

Memorandum

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To: Nick Cheng, PE, Project Manager

From: Troy Slocum, PE, CFM

CC: Scott Waterman, PE

Date: November 11, 2011

File Number: 11-100-301-02

Re: 6th Ave over BNSF Bridge Replacement – Water Quality Concept

The purpose of this memo is to provide a brief summary of the conceptual water quality strategies and to describe the preliminary water quality approach for 6th Ave over the BNSF. Once the general approach is accepted by CDOT and CCD, a more detailed water quality analysis and report will be submitted. The attached exhibit shows a conceptual approach and gives a brief description for each basin's area, area treated, and the water quality BMP used.

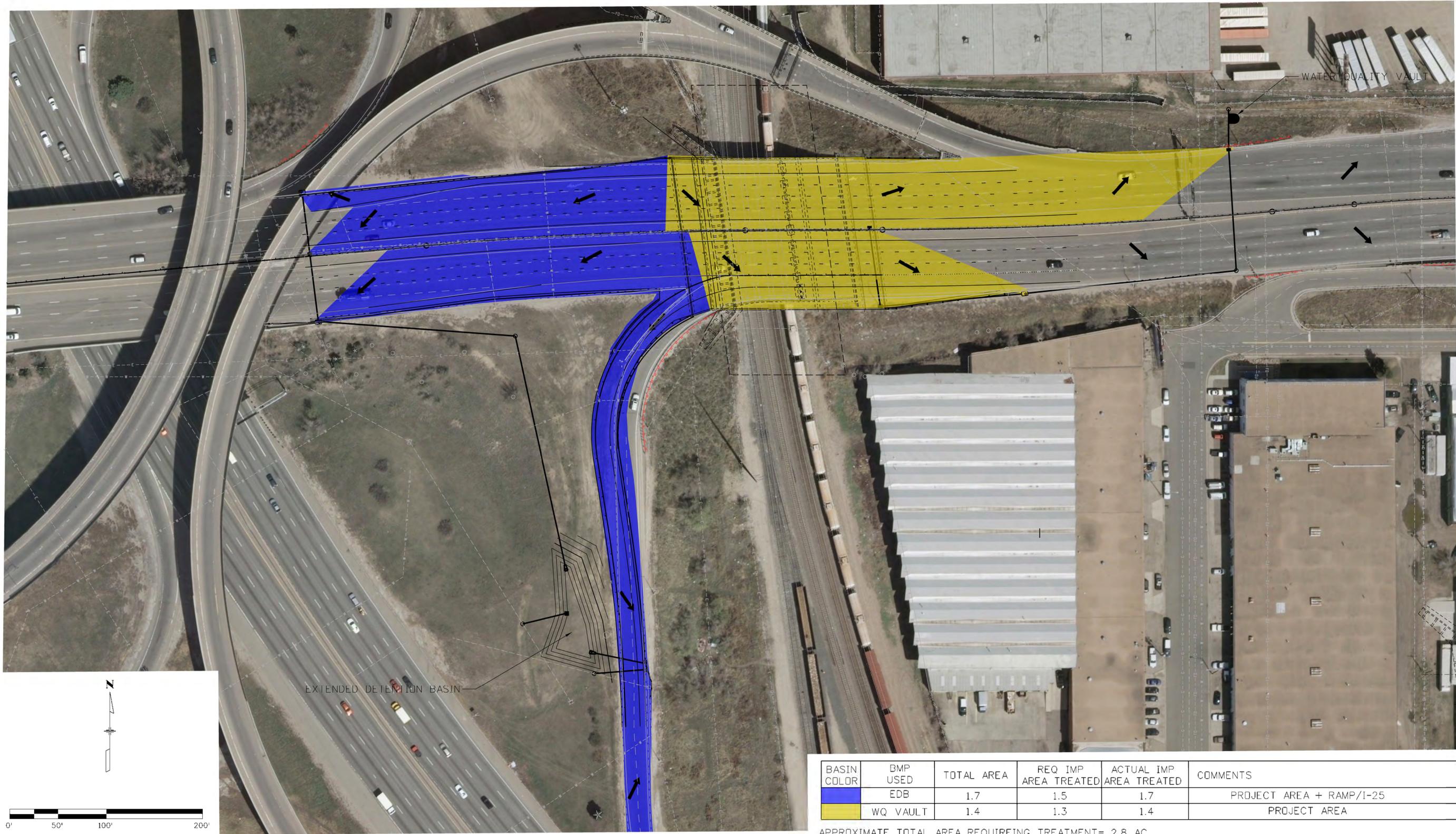
Potential BMP's investigated include rain gardens, extended detention basins (EDB), and water quality vaults. The urban nature of the project and the existing topography will limit the water quality BMP's that may be used.

The area of the project west of the bridge has some open and relatively flat ground to the southwest. The flows generated to the west of the bridge may be conveyed to an extended detention basin in this area. In order to limit the number of EDB's required and to best preserve historic drainage patterns, a special inlet will be used at the offramp inlet and at the last 6th Ave inlet. The inlets will have two outlet pipes. The lower pipe will convey the water quality flows to the EDB. Pipe invert elevations and a restrictor plate will be used to restrict the stormwater entering the pipe. For storms greater than the water quality event, a slightly higher pipe will convey the stormwater flows to the existing outfall.

The east end of the project is very constrained due to the existing roadway, ramps, and slopes. A water quality vault will therefore be used to treat stormwater generated east of the bridge. A preliminary location for the vault is shown in the attached exhibit. Input from maintenance personnel related to accessibility will be required prior to final placement of the vault.

Portions of the project located in CCD right of way may be released without treatment. These areas would include those with no increased impervious areas (veneer improvements only).

The water quality vault will be sized and designed to treat the first 0.5" of rainfall and is currently shown as Continuous Deflection Separation (CDS) units. EDB's will be sized to treat the water quality capture volume (WQCV)



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Horiz. Scale: 1:50 Vert. Scale: As Noted	
Unit Information Unit Leader Initials	

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 425 B Corporate Circle
 Golden, CO 80401
 Phone: 303-972-9112 FAX: 720-497-6951
 Region 6 JRE

As Constructed
No Revisions:
Revised:
Void:

6th AVE OVER BNSF WATER QUALITY CONCEPT			
Designer:	TDS	Structure	
Detailer:		Numbers	
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 1

Project No./Code
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