

MEETING
MEMORANDUM

MULLER ENGINEERING COMPANY, INC.

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Project

Newlin Gulch MDP

Meeting Date

Nov. 19, 2012

Sponsors

UDFCD / Douglas County / Town of Parker

Issue Date

Nov. 28, 2012

Meeting Location

UDFCD

MEC Project No.

12-050.01

Attendees

Shea Thomas, UDFCD
Bill DeGroot, UDFCD
Brad Robenstein, Douglas County
Tom Williams, Town of Parker
Jacob James, Town of Parker
Derek Johns, Muller Engineering Company
Jim Wulliman, Muller Engineering Company
Andy Pultorak, Muller Engineering Company

Minutes Prepared By

Andy Pultorak

Routing

ASP / DDJ / JTW

Purpose

Newlin Gulch MDP Kick-off Meeting

Action Items

All action items are requested to be completed by December 7, 2012 unless otherwise noted.

Muller Action Items:

1. Muller will review the Baldwin Gulch mapping provided by Shea and update the survey request for Baldwin accordingly. Muller will then send the updated request to Shea.
2. Muller will contact Parker Water & Sanitation District (PWSD) to obtain the Reuter-Hess spillway configuration for use in modeling the Reservoir impacts to the downstream watershed.
3. Muller will provide a survey request figure to Shea with survey needs at Challenger Park (Recreation Drive).
4. Muller will coordinate with the sponsors to setup the first progress meeting.
5. Muller will contact Castle Pines to obtain the latest development plans for the upper watershed.
6. Muller will setup the project website and invite the project team to review before posting.

UDFCD Action Items:

1. ~~Shea will provide aerial mapping for Baldwin Gulch to Muller.~~ (Complete)
2. ~~Shea will invite Muller to the project Dropbox folder.~~ (Complete)
3. Shea will provide new 2-foot LiDAR mapping of the Newlin Gulch watershed once processing is complete (should be the week of November 25th).

Douglas County Action Items:

1. Brad (Douglas County) will provide Muller with the LOMR document for the Hess Rd. crossing (LOMR 11-08-0044P).
2. Brad (Douglas County) will provide Muller with drainage reports and as-built plans for the requested developments within the watershed.

Town of Parker Action Items:

1. Jacob will provide Muller with drainage reports and as-built documents for the requested developments within the watershed.
2. ~~Jacob will provide Muller with LOMR documents for the crossings at Lincoln, Jordan, and Chambers (Complete).~~

Discussion

THE FOLLOWING IS OUR UNDERSTANDING OF THE SUBJECT MATTER COVERED IN THIS CONFERENCE. IF THIS DIFFERS WITH YOUR UNDERSTANDING, PLEASE NOTIFY US IMMEDIATELY.

Agenda

1. REVIEW PROJECT APPROACH AND SPONSOR GOALS

- a. Derek introduced the project and stated that the goal was to update the Major Drainageway Plan for the Newlin Gulch watershed based on current and projected land use.
- b. Reuter-Hess Reservoir impacts
 - Derek stated that the construction of the Reuter-Hess Reservoir significantly attenuates the downstream peak flows for major floods. Although the reservoir was not designed for flood storage, the large surface area provides significant storage for major floods. Derek said that evaluations complete by the design engineer for Reuter-Hess indicate that, with the reservoir at full capacity, the 100-year flood event would cause about 0.6-feet of rise in the reservoir. For the 100-year event, the reservoir will not crest the emergency spillway and the downstream peak flow will be reduced to near zero.
 - Derek said that recent infrastructure projects downstream of the dam utilized the reduced peak flow rates in design, resulting in significant cost savings. However, since FEMA does not recognize the reduced flow rate, the map revisions for these projects used the much higher regulatory flow rate. Therefore, these projects showed overtopping where none is likely to occur.
 - Tom said that from a land-use perspective he was in favor of keeping the FIS flow rates intact, since the watershed has already been significantly developed. However, from an infrastructure planning perspective, he saw value in having FEMA adopt the reduced flow rates so that smaller, most cost-effective crossing structures could be built.
 - Jim noted that FEMA would require an adequate assurances agreement to be entered into by Parker Water and Sanitation District (the reservoir operator) before the flood storage could be acknowledged by FEMA. Bill DeGroot said that at Standley Lake the reservoir operator had initially signed an adequate assurances agreement but later started work on a project which would have modified the reservoir operation and put houses in the floodplain. He also pointed out that designing channel crossings to the current FIS flow rate provided a factor of safety against clogging.
 - Muller will evaluate the watershed hydrology with and without the flood storage effects of Reuter-Hess, and present their findings to the team at a future progress meeting. The project team will decide which set of flow rates makes the most sense to publish for this study considering the issues mentioned above.
 - Tom stated that Reuter-Hess had held runoff from large storm events in June and July. The State Engineer's Office required release of this water, which started at 20-30 cfs and increased to a few hundred cfs. This caused noticeable stream degradation in Newlin Gulch immediately downstream. The team expected that the frequency and duration of flow releases from reservoir operations could threaten the stability of Newlin Gulch in the future.

Tom has discussed operations with PWS and would like Reuter-Hess to release at lower flow rates of 20-30 cfs over a longer time period when they have to release runoff. This study will develop recommendations to stabilize the channel and prevent downcutting and erosion.

- c. Muller will make sure that the recommendations of the MDP are consistent with the goal of preserving natural and beneficial stream functions. The team would like to preserve the natural character of the Newlin Gulch floodplain.
- d. As part of the study, the team would like Muller to prepare alternatives to address flood conveyance at the Recreation Drive “Texas” crossing in Challenger Park. The team noted that, despite flood warning devices, this area continued to pose a hazard to motorists. Tom said that one of the challenges at this location is to design a crossing in a manner that does not cause floodplain issues.
- e. The Baldwin Gulch portion of the study will focus on a stability analysis of the spillway for the Soil Conservation Service dam east of Pine Lane. The stability of the Baldwin Gulch channel between the dam and Pine Lane will also be evaluated. Muller will prepare a list of supplemental survey needs for this area (see Action Items).

2. DATA FOR BASELINE HYDROLOGY.

- a. Mapping
 - Muller presented a large scale figure of the Newlin Gulch watershed superimposed on 5-foot topography provided by Douglas County.
 - If necessary, Muller has access to the 2008 DNC LiDAR topo for areas north of Lincoln.
 - Shea thought that the new LiDAR topo she had flown this year for Newlin Gulch might cover the entire watershed.
 - Muller will use the new LiDAR topo provided by Shea (see Action Items) to delineate the basins and sub-basins, and will supplement with the Douglas County 5-foot topo as necessary.
- b. Land Use
 - Shea provided Muller with aerial imagery from 2011 for the watershed.
 - Jacob will provide Muller with updated 2012 aerial photography.
 - Muller obtained zoning maps for Douglas County and Parker.
 - Muller has already obtained some drainage reports and as-built documents for the surrounding developments as part of the adjacent Happy Canyon Creek master plan. Muller will request additional drainage reports and as-builts as necessary (see Action Items).
 - The development plan in Castle Pines (upstream of Reuter-Hess) has changed significantly since the 1994 OSP. Muller will coordinate with Brad Meyering (Castle Pines Metro District) to obtain the latest development plan in this area.
- c. Identify Existing Detention Ponds (regional and publically maintained)
 - With the exception of Reuter-Hess, Derek asked the project team if they were aware of any publically maintained detention ponds within the watershed. The team was not aware of any ponds.
- d. Reuter-Hess Reservoir
 - As part of several design projects within Stonegate Village, Muller had already obtained some documentation regarding the operation of the Reuter-Hess Reservoir. Muller will coordinate with PWS to obtain additional information needed to complete the baseline hydrology (see Action Items).
 - Derek mentioned that in his previous experiences modeling watersheds containing large reservoirs, certain unique challenges arose. Muller plans to model the reservoir full to the normal pool elevation prior to the storm and make the reservoir a sub-basin within the watershed with an imperviousness of 100%. The team agreed with this approach. Derek

stated that some basin characteristics (such as average basin slope) were difficult to estimate for a reservoir. Shea said that she would work with Muller to adjust the Cp factor to create a reasonable time to peak for the reservoir sub-basin.

3. Approach to Baseline Hydrology

Derek summarized the steps for developing the baseline hydrology:

- a. Convert CUHP/SWMM file from 1994 OSP
- b. Update subwatershed boundaries and characteristics (excluding % imperv.)
- c. Calibrate to the existing FEMA flow rates (per 1977 FHAD). The FEMA flow rates are published downstream of Reuter-Hess. Upstream of Reuter-Hess, Muller will compare their peak flow rates to the 1994 OSP, but no calibration is required. Muller will also compare, but not calibrate, their flow rates to those published as part of the recent Cherry Creek FHAD study.
- d. Update % imperviousness values for existing and future land use.
- e. Add eligible publically maintained detention ponds.

4. SUPPLEMENTAL FIELD SURVEY

- a. Newlin Gulch MDP
 - The team discussed the need for supplemental ground survey at road crossings. Parker and Douglas County have LOMR studies for all of the major crossings and will send copies of these studies to Muller. The team decided that no supplemental crossing survey is warranted at this time.
 - Derek mentioned a private drive between Chambers Rd. and Hess Rd. This is a low-water crossing consisting of 18-inch culvert pipes. The team decided that no survey is necessary at this location.
 - Muller will coordinate with Shea to obtain ground survey of the Recreation Drive “Texas” crossing (see Action Items).
- b. Baldwin Gulch
 - Shea has already obtained 2-foot aerial mapping of the SCS dam on Baldwin Gulch as part of a survey effort for another project. Muller will review this survey and determine if additional ground survey is warranted (see Action Items).

5. IDENTIFY AND CONTACT STAKEHOLDERS (WHO AND WHEN)

The team discussed contacting other stakeholders (below). Muller will contact PWSD and Castle Pines initially as part of the baseline hydrology task. At Shea’s recommendation, the team will wait for the completion of the baseline hydrology to involve the other stakeholders in progress meetings.

- a. Parker Water & Sanitation District
- b. Castle Pines
- c. CCBWQA and CDOT

6. PROJECT WEBSITE

- a. The project website will be similar to the website Muller created for the Happy Canyon MDP & FHAD.
- b. The website will contain sponsor logos but not individual contact information.
- c. The website comment form will be setup so that comments are emailed to Muller. Muller will then distribute comments to the project sponsors.
- d. Muller will create a draft version of the website for Shea to review before making it live.

7. PROJECT SCHEDULE.

- a. Derek presented a draft project schedule to the team.
- b. Muller anticipates completing the first draft of the baseline hydrology by early February. Shea thought that this was an appropriate timeframe.

8. OTHER ITEMS AND NEXT MEETING.

- a. The next meeting will be held in January. Muller will coordinate with the sponsors to establish an acceptable meeting time.
- b. There being no other business, the meeting was adjourned.

END OF MINUTES