COON CREEK WATERSHED DISTRICT
PERMIT REVIEW

MEETING DATE: June 10, 2019
AGENDA NUMBER: 19
FILE NUMBER: 19-071
ITEM: 155th Avenue Reconstruction

RECOMMENDATION: Table with 7 Stipulations

APPLICANT: City of Ham Lake
15544 Central Ave NE
Ham Lake, MN 55304

PURPOSE: Upgrade approximately 7,995 feet of 155th Avenue in Ham Lake to a 24-foot wide, 4-foot gravel shoulders

LOCATION: 155th Avenue from Naples Street to Lexington Avenue in Ham Lake, Minnesota
APPLICABILITY:
1. Within 1 mile of an impaired waters.
2. Any work within or adjacent to a Public ditch within the Watershed District.
3. Any work in or adjacent to wetlands, lakes or water courses
4. One or more cumulative acres of land disturbance
5. The lands and waters that have been or may be covered by the regional flood.
6. Activities upstream from land that is dependent upon removal of water from the soil profile for their continued use (Drainage Sensitive Land Uses)
7. Endangered, Threatened or Special concern species, elements or communities

EXHIBITS:
1. Construction Plan set (54 sheets); by RFC Engineering, 1/22/19, received 5/29/19.
2. Stormwater Management Plan; by RFC Engineering, dated 5/29/19, received 5/29/19
3. Existing Drainage Map; by RFC Engineering, dated 4/10/19, received 4/10/19.
4. Proposed Drainage Map; by RFC Engineering, dated 4/10/19, received 4/10/19.
5. Existing HydroCAD Report; by RFC Engineering, dated 5/1/19, received 5/1/19.
8. Natural Heritage Review; by Minnesota DNR, dated 4/24/19, received 5/29/19.
9. MN DNR guidelines for preventing entanglement by Erosion Control Blanket and for protection of Blanding’s Turtles received 5/29/19.
10. Letter from RFC Engineering per the May 13, 2019 comments; received 5/29/19.
**PREVIOUS ACTION TAKEN**: This application was initially submitted on April 10, 2019. The application was incomplete needing 12 items:

1. Receipt of escrows.
2. Provide the size of the graded area for escrow calculation.
3. The applicant must infiltrate the first 1-inch of precipitation off the newly constructed impervious gravel shoulder. The applicant must treat runoff generated by the reconstructed roadway to the maximum extent practicable. If applicants cannot meet the volume management requirement due to site constraints in its entirety, they must meet it to the greatest extent practical and explain why it cannot be met.
4. Provide calculations that illustrate 1-inch infiltration volume requirement is met.
5. Provide updated stormwater management plan that demonstrates how stormwater requirements are met. Include rate control table.
6. Provide Erosion Control Plan that meets District Requirements. Clearly show the location of ESC items on plans:
   a. Show single row of perimeter control around adjacent properties
   b. Show double row of perimeter control adjacent to wetlands and waterbodies.
   c. Show stabilization adequate to prevent erosion at the outlets of all storm sewer pipes.
   d. Show inlet protection for all inlets within construction site.
   e. Take precautions to contain sediment and stabilize work area adjacent to all water resources during construction.
   f. Clearly show construction entrance points on plans.
7. Provide statement whether dewatering will be required for the construction of the proposed project. If yes, provide well-field location, rates, discharge location, schedule and quantities.
8. Provide detail and calculations showing that the stormwater management feature is sized to treat the maximum extent practicable.
9. Include floodplain elevation and existing contours on the Construction Plans. Project area at CD 44-9 has a BFE of 896.7 on the north and 895.5 on the south. Project area from Quincy St NE to Naples has a BFE of 895.8 on the north and 893 on the south. If fill is placed within floodplain provide floodplain fill/compensatory storage calculations.
10. Qualification for the LGRWRP must be obtained or provide a standard wetland replacement plan.
11. Provide proof of purchase for wetland credits.
12. Provide documentation from the DNR if the proposed project includes endangered or threatened species, rare natural communities, colonial waterbird nesting sites, migratory waterfowl concentration areas, deer wintering areas or wildlife travel corridors

FINDINGS:
Pre-application Meeting: The project as submitted has not received a general review during a pre-application meeting.

Ditches: There is a public ditch on the property. The public ditch is County Ditch 44-9 according to the public drainage map. The east part of the project discharges to County Ditch 44-9. There are also roadside ditches that are tributary to County Ditch 11. The west part of the project discharges to the roadside ditches that are tributary to County Ditch 11. The approved/as-built elevations through this property for County Ditch 44-9 are 889.599 ft MSL at the downstream end and 889.625 ft MSL at the upstream end.

The ditch is a 2nd order stream. The ditch serves the primary role of
   a. Storm water conveyance

The ditch serves approximately 80 acres of agricultural land. Land use in the area is toward residential.
There are no flooding concerns upstream and/or downstream.

No modification to the ditch are proposed.

**Ditch Hydraulics:** New or replacement of existing ditch crossing is not proposed.

**Erosion and Sediment Control:** Soils affected by the proposal are Markey, Lino, Isanti, Rifle and Zimmerman.

- The SWPPP plans are at a scale that is difficult to see the proposed erosion and sediment controls.
- Stabilizing vegetation is proposed for disturbed areas within seven (7) days of rough grading.
- Soil stockpiles have been proposed to be fitted with sediment-trapping measures to prevent soil loss and do not have a note to stabilize within seven (7) days of inactivity.
- Adjacent properties and stormwater ponds are protected from sediment deposition. Double row of perimeter control at waterbodies/creeks/wetlands is called out in plans but cannot be seen at the scales provided on the SWPPP.
- Construction schedules detailing when sediment trapping measures will occur; stabilization of earthen structures and the general timing of construction phases have been provided.
- Stabilization adequate to prevent erosion has been provided at the outlets of all storm sewer pipes.
- All storm sewer inlets are protected from sediment-laden water during construction.
- All work adjacent to water or related resource has taken precautions to contain sediment, and stabilize the work area during construction.
- Provisions have been made to minimize transport of sediment (mud) by runoff or vehicle tracking onto the paved surface.
- Provisions have been made for cleaning road surfaces where sediment is transported by the end of the day.
- Construction entrance points are clearly located on the erosion and sediment control plan.
- The erosion and sediment control plan does provide for the repair and maintenance of all temporary and permanent erosion and sediment control practices.
- Details provided for ESC (riprap, perimeter control, concrete washout, inlet protection, etc.)

**Dewatering:** Shallow ground water does exist on site. The project may require dewatering.

**Floodplain:** There is floodplain on the property according to the District model. District’s floodplain elevation is between 893.7 and 896.7 feet. The project does place fill within the floodplain. The total floodplain impact is 0.13 AF. Compensatory storage is not required. There are no flooding concerns upstream or downstream.
**High Water Flooding:** Information to substantiate low floor elevations is not required as no new structures are proposed as part of this project.

**Groundwater:** Geotechnical information collected in August 2017 indicates long term groundwater elevation is present at 5 to 15 feet below the top of the existing roadway.

The project site is not within the Emergency Response Area, 10 Year Well Head Protection Area, or Drinking Water Supply Management Area.

The proposal does not contain a land use discouraged or prohibited by the Safe Drinking Water Supply Act (SDSA).

**Historic Sites:** The proposed project does not include sites of historic or archeological significance.

**Local Planning & Zoning:** The proposed project is consistent with local planning and zoning. There is an approved local water plan.

Property owners affected by changes in drainage have not been notified and acknowledge the changes proposed.

**Maintenance:** No Stormwater Management features are proposed as part of this project; however, new impervious is proposed in the form of 4-foot wide gravel shoulders on each side of 155th Avenue. In addition to the new impervious surfaces, 155th Avenue is reconstructed impervious surfaces. The first 1-inch of precipitation off the newly constructed impervious gravel shoulder must be treated by a Stormwater Management feature. Runoff from the reconstructed roadway must be treated to the maximum extent practicable.

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<tr>
<th>Stormwater Treatment Practices</th>
<th>Number</th>
<th>Inspection &amp; Maintenance Responsibility</th>
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<td>City of Ham Lake</td>
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As a requirement of the City’s MS4 program, the city will inspect and maintain the stormwater facilities.

Easements: The proposed project does not include ditch maintenance easement. A ditch maintenance easement is not required.

**Stormwater & Hydrology:** Drainage boundaries cannot be clearly seen on the drainage area maps provided.

The proposed conditions drainage area model contains 15,707 square feet less total area than the existing conditions model. The proposed conditions model contains 10,904
square feet less impervious area than the existing conditions model. All modeled total areas should match.

The model does not combine the flows to the ditches. All of the flows that discharge to the same location need to be combined into one common node.

Infiltration is allowed within the project area. The 1-inch infiltration is not achieved. Calculations have not been provided that illustrate the 1-inch infiltration volume is achieved below outlet. The plans propose stormwater treatment by filtration through a vegetated buffer but does not provide justification for not including infiltration for the project.

A HydroCAD model was provided to demonstrate runoff for a 1-inch rainfall event and compare the runoff for existing versus proposed conditions. The HydroCAD model uses composite curve number method rather than separate runoff for each curve number. The preferred method to calculate runoff from a 1-inch rainfall event is impervious area times rainfall total.

Drainage sensitive uses do exist downstream from the proposed site. The rate of post-development runoff from the site does exceed predevelopment rates, or rates which would interfere with sensitive downstream land uses. Properties and waterways downstream from the project are not protected from erosion due to increases in the volume, velocity and peak water flow rates of stormwater runoff. Concentrated storm water is discharged into a well-defined natural or man-made off-site receiving channel or pipe. All on-site constructed storm water conveyance channels are constructed to withstand the expected velocity from a 2-year frequency storm without erosion.

**Water Quality:** The proposed project may cause an exceedance of State water quality standards. The project may contribute to the adverse impact of wetlands through inundation or volume of flow. All discharges into wetlands and County Ditch 44-9 are not pretreated by a sediment basin/water quality pond. All work adjacent to wetlands, waterbodies and water conveyance systems are protected from erosion. The proposal may detrimentally affect the existing water quality of the receiving water. The proposal will not cause extreme fluctuations of water levels or temperature changes.

**Impairments:** This project is within one (1) mile of and drains to an Impaired Water. The Impaired Water is Coon Creek. Coon Creek is impaired for Aquatic Life (Macro-invertebrates) and Aquatic Recreation (E. coli). The major stressors are Total Suspended Solids (TSS), Total Phosphorus (TP), and E.coli. There is an EPA approved Total Maximum Daily Load (TMDL) or Waste Load Allocation (WLA) for this water.

There are new impervious surfaces proposed as part of this project.

**Wetlands:** Wetlands do exist on-site according to the 1987 Federal manual, NWI, PWI and Soil Survey. Wetlands have been delineated. The most recent delineation was approved on 10/20/17. The wetland boundary has been checked.
The wetland is not a DNR protected water.

The total proposed wetland impact is 0.06 acres. The impact is through fill in 2 locations as shown below:
The de minimis does not apply to road projects. TEP members have been notified with a complete plan and have been requested to submit comments. The project is not wetland dependent.

The project is not exempt.
The applicant does need to contact the DNR area hydrologist and/or the Corps of Engineers.

Two or more alternatives, plus the proposed project, have been submitted. On-site sequencing does not apply. The avoidance alternatives are considered good faith efforts. None of the avoidance alternatives are considered feasible and prudent.

1. The applicant suggests that avoidance is not reasonable because there is no alternative. No alternative exists because:
   1) The basic purpose of the project cannot reasonably be accomplished at an alternative site, alternative sites are not available, alternative sites are not practical/prudent;
   2) The applicant has made a good faith attempt in pursuing alternatives;
   3) The applicant has demonstrated that the activity will minimize wetland impacts through:
      a. modifying the size, scope, configuration, and density of the project,

**Wetland Replacement Plan:** A wetland replacement plan has not been submitted. and is not required. Mitigation is proposed via the Local Government Road Wetland Replacement Program.

The TEP has not approved the wetland mitigation plan.

**Wildlife:** The proposed project does potentially include endangered or threatened species, rare natural communities, colonial waterbird nesting sites, migratory waterfowl concentration areas, deer wintering areas or wildlife travel corridors. The natural heritage review provided by MN DNR indicates that Blanding’s Turtles have been reported from the vicinity of the project site and may be encountered on the site.

The SWPPP (sheets 27-30) in the plans provides notes to comply with DNR standards for protection of Blanding’s Turtles.

**Performance Escrow:** $5,820
**Wetland Escrow:** $ N/A
There are not ditch liens on the property.

**ISSUES/CONCERNS:**

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<th>ISSUE</th>
<th>NEED</th>
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<tr>
<td>Escrows: $2,000 + (7.64 ac * $500/ac = $5,820</td>
<td>1. Receipt of escrows.</td>
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<tr>
<td>Stormwater &amp; Hydraulics: The drainage area maps cannot be clearly read due to the scale and the low visibility of the drainage boundaries.</td>
<td>2. Drainage and HydroCAD:</td>
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<td></td>
<td>a. Provide drainage area maps with a clear line type or color depicting the tributary area boundaries.</td>
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The model does not combine the individual drainage areas that appear to drain to a common location.

The existing and proposed conditions model areas do not match and the proposed conditions model has less impervious area than the existing conditions model.

HydroCAD calculations are provided to compute the 1-inch runoff. Suitable calculations were not provided to illustrate that the 1-inch volume management requirement is achieved.

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<th>b. Combine the drainage area nodes that all discharge at the same location to accurately depict the peak discharges and total discharge volumes.</th>
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<td>c. Correct the model to have equal areas in the existing and proposed models or provide explanation why drainage areas change. Provide detail showing the existing and proposed impervious areas.</td>
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<td>d. HydroCAD calculations need to model with separate runoff for each CN instead of using composite CN or calculate 1-inch runoff volume with impervious area times 1 inch.</td>
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### Soils & Erosion Control:

Erosion and sediment control Stormwater Pollution Prevention Plan has been provided as sheets 27-30 in the plans. Individual erosion and sediment control elements in the plan cannot be reviewed at the scale provided.

3. Provide Erosion Control Plan that is legible and clearly depicts the proposed erosion and sediment control devices. Ensure that the plan meets District Requirements. Clearly show the location of ESC items on plans:

| a. Show double row of perimeter control adjacent to wetlands and waterbodies. |
| b. Show stabilization adequate to prevent erosion at the outlets of all storm sewer pipes. |
| c. Show inlet protection for all inlets within construction site. |
| d. Show sediment controls in roadside ditches where they discharge into the public ditch. |
| e. Clearly show construction entrance points on plans. |

### Water Quality:

The plans propose a vegetative filter BMP but do not provide evidence that infiltration is not feasible.

4. The applicant must infiltrate the first 1-inch of precipitation off the newly constructed impervious gravel shoulder to the maximum extent.
practicable. If applicants cannot meet the volume management requirement due to site constraints in its entirety, they must meet it to the greatest extent practical and explain why it cannot be met. Possible solutions to provide measurable infiltration and retention, especially in areas with soils that are amenable to infiltration and with adequate separation from the water table, are:

a. Over-excavate ditches on the upstream side of existing culverts to provide stormwater retention and infiltration capacity.
b. Install new culverts above the ditch bottom to provide storage
c. Install ditch checks
d. Install weir walls

**Floodplain:** 5,600 Cubic Yards of floodplain fill will be placed within the CD 11 watershed floodplain. 900 Cubic Yards of floodplain fill, and 4,100 cubic yards of floodplain mitigation, will be provided in the CD 44-9 watershed.

5. Provide an exhibit that clearly depicts the floodplain fill and floodplain mitigation locations and tabulated volumes to verify values provided.

**Wetlands:** Wetland impacts are proposed and have not been concurred with by the TEP. An updated application has been submitted on 5/30/19.

Wetland credits may propose to be purchased to replace the wetland impacts if necessary. The purchase may not be necessary if the project is approved via the LGRWRP.

6. Qualification for the LGRWRP must be obtained or provide a standard wetland replacement plan.

7. Provide proof of purchase for wetland credits or proof that wetland credits have been debited by BWSR via the LGRWRP.

**RECOMMENDATION:** Table with 7 Stipulations

**Stipulations:**

1. Receipt of escrows.
2. Drainage and HydroCAD:
   a. Provide drainage area maps with a clear line type or color depicting the tributary area boundaries.
   b. Combine the drainage area nodes that all discharge at the same location to accurately depict the peak discharges and total discharge volumes.
c. Correct the model to have equal areas in the existing and proposed models. Provide detail showing the existing and proposed impervious areas.

d. HydroCAD calculations need to model with separate runoff for each CN instead of using composite CN or calculate 1-inch runoff volume with impervious area times 1 inch.

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   a. Over-excavate ditches on the upstream side of existing culverts to provide stormwater retention and infiltration capacity.
   b. Install new culverts above the ditch bottom to provide storage
   c. Install ditch checks
   d. Install weir walls

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