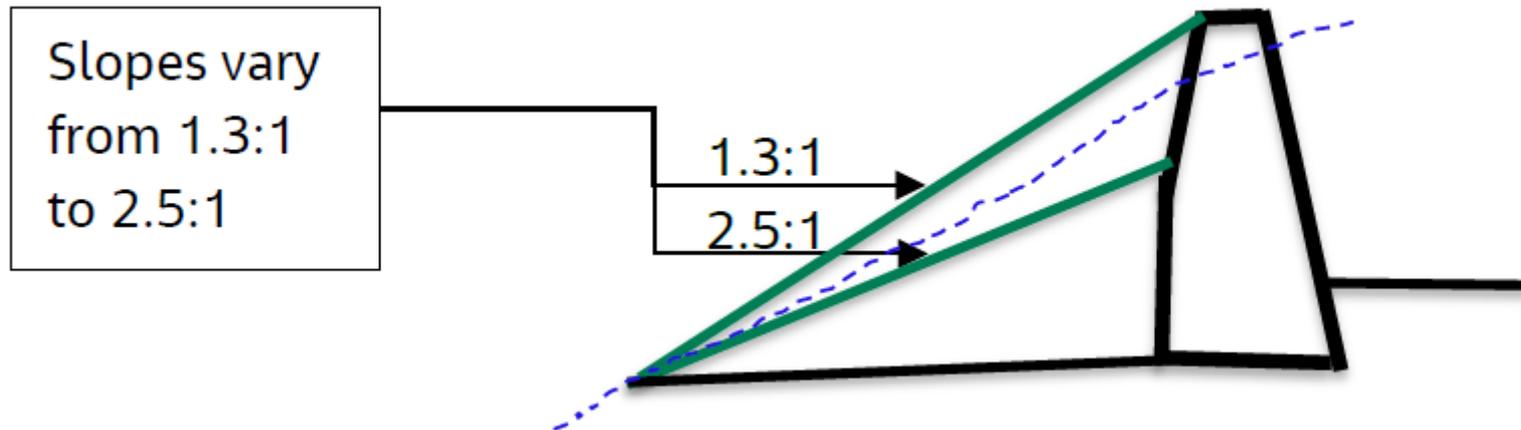
Use a 2.5:1 slope resulting in up to 3 feet of exposed barrier





## Design Exception Options at the Truck Ramp

Use varying slopes as steep as 1.3:1 to eliminate exposed barriers



## Design Exception at the Truck Ramp

- With all of the options the project Landscape Architect (LA) will be involved during rough grading
- The LA will layout a plan for the entire length of the slope
- The LA will consider using undulating slopes, vegetation, boulders, and other natural materials
- The LA will be involved in the final grading





## Design Exception at the Truck Ramp

Use slopes greater than 2.5:1 as directed by the project Landscape Architect to create a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable.



# Future Design Exceptions

- Reduction in median width
- Slopes greater than 2.5:1
- Retaining wall heights
- Disturbance areas greater than historic or 40 feet



## 23982-23929 I-70 West Vail Pass Safety and Operations Improvements Meeting Notes

**Date:** June 21, 2021

**Purpose:**

Issue Task Force (ITF) Design Exception Meeting #2

**Location:**

Online Google Meet Meeting

**Attending:**

Attendance list:

- Karen Berdoulay, Resident Engineer, CDOT Region 3
- Matt Figgs, CDOT Region 3
- Patrick Chavez, CDOT, I-70 Corridor Operations
- Mark Bunnell, CDOT Region 3 Traffic
- Stephanie Gibson, FHWA
- Jeff Bellen, FHWA
- Ben Wilson, USACE
- Kristin Salamack, CDOT/USFWS Liaison
- Greg Hall, Town of Vail
- Chad Salli, Town of Vail
- Pete Wadden, Town of Vail
- Dick Cleveland, Town of Vail
- Kevin Sharkey, ECO Trails
- Robert Jacobs, Summit County
- Len Wright, PhD, ERWSD
- Larissa Read, ERWSD
- Siri Roman, ERWSD
- Shannon Anderson, Bicycle Colorado
- Mark Gutknecht, Kiewit
- Randal Lapsley, R S & H
- Jeb Sloan, R S & H
- Mary Jo Vobejda, Jacobs
- Loretta LaRiviere, Jacobs

## Summary of Discussion:

The following is a summary of the subjects discussed during the meeting.

### 1) Goal & Meeting Purpose

- a) Mary Jo explained our goal for today's meeting is to discuss and agree on a path forward for the design exception at the lower truck ramp for finishing slopes that are greater than 2.5:1.
- b) The I-70 Design Criteria were developed several years ago, and we strive to meet the criteria on every project, but it is not always possible. That is why design exceptions are allowed. Today we are focusing on #1.

*Design exceptions may assist a designer in finding a transportation solution that balances impacts to scenic, historic, and culturally or environmentally sensitive areas while still providing for safety and mobility...*

- i) *Complementing surrounding physical characteristics*
  - ii) *Enhancing safety*
  - iii) *Increasing capacity*
  - iv) *Reducing costs*
  - v) *Protecting the environment*
  - vi) *Preserving historic and scenic elements*
  - vii) *Interfacing with multiple modes of transportation*
  - viii) *Utilizing new technology or innovative approaches*
  - ix) *Doing the right thing*
- c) Mary Jo said the criteria states that cut and fill areas will not have slopes that exceed 2.5:1 (horizontal to vertical) and the disturbance area will be fully contained within areas of historic or current disturbance if no centerline change occurs.

A design exception is needed at the Lower Truck Ramp because the existing slopes are approximately 2.1 and there is a concrete barrier that defines the edge of the escape ramp. Approximately 1 to 3 feet of the barrier would be exposed for about 65 feet if we use a 2.5:1 slope. We will end up with a huge disturbance area if we continue to chase that slope.

Our goal is a design exception that allows the use of slopes 2.5:1 to create a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable.

Our justification for the design exception is we want to create a natural looking slope that is sustainable and will revegetate. We also want to screen the barrier as much as possible so as not to take away from the natural look.

Mary Jo presented the three options:

i) Use boulders with a 2.5:1 to 2.1 slope to limit exposed barriers. There are some places above the boulders would likely be steeper than 2.5:1. The boulders will be obtained from the construction site. It is not a continuous boulder wall so you may see the barrier in between the rocks.

ii) Use a 2.5:1 slope resulting in up to 3 feet of exposed barrier

iii) Use varying slopes from 2.5:1 and as steep as 1.3:1 to eliminate exposed barriers. This steep slope could be difficult for vegetation to get started

With options 1 and 2 exposed barriers could be screened with boulders and vegetation and we will also color the barrier so that instead of concrete grey it is more of a brown tone.

With all options we will have the landscape architect (LA) create a plan for the rough grading which will be for the entire slope. The LA will also use undulating slopes, vegetation, boulders, and other natural materials in the plan. The LA will also be involved in the final grading and will be on site as the boulders are placed.

d) Karen clarified this would not change the wall above the truck ramp, just the small area between the truck ramp and I-70. We would include in the construction contract the requirement for a 2.5:1 slope with scattered boulders which could be adjusted in the field as needed.

e) Karen said this is a small area to request a design exception but it's good to start the conversation about the challenges our designers are running into in other areas on the Pass where the existing slopes are greater than 2.1. There may need to be a balance in the slopes, maybe from 1.8:1 or 2.1 in some areas and still use some boulders to make this blend the best we can.

f) Karen said the truck ramp is the first project and a lot of these design principles are going to carry throughout the project so we're really trying to be cognizant of what this looks like from I-70. Do we want to try to integrate random boulders in some areas that are steeper and hide the barrier or do we want to show the barrier?

i) Greg said your design exception requests to allow slopes greater than 2.5 and be maintainable. Do we want to define the maximum slope?

Mary Jo said she likes including a maximum slope quite a bit. When the I-70 design criteria guidance was being put together, every time we drove up the mountain corridor we were looking at the Central City Parkway which is one of the biggest scars that has ever been left on this corridor and we wanted to think about when the ultimate look would be. It took years



before anything started to grow on it because the slopes are too steep. The idea of a maximum slope could give us more assurance that we could get vegetation to establish itself.

- ii) Greg asked what do you consider maintainable? He said he thinks you have the right approach to build it and see what it looks like when it's all done.

Karen said vegetation on Vail Pass is more grasses and we want to be able to hold grasses not just sage brush or something like in the Post Boulevard area. My preference for this site would be to go as steep as 2:1, scatter the boulders so we can get some pockets and a little bit more undulation so it's not a steep slope. I guess the question for the group is, is it important to hide the barrier?

Mary Jo said there will always be a LA involved and there is always a landscape plan. Those are required in the Design Criteria and Aesthetic Guidelines.

- iii) Greg asked how much grading and blending do you need to do to match it in? He assumes the exposed barrier would be tinted. Once it's all done and sitting back and looking at it. 68 feet or 65 feet, blending a little bit more and you end up with 20 feet of 2-foot exposed barrier.

- iv) Stephanie asked if the barrier will be painted or is it tinted all the way through?

Matt said the barrier is stained, not tinted all the way through.

Karen said when you look at the area now from I-70 looking up the truck ramp there is a barrier there now and the grass grows right up to it. The biggest difference in our case is you there will be the rock sculpted wall in this area..

- v) Stephanie said she doesn't have strong feelings either way however she does like the idea of undulating because just flat slopes with grass is not a natural thing in this area. She also agrees with the need for a maximum slope because otherwise it's hard for maintenance to get vegetation to grow. And it will be harder to get NPDS permit cleared because you have to have a certain amount of vegetation grown before you can get close out the permit. Growing the vegetation is important for visual and also to avoid erosion. It would be better in the long run for the creek, which I know is a major issue.
- vi) Dick said he agrees with both Stephanie and Greg. Very often trying to hide things ends up making it more obvious so he is less concerned with seeing a small section of the barrier and having a more natural complementary slope



that allows grasses to grow and reduces erosion. If that is the direction you're going so he would be totally supportive of those options.

vii) Shannon asked if having boulders up there make it more dangerous for the truck drivers because they may hit them?

Karen said the trucks would be coming off I-70 onto the truck ramp and there is a barrier to protect them from the slope. The boulders would be on the other side of that barrier. It's up on the hillside and pretty far from I-70, outside of the clear zone where a car can run off and recover

viii) Greg said probably the biggest success factor for getting steeper slopes vegetated is soil preparation. Getting the jute mat down and seeding it at the right time right before the monsoons. After a year or two can you go back and reseed the spots that are a little bit bare. The rockfall berm before Vail Mountain School is around 2.1 it took us two times but the second time it finally started to revegetate.

Karen said we will be reseeding it for revegetation, but we are doing a landscaping phase for the whole project and will come back here and potentially add some more landscaping near the end of the project. It makes sense to do that all at once. We will have a lot of opportunity to reseed.

Matt said they are looking at seeding in late fall to make sure we get the best opportunity for growth on that slope. The seed is put down and it hibernates and freezes over the winter and comes back really strong in the spring when the snow starts melting. There are a lot more amendments that we are adding to our topsoil spec than we normally would to try to help facilitate seed growth.

- g) Karen said it seems that people feel pretty comfortable establishing a maximum slope that is somewhere between 1.8 and 2.1 and allowing for some adjustment by the LA in the field. She said she also heard that it is not as important to hide the barrier and it's okay for barrier to be visible if that offers more flexibility in having a more natural looking slope that is more well established with vegetation. This is really helpful for us because we weren't sure how important that was. I think this makes a lot of sense to me from an environmental perspective as well as aesthetics.
- h) Mary Jo said we will add the maximum slope to the design exception before presenting it to the PLT for concurrence. There were no other comments or objections with letting the designers move ahead with slopes that are greater than 2.5:1 and following the plan of the LA.

Mary Jo noted there will be other locations with slopes greater than 2.5:1. This is happening the recreation trail in some locations.

## 2) Future Design Exceptions

- a) Mary Jo said there are other design exceptions we are working on and will be presenting to you in a future meeting:
  - Reduction of the median width vertically or horizontally.
  - Retaining wall heights. The design criteria state no retaining walls above the roadway platform will be greater than 12 feet. There are retaining walls that are higher than that but then they're directed to be put underneath the highway so that the drivers don't see them.
  - Disturbance areas greater than historic disturbance or 40 feet. There are some places that we're probably going to exceed that a little bit. We are not looking at going outside of the Environmental Assessment limits at this moment, but if this changes, we would take the appropriate steps to get clearance.
- b) Greg asked if you expect to have all the design exceptions reviewed before the FIR meeting?

Karen said the plan right now is we have our FIR in September and a lot of the design exceptions are related to the roadway alignment that is not going to finish design until the end of 2022. However, we need to make sure we determine where the roadway is going to be for the wildlife crossings. Some potential design exceptions require more work to fully understand them before we will be ready to present to you.





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**Project Leadership Team Meeting # 9**  
**August 6, 2021**



# Design Exceptions Reviewed

Truck Ramp Slope greater than 2.5:1

Roadway median reduction at

MP 184.8 - 185.3 (EB and WB)

MP 186.9 - 187.4 (EB and WB)

MP 188.9 - 190.1 (EB and WB)



Project Leadership Teams Role in Design Exceptions

Ensure that the CSS Design Criteria Design Exception Process have been followed.



# Design Exception

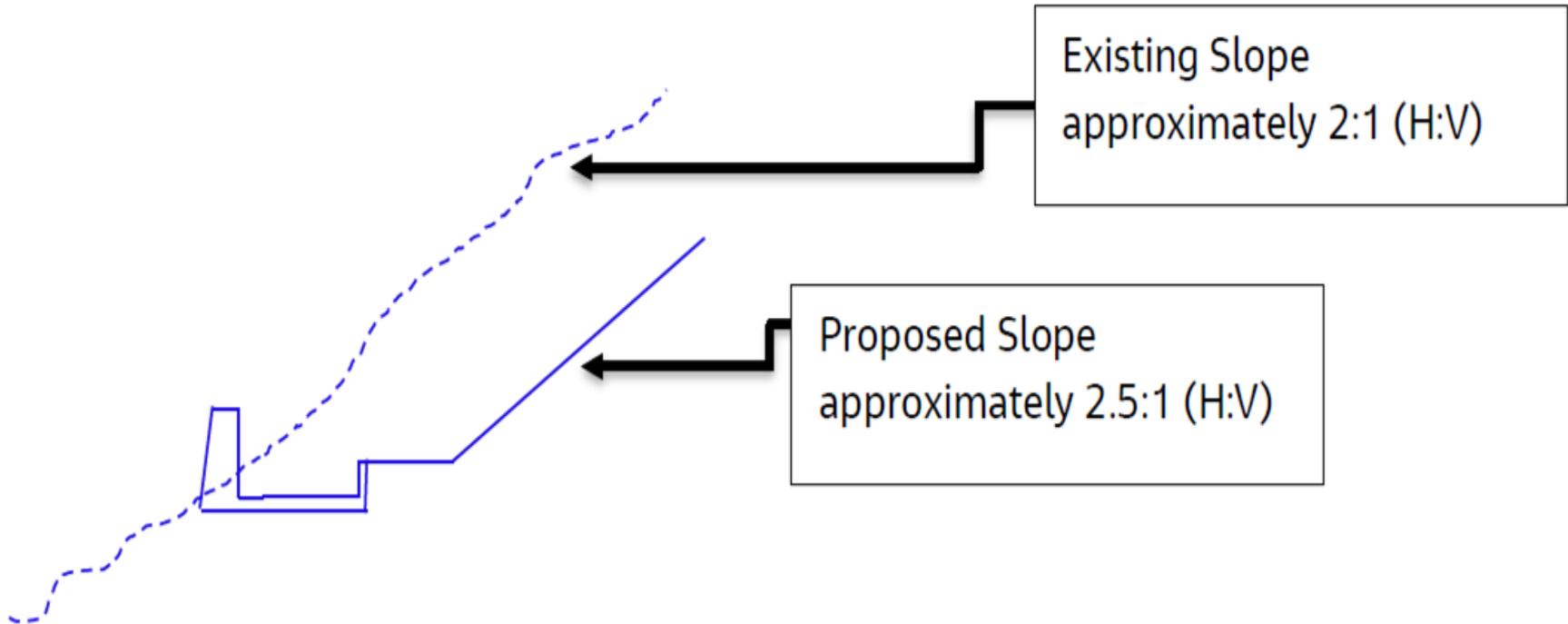
... Design exceptions may assist a designer in finding a transportation solution that balances impacts to scenic, historic, and culturally or environmentally sensitive area while still providing for safety and mobility...

1. **Complementing surrounding physical characteristics**
2. Enhancing safety
3. Increasing capacity
4. Reducing costs
5. **Protecting the environment**
6. Preserving historic and scenic elements
7. Interfacing with multiple modes of transportation
8. Utilizing new technology or innovative approaches
9. Doing the right thing





# Existing Slope at the Truck Ramp





## Design Exception Options at the Truck Ramp

1. Use boulders with a 2.5:1 to 2:1 slope to limit exposed barriers
2. Use a 2.5:1 slope resulting in up to 3' of exposed barrier
3. Use varying slopes as steep as 1.3:1 to eliminate exposed barriers

With options 1 and 2 exposed barriers could be screened with boulders and vegetation





# Design Exception Recommendations

## Truck Ramp Slopes

Use slopes ranging from 2.5:1 to 1.8:1 as directed by the project Landscape Architect to create a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable.



## 23982-23929 I-70 West Vail Pass Safety and Operations Improvements Meeting Notes

**Date:** August 6, 2021

**Purpose:**

Project Leadership Team (PLT) Meeting #9

**Location:**

Online Google Meet Meeting

**Attending:**

Attendance list:

- John Kronholm, Project Manager, CDOT Region 3
- Karen Berdoulay, Resident Engineer, CDOT Region 3
- David Cesark, CDOT Region 3 Environmental Manager
- Zane Znamenacek, CDOT Region 3 Traffic Program Engineer
- Matt Figgs, CDOT Region 3
- Greg Hall, Town of Vail
- Pete Wadden, Town of Vail
- Dick Cleveland, Town of Vail
- Ben Gerdes, Eagle County
- Robert Jacobs, Summit County
- Tracy Sakaguchi, Colorado Motor Carriers
- Randal Lapsley, R S & H
- Jim Clarke, Jacobs
- Mary Jo Vobejda, Jacobs
- Loretta LaRiviere, Jacobs

**Summary of Discussion:**

The following is a summary of the subjects discussed during the meeting.

**1) Design Exception Review of CAP 1 Design Refinement Process**

- a) Mary Jo said there is design criteria specific to the I-70 Mountain Corridor. Design Exceptions are allowed in areas where you can't meet the design criteria. There is a process a designer needs to go through that requires they

look at a balance between all the different core values: scenic, historic, cultural, environment. All design exceptions must provide safety and mobility.

We have been looking at complementing the physical characteristics. Most of the slopes in the valley are at 2:1. This is a physical characteristic and it is just about impossible to chase it with a shallower slope and to make it work, we have to do something different. Sometimes it's a wall but we don't want to build walls everywhere.

The other factor is protecting the environment. As you chase these slopes or realign the recreation trail we would impact forested areas, wetlands, and other sensitive environmental areas.

b) We asked for support for a design exception at the lower truck ramp. The design criteria requires a 2.5:1 slope and in this area the existing slope is 2:1. If you try to put a slope at 2.5:1, the two never meet and you just push this higher up the slope or you end up with a big wall that perhaps you could avoid. In this particular case, we do have a wall on the uphill side of the truck ramp in some locations. One of our other goals with the truck ramp was to cover up this concrete barrier with slope so that it wouldn't be seen from the interstate. We presented options:

- i) Use boulders with a 2.5:1 to 2:1 slope to limit exposed barriers. Some of the barrier would be exposed.
- ii) Use a 2.5:1 slope and leave up to 3 feet of exposed barrier
- iii) Use varying slopes as steep as 1.3:1 to eliminate exposed barriers which is pretty steep and difficult to keep vegetation growing, keep it from sluffing. Any time you could see the barrier, it could be screened with boulders and vegetation.

The Design Exception ITF agreed that we should be able to use slopes greater than 2.5:1. We talked about how that would happen with the input of the landscape architect and landscape plan at locations where boulders and other techniques can be used to achieve revegetation.

## 2) Design Exception Recommendations

a) Mary Jo said the Design Exception ITF has agreed to and they are making recommendation going forward that for the Truck Ramp:

*Use slopes ranging from 2.5:1 to 1.8:1 as directed by the project Landscape Architect to create a slope that fits into the adjacent landform, looks natural, sustains vegetation and is maintainable.*

b) We did put this in the hands of the project landscape architect because it is a requirement for all of these projects to have a landscape plan. Obviously the



landscape architect is not making these decisions alone, but they are the ultimate producer and designer of the landscape plan. They are working with everybody to see if there are other ways to minimize these impacts before we go to a steeper slope. But ultimately it is captured and codified on the landscape plan.



## Justification for a Slope Variance at the Lower Truck Escape Ramp

As an element of the INFRA Grant projects, improvements to the lower truck escape ramp are planned in the first construction package. This construction is focused on improving the safety of the truck ramp.

The design exception process is prescribed in the I-70 Mountain Corridor CSS Guidance and allows for design exceptions that may assist a designer in finding a solution that balances impacts to scenic, historic, and culturally or environmentally sensitive areas while still providing for safety and mobility.

The following may constitute justification for design exceptions:

1. Complementing surrounding physical characteristics
2. Enhancing safety
3. Increasing capacity
4. Reducing costs
5. Protecting the environment
6. Preserving historic and scenic elements
7. Interfacing with multiple modes of transportation
8. Utilizing new technology or innovation approaches
9. Doing the right thing

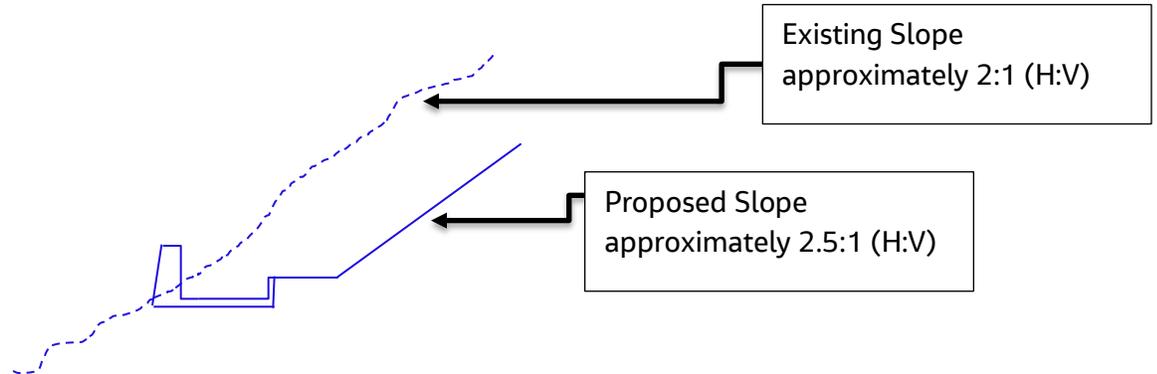
The design exception for the Lower Truck Escape Ramp is encompassed in the first justification, **Complementing surrounding physical characteristics**.

The design exception is needed because the existing slope gradient is approximately 2:1, steeper than the design criteria's maximum slope gradient of 2.5:1, making a 2.5:1 finished slope difficult to achieve within the prescribed disturbance area. Additionally, there is a concrete vehicle barrier which defines the edge of the truck escape ramp and it would not complement the surrounding physical characteristics, if left exposed. Approximately 1-3' of the barrier height would be exposed for about 65' of length with a 2.5:1 slope.

The goals for the grading, simply stated, are to create a natural look and to build a slope that is sustainable, will revegetate, have minimum erosion, and is maintainable.

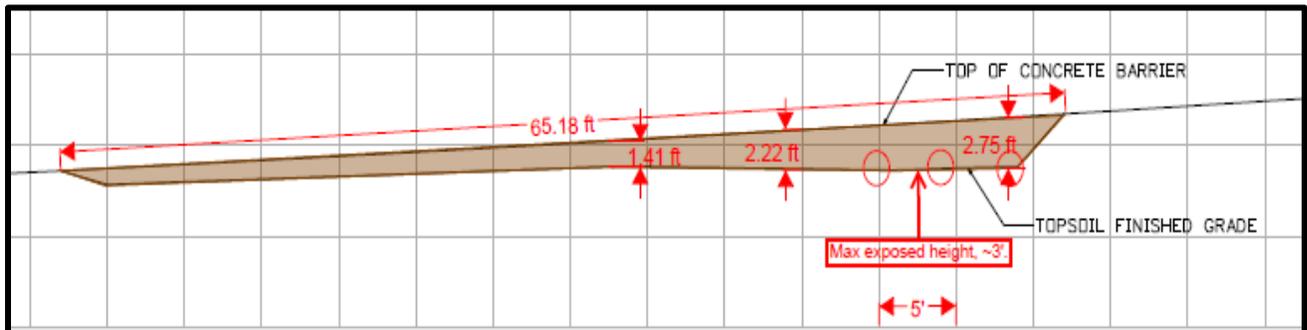
Design Criteria	ID	Mile Post	Justification for Criterion Exception
<p><b>Cut and Fill Slopes</b> Cut and fill embankment will not exceed a slope of 2.5:1 (H:V).</p> <p><b>Disturbance</b> Construction will be fully contained within areas of historic or current disturbance if no centerline change occurs.</p>	<p><b>Lower Truck Escape Ramp Design Exception #1</b></p>	<p>182.5</p>	<p><b><u>Criterion Exception:</u></b> <b><u>Complementing surrounding physical characteristics</u></b></p> <p>The surrounding slopes are approximately 2:1 (H:V). Using a 2.5:1 slope would result in larger areas of disturbance and sliver fills that are difficult to stabilize and establish seeds.</p> <p>Further, to complement the surrounding physical characteristics, the design is striving to screen the concrete barrier at the truck ramp from the highway as much as possible.</p>

## Existing Slopes and Barrier Conditions



### Typical Section at the Truck Escape Ramp

Below is a view from I-70 facing the truck ramp showing, in brown, the barrier that would be exposed using a 2.5:1 slope. This slope exposes barrier over approximately 65' along the highway. The exposed height varies from 1' to 3' with the maximum 3' of barrier exposed for less than 20 feet.

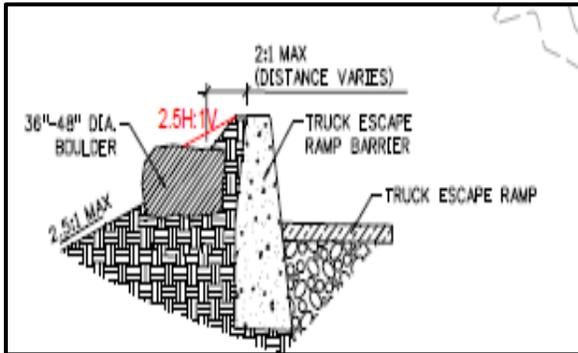


## Options

Options for design, include:

- 1) Scattered boulders on a 2.5:1 to 2:1 slope to reduce the view of exposed barriers.
- 2) Using a 2.5:1 slope resulting in views up to 3' of exposed barrier.
- 3) Varying the slopes to as steep as 1.3:1 to eliminate the views of exposed barriers.

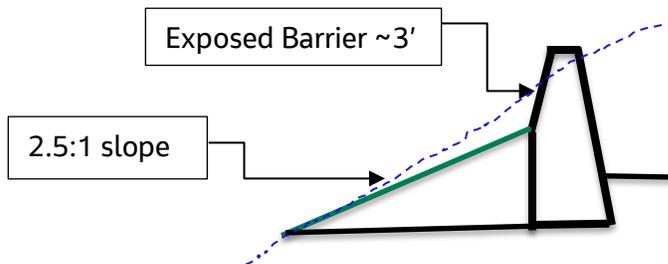
**Option 1** – Use native sourced boulders with a 2.5:1 to 2:1 slope to limit the views of exposed barriers. These boulders would be placed in a scattered pattern directed by the Landscape Architect. This would not be a boulder wall. The barrier would be stained to blend into the surroundings. The slope will be planted with native grasses. For slopes that exceed 2.5:1, additional slope stabilizing methods, such as erosion blankets, will be used to help retain the slope and allow seed establishment.



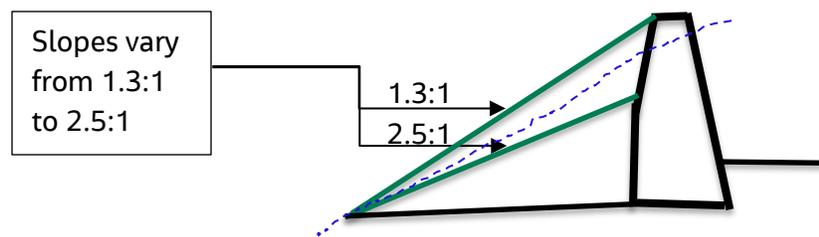
Typical Section with Boulder Placement in front of the concrete barrier

**Option 2** - Use a 2.5:1 slope resulting in up to 3' of exposed barrier. The slope would be stabilized with native grasses. The barrier would be stained to blend into the surroundings.

This design would not create a design exception for the slope. However, it does not reach the goal set in the Aesthetic Guidelines for the Truck Escape Ramps of “Blending site grading into landforms adjacent to emergency runaway truck ramps to complement adjacent natural topography and vegetation patterns.



**Option 3** - Use varying slopes as steep as 1.3:1 to eliminate exposed barrier. The slope will be planted with native grasses. For slopes that exceed 2.5:1, additional slope stabilizing methods, such as erosion blankets, will be used to help retain the slope and allow seed establishment.



With all options the project Landscape Architect (LA) will be involved as the contractor does rough grading. The LA will lay out a plan for the entire length of the slope in front of the barrier considering and using undulating slopes, vegetation, boulders, and other natural materials to create a slope that fits into the adjacent landforms and honors the original project design.

The LA will be involved in final grading of the slope.



### Proposal to the Design Exception Issue Task Force

#### Proposal

Use slopes greater than 2.5:1 as directed by the project Landscape Architect to create a design that fits into the adjacent landform, looks natural, sustains vegetation, minimizes erosion, and is maintainable.

The Design Exception Issue Task Force will meet and discuss this design exception. Their recommendation will be presented to the Project Leadership Team for their concurrence that the proposal meets the CSS Guidance.