

elm creek

Watershed Management Commission

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Project 100 Maple Grove, Project #2020-002

Project Overview: Ryan Companies is proposing to develop 100.6 acres of agricultural land into a mixed-use development consisting of office, medical, hospital, multi-family residential and senior living facilities. This site is situated between I-610 to the north, I-94 to the west and the Maple Grove Hospital to the east. The applicant is looking for approval of a regional stormwater system to address the Commission's requirements on the current and future phases of this development. Additionally, they are requesting grading and erosion control approvals for phase I on the site. Phase I consists of mass grading approximately 35 acres in the SE portion of the site to accommodate streets and utilities, 383 parking stalls for the existing hospital and future building in this area. The Commission will be reviewing the concept plan and regional stormwater design set for stormwater management (Rule D), and buffer strips (Rule I). It will review Phase I site plans for erosion and sediment controls (Rule E).

Applicant and Agent: Ryan Companies US, Inc., Attention Chad Lockwood, 533 South Third Street, Suite 100, Minneapolis, MN, 55415. Phone; 612-492-4204. Email; chad.lockwood@ryancompanies.com.

Exhibits:

- 1) A complete ECWMC application received January 21, 2020.
 - a. ECWMC Request for Review and Approval dated December 16, 2019.
 - b. City of Maple Grove authorization dated January 7, 2020
 - c. Project review fee, \$12,300.00 for 100.6 acres of site work on a commercial/industrial project received January 21, 2020
 - d. Site plan design submittal via email on January 21, 2020.

Project 100 City Submittal Packet including;

- 2) Concept Stage Plans dated December 16, 2019
 - a. Sheet C001, Cover Sheet
 - b. Sheet C100, Concept Existing Conditions and Removal Plan
 - c. Sheet C300, Concept Site Plan,
 - d. Sheet C301, Concept Lot Layout Plan
 - e. Sheet C400, Concept Grading and Drainage Plan,
 - f. Sheet C500 Concept Utility Plan.
- 3) Phase I Improvements dated December 16, 2019
 - a. Sheet C001, Cover Sheet
 - b. Sheet C100, Removal Plan
 - c. Sheet C200, Erosion Control Plan
 - d. Sheets C300 & 301, Site plans
 - e. Sheets C400 to C403, Grading Plans
 - f. Sheets C500 to C502, Utility Plans

- g. Sheets C600 to C602, Civil Details
 - h. Sheets L101 to L103, Landscape Plans.
 - i. Sheet CL500, Landscape Plan Details.
 - j. Sheet E100, Photometric Plan.
- 4) Project 100 Stormwater Management Plan dated December 16, 2019
 - 5) Project 100 Soil Boring Sketch/Logs by Braun Intertec dated April 4, 2019, revised May 5, 2019.
 - 6) MN Health Village Preliminary and Final Plat sheets dated December 13, 2019.
 - 7) Project 100 Alta/NSPS Land Title Survey, 5 of 5 sheets dated May 1, 2019.
 - 8) Project 100 Tree Survey, 3 of 3 sheets dated May 2, 2019, final revision dated June 20, 2019.
 - 9) City submittal information including;
 - a. Owner Authorization Letter
 - b. Cover Letter
 - c. Project Narrative
 - d. Application Fees, City & ECWMC
 - e. Legal Description, Existing,
 - f. Light Fixture Cut Sheets
 - g. Non-residential PUD Application
 - h. T-Zone Impacts

Findings:

- 1) A complete application was received January 21, 2020. The initial decision period deadline per MN Statute 15.99 is March 21, 2020.
- 2) This review will be for;
 - a. Rule D, stormwater management for the complete site area. Specific volume, water quality and water rate controls will be determined per drainage areas based on the stormwater management plan date listed in the exhibits above.
 - b. Rule E, for the Phase I Grading and Erosion Controls.
 - c. Rule I, Wetland Buffer.
- 3) Future ECWMC approvals will be necessary if it triggers the Commission's threshold for review.

Stormwater Management-(Rule D)

- 4) Existing and proposed drainage patterns remain essentially the same. The southerly 4/5 (~80 acres) of this site drains into the DNR protected water course that runs along the westerly side of the project. From there it runs under I-94 at the Maple Grove Parkway bridge before it continues along the ROW area where it enters Rice Lake on the west side of I-94. The northerly 1/5 (~20 acres) of the site runs north into the I-610 ROW where it flows north into the Rush Creek floodplain area in the NE corner of the I-610/I-94 intersection.
- 5) For stormwater management, three (3) biofiltration basins are proposed for the developed areas draining north toward Rush Creek. For the southerly areas, four (4) stormwater ponds and one biofiltration basin are proposed before the water enters the DNR water course running through the site.

Peak Runoff Rate Flow Analysis (100.6-acre area-Regional System);

- 6) Existing condition design information does not appear to adequately represent runoff from this site. The following parameters/items need to be considered in determining existing runoff;
 - a. The NRCS soil survey lists most of the soils on this property as hydrologic groups C and C/D (drained vs undrained). Hydrologic group D was used in the existing design.
 - b. Pre-existing conditions do not provide for any existing ponding on site. Based on the topographic survey, there appears to be ponding that occurs in Subcatchments N-1, NE-1, S1, S2, C4 and C3.
 - c. Runoff curve numbers assumed the existing row crops to be in poor condition. Unless the cropland is extremely abused or very droughty, good condition must be used.
 - d. Time of concentration for Subcatchments C1 and C4 use a lake/reservoir description with a velocity of 8.02 fps through those two wetlands. With the marshy condition with little open water (<25%) this does not seem to be a good representative description for these two reaches.

Runoff Rate Summary*

		2-yr (cfs)	10-yr (cfs)	100-yr (cfs)
North Rush Creek Watershed	Pre-Development Rates*	36.1*	62.8*	109.2*
	Post-Development Rates	6.6	18.6	49.6
South Elm Creek Watershed	Pre-Development Rates*	137.4*	231.2*	429.2*
	Post-Development Rates	26.8	54.4	136.0

* Note item 6 above

Abstraction Analysis (100.6-acre area-Regional System);

- 7) Based on the soil borings, approximately 1/2 of the soil borings have 3' or more of a coarser soil classification within their logs. The present assumptions are that infiltration as part of the abstraction credits is not feasible. It appears that infiltration may be a feasible alternative on portions of this site with coarser soils in their profiles. Specifically log numbers 9 and 10 for basins 5 and 6; logs 28, 29 and 30 on basins 7 and 1; and logs 42, 44 and 45 on basins 2 and 3. Appropriate testing should be pursued to rule out infiltration for abstraction.
- 8) Overall impervious areas will be 65% of the site area. Impervious areas draining into the Rush Creek Watershed will be 15.71 acres. Impervious areas draining into the Elm Creek Watershed will be 49.9 acres. For 1.1" of runoff from impervious surfaces, the total abstraction volume stored on this site must be 6.0179-acre feet or 261,981 cubic feet.
- 9) Total filtered abstraction provided will be 7.34-acre feet or 319,885 cubic feet. A breakdown of the proposed abstraction volumes per pond/basin are as follows;

- a. Stormwater Pond 1 111,350 cu. ft. proposed, 91,900 cu. ft. required.
 - b. Stormwater Pond 2 19,400 cu. ft. proposed, 17,400 cu. ft. requires.
 - c. Stormwater Pond 3 45,500 cu. ft. proposed, 44,400 cu. ft. required.
 - d. Biofiltration Area 4 26,735 cu. ft. proposed, 21,400 cu. ft. requires.
 - e. Biofiltration Area 5 24,600 cu. ft. proposed, 20,200 cu. ft. required.
 - f. Biofiltration Area 6 27,600 cu. ft. proposed, 21,200 cu. ft. required.
 - g. Stormwater Pond 7 47,900 cu. ft. proposed, 31,400 cu. ft. required.
 - h. Biofiltration Area 8 16,800 cu. ft. proposed, 14,500 cu. ft. required.
- 10) Skimmer outlets must be provided on the ponds and filter basins
- 11) Surface areas for exfiltration and drawdown times on ponding areas 1, 2, 3, and 7 can only utilize the area of the sand filter bench itself. The stormwater reports accounts for the complete surface area of the pond at the NWL. Example; Pond 1 would be 1000' x 10' bench width, or 10,000 sq. ft., not 45,079 sq. ft. as shown in the report. At 1.6" drawdown rate/hr. over 10,000 sq. ft. = only 64,000 cu ft in 48 hours. Drawdown will not occur within 48 hours. The stormwater report analyzes the biofiltration basins correctly.
- 12) No slopes are provided for with the drain tile pipes in the bench or filtration areas. Recommended minimum slope is 0.5%.
- 13) Assumptions for 1.6" exfiltration over the surface areas of the basins appear high for these underdrains. We recommend a more conservative figure of 1.0" exfiltration over the surface areas to better represent the head loss over time as the basins are drawing down.
- 14) Forebays at the inlets to all biofiltration basins are provided. Forebay volumes will be 10% of the total volume required for abstraction.
- Water Quality Analysis (100.6-acre area-Regional System)
- 15) Phosphorus and suspended sediment loads were analyzed using the MPCA MIDS calculator.
- a. ECWMC analysis of pre-existing conditions
 - i. $T_p=58.8$ lbs./year
 - ii. TSS= 7382 lbs./year
 - b. Applicant analysis of post-development conditions;
 - i. $T_p=39.1$ lbs./year
 - ii. TSS= 3019 lbs./year
- 16) BMP parameters for the MIDS model were not provided with the stormwater report. The actual MIDS model or the parameters for the BMP inputs are necessary for our complete review.
- 17) Mean average depth (Cumulative volume/surface area at NWL) of storm ponds must be 4.0 or deeper. Pond 1 = 2.3', Pond 2=1.7', pond 3=2.13' and pond 7=2.4'.

Water Quality Summary

Condition (based on 4.4 acres)	TP Load (lbs/yr)	TSS Load (lbs/yr)	Filtration (cu. ft.)	Annual Volume (ac. ft.)
Pre-development (baseline)	58.8	7,382	N/A	49.80
Post-development without BMPs	122.11	22,171	261,981	149.55
Post-development with BMPs	39.1	3,019	319,855	127.35
Net Change	-19.7	-4,363	-57,874	+77.56

Floodplain/Stream Crossing (Rules F & H)

- 18) There are no FEMA or ECWMC floodplains within this development.
- 19) When the access road to west side of the DNR protected watercourse is constructed, approval from the ECWMC will be required. HydroCAD analysis is available on this stream corridor from the UBOL94 project (EC#2019-005)

Wetlands/Buffers (Rules G & I)

- 20) One wetland (0.09 acres) is proposed to be impacted from the Phase I work. The City of Maple Grove is the LGU in charge of administering the MN WCA for this site. No notice of application or decision has been received as of this review.
- 21) Wetland and watercourse buffers must average 25 feet wide and be at least 10' wide at the narrowest point.
 - a. Buffers for phase I site plan wetlands meet the Commission's requirements.
 - b. Buffers for phase I site plan watercourse do not meet the Commission's requirements.
- 22) Wetland buffer areas that are not covered by existing permanent vegetation must be seeded into native vegetation. A native vegetation seeding plan must be provided for these areas on the site plans.
- 23) Wetlands and buffer areas must be covered by drainage and utility easements.
- 24) Note, future concept plans show extensive grading within the wetland buffer areas. Where grading occurs in buffers, any slope steeper than 6:1 must add 5 feet to the buffer for each 1-foot decrease horizontally (i.e. 5:1 slope = 30', 4:1=35')

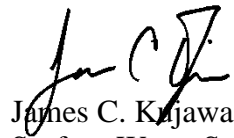
Grading, Erosion and Sediment Control Plans (Rule E)

- 25) No SWPPP plan was submitted with the project. A SWPPP or similar plan is necessary for the Commission's review. At a minimum, the following items should be included on the SWPPP plan.
 - a. The storm sewer mounding to pond 1 will create a dam to about 3.5-4.0 acres that drain towards it from the north. A temporary drainage plan should be accounted for at that dam.
 - b. Erosion control blankets must be provided on slopes steeper than 4:1.
 - c. Double silt fence is required around existing wetlands in proximity to construction activities.
 - d. Locations of the ditch blocks or bio-rolls to prevent channel erosion must be provided.

- e. If the permanent ponding basins are to be utilized as temporary ponds during construction, this must be noted on the plans. Additionally, a separate sequencing plan must be developed on these temporary basins keeping in mind;
 - i. There are to build as a sediment control BMP
 - ii. Timing of their construction and restoration during and after construction work.
 - iii. Temporary diversion of water into them during construction
 - iv. Temporary outlets during construction.
- f. All areas outside of the construction limits must be seeded down to a pasture mix or similar long term permanent vegetative cover. If this is not done, additional silt fence around the wetlands and water course will be necessary.

Recommendation: None currently.

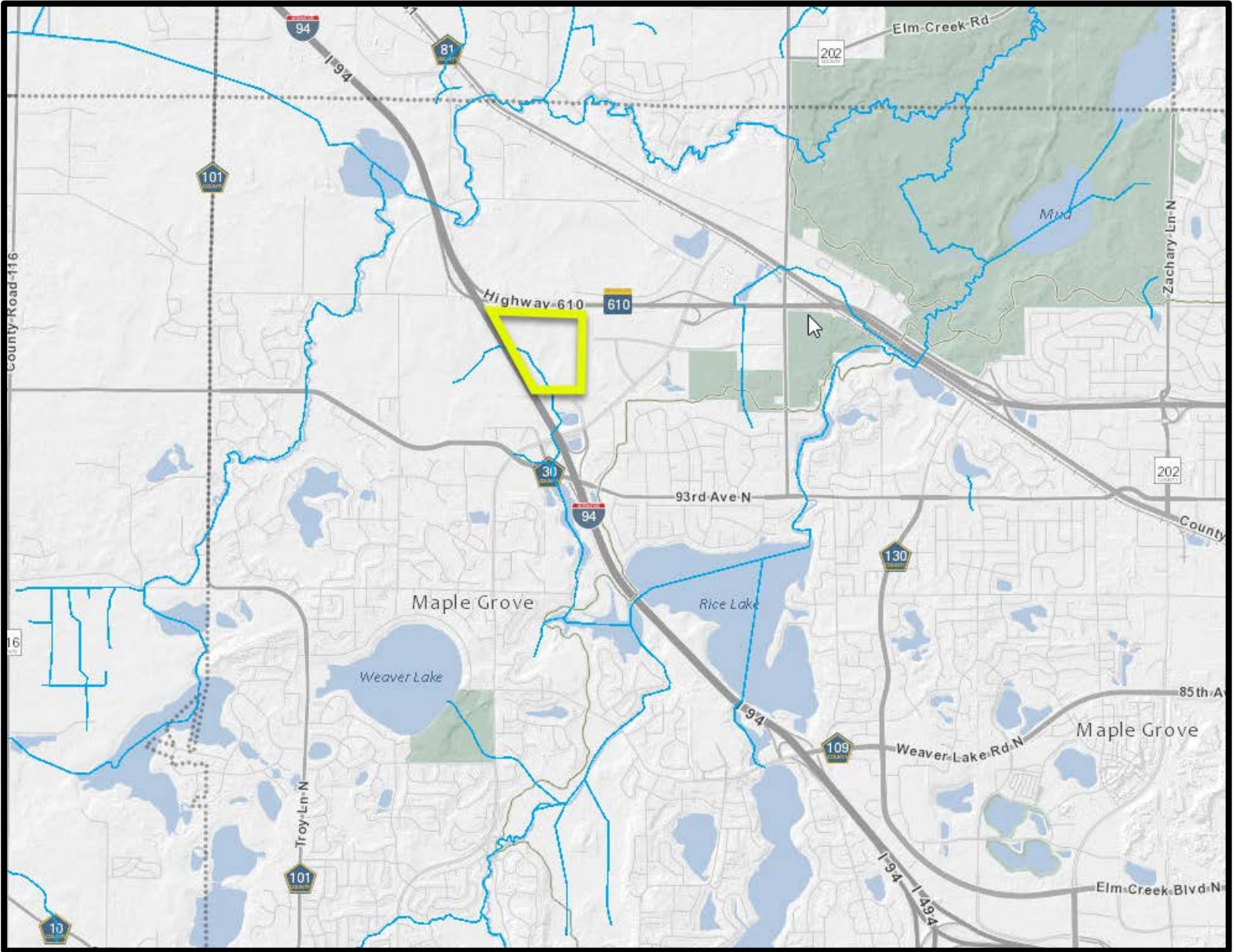
Technical Advisor



James C. Kujawa
Surface Water Solutions LLC

February 7, 2020
Date

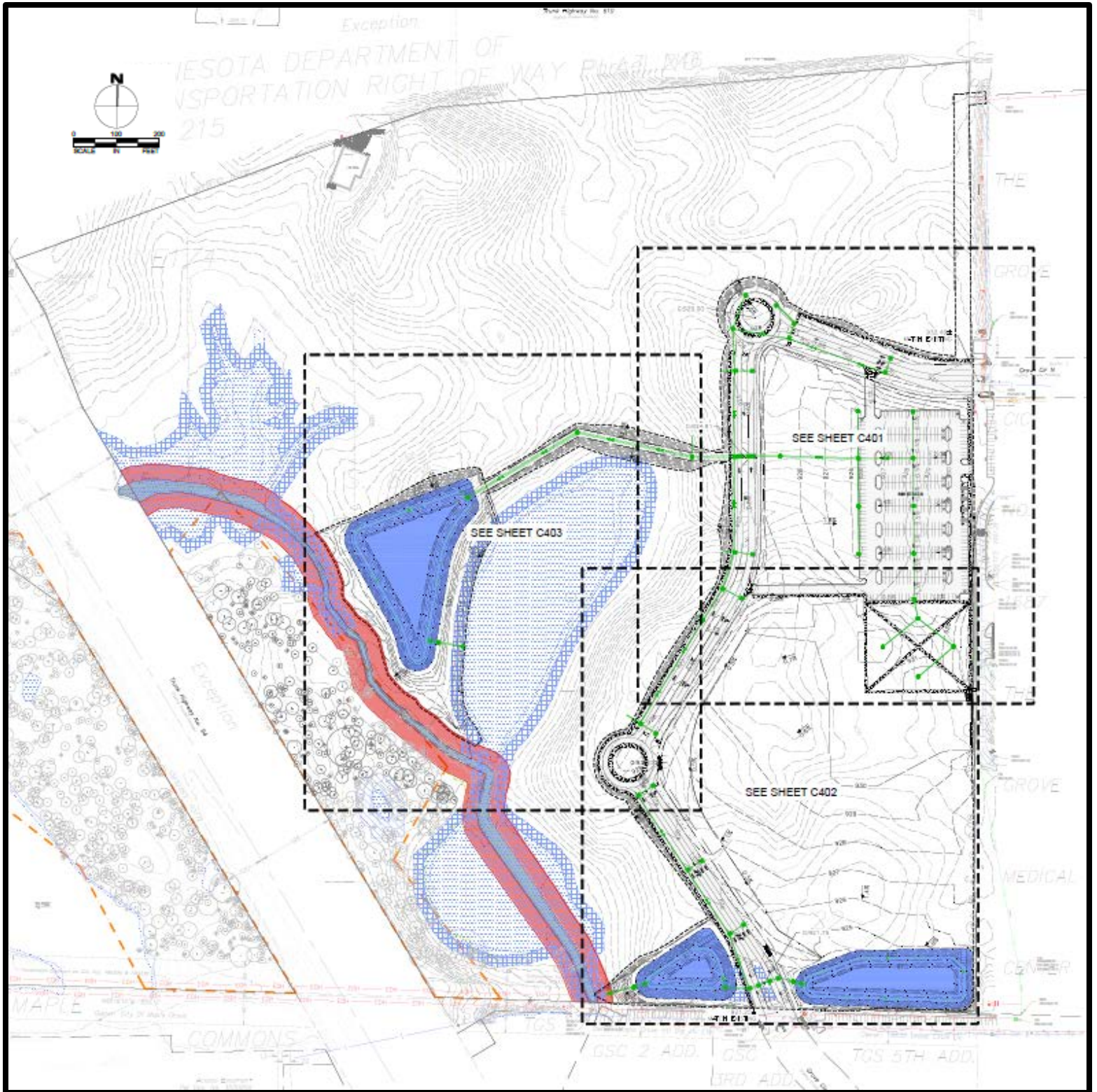
Location Map



2018 Aerial Photograph



Phase I Grading



From: Johnson, Brian <Brian.Johnson@metc.state.mn.us>

Sent: Friday, February 07, 2020 3:56 PM

To: Judie Anderson <Judie@jass.biz> Diane Spector - Shingle Creek Watershed Management Commission (dspector@wenck.com) <dspector@wenck.com>;

Subject: Request for CAMP Participation 2020

Hello Sponsors of the Citizen Assisted Monitoring Program:

Spring is right around the corner and that calls for planning for the 2020 CAMP monitoring season. If your organization plans to participate this year in the CAMP, and we hope you do, please send me a list of lakes that your organization plans to enroll. Please include the DNR ID#, the frequency of monitoring, and the quantity of new monitoring kits (if you need them). Also, please tell me if you plan to have new volunteers this year. Please forward me your list of lakes by Thursday, March 12th, so we can have agreements executed before the monitoring season begins in mid-April.

The first week of monitoring is scheduled for Monday, April 13 through Sunday, April 19. A 2020 monitoring schedule is attached.

If you have any questions, please let me know. I look forward to hearing from you.

Best Wishes,



Brian Johnson

Senior Environmental Scientist | Water Resources

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2020 MONITORING SCHEDULE

Citizen-Assisted Monitoring Program

Week 1: April 13 – April 19

Week 2: April 27 – May 3

Week 3: May 11 – May 17

Week 4: May 25 – May 31

Week 5: June 8 – June 14

Pick-up Round #1: June 15 – 19

Week 6: June 22 – June 28

Week 7: July 6 – July 12

Week 8: July 20 – July 26

Week 9: August 3 – August 9

Pick-up Round #2: August 10 – 14

Week 10: August 17 – August 23

Week 11: August 31 – September 6

Week 12: September 14 – September 20

Week 13: September 28 – October 4

Week 14: October 12 – October 18

Pick-up Round #3: October 19 – 23



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