

MEMORANDUM

DEPARTMENT OF TRANSPORTATION

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**SH 92 Stengel's Hill
Project Code: 17772**

DATE: August 8, 2013
TO: UPRR, Attn: Sherman Spear
FROM: Rob Martindale
SUBJECT: Overhead Structure, Preliminary Plans, MP 67.66, North Fork Sub, SH 92, Hotchkiss, CO, DOT 254041G – UPRR Engineering Review

This memorandum addresses the Union Pacific Railroad's (UPRR) comments regarding the proposed grade separated crossing located 14.5 miles east of Delta, CO on State Highway 92. On February 1, 2013 Kelly Abaray with the UPRR sent an e-mail requesting CDOT address UPRR comments see attached e-mail. On April 16, 2013 Kelly sent an additional set of comments that included some of the same items identified within the 2/1/13 comments, but also included some additional comments, see attached e-mail.

The following CDOT submittal will address the comments provided by Kelly dated 4/16/13. The specific comments received from the UPRR on 4/16/13 are identified below in black and all CDOT responses are in red. The set has been condensed to only include the plan sheets that specifically address UPRR comments. Please find all attachments listed on page 4 of this memo can be found on the attached CD.

UPRR Comments and CDOT Responses

1. Show limits of Railroad right of way on the plan and elevation view.

The existing easements, grants and right of way are shown on the plans and have been labeled clearly to show proper ownership. The following attached CDOT Union Pacific Railroad ROW exhibits along with Roadway plan sheets 58-60 provide detailed UPRR ROW information.

2. Structure shall span UPRR right-of-way while maintaining the permanent vertical clearance over existing and future UP tracks. If the structure is unable to span the right-of-way provide a detailed explanation for this and for the structure selected. Explanation should show that all options have been exhausted.

During the conceptual design phase several options were analyzed. A "Public Project Review Document" attached hereon was provided by David Peterson on 4/13/2011. The structure selection report was developed and reviewed by UPRR. Following this review the UPRR issued Five (5) items as design guides and is identified below:

- 1) “The overpass is the preferred alternative”.
- 2) “The underpass alternative is not viable due to relocation of the tracks”.
- 3) “UPRR will waive its requirement for a clear span over the right-of-way, considering site constraints, and operating and capacity requirements for this rail line”.
- 4) “The proposed location of the bridge piers is acceptable”. The design incorporates heavy construction for piers within 25’ and a FA item will be set up to cover cost of Guardrail. (See comment 3 and 4 below).
- 5) The structure selection report showed MSE walls to be the most viable solution and walls inside the 25’ clear zone will be protected by guardrail at the project expense. Please provide guardrail estimate to CDOT for inclusion into C&M Agreement.

3. Indicate and provide sufficient clearances of 1 future track and 1 access road on the North side of the existing track. Refer to the attached joint BNSF/Union Pacific Grade Separation Guidelines for design parameters and spacing.

Please refer to item 3 of the attached “Public Project Review Document” that indicates the “UPRR will waive its requirement for a clear span over the right-of-way, considering site constraints, and operating and capacity requirements for this rail line”. CDOT is under the impression the UPRR has waived the design requirement for 1 future track and 1 access road on the North side based on items listed above.

4. Show horizontal clearances from the centerline of existing/future rail to the face of the proposed retaining walls.

The Minimum Construction Clearance detail will be incorporated into the plan set and enforced in the field (see plan sheet 68).

Please see attached wall plan sheets 102-105 that indicate the face of the wall will be located 25’ from the centerline of existing track between East Wall Sta 10+37.00-Sta 11+52.00. From Sta 11+52-Sta 17+52.00 the proposed wall is greater than 25’ from existing track centerline, refer to wall sheets 102-104.

The West wall is 25’ from track centerline from Sta 20+16.00-Sta 21+10.00. From Sta 21+10.00-Sta 24+86.27 the proposed wall is greater than 25’ from existing track centerline refer to wall sheet 105.

5. Piers within 25 from centerline of existing or future tracks shall be of heavy construction or protected by a pier protection wall. The pier footing shall be a minimum of 6 feet below the base of rail and a minimum of 1 foot below flowline of ditch.

Pier 2 (plan sheet 67) meets the minimum 25’ clear distance. Pier 3 (plan sheet 67) has a minimum clearance of 18’ and will meet all "Pier Protection, AREMA 06" requirements. Both piers were designed to meet heavy pier construction requirements. Piling and casing depth data is shown on Foundation layout on sheet 73 which well exceeds minimum burial depths. Additionally CDOT will need an estimated cost for guardrail installation to be done by UPRR forces.

Also the limits of the protective fence with barrier include the full length of the bridge and approach slab (see plan sheet 70-72). This provides a perpendicular horizontal clearance from the existing track centerline of 37.2’ at the west approach and 38’ at the east approach.

Barrier rail and fencing meet the requirements of the UPRR standard Fence on Barrier detail which shows a total height of 10' with a 30" barrier for a shoulder of 6'. Please see Typical Section detail on plan sheet 88 which shows a total height of 10' and a barrier of 35" (the roadway has 8' shoulders as shown on Typical Section Detail on plan sheet 68).

6. Provide details for the retaining walls including but not limited to structural dimensions, reinforcement, design earth loads, and drainage plan.

Wall plans are attached please refer to wall plan sheets 100-119. Wall details including wall calculations, foundation plans, construction notes and general layout are included.

7. The H&H report shall be based per the 100 year event for all mainline Railroad projects.

Please see attached Drainage Memorandum. This memorandum includes 100 year flows as well as summarizes flow proposed drainage that will interact with UPRR facilities.

8. Plan must indicate barrier rail is closed type and bridge drainage will not fall on nor be directed toward Railroad right-of-way.

CDOT standard Bridge Rail Type 7 (B-606-7) as called out on the Typical Detail on plan sheet 84 does not include drain slots. The surface drainage from the bridge will not be drained through slots in the barrier but be carried along the barrier and released through run downs and carried offsite identified on sheet 58.

9. Provide further detail on BIG GULCH culvert improvements. If crossing Railroad right-of-way plans shall show these limits and applicant shall send a separate Pipeline submittal for Railroad approval.

CDOT is not proposing any work on the Big Gulch Culvert within the UPRR ROW. The proposed culvert work is to extend the 8' concrete arch in kind. Please see attached sheets 125 to 130 for details.

Include the following in the General Notes:

The following general notes have been included on plan sheet 9 under a special heading "Railroad Notes"

1. The proposed grade separation project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures. (Show this in design)

2. The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.

3. All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall be in compliance with the Railroad's Demolition Guidelines.

4. Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's

requirements.

5. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.
6. False-work clearances shall comply with minimum construction clearances. Show the attached diagram.
7. All permanent clearances shall be verified before project closing.

CDOT adjusted the language of note 7 to read “All permanent clearances including horizontal and vertical clearance to existing railroad features shall be field verified and documented by the Contractor to be approved by the Railroad”

Attachments:

- 1) **Public Project Review Document.**
- 2) **SH 92-Railroad Revisions.pdf – (revised plan sheets only).**
- 2) **SH 92- Plan Set.pdf – (entire plan set).**
- 3) **CDOT Union Pacific Railroad ROW exhibits.**
- 4) **UPRR H and H Memo_5-17-13.**

Cc:

Rick Friesen- UPRR Structures

Ron Dickey- CDOT Railroad coordinator

Pam Fischhaber, P.E. PUC Rail/Transit Safety Section Chief

Public Project Review Document :

Category:Overhead Structure

Description:concept - overpass and underpass alternatives

City: Hotchkiss	MP: 67.66 &	AWO#
State: CO	Subdivision: NORTH FORK SUB	Contract Audit #
Roadway/Other: SH 92	Lat/Long: /	Service Order#
DOT: 254041G &	Folder #:	

Date Received: 02/24/2011

Received From: dave peterson

Status: Approved- with Exceptions

Date Assigned: 02/24/2011

Assigned To: Jack F. Mullen/UPC

Date Released: 04/13/2011

Released To: David E. Peterson

Send To:	David E. Peterson/UPC, Kelly A. Abaray/UPC
Copy To:	
Subject:	Underpass Structure, concept - permanent realignment, MP 67.66, North Fork Sub, SH 92, Hotchkiss, CO, DOT 254041G

1. The overpass is the preferred alternative from UPRR's perspective.
2. The underpass alternative does not appear viable, since the terms for railroad relocation onto BLM lands would be unacceptable.
3. UPRR will waive its requirement for a clear span over the right-of-way, considering site constraints, and operating and capacity requirements for this rail line.
4. The proposed location of bridge piers within UPRR ROW is acceptable. All piers on railroad ROW shall be of heavy construction or incorporate crash wall protection to a minimum height of 12 feet above top of rail. Maintain 25' minimum clearance from track centerline on outside of curve.
5. We discussed use of MSE retaining walls. MSE walls are not acceptable on railroad right-of-way according to UPRR policy, and we recommend that CDOT consider alternatives as design progresses. If alternatives are unfeasible, we will approve a variance provided that the walls are a minimum of 25 feet from track centerline. and may require installation of inside guardrail at project expense to mitigate risk of derailment damage.