MEMO

(External Correspondence)

To: Board of Managers
   BRRWD

Date: February 13, 2017

CC: File HEI Project No. 1915-189

From: Erik Jones, P.E.

Subject: Wolverton Creek
         Water Management District
         Charge Determination
         HEI Project No. 1915-189

Introduction
The provisions for the collection of charges under MS 103D.729 gives a Watershed District, through the amendment of its plan or during an update to the Watershed Management Plan (WMP), the authority to establish one or more Water Management Districts (WMD) for the purpose of collecting revenues and paying the costs of projects initiated under sections 103B.231, 103D.601, 103D.605, 103D.611, or 103D.730. The establishment of a WMD requires the description of the methods used to determine the charges. These methods were generally described within the revised WMP adopted by the Board of Managers on June 9, 2010. The methods for the proposed Wolverton Creek Water Management District (Wolverton Creek) are further described and the charges determined using these methods by this Memorandum. A general philosophy for funding project discussion believed to be consistent with the policies established within the WMP is also presented.

The Project
The current project for which a WMD is being considered is the Wolverton Creek Restoration and Sediment Reduction project. The project involves 20 miles of Wolverton Creek channel restoration which would result in the construction of a two-stage channel with expanded vegetative buffers along the length of the stream. The BRRWD has received a permit from the Minnesota Department of Natural Resources (DNR) and the US Army Corps of Engineers (USACOE) for this work. Conditions of the DNR permit for the work require the installation of erosion control in the form of grade control, bufferstrips, and side inlet sediment controls on tributary ditch systems, expansion of the buffers along the Wolverton Creek and the installation of sediment best management practices (BMPs) along the waterway as well. Sediment BMPs would likely involve installation of side inlets along the creek. The DNR permit was granted based on the proposed concept plan for the Wolverton Creek watershed dated 2013.

Opinion of Probable Construction Cost
The Opinion of Probable Cost for the project (referred to as the "project estimated cost") is $10.4 Million. The Opinion of Probable Construction Cost estimated by the District Engineer is $6.6 million. It is anticipated that more than 50 percent of the overall project costs will come from federal, state, and other outside funding sources. Local funding is anticipated to come in part from a Water Management District.

From the 2010 Watershed Management Plan update prescribed by BWSR, WMDs were established at the planning region level. The "Western Planning Region" is the planning region in which the Wolverton Creek subwatershed is located. The WMP presents four concepts for determination of charges within the WMD.

The BRRWD through their WMP has the authority to establish one or more Water Management Districts for the purpose of collecting revenues and paying the costs of projects initiated under sections 103D.601, 103D.605, 103D.611, or 103D.730. To use this funding method, Minnesota law (MS 103D.729) requires that the area to be included in the WMD be described, the amount to be charged identified, the methods used to determine the charges described, and the length of time the WMD is expected to remain in force specified. By update to the WMP, the BRRWD established the seven Planning Regions as the Water Management Districts.
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To establish a Watershed Management District (WMD), an amendment to the WMP or the WMP itself must describe the area to be included in the Water Management District, the amount of the charges, the methods used to determine the charges, and the length of time the WMD will remain in effect. This was accomplished under the plan prescribed by BWSR June After adoption, the amendment or WMP must be filed with the county auditor and county recorder of each county affected by the WMD. The WMD may be dissolved by the procedures prescribed for the establishment of the Water Management District. The maximum WMD revenue limit within each WMD is based on 0.05% of the taxable market value within each planning region. For the Western Planning Region this equates to a value in excess of $300,000. For the sake of this analysis, we have assumed an average annual charge per acre of $1.50 within the Wolverton Creek watershed of the Western Planning Region. Based on this $1.50 per acre charge, $99,595.93 could be raised annually from Wolverton Creek portion of the Western Planning Region. This value of $99,595.93 has been used for the purposes of computing the estimated WMD charges.

Project Funding Approach

At this point, it is anticipated that the BRRWD will look for a package of funding to pay for the Wolverton Creek Restoration and Sediment Reduction project. The BRRWD has applied for various grant funds to defray the local cost of this project and will continue to look at ways to bring funds into the project from non-local sources. In that regard, the BRRWD has been successful in being awarded various grants. In 2016, the BRRWD was awarded a $2.8 Million Target Watershed Clean Water Fund Grant from the MN Board of Water and Soil Resources (BWSR). This grant must be matched with 25% non-state funds. The BRRWD is also the recipient of a $100,000 Enbridge Ecofootprint grant awarded in 2015. Finally, the BRRWD is recommended by the Lessard-Sams Outdoor Heritage Council (LSOHC) for $1.877 million from the Outdoor Heritage Fund (OHF) grant program. The OHF money will become available after July 1, 2017. The BRRWD continues to pursue additional outside funding to defray the local project implementation costs. These include programs through the Natural Resources Conservation Service (NRCS) and the Conservation Reserve Enhancement Program (CREP). The WMD envisioned for this project is looked at as a supplemental stream of funding to match outside funding brought in through grant funds and other programs (such as EQIP, CREP, RIM, WRE, etc.). The exact funding package is not fully known at this time. In the case of natural resource enhancement projects (like the Wolverton Creek Restoration and Sediment Reduction project) from the WMP, a WMD was considered to provide a cost share program for natural resource enhancement projects as either cash or in-kind technical services. The Wolverton Creek project was explicitly named in the WMP. The amount of cost share would be determined on a case by case basis by the Board of Managers.

Determining the WMD Boundary

To establish a Watershed Management District (WMD), an amendment to the WMP or the WMP itself must describe the area to be included in the Water Management District. When the planning region hydrologic boundary crossed a parcel, that portion of the parcel within the hydrologic boundary was included in the WMD. Through discussions with BWSR, the BRRWD will limit the WMD to the portion of the Western Planning region that contributes runoff to Wolverton Creek. In total, this includes about 64,400 acres. Portions of the Western Planning region that do not contribute runoff to Wolverton Creek will not be assessed charges. The lands shown in Figure 1 are those within Western Planning Region within the proposed Wolverton Creek WMD.

Summary of Charge Determination

The WMP laid out four general methods to determine charges for the Water Management District. The methods proposed to establish the charges will be based upon the proportion of the runoff volume and/or solids load contributed by a parcel or may be based on the drainage area of the parcel, within the Water Management District. What is described below is a refinement to the methodology listed in the WMP due to limitations of the available geospatial data.
Modified Combined Runoff and Erosion Method

This method establishes rates based equally on a runoff method and a sediment loading method.

The runoff method uses SSURGO Soils and Land use data (National Land Cover Data - NLCD corrected by review of aerial photography) to calculate a curve number related to the percentage of runoff estimated from a rainfall event (10-year, 24-hour). Preliminary review of the 2011 National Landuse Coverage Dataset (NLCD) showed several discrepancies with actual landuse data based on more recent aerial photography. As mentioned, inconsistencies were found in the most recent 2011 NLCD geospatial data. It is important to note that the base NLCD data is in a raster format with a 30 meter resolution. Depending on the location of smaller parcels or narrow right-of-ways within the 30-meter grid, they may or may not be classified correctly due to the resolution of the data. In addition, the methods (infrared) to develop the landuse data has limitations that can result in an incorrect landuse. For example, some area that was classified as forest has actually been actively tilled the last several years. The geospatial data was manually corrected to reflect actual landuse.

The corrected landuse was consolidated into four use categories: 1. Production Agriculture, 2. Developed Areas, 3. Farmsteads, and 4. Natural Areas (Grassland, Pasture, Gravel Operations, etc.). Figure 2 shows the generalized landuse class in the Wolverton Creek Watershed. The curve number table is provided as a reference at Table 1. The total runoff volume for all the land with the same landuse class was calculated, summed, and then divided by the total number of acres within that landuse class. For each consolidated landuse class, a typical runoff value per area was determined. In other words, from a runoff perspective, an acre of Cultivated Agricultural land was treated the same regardless of location within the contributing watershed.

### Table 1: Pervious CN by Hydrologic Soil Group

<table>
<thead>
<tr>
<th>Land Cover Code</th>
<th>% Impervious</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>A/D</th>
<th>B/D</th>
<th>C/D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed, Low Intensity</td>
<td>35</td>
<td>60</td>
<td>74</td>
<td>82</td>
<td>86</td>
<td>73</td>
<td>80</td>
<td>84</td>
</tr>
<tr>
<td>(Rural Farmsteads)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed, Medium Intensity (City Parcels)</td>
<td>65</td>
<td>77</td>
<td>85</td>
<td>90</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>Natural Areas*</td>
<td>-</td>
<td>30</td>
<td>58</td>
<td>71</td>
<td>78</td>
<td>54</td>
<td>68</td>
<td>75</td>
</tr>
<tr>
<td>Cultivated Crops</td>
<td>-</td>
<td>61</td>
<td>71</td>
<td>78</td>
<td>81</td>
<td>71</td>
<td>76</td>
<td>80</td>
</tr>
</tbody>
</table>

*Includes Gravel Pit Areas
The sediment loading method estimated the amount of sedimentation loading from the landscape based on factors such as land cover, management practice, climate, slope and slope length. Similar to the Runoff Method, a typical sediment loading for each landuse classification was determined by summing the sediment contribution from all of the land area with that landuse and dividing by the total number of acres of that landuse class.

The RUSLE equation was used to determine the sediment loading values. The RUSLE equation has only a few factors that can be changed, most of the physical and climatic properties are fixed. The slope length can change if terracing was used to break the slope into smaller segments. There are no fields in the study that terracing would be effective for so this factor is also considered fixed. Only the cover and practice factor can change over time. Land use or cover changes can be updated, tracked, and updated from the land use data. Supporting practices can change over time, but producers would have to track what practice they are using and the data would need to be updated after significant changes in practice were made. RUSLE values were calculated from a previous study in the BRRWD and the Sediment Mass values were summed for every cell. A LIDAR derived surface is required to calculate the sediment loading, the LIDAR data was used in this analysis. The analysis does not account for erosion and sediment control features installed by landowners as this information is not readily available. Post project, the erosion and sediment control features will be fairly consistent throughout the project area.

The NLCD landuse data limitations that were corrected for the runoff method were also applied to the Sediment Loading Method.

Figure 3 summarizes the charges per acre on a parcel basis. The total annual charges per parcel are summarized as found in the Tables in Exhibit A.

The Water Management District Duration

The BRRWD anticipates that the Water Management Districts will provide funding to assist with the implementation of the Wolverton Creek Restoration and Sediment Reduction project. The Water Management Districts will remain in existence in perpetuity. Annual assessment of charges could vary from no charges to the maximum WMD revenue limit of the planning region.

The primary use of the funds collected from charges within Water Management Districts will support stormwater runof and water quality projects that help achieve the goals of the planning regions which benefit residents within the Western Planning Region Water Management District. This Water Management District will be specific to the establishment and maintenance of the Wolverton Creek watershed project.
The Water Management District Process

The BWSR has provided draft guidance as to the process of creating a WMD. The process involves eight steps. The first two steps are addressed through the revision of the Watershed Management Plan. The remaining steps 3 through 8 must be completed prior to any collection of charges in any WMD. This memo provides the guidance for Steps 3 and 4. The remaining steps 5 through 8 still need to be completed.

**Step 1.** Amend Watershed District Plan to create a water management district.
   Amendment must include:
   - Description of area to be in the water management district
   - The amount to be raised by charges (total amount is necessary if fixed time for water management district to be in force, otherwise annual maximum (cap) amount)
   - The method that will be used to determine the charges
   - The length of time the water management district will be in force (perpetuity is acceptable)

**Step 2.** Approval of Plan amendment under M.S. § 103D.411 or as part of a revised Plan under M.S. § 103D.405.
   - Revised Plan, or petition and amendment, sent to BWSR
   - BWSR gives legal notice, and holds hearing if requested
   - BWSR orders approval or prescribes plan or amendment
   - BWSR notifies WD managers, counties, cities, SWCDs

**Step 3.** Watershed District refines methodology for computing charges.

**Step 4.** Watershed District determines and sets charges for all properties within the water management district, identifying scope of project and deciding method(s) of funding project.

**Step 5.** Watershed District develops collection mechanism.
   - Request County or Counties to collect, or Billing and collection by Watershed District

**Step 6.** Watershed District holds hearing, orders the establishment (implementation) of a project in the water management district, and initiates stormwater utility charges.
   - Projects implemented must be ordered by the managers
   - Order for project must specify funding method(s)
   - Watershed District must notify counties, cities, and towns within the affected area at least 10 days prior to a hearing or decision on projects implemented under this section of statute

**Step 7.** Watershed District establishes a separate fund for proceeds collected from the stormwater utility charges.

**Step 8.** Resolution of Disputes. Local governments may request BWSR to resolve disputes pursuant to M.S. § 103B.101, Subd. 10.

Next Steps and Recommendations

The recommended charge for the Western Planning Region would be the modified combined method as described above based on the simplicity of the methodology, the limitations of the coarse nature of the existing landuse raster data, and relative homogeneity of charges for larger landowners.

The project needs to be established as a Watershed District project.

Finally, the Board would need to complete the remaining steps as laid out above and as established by BWSR.
<table>
<thead>
<tr>
<th>Parcel</th>
<th>Landowner Name</th>
<th>Landowner Address</th>
<th>Section</th>
<th>Township</th>
<th>Range</th>
<th>Legal Description</th>
<th>CR Acres</th>
<th>Impacted Acres</th>
<th>Total Annual Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000.0100</td>
<td>NGUYEN ANH THI AND PETERSON</td>
<td>PO BOX 158</td>
<td>28</td>
<td>137</td>
<td>40</td>
<td>OUTLOT Y, Q, N, E, OUTFUT LEG TRACTS &amp; ROAD, COMSTOCK CITY 2B 137-48</td>
<td>6.6</td>
<td>49.61</td>
<td>18.36</td>
</tr>
<tr>
<td>1.000.0170</td>
<td>NGUYEN JUNG DON</td>
<td>PO BOX 158</td>
<td>28</td>
<td>137</td>
<td>40</td>
<td>PART OF OUTFUT LEG. 48, 48'E OF NE COR OF OUTFUT, L. 280', S. 195', W. 195', N. 195', S. 195', W. 195' &amp; N. 195' TO BDL, COMSTOCK CITY 2B 137-48</td>
<td>4.8</td>
<td>42.42</td>
<td>18.36</td>
</tr>
<tr>
<td>1.000.0100</td>
<td>ROYCE BIRD AND JILL I</td>
<td>2041 137TH AVE S</td>
<td>28</td>
<td>137</td>
<td>40</td>
<td>PART OF OUTLOT LEG. 48, 48'E OF NE COR OF OUTFUT, L. 280', S. 195', W. 195', N. 195', S. 195', W. 195' &amp; N. 195' TO BDL, COMSTOCK CITY 2B 137-48</td>
<td>4.8</td>
<td>42.42</td>
<td>18.36</td>
</tr>
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</table>

Clay County Total = $25,008.16